Seattle 2013 Climate Action Plan

Progress Report 2013-2025

Seattle
Office of Sustainability
& Environment

One Seattle
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Letter from the OSE Director

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Working Together for
a Resilient Future

September 17, 2025

Seattle has always been a city that leads with bold ideas and shared commitment. As we evaluate our progress under the 2013 Climate Action Plan, we're proud of the actions our community has taken to date and we are energized for the challenges ahead of us.

Seattle's 2013 Plan provided a coordinated strategy for preparing for climate change and reaching our goal of being carbon neutral by 2050. Under the 2013 Plan, we achieved major milestones that will benefit our city for generations to come, such as:

- Buildings across the city are becoming more energy efficient and more households are transitioning away from fossil fuels due to stronger codes, incentive programs, and forward-thinking policies. These efforts not only reduce emissions but also help to make our buildings more climate resilient as they use heat pump technology to provide cooling and air filtration.
- Transit ridership and infrastructure are increasing and vehicles are becoming more efficient. New more efficient housing units in urban centers and villages are providing zero pollution transportation opportunities for hundreds of thousands of Seattleites.
- Seattle is leading the nation in efforts to reduce waste from food and construction.
- Significant investments to prevent flooding and sea level rise in the Duwamish Valley are helping one of our most impacted communities begin to adapt to the climate damage we are already seeing.

These successes reflect years of hard work across City departments and in deep collaboration with communities, businesses, and regional partners. Over the last decade, we've worked to lay a foundation for an equitable and resilient Seattle.

At the same time, citywide emissions have only dropped 12% since the baseline measurement in 2008, far short of the pace needed to reach our climate goal of being net zero by 2050. We are also now experiencing more severe storms, wildfire smoke, and scorching hot days, compared to when the 2013 Plan was created. This report highlights some of the barriers, such as high implementation costs, enforcement challenges, and lack of market demand, that have constrained our ability to act faster or go further to meet the scale of the climate crisis.

Overall, Seattle has completed or made meaningful progress on 88 of 148 actions of varying scale and impact from the plan in addition to making significant progress on actions outside of the plan. The One Seattle Climate Action Plan in 2026 will introduce solutions and build on past progress by scaling the most impactful actions, center climate justice, and push for the transformative changes our future demands.

With innovation and continued partnership, we are working to meet this moment together.

Michelle Caulfield

Interim Director, Seattle Office of Sustainability & Environment

City of Seattle

Executive Summary

Seattle's 2013 Climate Action Plan (2013 Plan) created a coordinated strategy to prepare for climate change and become carbon neutral by 2050. The 2013 Plan focused on City of Seattle (the City) actions that reduce greenhouse gas (GHG) emissions and supported other community goals, including:

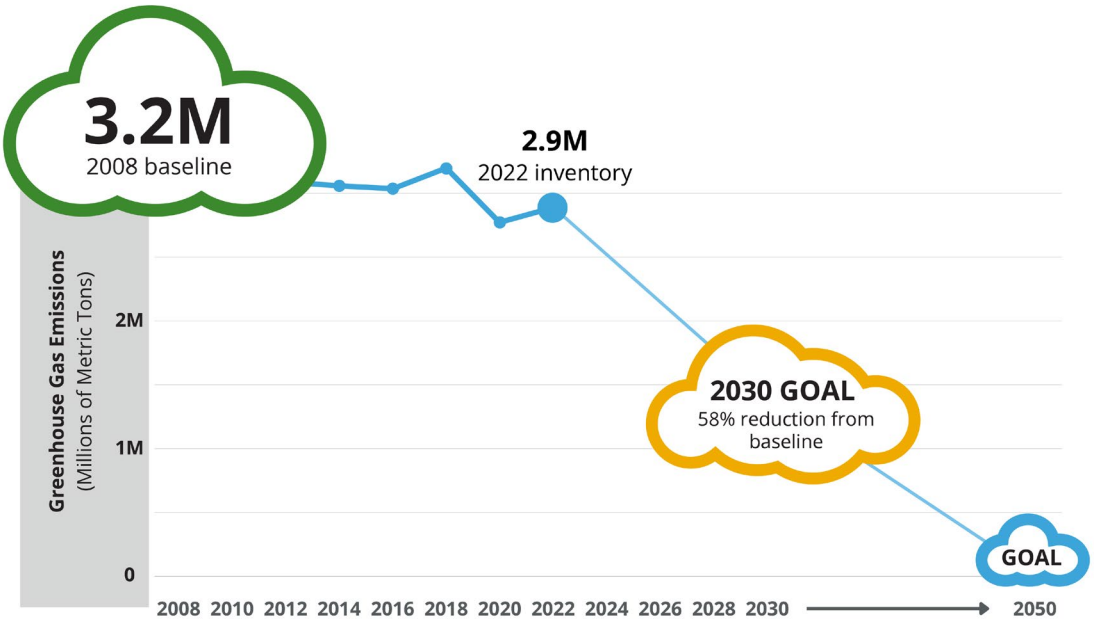
- Building vibrant neighborhoods
- Fostering economic prosperity
- Prioritizing racial and social equity

The plan organized actions into four areas where City action would have the greatest impact, including: Transportation and Land Use, Building Energy, Waste, and Preparing for Climate Change. The 2013 Plan also included indicators intended to track progress towards climate goal outcomes to be achieved by 2030, including:

- Cut passenger vehicle emissions by 82%
- Reduce building energy emissions by 39%
- Lower overall city emissions by 64%

Overall, the 2013 Plan had 148 climate actions: 51 Transportation and Land Use actions, 41 Building Energy actions, 29 Waste actions, and 27 Preparing for Climate Change actions.

Seattle's Emissions Reduction Goals



Note: *Greenhouse gas emissions are measured in Metric Tons or Megagrams of CO2e (carbon dioxide equivalent).*

Data in this visual was developed in 2022 for OSE's 2022 Community Greenhouse Gas Emissions Inventory.

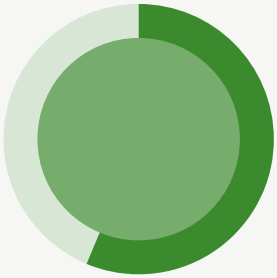
Purpose of the Report

This report provides a progress update toward achieving the 2013 Plan's goals, actions, and metrics. This report also provides a foundation to consider new ideas, refine existing actions, and remove outdated or accomplished efforts as part of the One Seattle Climate Action Plan update in 2026. This report further identifies notable climate actions Seattle has accomplished both within and outside of the 2013 Plan and through staff innovation, partnerships, and City leadership on initiatives beyond the plan.

Key Areas of Progress

Over the last 12 years, Seattle has continued to be one of the most dynamic and inclusive cities in the United States. Since 2012, the city's population has grown by 30%, driven in large part by strong job growth and in-migration. Between 2010 and 2020, Seattle gained nearly 176,000 net new jobs.

Even with a growing population and the increased building stock, transportation, and energy demands that population growth brings, Seattle has completed or made significant progress on 88 of 148 actions in the 2013 Plan. However, not all actions were equal in scope or impact. Some were smaller, some were foundational, while others carried much greater weight for reducing emissions. Completion rates alone do not fully reflect progress towards the City's climate goals.

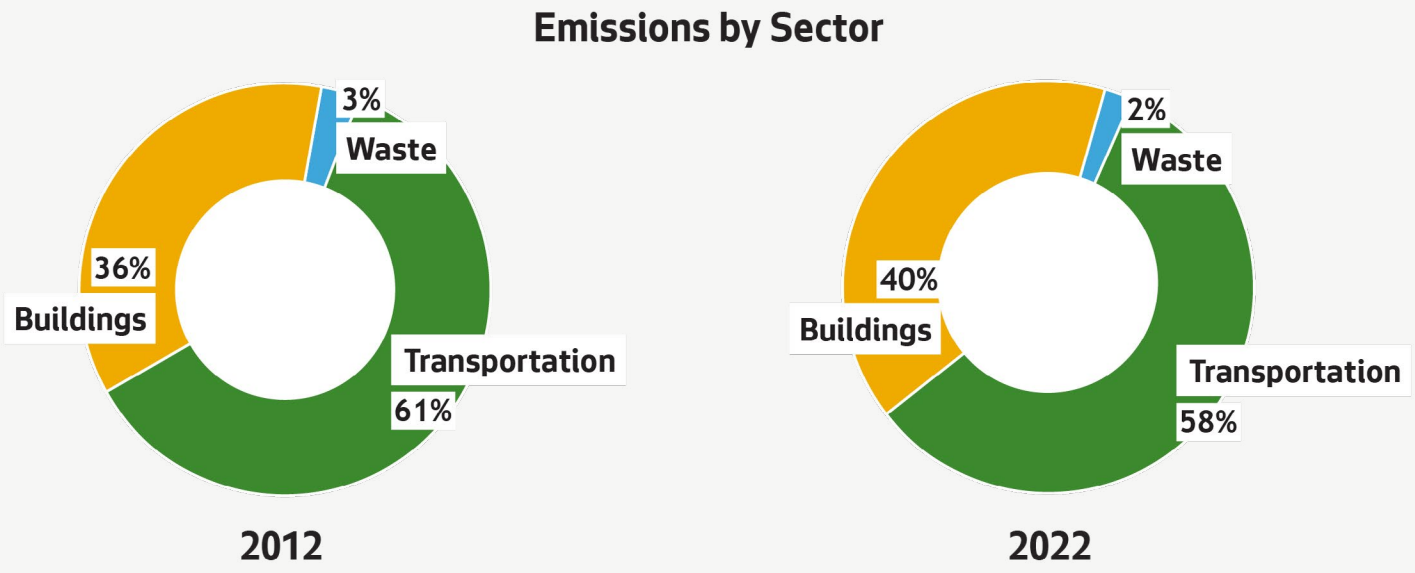


88 of 148 Actions
Significant Progress or Completion

The City was most successful in increasing opportunities for low GHG emission transportation trips, developing codes and policies that reduce building and transportation emissions, decreasing food and building material waste, collecting important climate-related data, and expanding programs for building energy efficiency, weatherization, and electrification.

This progress report is mainly focused on how successful the City has been at implementing 2013 Plan actions. It also captures notable climate actions undertaken outside of the 2013 Plan in response to shifting contexts and strategic opportunities. Taken together, Seattle's climate actions showcase meaningful progress but have not put us on a trajectory to hit our 2030 climate targets. Bolder and more impactful action is needed.

A majority of the successful actions were either transportation and land use actions or building energy actions that address the two sectors most responsible for Seattle's core GHG emissions[1]. In 2012, transportation was responsible for 61% of Seattle's core emissions, buildings for 36%, and waste for 3%. As of 2022, transportation is responsible for 58% of Seattle's core emissions, buildings for 40%, and waste for 2%. The increase in building's proportion reflects the overall growth of the city and construction booms. Also, most indicators measuring emissions in the key sectors had good, consistent data collected.



1 Core emissions as defined in Seattle's GHG Emissions Inventory include the transportation, buildings, and waste sectors as well as GHG offsets. Core emissions sources are those the City can most directly and significantly impact.

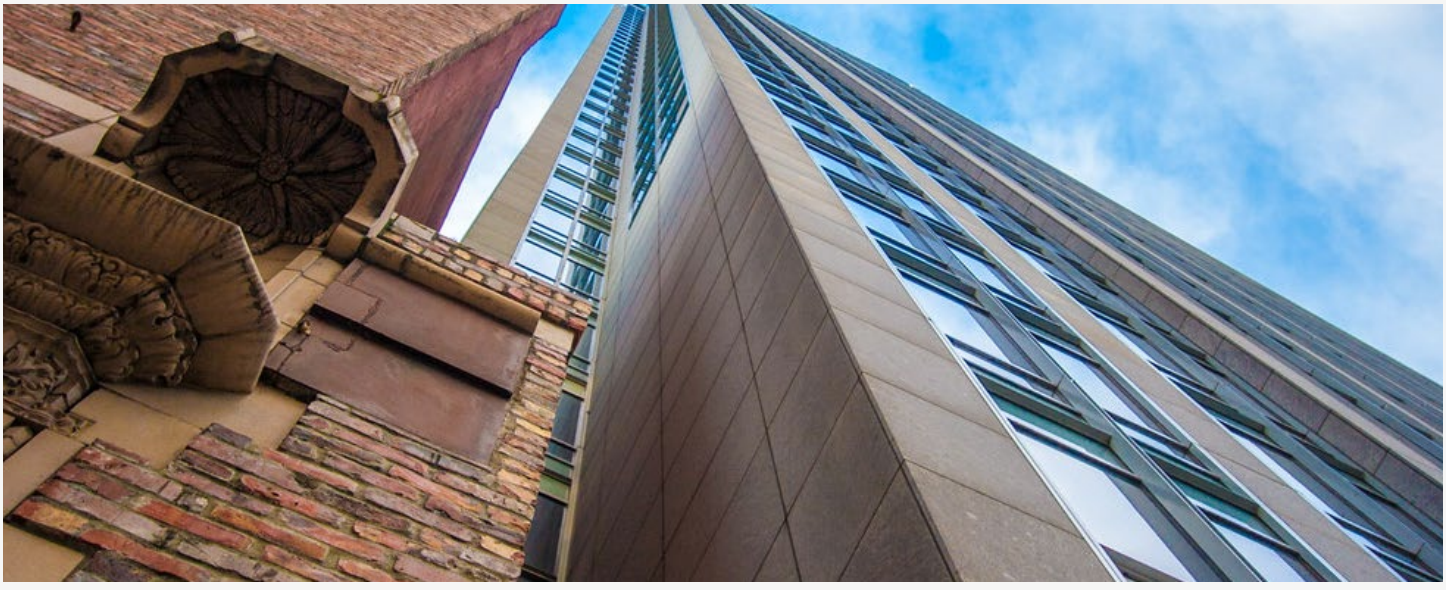


Photo: Office of Sustainability and Environment.

Notable Successes

Transportation & Land Use

Key Stats

Significant progress or completion on 38 of 51 actions

Overall transportation emissions reduction of 14% from 2008 to 2022, or 32% per capita

Notable Success from the 2013 Plan

High-capacity transit expansion: Since 2013, the City, in partnership with King County Metro and Sound Transit, supported the development of five Rapid Ride bus routes (6 by 2027) and five Link light rail stations (7 by 2026).

60,610 new housing units in Urban Centers and Villages: Coordinated land use and transportation planning has increased opportunities for hundreds of thousands of households to have low GHG emission trips via transit, walking, or biking.

Additional Successes

Climate Change Response Framework: A 2023 Seattle plan that set out a framework of how to achieve significant transportation changes in how people travel by 2030.

First all-electric bus in Amtrak's national network: In 2023, a partnership between the City, WSDOT, MTRWestern, and Amtrak launched the first all-electric bus in Amtrak's national network, connecting Seattle and Bellingham and eliminating 109 metric tons of CO2 emissions annually.

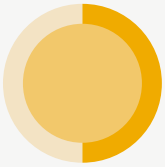
Washington's first electric van share program: The launch of Washington state's first-ever electric ADA-accessible van share was made possible by a partnership between the non-profit consumer cooperative ZEV co-op, justice-focused community bookstore Estelita's Library, and the City. A Level 2 EV charging station in the Central District supports the new van share program, providing charging access in this historically underrepresented neighborhood.

Battery electric medium- and heavy-duty charging strategy: The City worked with the International Council on Clean Transportation (ICCT) to adapt a national study on medium and heavy electric vehicle (MHD) implementation to Seattle.

Transportation electrification: Built 85 City-owned and -operated public charging stations at 41 locations and directly supported the deployment of 905 electric vehicle chargers.

Building Energy

Key Stats



Significant progress or completion on 21 of 41 actions

Overall building sector emissions reduction of 6% from 2008 to 2022, or 26% per capita

Notable Success from the 2013 Plan

Improvements to Seattle energy code: Over three code update cycles, from 2015 to 2021, the City progressively improved the City's energy code to ensure new and significantly renovated buildings meet a high energy efficiency standard.

Reducing emissions in existing buildings: Since 2017, the City has helped more than 2,000 households convert from expensive heating oil to clean, energy-efficient heat pumps and the City is on-track to eliminate heating oil in Seattle by 2030. The City also passed a Building Emissions Performance Standard law in 2024 that will reduce building sector emissions 27% by 2050.

Additional Successes

City Light Building Electrification Strategy: Sets up a strategy to support buildings that want to or are mandated to electrify in Seattle.

Municipal Buildings Decarbonization Plan: Charts the path toward eliminating fossil fuels from municipal buildings. To date, 23 of 176 City buildings using fossil fuel systems and equipment have already been fully decarbonized.

Transportation Electrification Infrastructure Master Plan: Prepares for growing EV adoption by streamlining the process of installing EV charging infrastructure.

Waste

Key Stats

Significant progress or completion on 12 of 29 actions

Overall waste sector emissions reduction of 31% from 2008 to 2022, or 45% per capita

Notable Success from the 2013 Plan

Compost Legislation: In 2015, the City banned food and compostable paper from landfill disposal, a landmark policy that put Seattle ahead of most U.S. cities in encouraging composting.

Extended Producer Responsibility for waste: Sustained advocacy and collaboration from the City led to the state's passage of the Recycling Reform Act in 2025, which makes producers of packaging and paper products responsible for reducing waste and increasing recycling and reuse.

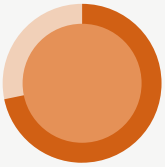
Additional Successes

Solid Waste Plan update: Reflects on progress made from 2011 to 2022 and guides Seattle's ongoing and future direction for solid waste management.

Residential waste collection containers. Photo: Seattle Public Utilities.

Preparing for Climate Change

Key Stats



Significant progress or completion on 17 of 24 actions

Advanced climate data collection on heat, flooding, and infrastructure to strengthen preparedness for climate change impacts

Notable Success from the 2013 Plan

Duwamish Valley flood protection: The City invested tens of millions of dollars of capital investments in the lower Duwamish Valley to help prevent flooding and to plan for sea level rise.

Extensive climate data collection: Seattle has made significant progress in evaluating, monitoring, and planning for heat, precipitation, wildfire, and flooding impacts on electric resources, drainage systems, water supply systems, and other key infrastructure, helping the city better prepare for climate change impacts.

Water management: Significant investments in protecting long-term water supply and building infrastructure to help protect against the impacts of climate-related flooding and sea level rise.

Food Systems: Since 2013, Seattle has expanded community gardens, advanced food justice, and strengthened worker protections. Programs like Fresh Bucks and the Food Equity Fund have boosted local health, equity, and sustainability in the food system.

Urban Forestry: Seattle has made strong progress toward its 30% tree canopy goal, growing coverage from 23% in 2007 to 28.1% in 2021. This success is driven by the Green Seattle Partnership's expansion of restoration efforts, planting of hundreds of thousands of native trees, and deepened community engagement.

Additional Successes

Equity & Environment Agenda: The first city-led effort in the nation to establish a racially equitable framework for Seattle's environmental work. It created a formal Environmental Justice Committee in 2017, to ensure community leadership and launched the Environmental Justice Fund in 2018, awarding over $2.6 million to 43 community-led climate projects in its first five years.

One Seattle Climate Portal: An interactive web tool that measures climate indicators and metrics, and brings visibility at the neighborhood-scale.

Challenges

Although Seattle has completed or made significant progress on 88 of 148 actions in the 2013 Plan and put into practice a number of additional climate actions not covered in the 2013 Plan, the city is not on track to meet its climate goals. As of 2022, vehicle emissions have only decreased 14.4% and building emissions 6.1% since the 2008 baseline. Citywide emissions have only decreased 12% over the same timeframe, even though emissions per resident were reduced by around 30%. Seattle is not on track to reach its target of a 58% reduction by 2030.

Actions that were challenging often had similar barriers for implementation. These included: lack of jurisdictional control, high cost or challenging financing, improved compliance needed, differing priorities, and limited market demand.

Though Seattle regularly collects and reports emissions data for the transportation, buildings, and waste sectors, several other indicators identified in the 2013 Plan either had inconsistently measured data or data that wasn't measured at the right scale or geography. These gaps limited the City's ability to assess progress and highlight the need for more consistent, comprehensive, and appropriately-scaled data collection.

Families travel by bike and on foot through a Seattle neighborhood greenway. Photo: Seattle Department of Transportation.

Looking Forward

Not every city experienced Seattle's rate of population growth and the increased building stock, transportation, and energy demands that population growth brings. As the City begins the One Seattle Climate Action Plan update, ensuring a scale of implementation large enough to reach emission reduction goals and increase community resilience will be challenging. Yet these challenges also present opportunities.

A growing population required the City to develop strategies that both accommodated growth and managed rising energy demands, while still making progress toward the 2013 Plan's emission reduction goals. These rising energy demands also posed and will pose challenges for the electric grid, which must be modernized and scaled to meet increasing peak loads and support electrification of transportation and buildings. Population growth and the resulting increases in buildings, transportation, and energy use partly explain why emissions remained higher than they would have been without those changes. At the same time, the implementation of 2013 Plan actions, and the scale at which they were carried out, played a significant role in driving emissions reductions and strengthening community resiliency.

Seattle needs more and faster climate action, including stronger strategies to prepare for climate change, growing a future climate economy, and advancing public health, and equity in partnership with community. The lessons from this report will provide a foundation to consider new ideas, improve existing actions, and create an effective system for reporting measurable progress as part of the One Seattle Climate Action Plan update.

Mayor Bruce Harrell signs an Executive Order to modernize the Climate Action Plan on Earth Day 2025 at Mini Mart City Park. Mural by Anton Lvovich.

Purpose

In 2013, Seattle adopted a Climate Action Plan (2013 Plan) that identified City department actions to reduce Greenhouse Gas (GHG) emissions and adapt to climate impacts. Many of the actions would also support building vibrant neighborhoods, fostering economic prosperity, and prioritizing racial and social equity.

This progress report communicates what has been successfully or partially accomplished, progress toward our targets, and where there has been limited progress in achieving the 2013 Plan's goals, actions, and metrics.

The lessons learned from this progress report will inform the One Seattle Climate Action Plan update. Opportunities to consider new ideas, improve actions, and remove outdated actions are covered at the end of the report.

What is the 2013 Seattle Climate Action Plan?

In 2011, the Mayor and City Council adopted a bold climate protection goal for Seattle to become carbon neutral by 2050 and a goal to prepare for the likely impacts of climate change. A resolution directed the Office of Sustainability and Environment to create a plan—what became the 2013 Climate Action Plan—to meet these goals (Resolution 31312).

The 2013 Plan provided a coordinated strategy for climate action that cuts across City functions and focuses on City actions that reduce GHG emissions while also supporting other community goals, including building vibrant neighborhoods, fostering economic prosperity, and prioritizing racial and social equity. While GHG emissions can be found in virtually every sector of our community and economy, the 2013 Plan focused on those sectors where City action is most needed and will have the greatest impact: road transportation, building energy, and waste. In addition, the 2013 Plan included City actions that will increase our community's resilience to the likely impacts of climate change.

The 2013 Plan was developed through a process that engaged Seattle's residents and businesses, subject matter experts, and community leaders. The plan incorporated public input, guidance provided by the Green Ribbon Commission, and key recommendations from dozens of other City planning documents.

2013 Plan actions were divided into short-term actions to be implemented by 2015, and long-term actions to be implemented by 2030. The plan organized actions into four categories: Transportation and Land Use, Building Energy, Waste, and Preparing for Climate Change, and included indicators, intended to track progress towards climate goal outcomes to be achieved by 2030. Overall, the 2013 Plan has 148 climate actions: 51 Transportation and Land Use actions, 41 Building Energy actions, 29 Waste actions, and 27 Preparing for Climate Change actions.

In 2013, transportation was responsible for 61% of Seattle's core emissions, buildings for 36%, and waste for 3%. The intermediate GHG emission goals set in the 2013 Plan were to reduce passenger vehicle emissions by 82%, building energy emissions by 39%, and overall city emissions by 64% by 2030. As of 2022 passenger vehicle emissions were reduced by 14%, building energy emissions by 6%, and overall city emissions by 12%. Those same sectors saw emissions reduced on a per capita basis by 32%, 26%, and 30% respectively.

Additionally, although they didn't exist during development of the 2013 Plan, recent statewide climate laws have supported the City's implementation of 2013 Plan actions. State laws such as the Clean Buildings Performance Standard (2019), the Clean Energy Transformation Act (2019), the Climate Commitment Act (2021), the Healthy Environment for All Act (2021) and the Washington Clean Fuel Standard (2023) helped align Washington State and the Seattle community to make progress on actions in the 2013 Plan.

Progress on Actions

Actions were organized into four categories related to how Seattle will address climate change and its impacts. The first three categories—Transportation and Land Use, Building Energy, and Waste—are the three main sectors responsible for GHG emissions and include actions focused on reducing emissions. The fourth category, Preparing for Climate Change, includes actions focused on adapting to the impacts of climate change.

This progress report provides an overview of the most notable climate actions both within and outside of the 2013 Plan. More details about each of the 148 actions can be found in Appendix A.

Actions in the 2013 Plan range in scale and impact on achieving climate goals, and most are not measured in a way that their impact can be directly connected to a particular action. City staff with relevant expertise identified notable actions to tell the story of progress on the 2013 Plan.

The following section provides more detail on the notable successes, challenges, and overall progress Seattle has made in each category since the launch of the 2013 Plan. Actions with less progress often shared similar implementation barriers. Therefore, for each category, notable challenges have been categorized under common barriers. These include: lack of jurisdictional control, high cost or challenging financing, improved compliance needed, differing priorities, and limited market demand. Each category also includes items for future consideration in the next Climate Action Plan based on current trends and lessons learned.

A child waters plants at Beacon Bluff Community Gardens. Photo: Office of Sustainability and Environment.

Transportation and Land Use

The 2013 Plan had 51 transportation and land use actions. This section highlights notable transportation and land use action successes, which have increased opportunities for low GHG emission trips for hundreds of thousands of households across Seattle. It also outlines actions that saw limited or no progress towards implementation, such as challenges in transportation pricing.

Overall, Seattle transportation-related GHG emissions have decreased by 14% between 2008 and 2022. More notably, emissions per capita have fallen by 32%, showing that each resident's contribution to transportation emissions has dropped even as the city's population has grown. Despite this progress, the overall pace of reductions remains far behind the 2030 GHG reduction target of cutting passenger vehicle emissions by 82%.

Notable Successes

Since 2013, Seattle has made significant progress on 38 of 51 transportation and land use actions in the Climate Action Plan. The City has successfully developed robust long-range plans and invested in infrastructure that makes lower carbon transportation options more convenient and reliable. Notable successes include:

Investments in High-Capacity Transit and Frequent Bus Service

Since 2013, Seattle Department of Transportation (SDOT) and King County Metro have supported the development of six King County Metro Rapid Ride bus routes that will connect Ballard, Capitol Hill, Madison Valley, South Lake Union, University District, and West Seattle to Downtown Seattle by 2027. In addition, SDOT has supported several local routes that have buses every ten minutes (e.g., 23rd Avenue priority bus corridor) by installing smart signals, bus-only lanes, and other infrastructure.

SDOT and Sound Transit have also supported the expansion of Link light rail in Seattle, adding six stations in the city north

Buses, bikes, and pedestrians traveling at the Seattle Waterfront. Photo: Office of Sustainability and Environment.

of the Westlake downtown station (five are complete; the Pinehurst station opens 2026) and one station east of the International District/Chinatown station—the Judkins Park station (opens 2026).

In addition to building infrastructure, SDOT subsidized transit fares for Seattle middle and high school students between 2016 and 2022 to make transit more appealing. The success of the "free transit for youth" program in Seattle helped inspire the state to adopt a statewide free transit for youth policy.

Frequent, fast, and reliable transit helps lower vehicle miles traveled (VMT), making transit improvements one of the most significant climate actions to reduce transportation GHG emissions. (See Actions 4, 13, 14, & 22 in Appendix A.)

Downtown Physically Separated Bike Lanes

In 2013, the city only had about one mile of physically separated bicycle lanes. Since then, SDOT has built about 10 miles of physically separated bicycle lanes in downtown and about 29 miles throughout the city. The focus on connected and comfortable bike infrastructure downtown has resulted in a well-used network with significant increases in ridership. Physically separated bicycle lanes connecting downtown to other parts of the city are currently limited and further work is needed. However, the recent pace of network additions is strong. The downtown physically separated bike lane network has increased opportunities for people to live, work, and enjoy downtown while taking zero-emission trips to their destination. (See Actions 7 & 11 in Appendix A.)

Development Near Transit

Seattle Office of Planning and Community Development (OPCD) has updated plans and development regulations to enable a greater diversity of uses, housing types, and densities in areas serviced by frequent transit. Between 2015 and 2024, 60,610 housing units were built in parts of Seattle currently designated as Urban Centers or Urban Villages. OPCD's updated development regulations work in partnership with SDOT, King County Metro, and Sound Transit's investments in frequent transit service in these areas. This collaborative land use and transportation planning has increased opportunities for hundreds of thousands of households to have low GHG emission trips via transit, walking, or biking. (See Actions 6, 32, 33, 38, 39, 40, 41, 42, & 49 in Appendix A.)

Transportation Electrification and Infrastructure

In the Seattle City Light service area, electric vehicles (EVs) accounted for about 27% of new car sales in 2023 and 2024. This is up from ~7% of new car sales in 2019 and 2020. Such changes in the local private EV market also happen alongside City Light's updated Transportation Electrification Strategic Investment Plan and electric vehicle charging infrastructure programs that provide incentives, technical support, and training.

City Light's Transportation Electrification Customer Program has invested in customer multifamily and fleet EV charging projects, resulting in 160+ projects and 450+ EV charger installations. The programs provide incentives for EV charger installations and technical support to better meet charging needs.

Another City Light EV infrastructure program is the EV Charging Installer Program (EVCIP). Established in 2023, the program provides training, resources, and support to help minority and women-owned (WMBE) electrical contractors participate in the emerging EV charger market. As of mid-2025, 15 WMBE businesses have completed or are currently enrolled in the program.

A resident charges an electric vehicle. Photo: Seattle City Light.

In addition, the Seattle Department of Finance and Administrative Services (FAS) successfully developed a Green Fleet Action Plan to reach its goal of 100% fossil-fuel free vehicles by 2030. The Green Fleet Action Plan is currently being updated, and the City continues to lead by example and make progress towards its goal. (See Actions 24, 25, 26, 28, & 29 in Appendix A.)

Other transportation electrification work related to actions in the 2013 Plan include:

- The curbside Level 2 EV charging pilot, which provided 31 near-home public EV chargers for residents who do not have off-street parking or who live in a multifamily dwelling. Based on the success of this pilot, City Light and SDOT are developing expansion plans.
- The Public Charging Leasing Ordinance, which allows City Light to lease private property to install public EV chargers. It also allows private companies to lease City Light property to install and operate EV chargers. This policy will help enable private and public partnerships needed to expand the EV charging network in Seattle.
- Seattle Parks and Recreation (SPR) installed over 60 Level 2 EV chargers at various locations to prepare for and support its expanding electric vehicle fleet of sedans and trucks.
- Although not part of Seattle's municipal fleet, City Light and King County Metro celebrated the launch of King County's first electric bus base in 2022. The base supports the launch of 40 battery electric buses and can charge up to nine buses at the same time. King County and City Light continue to develop electric bus bases in the region to support the transition to a zero-emission fleet.
- City Light is powering 25 utility-owned electric vehicle (EV) charging sites available across its service area. The publicly accessible stations are part of a utility program to deliver community-focused transportation electrification solutions that meet customer needs, reduce carbon emissions, and decrease air pollution.

Transportation Electrification Infrastructure Master Plan

The One Seattle Electric Vehicle Readiness Plan, known as the Transportation Electrification Infrastructure Master Plan (TEIMP), is geared towards streamlining the process of installing EV charging infrastructure. City of Seattle departments, including Seattle City Light, Seattle Department of Transportation, Seattle Department of Construction and Inspections (SDCI), and the Office of Sustainability and Environment are coordinating and collaborating to meet the goals outlined in the Mayor's Executive Order 2022-07 to prepare for EV charging infrastructure at scale.

Maritime Transportation Electrification Program (MARTEP)

City Light partners with the Port of Seattle, Washington State Ferries (WSF), United States Coast Guard, water taxi operators, and other maritime stakeholders to plan, design, procure, construct, and commission large capital investment projects to deliver the infrastructure required to meet electrification, environmental justice, and sustainability goals, mandates, and customer demand associated with maritime transportation.

Shore Power at Pier 66

The Bell Street Cruise Terminal at Pier 66 now offers shore power, allowing cruise ships to dock and plug into the local electrical grid. This reduces emissions equivalent to an average car driving round trip from Seattle to New York 30 times. Pier 66 is the final cruise terminal in Seattle to offer shore power, making the Port of Seattle the first in the nation to mandate shoreside electricity by 2027.

Powering Seattle Fleets: A Charging Infrastructure Strategy for Battery Electric Medium- and Heavy-Duty Charging Strategy

City Light worked with the International Council on Clean Transportation (ICCT) to adapt a national study on medium and heavy electric vehicle (MHD) implementation projections and load requirements to Seattle. The goal is to create a roadmap to aid in developing future corporate forecasts and actionable plans for growing transportation electrification in Seattle.

Challenges

Differing Priorities - Congestion Pricing

In 2019, SDOT published a first-phase report exploring congestion pricing in Seattle, and the City was selected as a participant in the American Cities Climate Challenge, exploring how to ensure equitable road pricing options. The onset of the COVID-19 pandemic, along with shifts in work-from-home patterns and economic pressures on downtown businesses put those conversations on hold, as the priority became revitalizing the city center. As conditions change, there is opportunity to revisit this discussion with fresh perspectives. (See Actions 46 & 47 in Appendix A.)

Differing Priorities - Parking Fees

Seattle has struggled to implement transportation pricing strategies—such as parking fees—intended to discourage car use and generate revenue that could fund complementary climate actions in transportation and other sectors. The City was an early leader in parking space management, using standard short-term parking fees in most Urban Centers and Villages and restricted parking zones in higher density residential zones. However, free parking remains widely available throughout much of the city, limiting both the effectiveness of these discouraging factors and the potential to fund further climate action. (See Action 3 in Appendix A.)

Future Considerations

Since 2013, the City has built about 29 miles of physically-separated bike lanes across the city and supported expanding the frequent transit service network, improving bus frequency for several bus routes, and opening five Rapid Ride bus routes. However, the COVID-19 pandemic, changing work commute patterns, budget challenges, and transit sector labor shortages have led to a decrease in frequency, service, and reliability for several city bus routes over the last few years.

These trends highlight that new commitments to approaches that work are needed to make more walking, rolling, or transit trips possible and encouraged. Reprioritizing right-of-way; improving transit frequency, speed, and reliability; and delivering transportation infrastructure projects (including build out of a robust electric vehicle charging network) more quickly could be the high-impact actions needed to meet GHG transportation emission goals and transportation choice targets.

Building Energy

The 2013 Plan had 41 building energy actions. This section highlights key building energy action successes, such as emissions reduction policies and financial assistance programs for building energy efficiency. It also outlines actions that saw limited or no progress towards implementation, including actions that required support from other jurisdictions, shifting priorities based on new information and experience, and incentives or assistance programs with high upfront costs or complex financing.

Overall, Seattle building-related GHG emissions have decreased by 6% between 2008 and 2022. Per capita emissions have dropped even more sharply—down 26%—showing that the climate impact from buildings on a per-person basis has lessened even as both population and building stock have grown. Still, the pace of overall reductions falls short of the 2030 intermediate GHG target of reducing building energy emissions by 39%.

Notable Successes

Since 2013, the City has made significant progress on 21 of the 41 building energy actions in the 2013 Plan. In general, the City has been successful in collecting building energy and emissions information, creating funding and technical assistance programs, and enacting emissions performance standards. Notable successes include:

The Pathway to Building Emissions Performance Standard (BEPS)

The Building Emissions Performance Standard (BEPS) law, passed in December 2023, is one of the most important climate advancements Seattle has made in recent years. The law requires existing commercial and multifamily buildings larger than 20,000 square feet (SF) to make incremental emissions reductions beginning in 2031 for the largest buildings and reach net zero emissions between 2041 and 2050. This policy is projected to reduce building sector emissions by 27% from the 2008 baseline by 2050 – or, nearly 10% of Seattle's overall GHG emissions by 2050.

An engineer studies an advanced building control system that reduces energy use in building operations. Photo: Andrea Starr | Pacific Northwest National Laboratory.

Several other completed 2013 actions were foundational building blocks to the development of BEPS. Actions such as 2016 updates to the Energy Benchmarking and Reporting law

made energy and emissions benchmarking data for large commercial and multifamily buildings public through annual reports. These reports provided baseline data to inform the BEPS GHG emissions targets that reflect actual conditions for Seattle buildings.

Seattle also passed the Building Tune-Ups law (passed in 2016), for commercial buildings 50,000 SF and larger. The law ensures large commercial buildings are operating to their full efficiency potential and has prepared owners to understand their building's operations as a valuable first step to building decarbonization under BEPS. Additionally, the Washington Clean Buildings Performance Standard and the City's involvement in helping to shape that statewide standard influenced the development of BEPS.

To support owners with complying with BEPS, OSE launched a free technical support program in 2022, now called the Building Emissions Navigator. This offers free coaching and resources to encourage reducing emissions ahead of the BEPS targets for all buildings, but prioritizes Black, Indigenous, and people of color (BIPOC) building owners, nonprofits, and owners of buildings that serve or are in frontline communities.

To date more than 90 building owners have participated. In 2024, OSE launched its Building Decarbonization Grant program—a fund of up to $4.5M annually—dedicated to help owners of affordable housing and nonprofit buildings conduct engineering design or retrofit implementation to support meeting BEPS targets. (See Actions 54-57 & 85 in Appendix A.)

Improving the Seattle Energy Code

Over three energy code update cycles, from 2015 to 2021, SDCI progressively improved the City's energy code governing commercial and multifamily buildings to meet efficiency and clean energy standards.

Using less energy is important to free up clean electricity to accommodate population growth, electric transportation, and electric space and water heating. Code changes such as transitioning from traditional water heaters to heat pump water heaters and using all-electric heat pumps for space heating reduced annual energy use in new buildings today by 35%.

Therefore, such energy code changes ensure future buildings reduce GHG emissions through energy efficiency and decarbonization by becoming all electric and served by renewable energy sources. Not only do these code changes improve conditions in Seattle, but they also pave the way for State building code updates, which are often adopted using Seattle code as a model. (See Actions 79-82 in Appendix A.)

Construction managers review a building blueprint.

Additionally, new building developments can use Green Building permit incentives like Priority Green Expedited, the Green Building Standard and Living Building Pilot, which have created efficiency gains and resulted in some market innovation. Over the last seven years, it is estimated that construction permits using Green Building

permit incentives have been issued for 1,500 new buildings representing a permit value of over 2.5 billion dollars. Maintaining the incentive's effectiveness supports a necessary shift from operational to construction-related carbon efficiency, as the improved energy code makes efficiency beyond code more difficult to achieve. (See Actions 65, 74, and 143 in Appendix A.)

Assistance Programs for Low to Moderate-Income Households

The City maintained and expanded programs for residential energy efficiency, weatherization, and electrification projects that helped low to moderate-income households to switch to energy-efficient and clean energy solutions. Assistance Programs like the Office of Housing's HomeWise Program for single family and multifamily buildings, or the Office of Sustainability and Environment's Clean Heat Program provide financial support to households for upgrading their home to be more energy efficient, more comfortable, and free of fossil fuels. The Clean Heat Program has helped reduce the number of oil-heated homes in Seattle by half and is on track to eliminate oil heating in Seattle by 2030. (See Actions 59 and 61 in Appendix A.)

Seattle City Light Clean Electricity

City Light has committed to and continues to make progress towards 100% fully renewable and non-emitting energy by 2045. City Light's commitment can be seen through actions like incentivizing solar energy through net metering, which reduces customers' electric bills by the amount of solar energy produced, and solar power support for large commercial projects. State laws like the Clean Energy Transformation Act (CETA) and the Energy Independence Act (EIA) require Washington utilities to decarbonize and increase renewable energy generation, and City Light has been a statewide leader in making progress towards these GHG emission reduction goals. (See Actions 89 & 90 in Appendix A.)

Challenges

Lack of Jurisdictional Control - Unfinished Energy Code

The main challenge the City had in implementing other 2013 building energy actions occurred when actions were outside the City's jurisdictional control and required cooperation or advocacy with another entity. Example actions not implemented because another jurisdiction had final control include a new state law allowing property tax breaks for rental housing owners to provide energy efficiency upgrades to older multifamily buildings and building Deep Green K-12 schools. Additionally, only the state has jurisdictional control over changes to the residential energy code that applies to single family homes. Therefore, the City does not have the same influence to set higher standards there as it does for multifamily and commercial buildings. (See Actions 62, 66, and 72 in Appendix A.)

Differing Priorities - District Energy

The City struggled to implement 2013 Plan actions related to expanding district energy and requiring waste heat recovery in new buildings. There was considerable effort spent on expanding district energy systems in the city, but pilot project experience highlighted how frequently distribution lines impacted the right-of-way and transportation routes.

Continuing research and staff experience suggests expanding district energy systems and requiring waste heat recovery in new buildings works best in greenfield or campuses with single ownership rather than infill development. This is because district energy systems require extensive cooperation and permitting between many different property owners, multiple buildings, and city right-of-way. Therefore, given the City's limited greenfield and campus development opportunities, actions related to expanding district energy systems and requiring waste heat recovery in new buildings were harder to implement. (See Actions 86, 87, 88, 91, & 92 in Appendix A.)

Future Considerations

Although the 2022 GHG emissions report shows building energy emissions trending higher, the City has implemented several key actions that will reduce emissions over the next 20 years. The energy code is driving down emissions primarily in new buildings, and City Light is transitioning to 100% clean energy, but the largest potential gains appear to be in upgrading existing buildings.

Performance standards like BEPS create the framework for upgrading existing commercial and multifamily buildings, but high capital cost and lack of established financing options has been a significant barrier to building retrofits and energy efficiency upgrades. Getting additional funding or incentives through programs like the Climate Commitment Act to fund building upgrades beyond the buildings prioritized for Building Decarbonization Grants, and especially for residential buildings, may be the next high impact action to meet GHG building emission goals.

Waste

The 2013 Plan had 29 building energy actions. This section highlights key waste action successes, such as progress on waste prevention initiatives and product stewardship policies that address consumption-based emissions. It also outlines ongoing implementation challenges, such as recycling market ups and downs, and opportunities, such as improving compliance with existing the rules and regulations.

Overall, Seattle waste-related GHG emissions have decreased 31% between 2008 and 2022. Additionally, Seattle waste related emissions per capita have decreased 45% during the same time period.

Notable Successes

Since 2013, the City has made substantial progress in transforming its solid waste system to better align with climate goals. Of the 29 actions included in the 2013 Plan, 12 actions were implemented or have significant progress towards implementation, and 14 actions have some progress towards implementation.

Although the implementation success rate may look lower than other sectors, Seattle has taken a leadership role in shaping statewide product stewardship policies (a strategy that shifts responsibility for a product's waste management from local government to the producers of the product), implementing local rules to increase composting and recycling, and shifting its focus toward upstream waste prevention strategies that reduce emissions at the source.

The 2022 Solid Waste Plan Update reflects on progress made from 2011 to 2022 and guides Seattle's ongoing and future direction for solid waste management.

The following sections show specific examples of the breadth and impact of this work.

Decreasing Waste at the Source

Seattle completed a consumption-based GHG emissions inventory, analyzing 2019 data. Consumption-based emissions are from goods people buy and use. It showed that the production and consumption of food and goods account for 38% of Seattle's total consumption-based emissions, making waste prevention a critical climate mitigation strategy. With waste generation increasing faster than any other environmental pollutant, C40, a global network of which Seattle is a member, has identified per capita Municipal Solid Waste generation as a key measure for waste-associated climate pollution.

Long-term trends for the period 2013-2024 show waste generation in Seattle has grown only slightly (4.8% increase) despite huge population growth of 27.8% during that same time. Seattle has kept waste in check despite population growth and increasing density by putting into practice Zero Waste incentives, programs, and policies. Since 2013, Seattle Public Utilities (SPU) has increasingly focused on waste prevention initiatives that address large emissions from the global production of goods and food consumed by Seattleites.

A key example of this work is Reuse Seattle, which helps food service businesses switch away from single-use packaging toward durable, reusable containers. SPU is also prioritizing food waste prevention through ongoing residential education, enhanced support for edible food donation, and targeted work with major food waste generators in the commercial and multifamily sectors to enforce the City's food waste disposal ban. Additionally, The City is also developing a Waste Prevention Strategic Plan to guide and expand future programming, policy, and investment in this area.

Reusable food serviceware in action. Photo: Seattle Public Utilities.

These efforts prevent waste from being generated in the first place, creating the greatest climate benefits of any waste management strategy. Rethinking consumption, preventing waste, and keeping materials in use can significantly reduce the emissions from extracting, manufacturing, and transporting food and goods. (See Actions 95, 107, 109, 113, 115, & 118 in Appendix A.)

Advocating for State Policy Action on Repair, Reuse, Recycling, and Product Stewardship

The City of Seattle has shaped policies to reduce waste and climate impacts at the state and regional level. Sustained advocacy led to the state's passage of "Right to Repair" legislation for digital electronic products and mobility devices and the 2025 Recycling Reform Act, a state-mandated product stewardship policy (also known as "extended producer responsibility" or EPR) for consumer packaging and paper products. Extended producer responsibility means companies are responsible for their products' waste, not local government. The adoption of these two nation-leading policies capstone over a decade of effort by a broad coalition of advocates. Right to Repair reduces waste by extending the life of digital and mobility products and reducing the need for new devices. The Recycling Reform Act will help reduce emissions by keeping materials away from landfills, increasing reuse and recycling, and encouraging manufacturers to design less wasteful products with greater potential for reuse and recycling.

SPU also helped secure the adoption of additional state-mandated product stewardship programs. These include LightRecycle (2015), Safe Medication Return (2020), and PaintCare (2021), with programs for batteries (2027), packaging and paper products (2030), and solar panels (2031) now in development. Additionally, SPR significantly reduces natural organic materials, such as grass clippings and woody debris, through mulch mowing nearly all grass in parks and chipping branches and logs for use as mulch in shrub beds. (See Actions 93, 94, & 99 in Appendix A.)

Expanding Coverage and Effectiveness of Composting Systems

Food and yard waste (or compost) collection service is now available and required for nearly every home and business in Seattle. In 2015, the City banned food and compostable paper from landfill disposal, putting Seattle ahead of most U.S. cities in encouraging composting and reducing waste-related GHG emissions.

SPU continues to seek opportunities to prevent or divert the remaining food waste in our system. Currently food waste comprises about 20% of disposed waste. Seattle is exploring new technologies, like food depackagers, bacteria-based systems that break down food waste, and in-home food waste drying/grinding to reduce food waste that is still being landfilled in our current system. Additionally, Seattle has worked to standardize composting behavior, enhance composting infrastructure, and grow compost markets regionally by advocating for statewide food waste composting, requiring counties to identify areas zoned for compost facilities, and creating compost purchasing assistance programs for farms. (See Actions 103 and 120 in Appendix A.)

A building demolition site collecting salvaged materials for reuse. Photo: Seattle Public Utilities.

Reducing Waste from Construction and Demolition Activities

As part of efforts to reduce construction and demolition waste, the City supported the creation of salvaged structural lumber standards to make it easier to reuse these materials. King County Solid Waste Division led this initiative and successfully secured state building code pathways that now allow salvaged or resawn lumber to be reused in construction projects. With grant support, SPU awarded a contract in 2025 to establish a salvaged lumber warehouse to increase local storage, processing, and sales of reclaimed lumber.

Expanded material disposal bans are now in place at construction sites to ensure recyclable materials, such as metal, cardboard, clean gypsum scrap, and clean wood are diverted from the landfill. These waste prevention strategies support GHG reductions. (See Actions 97, 106, 108 & 111 in Appendix A.)

Challenges

While Seattle has made meaningful progress on many waste-related actions, several initiatives have experienced limited progress or slower implementation due to a range of practical and systemic challenges. These include shifting priorities during the COVID-19 pandemic, changing markets, and the need for more targeted strategies to achieve the desired outcomes. Achieving SPU's zero waste objectives has also been complicated by factors including population growth and increasingly dense housing, the changing composition of the waste stream (e.g., smaller amounts of newspaper, phone books, and office paper with the emergence of e-commerce), a shift to lighter weight materials (e.g., plastic bottles instead of glass bottles), and the growth of non-recyclable plastic and multi-material product packaging (e.g., flexible film pouches).

Improved Compliance Needed - Diverting Waste and Achieving Compliance with Established Requirements

While SPU made strong progress diverting waste through local regulations, compliance activities for recycling and composting and construction waste were significantly disrupted during the COVID-19 pandemic due to new demands on businesses and reduced field activities by SPU staff due to quarantine protocols. More recently, compliance activities such as on-site inspections have since resumed, with a particular focus on multifamily buildings where tenants often report inadequate service. However, sustained investment in delivering timely services, and in providing the necessary tools and support is critical to realizing the full benefits of these policies. Achieving consistent behavior change, especially among customers who bring their waste directly to transfer stations (i.e., "self-haul"), also remains a challenge and will require targeted strategies and programs to improve compliance and diversion outcomes.

Improved Compliance Needed - Increasing Building Material Reuse

Another important area for improvement is material reuse from building demolition, which offers significant potential for waste reduction and GHG emissions savings. Progress in this area has been limited, in part by the need to build a trained workforce able to use deconstruction practices at scale. To address this, SPU plans to host additional deconstruction training sessions in partnership with the planned Salvaged Lumber Warehouse, a reclaimed lumber processing hub. Expanding workforce training and technical support will be essential to increase the amount of materials recovered and reused. (See Actions 98, 101, 104, & 116 in Appendix A.)

Limited Market Demand - Hard-to-recycle Items

Despite progress made in diverting materials from the landfill, market development for recycled goods remains a critical bottleneck. Without strong end markets, recycled materials risk being landfilled or stockpiled. This issue is particularly acute for complex, hard-to-recycle items such as plastics and textiles and highlights the need for stronger regional and national collaboration, new technologies, and infrastructure investment to drive demand for recycled goods. (See Actions 114 & 121 in Appendix A.)

Overall, these examples highlight that while the 2013 Plan helped establish a strong foundation and vision for sustainable waste practices, some actions require more sustained investment, while others present an opportunity to refocus future efforts on more impactful solutions.

Future Considerations

Since 2013, Seattle has made considerable progress in reducing waste – most notably a 30% reduction in disposed food waste and advancing product stewardship. However, further investment is needed to bring successful programs to full scale. Future priorities may include:

- **Expanding waste prevention programs** focused on reducing single-use items, promoting reuse and repair, preventing food waste, and developing new measures to better capture the impact of waste prevention and climate-focused outcomes. Waste prevention creates high climate change mitigation benefits, and prevention strategies will be guided by the Waste Prevention Strategic Plan.
- **Improving compliance with rules that keep food waste from going to landfill.** While Seattle has had great success with establishing bans on food waste and compostable paper from disposal and providing access for everyone to compost collection service, some food continues to go to the landfill (19% of Seattle's disposed waste, or 50,396 tons, in 2024). SPU is planning a broader, more holistic food waste prevention and diversion campaign in 2026-2030, while continuing to work across the west coast to reduce commercial food waste and pilot strategies to address hot spots.
- **Increasing compliance and direct assistance to help residents and businesses properly use SPU's waste services and requirements.** Continued focus is needed to improve multifamily composting and recycling, construction, and self-haul sectors, where service gaps and behavior barriers continue.
- **Driving greater progress through local and state policy.** While Seattle continues to be a leader in waste reduction services and offers rates and incentives that encourage customers to reduce waste, many of the urgent challenges associated with waste require further policy action and state-level solutions. Policy solutions such as requiring reusable dishes or containers for on-premise food service, requiring deconstruction prior to demolition of certain types of buildings, and establishing product stewardship for consumer products such as mattresses and textiles have shown promise for reducing waste and GHG emissions in other places.

Preparing for Climate Change

Seattle has made meaningful progress on climate preparedness since the 2013 Plan, building adaptive capacity, becoming more resilient, and making equity part of citywide planning. Of the 24 actions included in the 2013 Plan, most saw at least partial completion, and 17 were completed or advanced significantly. The City's progress reflects its ability to successfully execute actions that align with regulatory requirements, build on existing programs, and leverage cross-sector partnerships. There has been some progress in floodplain reconnection, urban forestry, and forested parkland restoration, and further work should be evaluated and prioritized within the context of a comprehensive suite of citywide adaptation actions.

Notable Successes

The City has implemented data-driven evaluation and prioritization of climate risks, laying critical groundwork for future resilience investments and identifying the City's most vulnerable communities. Key plans and strategies integrated climate resilience across departments and created momentum for action in priority areas like food systems, stormwater management, energy, and community adaptation. Notable successes include:

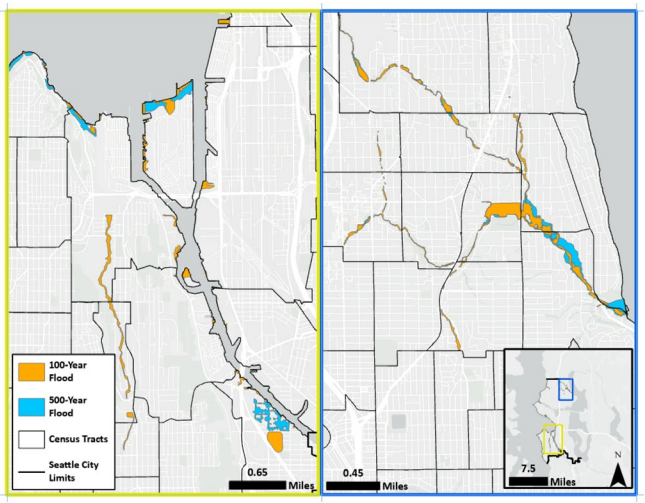
Data-driven Climate Risk, Equity, and Preparedness Assessments

Seattle has made notable strides in assessing, tracking, and preparing for the effects of heat, drought, precipitation changes, wildfires, and flooding on electric resources, drainage systems, water supply infrastructure, critical landscapes and habitat, and other critical assets. Using climate change data to plan and analyze key infrastructure's vulnerability to climate impacts—including heat island mapping, drinking water supply and demand modeling, future precipitation modeling, and sea level rise and flood risk analyses—has set the stage for future adaptation actions. (See Actions 122, 129, 133, 135, 137, 138, and 145 in Appendix A.)

Seattle climate preparedness analyses and data tools include:

- In 2015, Seattle City Light completed an award-winning Climate Change Vulnerability Assessment and Adaptation Plan that summarized the impacts of climate change on the electric utility and identified potential actions to reduce vulnerability and increase climate resilience.
- In 2017, the Office of Sustainability and Environment (OSE) released its Preparing for Climate Change report, establishing a coordinated framework for adaptation and emphasizing equity, cross-departmental planning, and the use of climate science in decision-making.

- In 2018, the Climate Impacts Group (CIG) at the University of Washington, in collaboration with SPU, developed updated sea level rise projections for Washington state, including Seattle. These projections were shown using Tableau and are available through interactive data visualizations on the Climate Impacts Group website.
- Seattle Parks and Recreation (SPR) produced a Forest Stewardship Report in 2018 that assessed the vulnerability of forested parklands to climate change, capturing forest conditions and suggesting strategies to support forest resilience.
- In 2020, SPU's Shape Our Water initiative mapped sea level rise and extreme storm flood risk, as well as creek and shoreline health and drainage and wastewater system capacity risk using the Racial and Social Equity (RSE) Index to identify and prioritize vulnerable communities.
- In 2020, SPU, OSE, and King County conducted a regional heat island mapping project. Thermal imaging data identified areas most vulnerable to extreme heat events and has since been used to prioritize tree planting, urban greening, and canopy stewardship in neighborhoods lacking shade and green space.
- The Office of Emergency Management's (OEM's) Disaster Recovery Framework Plan, All Hazards Mitigation Plan, Seattle Hazard Identification and Vulnerability Analysis, and Comprehensive Emergency Management Plan (2021 & 2022) factor climate change.
- In 2022, SPR released a Climate Resiliency Strategy that identified climate change impacts to the parks and recreation system, listed current actions in place to adapt to these changes, and recommended additional resilience actions.
- The Seattle Hazard Explorer, updated in 2023 by the Office of Emergency Management (OEM), provides GIS-based maps of local risks including flooding, extreme heat, air quality hazards, and landslides.
- OPCD completed a Climate Vulnerability Assessment in 2023, which informed the Comprehensive Plan update and mapped where climate impacts like heat, flooding, and wildfire smoke intersect with social vulnerability.
- In 2025, SPR completed a study and report to assess existing marine coastal habitats and determine impacts from sea level rise and other impacts from climate change. The study assessed intertidal and nearshore habitats, modeled various sea level rise scenarios, and determined existing conditions and potential adaptation actions.



This map shows sea level rise of 3.1 feet (using a 1% likelihood scenario and including storm surge) in the Duwamish Valley of Seattle. There are several blocks along the river shown to be inundated with seawater (City of Seattle, 2022).

Food Systems

The way we grow, transport, and consume food influences emissions, soil health, and community resilience. Following Seattle's first Food Action Plan, adopted in 2013, Seattle made significant investments, including growing the P-Patch Community Gardening Program; passing the Minimum Wage Ordinance; food justice efforts; providing hunger relief, streamlining outdoor eating opportunities, and requiring grocery employee hazard pay during the COVID-19 pandemic; and improving food system workers' rights. Some highlights include:

- In 2013-2014, the Department of Neighborhoods (DON) P-Patch community gardens grew by 28 new or expanded gardens.
- Seattle Parks and Recreation's (SPR) Urban Food Systems Program has expanded to use parks land for community growing projects.
- In 2024, City Council set aside $4 million (one time) in Participatory Budgeting funds to support the creation of more community gardens, an effort co-led by DON and OSE.
- Food Equity Fund, King Conservation District (KCD)-Seattle Community Partnership Grant, and Equitable Development Initiative awards have gone to community-led urban agriculture projects.
- The Fresh Bucks program serves over 12,000 Seattle households with healthy food benefits that can be redeemed at over 30 local retailers, including farmers markets, farm stands, small grocers, and supermarkets, improving community health and generating $12 million in local economic impact from 2018-2020.

A smiling vendor at a local farmers market at a booth displaying greens and berries. Photo: Office of Sustainability and Environment.

The 2024 Food Action Plan update included goals and actions focused on climate action and environmental sustainability to clarify the food/climate connection in the City's food systems work. Several food systems actions overlap with Waste achievements, including composting requirements and food waste prevention and recovery efforts. (See Actions 146 and 147 in Appendix A.)

Water Supply Management & Conservation

Seattle has continued to invest in water conservation as a key climate adaptation strategy. Through the Saving Water Partnership, SPU runs a regional program on behalf of Seattle and 18 other utilities that share the city's water supply. Since 2013, the program has offered a robust set of customer-facing services, including education, technical assistance, and financial incentives, for residential, commercial, and general public customers. These efforts help preserve the region's water resources for future generations. (See Actions 134 & 136 in Appendix A.) Additional successes include:

- SPU operates a low-income toilet replacement program that supports both water efficiency and affordability, strengthening the ability to adapt across the region.
- Climate change impacts on hydrology and water supply were assessed in 2025 and are now being incorporated into the Water Supply Alternatives Project and the Cedar Falls Long-Term Plan.
- SPU is also conducting a Demand Reduction Potential Assessment to characterize and prioritize potable water conservation and demand management approaches.
- A watershed wildfire risk assessment was completed in 2024, to help prepare for wildfire risk in the Tolt and Cedar watersheds, the region's two main drinking water sources.

Energy Services

In addition to supporting the decarbonization of our region, Seattle City Light, has been preparing and adapting to changing climate through a series of actions. To address the intensifying risk of wildfire, the utility completed its Wildfire Risk Reduction Strategy in 2024. City Light co-hosted two summits (2022 and 2024) on Grid Resilience to Climate Extremes (ResiliEX) to bring together scientists, energy professionals, and policy experts to build the shared knowledge and partnerships needed to organize further actions.

The utility's long-term 20-year planning effort, which produces an Integrated Resource Plan, considers impacts on energy demand from changes in temperature and impacts on hydropower from changes in streamflow in its modeling to assess the ability to meet anticipated customer energy needs in the future. Advances in modeling and forecasting weather and streamflows as well as strategic energy market participation have positioned the utility to rapidly adjust operations to meet shifting energy demands and minimize the cost of doing so under extreme temperatures and droughts. Upgrades to the distribution system, including innovations as part of the Grid Modernization Program, have reinforced our infrastructure to better weather storms and shorten outages times. (See Actions 130, 131, & 132 in Appendix A.)

In-City Resilience Infrastructure and Land Use Policy

In 2013, the City adopted a Green Stormwater Infrastructure (GSI) policy through Executive Order and City Council Resolution, with a goal to manage 700M gallons of stormwater annually with nature-based approaches by 2025. The goal was achieved in the fall of 2024. This foundational policy and goal-setting led to:

- Major capital infrastructure investment in green infrastructure to manage road runoff to help prevent flooding and overflows, improve water quality, protect salmon, and improve Seattle neighborhoods.
- A key institutional partnership between SPU and King County to expand the popular RainWise program and to normalize design, construction, maintenance, and program delivery of nature-based infrastructure within Seattle.
- Launching the $15M, community-driven, RainCity Partnerships pilot to partner with community-based organizations and eligible multi-family, commercial, and industrial private property owners in high priority RSE index neighborhoods to build voluntary green infrastructure projects and restore riparian areas.
- Normalized inter-agency partnerships between SPU, SDOT, and Seattle Parks and Recreation, to design and build multi-benefit public infrastructure.
- Beyond-Code green infrastructure partnerships with land developers at the point of redevelopment.
- The Natural Drainage Systems (NDS) Partnership program between SPU and SDOT has delivered millions of dollars in coordinated right-of-way investments to address drainage, water quality, creek protection, and flooding concerns with nature-based solutions while also providing pedestrian safety improvements such as traffic calming, reduced crossing distances, and sidewalks.

Additional progress on in-city resilience infrastructure includes:

- Major capital investment in combined sewer overflow (CSO) storage infrastructure, that accounted for projected future rain while also achieving cost savings by using a more standard tunnel size.
- In 2023, SPU completed construction on the South Park Pump Station and the South Park Drainage and Roadway Partnership. These projects work in tandem to reduce flooding in the residential and industrial areas in the northern part of South Park, an area that has experienced chronic stormwater flooding for decades.
- In 2025, SPU launched the Duwamish Valley Water Resilience Section, a team dedicated to delivering sea level rise adaptation infrastructure in one of Seattle's most impacted neighborhoods. This team focuses on translating planning into action through community-centered, equity-driven projects that reduce flood risk and support long-term resilience.
- Implementation of a major floodplain reconnection project in the Thornton Creek watershed, improving the capacity of the creek system to hold water and prevent property damage.
- Integrating sea level rise adaptation policy into infrastructure project design.

A stormwater park in Madison Valley helps manage drainage and beautifies the neighborhood. Photo: Seattle Public Utilities.

Land Use policy updates to improve resilience include:

- In 2015, to comply with the State Department of Ecology's requirements for the City's stormwater permit, Seattle updated development codes and incentives—including the Land Use Code, Stormwater Code, Fire Code, the Right-of-Way Improvement Manual (now "Streets Illustrated") and Street Use policy, Parks policy, and citywide Standard Plans and Specs—to encourage more resilient buildings and require low impact development.
- Seattle is also running a Living Building Pilot program through 2030 or until 20 projects are enrolled. Currently, 13 projects are enrolled. (See Actions 123, 128, 135, 136, 137, 142 & 143 in Appendix A.)

Tree Canopy

The Urban Forest Management Plan set a goal to reach 30% tree canopy by 2037, and tree canopy increased from 2007's canopy of 23% to 28.1% in 2021, according to the 2021 Tree Canopy Assessment. That said, there has been a small loss in tree canopy in recent years, primarily happening within forested parks and Neighborhood Residential zones (Tree Canopy Assessment, 2021, page 8). Many departments are working to address the impacts of climate change, including increased susceptibility to pests, diseases, and drought, and to increase canopy in the context of a growing city.

SPU leads the Trees for Neighborhoods, which helps residents plant trees at homes, schools, businesses, and along streets, Parks and SDOT plant and maintain trees in parks and Rights of Way, and the Green Seattle Partnership work in community-centered forested parkland restoration across Seattle. This program expanded community partnerships by 329%, adding 1,167 acres into active restoration, planting 224,000 native trees and 912,000 native plants, and engaging volunteers to provide 856,000 hours of service. (See Actions 126 & 127 in Appendix A.)

Volunteers work to reforest the West Duwamish Greenbelt. Photo: Office of Sustainability and Environment.

Challenges

Climate change poses clear risks to community health, and while public health has not always been consistently incorporated into climate planning at the City level, progress is emerging. Public Health — Seattle & King County, the joint public health department serving both the City of Seattle and the broader King County region, has already taken steps to examine climate change through a health lens. Building on this foundation, Climate & Health is now one of five priority areas in the 2024–2029 Strategic Plan issued by the department. The plan outlines specific objectives and actions designed to prepare for, adapt to, and influence the health impacts of climate change, offering an important framework for greater alignment between public health and climate policy moving forward. Continued progress will require dedicating additional resources to staff capacity and training to ensure public health considerations are fully embedded in climate planning. (See Action 144 in Appendix A.)

Future Considerations

Since 2013, the world has seen climate impacts increase in frequency, duration, and intensity, and burden people inequitably. At the same time, knowledge of the public health impacts from climate change has grown. Preparing for and mitigating climate change impacts is more important now than ever and climate action that more consistently includes public health could be an impactful approach to prioritize future actions. The Climate Action Plan update will likely see a greater focus on climate adaptation actions as well as actions with positive public health outcomes and social, economic, and environmental co-benefits. Overall, there is a clear need for prioritization, comprehensive staff training, and financing in order to improve and accelerate the climate adaptation efforts of the City of Seattle.

Sorting demolition rubble for recycling. WSDOT, Flickr Creative Commons.

Progress on Indicators

The 2013 Plan has 25 outcome indicators intended to track progress towards goals to be achieved by 2030. Outcome indicators were categorized into four categories: Transportation, Land Use, Building Energy, and Waste. Some indicators directly measured emission reductions in specific sectors, while other indicators measured topics that generally correlate with emission reductions. Additionally, each indicator had a target level of progress to be made as a goal set in the 2013 Plan. While actions with clear measurable impacts are likely to be captured in one or more indicators, the impact of actions that are foundational – such as those that address capacity needs – might not necessarily be represented solely by evaluating these indicators. Further details about specific indicators and targets can be found in Appendix B.

Overall, a majority of the indicators have seen limited progress made towards achieving its target in the 2013 Plan. Seattle has been effective at making progress on waste-related targets, such as keeping 53% of waste away from landfills by using recycling and composting. Increasing the level of service and ridership of transit and building more housing in Urban Centers and Villages are other indicators that have met or had significant progress towards meeting 2013 targets. However, as discussed in the challenges section above, the city is currently not on track to meet its climate goals.

Indicators with Good Data

Data that was measured consistently and that was captured at the relevant scale or geography was considered good data for the purposes of this report. Therefore, most indicators measuring emission reductions in the key sectors had good, consistent data, but little overall progress towards meeting 2013 targets. The incremental progress toward climate targets shows the need for reflection, improvement, and bolder action. The indicators that directly measure emission reduction progress are key to measuring overall climate progress and are likely to continue being indicators in the next Climate Action Plan. (See Indicators 1, 2, 15, 17, & 19 in Appendix B.)

Some example indicators with good data include:

- **Reduce passenger vehicle emissions:** Seattle set a target to reduce emissions by 82% by 2030. However, vehicle emissions have only decreased 14.4% since the 2008 baseline.
- **Reduce building energy emissions:** Seattle set a target to reduce emissions by 39% by 2030. However, building emissions have only decreased 6.1% since the 2008 baseline.
- **Reduce VMTs:** VMT citywide has remained the same since 2008. However, there has been a 20% reduction in VMT per resident in the same time span.

Indicators Needing Revised Measurements

There were several indicators that seem like good topics to continue measuring, but that had data that was measured inconsistently or at the wrong scale or geography. For example, indicators that aim to measure how people choose to travel only had publicly-available data for only one year, or the number of Urban Villages meeting open space goals didn't have open space data for the geography of Urban Villages. The lack of good data made it difficult to understand how much progress had been made, which can be addressed during the Climate Action Plan update.

There are also indicators that may have to change what they are measuring to better capture progress moving forward. An indicator focused on commute trips could be reevaluated due to impacts from work-from-home options. An indicator focused on increasing bicycle ridership could measure a certain amount of bike trips per week in addition to the number of commute trips by bicycle. Both examples are ways in which the Climate Action Plan update could update indicators to improve our ability to collect good, consistent data. (See Indicators 4, 5, 6, 14, & 22 in Appendix B.)

Future Considerations

For a small window of time there was strong alignment between federal, state, and local government to fund and act on addressing climate change. Federal laws such as the Bipartisan Infrastructure Law (2021) and Inflation Reduction Act (2022) and state laws such as the Clean Buildings Performance Standard (2019), the Clean Energy Transformation Act (2019), the Climate Commitment Act (2021), and the Washington Clean Fuel Standard (2023) provided an environment where it was easier for Seattle to expand and accelerate its climate work. However, the Climate Action Plan update is happening at a time when that alignment has been weakened and an uncertain political and economic environment may exist for climate action. This context shows the importance and power of local action. Seattle will continue to advance bold, coordinated efforts that demonstrate leadership and keep communities resilient and engaged. Strong partnerships with state and county governments, as well as private and philanthropic organizations further strengthen the city's ability to drive lasting change.

These uncertainties are also reflected in the energy sector, where Seattle City Light is experiencing unprecedented growth in forecasted electricity demand, driven by new construction and climate strategies like transportation, building, and steam electrification. Meeting this demand will require significant investment in new infrastructure and rising costs for clean energy resources—due to the loss of federal tax credits and grants, long permitting and construction lead times—are making it more expensive and complex to scale the grid at the pace required. In addition to new generation and transmission, long-term asset modernization effort are needed to upgrade and support projected peak loads, with work likely continuing beyond 2050. Ensuring the ability to restore power quickly when outages occur, even as demand grows, will remain essential. Continued progress will depend on flexible policy that considers customer affordability and financial support, including the ability to enable rate structures that reflect the true cost of building a clean, reliable, and climate-ready electric system.

Looking forward, the lessons learned and knowledge gained since adoption of the 2013 Plan will be critical to getting Seattle on track to reach its climate goals. The evaluation process highlights both where the 2013 Plan fell short and the actions the City successfully implemented but could further improve or scale to further their positive climate impacts.

Seattle has a stronger foundation for climate action today with more knowledge and better research about what actions are most effective at reducing carbon emissions and developing climate resiliency. Selecting the next set of climate actions for the One Seattle Climate Action Plan is one of the next steps of the update process. The following thoughts are starting points for consideration:

- **Integrate public health impacts, benefits and social costs of GHG emissions.** Assessing and planning for the impacts of climate change on public health is an area to improve. A more consistent focus to include public health impacts and benefits in climate planning can help lead to a healthier, more economically stable and resilient public, and connect the public more deeply to climate action benefits.
- **Include data on consumption-based emissions.** While the 2013 Plan acknowledged the importance of waste prevention actions, more holistic data on consumption-based emissions was not included. The City of Seattle developed a consumption-based emissions inventory (CBEI), published in 2022, which estimates GHG emissions from all the goods and services consumed within the community, no matter where they are produced (including the removal of raw materials, manufacturing, and global transportation). Incorporating this data into the update allows the City to address a broader set of emissions across food, housing, and consumer goods.
- **Incorporate climate adaptation indicators.** The 2013 Plan did not include specific climate adaptation or resilience indicators. Along with a stronger focus on climate adaptation actions, Seattle should consider developing adaptation and resilience indicators and considering how actions connect to those indicators.
- **Include equity-focused indicators.** Many sectors already have strong, consistent data, which could be combined with demographic, socioeconomic, and health data to add more location and time detail and better highlight racial and social equity impacts. This should also include exploring other ways to track the progress of actions that may not have measurable impacts but are still critical for advancing equity goals.
- **Increase low carbon trips.** Seattle, in partnership with others, has successfully increased the amount of high-capacity transit routes connecting higher-density areas to different parts of the city. However, the overall progress made on reducing passenger vehicle emissions and VMT suggest bolder action is needed. Giving space to speed up buses and build physically-separated bicycle lanes can offer carbon free transportation options to residents and help to reduce our overall transportation emissions.
- **Advance congestion pricing.** Congestion pricing is a proven strategy to reduce emissions, make streets safer, and raise money to support other city goals. Seattle has already done a phase 1 study of congestion pricing, which was a 2013 Plan action. Further action to develop formal proposals of how congestion pricing would be implemented in Seattle would help lower transportation emissions, reduce VMT, make streets safer, and possibly fund other transportation or climate work.

- **Retrofit existing buildings.** The largest potential to reduce building emissions is by retrofitting existing buildings to be more energy efficient and to transition them to clean energy. The high capital cost and lack of easily attainable established financing mechanisms has been a barrier to building retrofits and energy efficiency upgrades. Retrofitting existing buildings would not only lower the amount of GHG emissions coming from residential and commercial buildings, it could also lower the energy bill for building owners and tenants.
- **Prevent food waste from going to landfill.** Seattle saw great success establishing bans on food waste and compostable paper going to the landfill. However, continued focus is needed to improve multifamily composting and recycling, construction, and self-haul sectors, where service gaps and behavioral barriers persist. Preventing food waste and ensuring effective diversion of waste from landfills helps lower the amount of methane and other GHG emissions that would otherwise be released during decomposition in landfills.
- **Reduce urban heat.** Building on past heat mapping and prioritization work—and coordinating with tree canopy efforts—to take actions that add shade (natural and built structures) and indoor strategies to equitably cool the city would speed up reducing the impacts of extreme heat in the city.
- **Enhance and protect natural systems.** Enhancing and protecting natural systems provides opportunities to improve habitats for native species, increase flood resilience, reduce urban heat, manage stormwater runoff and invest in the health of Seattle's shorelines, creeks, wetlands and forests.

A child cycling on #WalkBikeRoll to School Day. Photo: Seattle Department of Transportation.

Moving Forward Together

2026 Climate Action Plan Timeline

Stay Connected

As we move into the next phase of the work, the One Seattle Climate Action Plan depends on input from our community to reflect the experiences, priorities, and ideas of the people who live and work here. We invite you to be a part of what's next:

Follow us on social media
Instagram
Meta
X
LinkedIn

Subscribe to our newsletter and check out the OSE Greenspace blog for updates and opportunities to get involved.

Visit our website for updates and opportunities for you to provide input.

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Appendix A and B: Actions and Indicators Status

Use project appendices to dig into 2013 Action and Indicator data in spreadsheet form.

Review on our website

Staff members at an informational table about waste sorting. Photo: Seattle Public Utilities.

Glossary

Adaptation	In human systems, the process of adjustment to actual or expected climate and its effects, in order to moderate harm or exploit beneficial opportunities. In natural systems, the process of adjustment to actual climate and its effects; human intervention may facilitate adjustment to expected climate. [1]
Americans with Disabilities Act (ADA)	A federal civil rights law that prohibits discrimination against people with disabilities in everyday activities. The ADA guarantees that people with disabilities have the same opportunities as everyone else to enjoy employment opportunities, purchase goods and services, and participate in state and local government programs [2]
BIPOC	An acronym that stands for Black, Indigenous, and People of Color. [3]
Carbon neutral	When the net balance of emission sources and removals is zero. [4]
Climate	Climate in a narrow sense is usually defined as the average weather, or more rigorously, as the statistical description in terms of the mean and variability of relevant quantities over a period of time ranging from months to thousands or millions of years. The classical period for averaging these variables is 30 years, as defined by the World Meteorological Organization. The relevant quantities are most often surface variables such as temperature, precipitation, and wind. Climate in a wider sense is the state, including a statistical description, of the climate system. [5]
Climate change	A change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcings, or to persistent anthropogenic changes in the composition of the atmosphere or in land use. [6]
Community resilience	Community resilience is the ability of a community to prepare for anticipated natural hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions. [7]
Consumption-based emissions	Greenhouse gas emissions associated with goods and services. These include embodied emissions associated with the production, transportation, use and disposal of goods, food, and services. [8]
Decarbonization	The process by which countries, individuals, or other entities aim to achieve zero fossil carbon existence. Typically refers to a reduction of the carbon emissions associated with electricity, industry, and transport. [9]

District energy	A heating and cooling systems that uses a network of underground pipes to pump steam, hot water, and/or chilled water to multiple buildings in an area such as a downtown district, college or hospital campus, airport, or military base. [10]
Electric vehicle (EV)	A vehicle that can be powered by an electric motor that draws electricity from a battery and is capable of being charged from an external source. [11]
Environmental justice (EJ)	The fair treatment and meaningful involvement of all people regardless of race, color, national origin or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. [12]
Extreme heat	Times when temperatures are substantially hotter and/or more humid than average for a location and date. [13]
Food justice	Food justice is a series of complex and deep relationships between food, race, health, income, and culture. See Seattle's Environmental Justice Committee set of Food Justice Values to promote a shared understanding of key concepts, strategies, and frameworks in food systems work. [14] [15]
Frontline communities	People who experience the first and worst consequences of climate change. Such residents' health and livelihoods are often highly vulnerable to climate-exacerbated hazards and economic disruptions, and their communities often lack basic support infrastructure and suffer disproportionately from the compounding impacts of pollution, discrimination, racism, and poverty. Frontline communities include Black, Indigenous, and People of Color (BIPOC) communities, immigrants and refugees, people living with low incomes, communities experiencing disproportionate pollution exposure, women and gender non-conforming people, LGBTQIA people, people who live and/or work outside, those with existing health issues, people with limited English skills, and other climate-vulnerable groups. [16]
Geographic Information System (GIS)	A computer system that analyzes and displays geographically referenced information. It uses data that is attached to a unique location. [17]
Green infrastructure	A wide array of natural assets and built structures, including parks and other areas with protected tree canopy, and management practices at multiple scales that manage wet weather and that maintain and restore natural hydrology by storing, infiltrating, evapotranspiring, and harvesting and using stormwater. [18]
Greenhouse gas emissions	The release of gases into the atmosphere - such as carbon dioxide, methane, nitrous oxide, and certain synthetic chemicals - that trap heat in the atmosphere and contribute to climate change by enhancing the Earth's natural greenhouse effect. [19]
Heat island effect	Heat islands occur when a developed area experiences higher temperature than nearby rural areas, or when areas within a city experience hotter temperatures. [20]

Heat pump	Heat pumps use electricity to transfer heat from a cool space to a warm space, making the cool space cooler and the warm space warmer. During the cooling season, heat pumps move heat from inside to the outdoors, and during the heating season, they move heat from the cool outdoors to inside. Because they transfer heat rather than generate heat, they offer an energy-efficient alternative to furnaces and air conditioners. [21]
Indicators	Indicators are means of measuring the state or level of an impacted phenomenon. They are expressed using metrics which define their units of measurement. For example, air quality is measured in the concentration of certain particles or molecules in the air, such as milligrams of particulate matters per cubic meter of air, or parts-per-million (ppm). [22]
Infill development	The process of developing vacant or under-utilized parcels within existing urban areas that are already largely developed. [23]
Low Impact Development (LID)	A stormwater and land use management strategy that tries to mimic natural hydrologic conditions by emphasizing the following techniques: conservation, use of on-site natural features, site planning, and distributed stormwater best management practices (BMPs) integrated into a project design. [24]
Medium and heavy duty (MHD) vehicle	Vehicles such as delivery trucks, school and transit buses, regional freight trucks, drayage vehicles, and other work vehicles that typically run on diesel fuel. [25]
Mitigation	Any action taken by governments, businesses, or people to reduce or prevent the release of greenhouse gases from human activities, or to enhance carbon sinks, which remove them from the atmosphere. [26]
Mode share	The percentage of trips made or of travelers using a given form of transportation (walking, bicycling, public transportation, or private vehicle). [27]
Net metering	Net metering allows for the flow of electricity both to and from the customer—typically through a single, bi-directional meter. When a customer's generation exceeds the customer's use, electricity from the customer flows back to the grid, offsetting electricity consumed by the customer at a different time during the same billing cycle. [28]
Net zero	A state in which the greenhouse gases going into the atmosphere are balanced by removal out of the atmosphere. [29]
Product stewardship	Also known as "extended product responsibility" (EPR), product stewardship calls on those in the product life cycle—manufacturers, retailers, users, and disposers—to share responsibility for reducing the environmental impacts of products. [30]

Public right-of-way (ROW)	Easements for public travel and other secondary street purposes (such as utilities). [31]
Racial and social equity	When social, economic, and political opportunities are not predicted based upon a person's race or social status. [32]
Racial and Social Equity Index	A census tract-based tool that combines information on race, ethnicity, and related demographics with data on socioeconomic and health disadvantages to identify where priority populations make up relatively large proportions of neighborhood residents. The City uses it to aid in identifying planning, program, and investment priorities. [33]
Resilience	Resilience is a broad concept that can apply to individuals, communities, and social, economic, and environmental systems. Resilience is the capacity to cope with a hazardous event or long-term trend in ways that maintain essential identities, functions, and structures while also maintaining the capacity to learn, adapt, and/or transform [34]
Runoff	That part of precipitation that does not evaporate and is not transpired, but flows through the ground or over the ground surface and returns to bodies of water. [35]

1 Intergovernmental Panel on Climate Change. (2012). Glossary of Terms
2 ADA.gov
3 WA State LGBTQ Commission
4 Implementation Plan for a Carbon Neutral King County Government
5 Intergovernmental Panel on Climate Change. (2012). Glossary of Terms
6 Intergovernmental Panel on Climate Change. (2012). Glossary of Terms.
7 Federal Emergency Management Agency
8 King County 2025 Strategic Climate Action Plan
9 C40 Cities Climate Action Planning: Defining Carbon Neutrality for Cities & Managing Residual Emissions
10 Environmental and Energy Study Institute
11 U.S. Department of Energy
12 Washington State Environmental Justice Task Force
13 Centers for Disease Control and Prevention (CDC)
14 WA State Office of Equity
15 Seattle's Environmental Justice Committee
16 Washington State Department of Commerce and King County 2025 Strategic Climate Action Plan
17 U.S. Geological Survey (USGS)
18 Washington State Legislature House Bill 1181
19 U.S. Environmental Protection Agency
20 U.S. Environmental Protection Agency
21 U.S. Department of Energy: Heat Pump Systems
22 C40 Urban Climate Impact Framework
23 Municipal Research and Services Center of Washington
24 Washington Department of Ecology
25 Center for Climate and Energy Solutions

26 United Nations Development Programme
27 Safe Routes Partnership
28 U.S. Department of Energy: Energy Efficiency & Renewable Energy
29 Net Zero Climate
30 U.S. Environmental Protection Agency
31 Municipal Research and Services Center of Washington
32 Seattle Race and Social Justice Initiative's Racial Equity Toolkit
33 Seattle GeoData
34 Intergovernmental Panel on Climate Change. (2014). Climate Change 2014: Synthesis Report
35 Intergovernmental Panel on Climate Change. (2012). Glossary of Terms