The City of Lake Forest Park Climate Action Plan

Executive Summary

The Lake Forest Park (LFP) Climate Action Committee has researched the impact of greenhouse gas emissions on climate change and developed a Climate Action Plan. The work of the committee relies heavily on the emissions analysis done by King County, and climate action plans of other cities in King County.

The Mayor of LFP was authorized by the City Council to sign onto the King County Cities Climate Collaborative (K4C) Joint Letter of Commitment: Climate Change Actions in King County in March 2019. Included in this resolution (1726) is a commitment to reduce GHG by 50% by 2030, compared to a 2007 baseline.

Our city is experiencing the effects of climate change:

- Extreme weather is affecting us with flooding, wildfire smoke and heat domes.
- There were 51 extreme heat days in 2022. This is 23 more extreme heat days than the 1970s average. (Stacker 2023)
- Reduced snowpack is affecting water supply, early spring melt results in scouring of streambeds. https://www.nature.com/articles/s43017-021-00219-y
- Change in climate is impacting local gardens, the hardiness zones are changing, earlier spring temperatures damage plants and birds and insects that feed on the plants have not arrived creating stressed plants. https://www.seattletimes.com/seattle-news/environment/seattle-urban-area-trends-warmer-in-newest-usda-plant-hardiness-map/
- Mountain pine beetles are impacting our forests, ticks carrying Lyme disease are beginning to arrive in Western Washington, Avian flu has arrived infecting backyard flocks. https://www.opb.org/article/2023/11/17/climate-change-is-hastening-the-demise-of-pacific-northwest-forests/
- Increasing temperatures are adversely effecting water temperatures in the lakes and streams causing stress on fish populations.
  Mantua, N.J., Tohver, I., Hamlet, A.F. 2009. Impacts of climate change on key aspects of freshwater salmon habitat in Washington State Chapter 6 in *The Washington Climate Change*

Impacts Assessment: Evaluating Washington's Future in a Changing Climate, Climate Impacts Group, University of Washington, Seattle, Washington.

- Heat waves affect health and well-being, especially seniors and young children. https://www.cdc.gov/disasters/extremeheat/older-adults-heat.html

What are the sources of Greenhouse Gas (GHG) emissions in Lake Forest Park?

According to the K4C emissions report, fossil fuel-based transportation is the largest source of GHG emissions in LFP. Air travel is 32%, on-road is 31% and off-road (mostly heavy construction equipment) is 6%. The fuel burned to run these vehicles is the major contributing factor to GHG emissions in LFP.

The second largest category of GHG emissions in LFP is fossil fuel-based appliances in homes and other buildings. Natural gas used for heating and cooking represents about 19% of total GHG emissions, a smaller amount from building materials and construction, 7% from refrigerants, and 2% from solid waste. (https://your.kingcounty.gov/dnrp/climate/documents/puget-sound-regional-emissions-project-summary.pdf)

The need for action to address climate change is urgent. LFP Residents indicate that they are concerned about climate change, they expect the city to partner with other cities to implement policies, and they want to know what they can do individually.

This Climate Action Plan has three primary goals:

1. Reduce emissions produced within the City of Lake Forest Park
2. Enhance Lake Forest Park's ecosystem health and carbon sequestration
3. Increase Lake Forest Park's resilience and preparedness

To reach these goals, the Climate Action Committee is suggesting six areas of action to reduce GHG and to prepare for the impacts of climate change and meet the goals of the Climate Action Plan:

1. Transportation and Mobility
2. Built Environment and Land Use
3. Natural Environment, Ecosystems, and Sequestration
4. Consumption and Solid Waste
5. Community Resilience and Preparedness

To change the trajectory of climate change, every sector in society will have to make a concerted effort. The City of Lake Forest Park has a small population with a beneficial tree cover, and has

limited resources. The Climate Action Committee is encouraging the city to make major changes in its municipal operations.

Making meaningful progress towards these goals will require the City hiring staff or significantly reallocating staffing resources. Collaboration with neighboring cities must be a priority if limited resources are to be used effectively. No policy should be implemented or item purchased without careful and public consideration of the impact on climate.

The plan presented here is intended to guide the current City Council in its policy decisions, public outreach, purchases, and hiring. The plan is intended to assist the Council in strategizing over the long term. The immediacy of global and local climate change requires swift implementation of best practices and vigilant ongoing updates of this action plan to ensure continued support for the growing and changing needs in our community. An important mission of the LFP Climate Action Committee is to ensure that the actions outlined here will be a vital and evolving guide for governance in Lake Forest Park, regularly updated and considered a living document.

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beginning in February 2022. In preparing this document, the LFP Climate Action Committee has gathered and analyzed information pertinent to climate concerns of Lake Forest Park and our surrounding area. Specifically, the CAC committee has:

- Reviewed existing municipal Climate Action Plans from neighboring cities to identify best practices
- Reviewed the 2015 LFP Comprehensive Plan (Lake Forest Park Planning Committee 2016), the 2018 100-year Legacy Plan (Lake Forest Park Legacy Planning Team 2019), and previous climate initiatives by the city of LFP (see Appendix 1)
- Compiled demographic, energy use, and emission production trends of Lake Forest Park residents using 2020 US Census data (US Census Bureau 2020), data provided by the Washington State Department of Licensing, and the 2008 LFP Prelim ianry GHG Inventory and Proposed Climate Action Plan (see Appendix 5)
- Identified strategies and actions matrix for the five focus areas that will help the community meet its climate goals
- Built collaborations between Lake Forest Park and neighboring cities and communities, through city commissions, committees, boards, and task forces
- Engaged and surveyed LFP citizens to gather insights and feedback on actions, strategies, and priorities to inform CAP development
- Identified potential funding sources to achieve the Climate Action Plan goals

Letter from LFP City Mayor

Dear Lake Forest Park Residents,

I am pleased to introduce Lake Forest Park's Climate Action Plan. As the embodiment of the local community, city government can provide leadership in efforts to reduce our carbon footprint. Recognizing this in 2017, the City of Lake Forest Park became a member of the King County Cities Climate Collaboration (K4C), which adopted a goal of cutting countywide carbon emissions in half by 2030, and by 80% at the midpoint of the century (compared to a 2007 baseline).

The City has been taking action already: we are changing over both our police and public works vehicles to be battery-powered. We use LED lights in City Hall. And we have developed and created this Climate Action Plan, thanks to the tireless work of the resident Climate Action Committee.

As the committee notes, implementing this plan and monitoring and documenting the results will be the next goal. At recent meetings and hearings and through an on- line survey, Lake Forest Park residents have made it clear that global warming and the impact it will have on future generations is an important issue. Many of you have contributed your thoughts and ideas concerning measures the city and residents should take to reduce greenhouse gas emissions. These include improvements in energy efficiency and renewable energy and changes in areas such as transportation, recycling and landscapes. This valuable input from residents has informed the Climate Action Plan so that it is truly a document of our common interests.

I am certain that with the guidance of this plan both the City government and Lake Forest Park residents can together make meaningful changes in our everyday lives and operations to reduce our carbon footprint. I look forward to working together toward a more sustainable future for Lake Forest Park and for all of us!

Sincerely,

Mayor

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LAKE FOREST PARK
WASHINGTON

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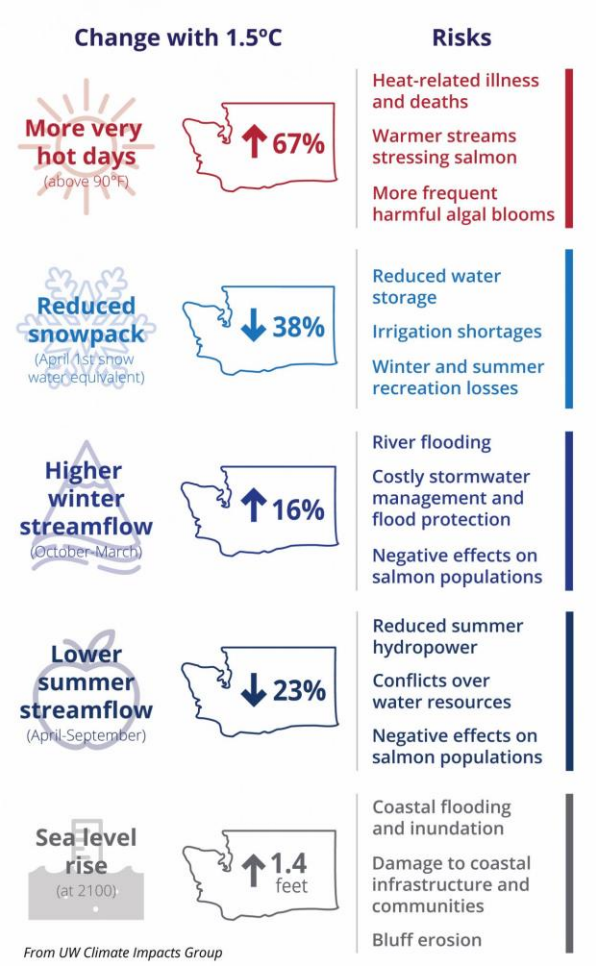
Climate Action Plan for Lake Forest Park, WA

Section 1: Context

Climate Impacts in Puget Sound and Lake Forest Park, WA

The Puget Sound Region is experiencing more extreme weather events more often, driven by the rapid warming of the planet that began with the industrial revolution (NCA5, 2023). The impacts of these extreme weather events can be devastating and lasting. The unprecedented 2021 PNW heat wave (June 25-July2) catastrophically impacted British Columbia and Washington as well as neighboring provinces and states. Effects on humans and ecosystems continued well beyond June 2021 and included mortalities in both human and aquatic populations, reduced crop and fruit yields, and triggered river flooding from rapid snow and glacier melt. Months after the heat wave, a substantial increase in wildfires associated with the heat contributed to landslides and poor air quality in the Puget Sound Region.

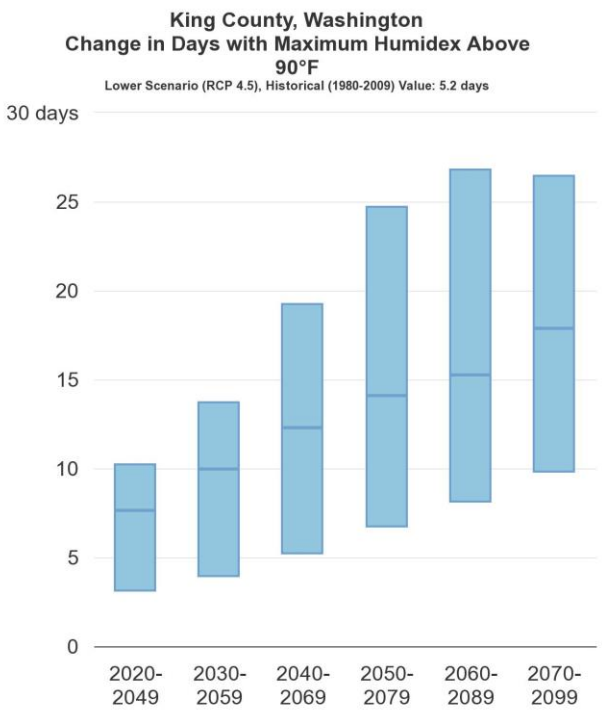


Projections using different models agree that warming of the planet by 1.5°C (2.7°F) will cause a large range of extreme challenges in managing natural systems. Specific impacts predicted for Washington State are summarized in Figure 1.

Figure 1: Projected impacts of 1.5°C (2.7°F) warming on Washington State. Projected changes in hot days relative to 1976- 2005, changes in sea level rise relative to 1991-2010; all others relative to 1970-1999. Data from: Fourth National Climate Assessment; Climate Change Impacts and Adaptation in Washington State; State of Knowledge: Climate Change in Puget Sound; Projected Sea Level Rise for Washington State – A 2018 Assessment. Figure reproduced from the UW Climate Impacts Group publication No Time to Waste.

In the next section, we look in more detail at the climate change impacts that are already felt in Lake Forest Park. We also consider what the

future could hold, depending on choices we make today.



Increasing Temperatures and Extreme Heat: Temperature is what is measured by a thermometer, and when you add in humidity, that is the heat we feel. An index called Humidex represents the combination of humidity and temperature that is used to describe and model heatwaves. The western U.S. is experiencing more frequent multi day heat waves that are hotter, larger, and longer lasting than it had in previous decades.

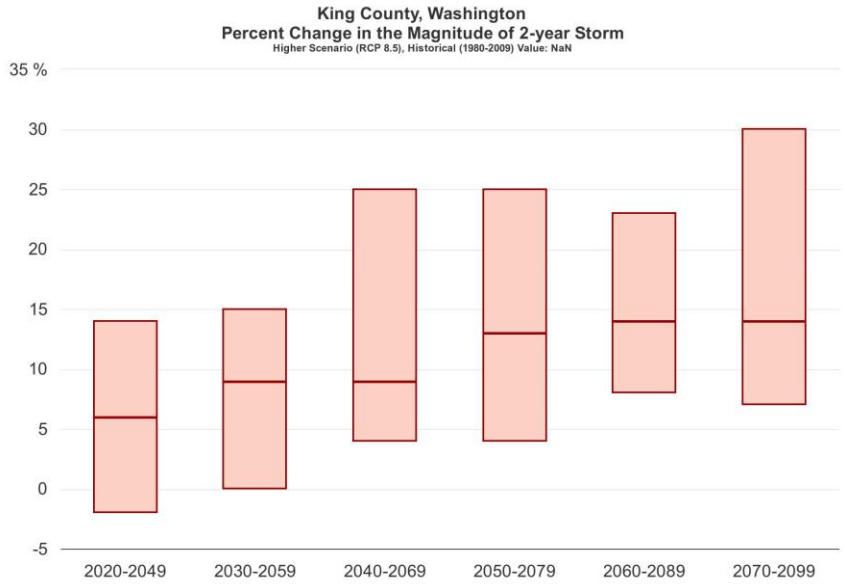
Heat events in King County in the future, a future in which we significantly curb global CO_2 emissions (a best case scenario) are shown in Figure 2. The graph shows bars for 30 year increments, generated from the "Climate Mapping for a Resilient Washington" tool developed by the University of Washington Climate Impacts Group in partnership with the University of Idaho, Research Data & Computing Services for web development. Even if we curb emissions significantly to prevent average temperatures rising more than 1.5C, King County would still average 2-3 more extreme heat days each year between 2030-2059 than in the current 30 year period.

For Lake Forest Park we are concerned about this continued increase in hotter average temperatures and associated heat waves because they result in:

- An increase in heat-related illness and death especially for children, the elderly and individuals with asthma, COPD, and other breathing issues.
- An increased incidence of diseases carried by mosquitoes, ticks, and other vectors that thrive in warm/humid climates. Waterborne diseases will also become more common.
- Disruption and accelerated deterioration of important infrastructures: energy, buildings, water, road, rail, tarmacs.
- Reduction in the oxygen the water can hold, compromising habitats for many aquatic animals. Low oxygen conditions also promote blooms of harmful algae and bacteria that poison streams and waterways.

Changing Precipitation Patterns: Along with heatwaves and related drought conditions caused by warmer temperatures, heavy precipitation events are becoming more common across the

country. Over the past several decades, increases in the temperature of the Pacific Ocean have driven warmer atmospheric currents that transport larger amounts of moisture into the U.S. west coast. Warmer air carries more water so as air temperatures increase, these currents carry larger volumes of water. Flooding associated with these heavy precipitation events damages infrastructure and threatens the health and safety of residents.



In King County, under the higher emissions scenario (projections for the lower emissions scenario is not modeled by "Climate Mapping for a Resilient Washington" tool), the amount of precipitation in a "two-year storm" (a storm of such magnitude only seen every two years), will contain on average 6% more water in 2030 than the average seen in the baseline years of 1980-2009 (Figure 3). This is 3% more than the average projected to be seen in the current 30 year interval (2020-2049).

Heavy rainfall events and rapid melting of snow fields negatively affect the natural and built environment of Lake Forest Park in the following ways:

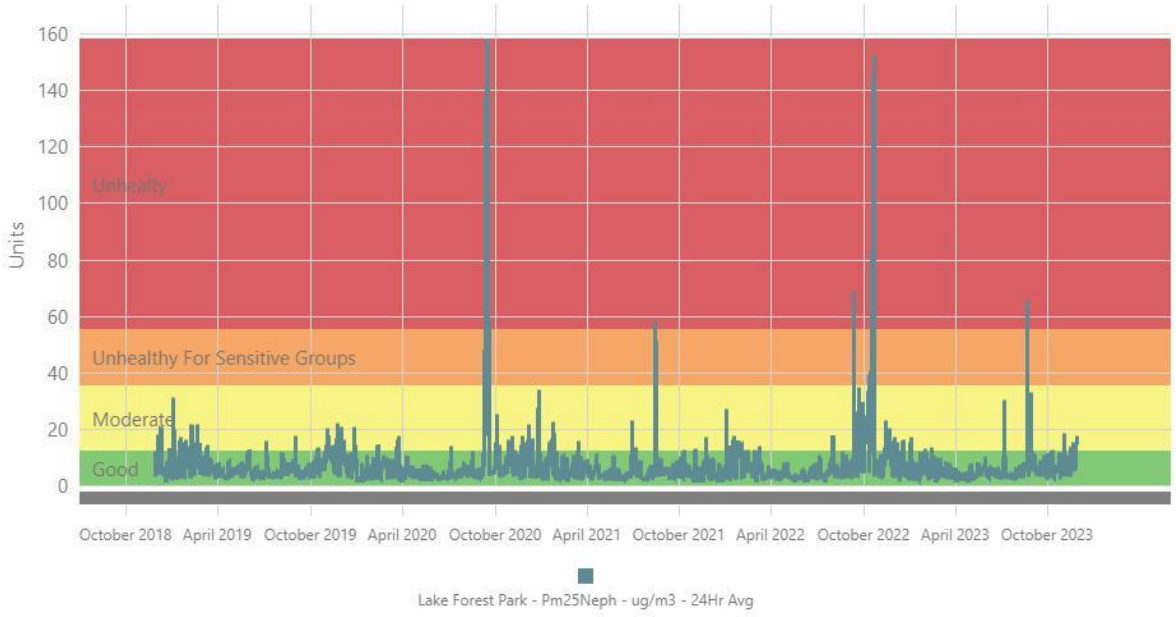
- Increase in the incidence of mudslides and urban flooding damaging homes, businesses, and roads.
- More polluted runoff causing nutrient loading and more frequent algal blooms in Lake Washington.
- Large, rapid flow of water through streams that scours streambeds. This scouring harms salmon populations and other aquatic life, including by reducing salmon egg viability.

Increasing wildfire severity and associated hazardous air quality: Large and severe fires in the Pacific Northwest are associated with warm/dry conditions, conditions that will likely occur more often as the earth continues to warm (Halofsky et al, 2020). Residents of LFP should be

prepared for distant wildfires to disrupt energy infrastructure as well as increase the number of days with hazardous air conditions caused by wildfires.

Smoke from burning vegetation and built structures contains fine particulate matter (PM2.5), ozone precursors, and other toxic components that can travel hundreds of miles before settling out of the air. Fine particulate matter is one component of smoke that is monitored carefully because it passes through the nose into our throats and lungs. Additionally, particles carried by smoke that settle in streams and soil contain chemicals which can acidify these systems and also create nutrient deficiencies that harm living things and thus entire ecosystems[1].

Figure 4. Five years of air quality data (PM2.5) in Lake Forest Park, WA, downloaded from the Puget Sound Clean Air Agency.



For one or more days in the summers of each of the last 3 years, residents of Lake Forest Park, and our surrounding land and streams, were exposed to unhealthy air generated by distant wildfires (Figure 4). Summers are cherished times for those in the PNW, times spent outdoors in our gardens, on trails, at the beach. But unhealthy smoke drives us indoors to avoid exposure to smoke pollutants, pollutants associated with increases in mortality, asthma, and other respiratory problems, as well as worse outcomes for birth, COVID-19 infection rates, and emotional well-being (summarized in NCA 5). Leadership from the city in preparing for these events can empower residents to take action, create a sense of shared mission, and support emotional well being.

[1] "Particle pollution in Washington's air." 2023. Washington State Department of Ecology. https://ecology.wa.gov/Air-Climate/Air-quality/Air-quality-targets/Air-quality-standards/Particle-pollution.

Box 1. What is climate change?

Climate change refers to long-term shifts in temperatures and weather patterns. Earth's average temperature has fluctuated over its long geological history, due to its orbit, changes in atmospheric composition, and solar activity. However, in the last 10,000 years, Earth has been in a predictably stable part of its climate cycle, which has provided the environmental context for current life.

Human activity has altered our planet more rapidly and to a greater extent than any events in the last million years. In just the last 200 years, the discovery that fossil fuels (coal, oil and gas) could be exploited relatively easily to generate massive amounts of energy drove the astounding technological progress of the Industrial Revolution, with enormous benefit to mankind.

A trailing scientific understanding followed this revolution to reveal indisputable evidence that the burning of fossil fuels releases long-lived, heat-trapping gasses (greenhouse gasses, or GHGs). These gasses include carbon dioxide (CO2) and methane (CH4). The exponential increase in production of energy to power human activity has created GHG pollution in quantities that have significantly changed the composition of Earth's atmosphere. Like an ever thickening blanket wrapping the earth, accumulating GHGs prevent the escape of heat that would normally dissipate into outer space, thus disrupting the regulation of Earth's relatively constant climate.

Acceleration of fossil fuel exploits have filled our atmosphere with GHGs, increasing Earth's average temperature so steeply that it is now warmer than any time in the last 800,000 years (well before humans walked Earth). Since 2000, almost every year has exceeded the record of hottest average temperature set by the previous year. True to this trend, September 2023 was the hottest month on record on Earth.

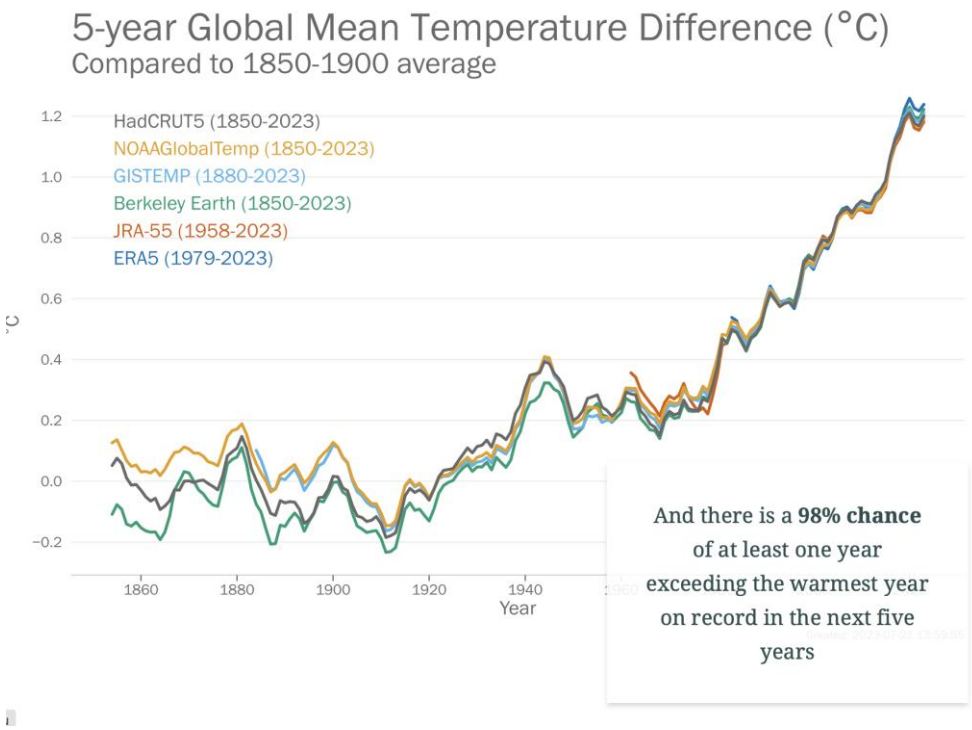


Figure caption: Global Data Sets. "Five-year running average of global temperature anomalies (°C relative to 1850–1900) from 1850–1854 to 2019–2023 (data to June 2023) shown as a difference from the 1850–1900 average." More information on the original data sets and the original figure can be found in Figure 2 and the index of [United in Science 2023, Sustainable Development Edition. World Meteorological Organization (WHO), 2023.]

Earth's closely interrelated systems compound the effect of temperature change, quickly disrupting conditions throughout the atmosphere, oceans, land, polar ice, and living organisms. Complex feedback loops further multiply impacts in ways that we cannot predict. Increasing temperatures on Earth have resulted in global shifts in weather patterns and increasing frequency of extreme events, but also cause havoc in many ways we are not aware of until changes occur.

Our ecosystems, including human ones, have, over eons of time, developed dependencies to conditions of a stable climate. Disruption of this stability on the scope we are now experiencing threatens unprecedented risk to survival on a very broad scale.

Ecosystems are Changing: Ecosystems and humans that are part of these systems must adapt to the changing environmental conditions. In LFP we are seeing climate changes that include more extreme weather days, including heavy rainfall, hotter summers, and springs that come sooner.

For people in LFP we can adapt by installing heat pumps, adding air filtration systems, and more. For plants and animals they must migrate or evolve.

LFP residents are proud of our city's gardens and greenways. Tree canopy keeps us cooler in the summer, and our gardens are cherished places where we grow food and flowers. These are places where family and friends gather. Changes to the timing and patterns of freezing temperatures in the PNW, number of dry/hot days, and more will stress plants that have otherwise grown well in our area. We've seen pine beetle infestations of drought stressed trees, one example of what could be to come. Preparing for and understanding these changing systems will help us adapt, and modify our expectations as we plan our gardens and yards for a warmer/drier climate.

Why we need a Climate Action Plan

Warming of our planet, caused over the last century by human emission of heat-trapping gasses into Earth's atmosphere, is rapidly altering the stability of ancient systems that underlie current life on Earth. In Lake Forest Park and the surrounding Puget Sound, these changes manifest in climate events that include accelerating incidence of extreme heat, drought, hazardous air quality caused by wildfires, and heavy storms that bring destructive flooding events.

Critical accumulation of GHG pollution in our atmosphere has already caused significant global climate change. The degree to which future warming occurs depends on choices made now to address greenhouse gas emissions. National goals, calculated to avoid future catastrophic climate events, require overall reduction of American GHG emissions by more than 6% per year (NCA5 2023). Concomitantly, our ability to manage compounding current and future climate impacts requires immediate proactive preparation and investment in infrastructure.

Local government has a clear, crucial role in facilitating rapid transition to low-carbon, climate-resilient, sustainable communities. In 2019, Lake Forest Park city council realized this commitment by voting to join the King County Cities Climate Collaborative (K4C) (LFP resolution 1726), pledging a 50% reduction of 2007 baseline GHG emissions by 2030 and 95% reduction by 2050.

Reducing Lake Forest Park Greenhouse Gas Emissions

LFP Emissions Profile

In 2022 The Puget Sound Regional Emissions Analysis Project, led by the King County Climate Data cooperative, released data estimated for local community sources of GHG emissions generated from human activity. Specific emissions data for the City of Lake Forest Park are summarized in Figure 5.

The majority (69%) of LFP GHG emissions derive from the transportation sector (in green in Figure 5). On-road vehicles (passenger vehicles, freight trucks, and transit) and "non-road

equipment," (recreational, construction, industrial, lawn/garden, agriculture, commercial and pleasure craft) create just over half of transportation emissions. Air travel (estimated for LFP based on average city-wide income) contributes the other half.

Energy burned in government, business and resident structures (shown in blue in Figure 5) accounts for the next greatest source of emissions (22%) in LFP. While electricity supplied to LFP by Seattle City Light is produced from hydropower and contributes negligible GHG emissions, 75% of structures in the LFP built environment rely on natural gas for water heaters, household heat and/or cooking.

The remaining 7% of total GHG emissions in LFP are produced from refrigerants, mainly CFCs used in refrigeration and air conditioning, and decomposition from solid waste exported to landfill. These sources are shown in dark and light purple, respectively in Figure 5. More detail on LFP's emissions profile, and on the breakdown of GHG production derived from municipal operations is discussed in Appendix 2.

Figure 5 version 1:

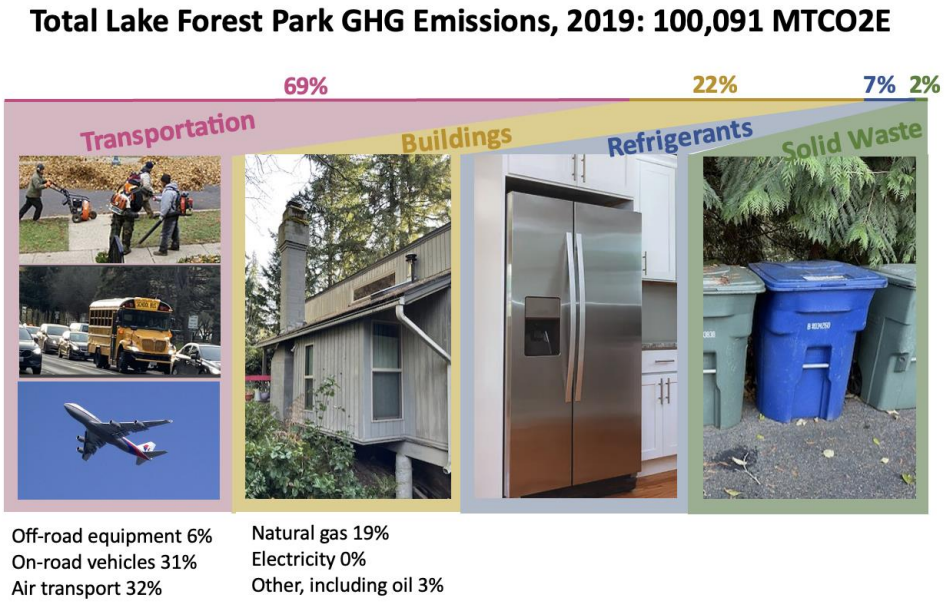
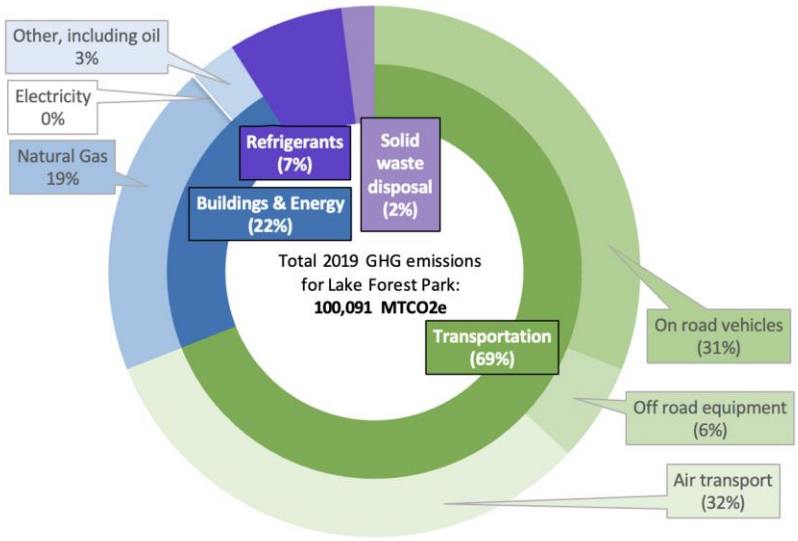


Figure 5. Human created GHG Emissions generated in LFP, by sector (2019). Data generated by the Puget Sound Regional Emissions Analysis Project, and released as part of the Geographic GHG Emissions Inventory Database. Further breakdown of emissions sources are documented in Appendix 2.

Figure 5 version 2:



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Lake Forest Park Emissions Targets

If current human activity continues without significant overall decrease in fossil fuel and land usage, global GHG emissions are projected to increase another 50% by 2100. The dashed line in Figure 6 illustrates this potential trend.

Regulations enacted at federal, state and regional levels are forecast to reduce atmospheric GHG by 2030 to about 35% of levels recorded in 2007, and to 50% by 2050 (Figure 6, orange section). These higher level regulations (detailed in Appendix 3) empower local actions and are a valuable springboard for municipal level action.

The green section of Figure 6 illustrates the forecasted effects of actions to reduce GHGs tailored to King County municipal regions. This emphasizes the critical role of locally-focused actions motivated through municipal governments in achieving emissions reduction goals of 50% of the 2007 baseline by 2030, 75% by 2040 and **95% by 2050**.

The K4C identifies sectors where concentration of local action will have the greatest consequence on mitigating GHG pollution in the Puget Sound area: 1) Buildings, 2) Transportation, 3) Solid Waste Disposal, and 4) Ecosystems where CO_2 is naturally sequestered.

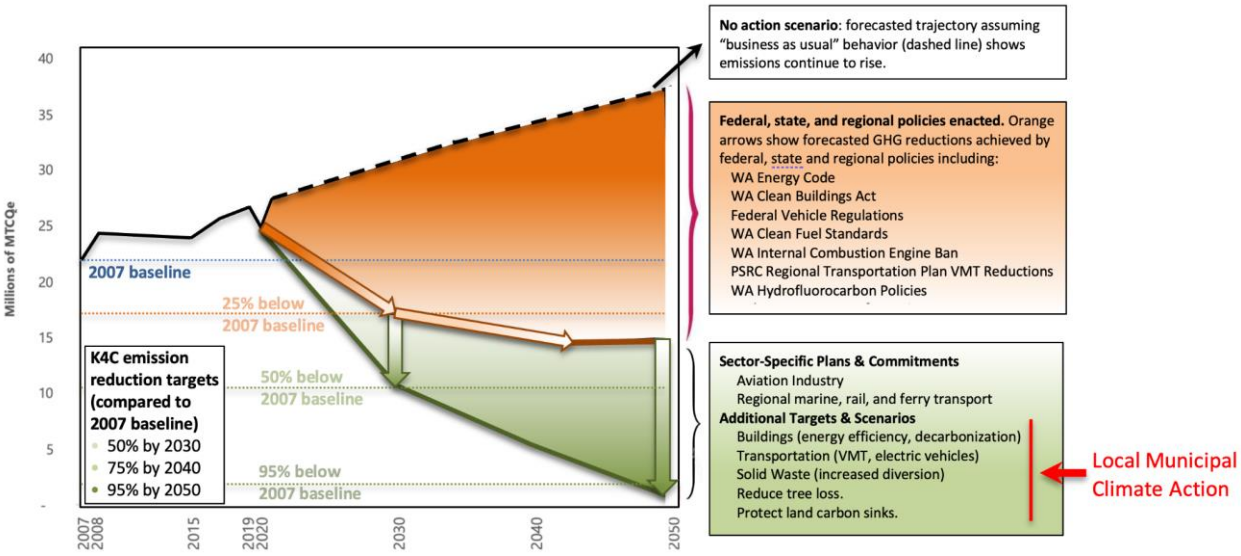


Figure 6. Forecasted emissions and reductions associated with action at different organizational levels (Figure adapted from King County.)
*We may want to simplify this figure by Not listing the (red section) actions that are spelled out above, but instead listing these in appendix. This will highlight municipal actions possible in this LFP climate action plan.

Protecting our community and environment from climate changes to come

Mitigation of further GHG emissions is crucial to stemming the worsening of future heating and associated other climate impacts. However, halting emissions will not immediately *reduce* atmospheric CO_2 concentrations or return average global temperatures to the pre-industrial levels to which current life on Earth is adapted. This is because many of the major greenhouse gasses persist in the atmosphere for tens to hundreds of years after being released. Thus the warming potential of GHGs already in the atmosphere will continue to affect both present and future generations. Thus, in addition to proactive action to prevent human-derived GHG emissions from entering the atmosphere, local civic action by governments, businesses, organizations, and individuals have a crucial role in anticipating the vulnerabilities and bolstering the strengths of LFP inhabitants and natural environments. This climate action plan addresses actions necessary for GHG mitigation and for ensuring the resiliency for our entire community to thrive despite future climate change.

Clearly the range of impending impacts will challenge different people, natural areas and infrastructure to different degrees. To ensure a healthy productive community, this committee recommends considering climate action in the context of a comprehensive understanding of Lake

Forest Park demographics and resources, so that equitable and just inclusion for all can strengthen our city's ability to withstand climate impacts together.

Our Path Forward

A climate action plan provides a road map for our LFP government and community to address climate change. It provides strategies to reduce GHG emissions and sequester carbon while also preparing communities for climate impacts that cannot be avoided. Implementation of these strategies will lead to investment in adaptations that build community resilience and prioritize fair, equitable and empowering actions for the most vulnerable communities.

This document presents recommendations for essential actions needed to end GHG emissions generated in Lake Forest Park and for building a community that understands and is well-prepared for future climate impacts. Action on these recommendations will put LFP on a path to join other communities in:

Mitigating GHG emissions to almost zero over the next 30 years through

- Policy changes for the city government that are implemented in municipal operations
- Policies that incentivize emission reductions by businesses and households
- Community members adoption of actions and lifestyles that reduce or eliminate emissions

Building the resiliency of our community to climate impacts by

- Assessing and alerting members to the strengths and vulnerabilities of our community to climate impacts of Lake Forest Park
- Establishing a practice of continual consideration of climate-related issues at the individual, community and municipal levels
- Adopting adaptive, proactive strategies for implementing actions in a manner that is just and appropriate for all community members.

Research by the Climate Action Committee finds five focus areas where the City of Lake Forest Park can take action to address mitigation and resilience goals. We have organized the second section of this plan, our Strategies and Actions,, around these five focus areas:

1. Improvement of the transportation sector and land use (Focus Area 1: Transportation and Mobility (TR))
2. Transformation of built environments (Focus Area 2: Built Environment/Land use (BE))
3. Protection of our natural environments, resources, and ecological systems (Focus Area 3: Natural Environment, Ecosystems, Sequestration (NE))
4. Management and reduction of waste and consumption (Focus Area 4. Consumption and Solid Waste (CW))

5. Strengthening of community to promote adaptations and collaborative culture that will allow all residents to thrive despite climate setbacks (Focus Area 5. Community Resilience and Preparedness (CR))

LFP Community Values and Response

The City of Lake Forest Park was originally platted in 1910, mostly for second residences intended as nature retreats for professionals residing in nearby Seattle. In 1961 residents incorporated as the City of Lake Forest Park to control pressures of increasing development. The planning and vision that went into creation of the City of LFP reflects the value that residents placed on sustainable living and environmental protection. These values persist to the present and are articulated in The City of Lake Forest Park Comprehensive Plan (ratified in 2016), and the City of Lake Forest Park Legacy 100-year Vision Statement (ratified in 2018):

> *"The Comprehensive Plan and Legacy Vision share a common vision of sustainability and environmental preservation. The Legacy Vision identifies a number of specific green infrastructure projects that could be implemented over time to achieve this vision. The Comprehensive Plan recognizes and incorporates the importance of environmental preservation in all elements of the plan and highlights specific green infrastructure projects identified in the Legacy Vision next to applicable goals and policies. Together, the Comprehensive Plan and Legacy Vision seek to promote, enhance, and preserve the City's long-term environmental quality and green character."*

Responding effectively to the climate crisis will require that we act together to make significant changes in how we live our lives. Engaging as much of the Lake Forest Park community in the decision-making processes by which we build resilience and reduce our GHG emissions is an important step in meeting the challenges ahead.

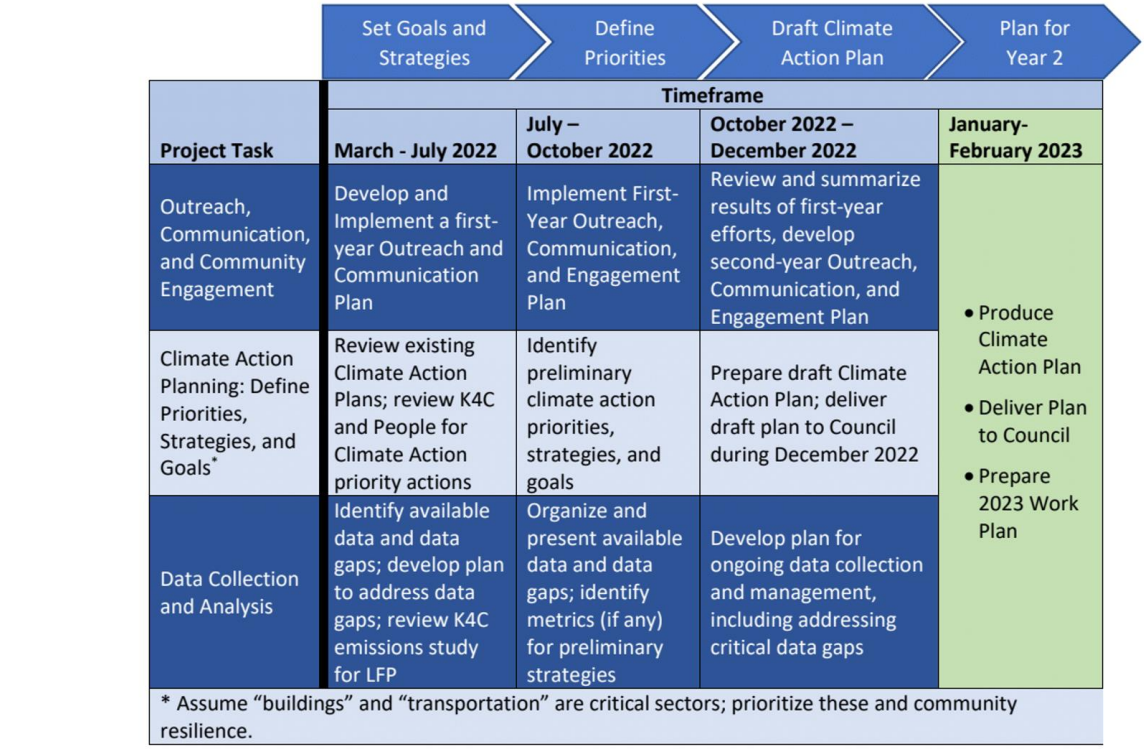
> *"Bringing the public into local meetings and assemblies about a range of climate resiliency programs, such as green jobs, renewable energy, clean transportation, and climate action plans, is the starting point for developing equitable and just transition strategies to reduce greenhouse gas emissions at the community level."*

Citation: Almeida, P., González, L.R., Flores, E.O. et al. The building blocks of community participation in local climate meetings. npj Clim. Action 2, 37 (2023). https://doi.org/10.1038/s44168-023-00071-4

The LFP City Council's creation of the LFP Climate Action Committee (CAC) demonstrates commitment to transform and accelerate local action on climate. Since inception, the CAC has

realized a key role of developing connections between the community and city government to engage ongoing action at all levels within the community.

The LFP CAC defined timelines that provided structure for moving the committee forward, toward the goal of designing the Climate Action Plan and for engaging the community.



Project Task	Timeframe: March - July 2022	July – October 2022	October 2022 – December 2022	January-February 2023
Outreach, Communication, and Community Engagement	Develop and Implement a first-year Outreach and Communication Plan	Implement First-Year Outreach, Communication, and Engagement Plan	Review and summarize results of first-year efforts, develop second-year Outreach, Communication, and Engagement Plan	• Produce Climate Action Plan • Deliver Plan to Council • Prepare 2023 Work Plan
Climate Action Planning: Define Priorities, Strategies, and Goals*	Review existing Climate Action Plans; review K4C and People for Climate Action priority actions	Identify preliminary climate action priorities, strategies, and goals	Prepare draft Climate Action Plan; deliver draft plan to Council during December 2022	
Data Collection and Analysis	Identify available data and data gaps; develop plan to address data gaps; review K4C emissions study for LFP	Organize and present available data and data gaps; identify metrics (if any) for preliminary strategies	Develop plan for ongoing data collection and management, including addressing critical data gaps	

* Assume "buildings" and "transportation" are critical sectors; prioritize these and community resilience.

Figure Caption: This is the timeline presented to the City Council in 2022.

Since March 2022 the LFP CAC developed a detailed community survey and this climate action plan while engaging with the community through workshops, tabling events and much more (Table 1).

The Survey

The LFP Climate Action Committee created online and paper versions of a 40-question survey, to gather input on community member views, priorities, concerns and ideas related to local climate changes. The Climate Action Committee carried out an active campaign to advertise and encourage participation across the community. Key findings from the 466 responses are summarized below. Complete methodology and data from the survey is reported in Appendix 4.

Key findings of the LFP Climate Action Survey	
1	**Opportunities.** LFP should connect citizens to climate issues and opportunities, including promoting existing incentives and subsidies to go electric and through partnerships with neighboring cities, nonprofits, and other LFP commissions. Successful models include the heat pump program of Energysmart eastside.
2	**Policy**. LFP city government should be a role model for other small cities, and make climate friendly policy changes and decisions collaboratively.
3	**Transportation.** LFP should improve local infrastructure and advocate for policies at the state level that reduce cars on the road.
4	**Education.** LFP should keep up to date on and educate residents about cost effective ways to reduce GHG emissions that are the least disruptive to their daily life.
5	**Policy and positive change**. Empower residents by providing pathways to advocate for climate friendly policy change.

Community Engagement

Members of the LFP CAC engaged members of the community through the survey, but also through educational workshops done in partnership with neighboring cities of Kenmore and Shoreline, conversations at community events, and much more (Table 1).

Link to table for editing and updating

Table 1. Events and activities of the LFP Climate Action Committee since its inception in 2022		
What	**Where**	**When**
Distribution of Community Survey	Throughout LFP	September- December 2022
Launched "LFP in Action" Book Club	LFP Third Place Books	November 2022
Honored: LFP CAC Receives Third Place Commons Friends of the Community Award	LFP Commons	May 25, 2023
Tabled at Green Fair	LFP Commons	April 29, 2023
Tabled at Secret Gardens of Lake Forest Park GardenTour	LFP Commons	June 17, 2023
Tabled at Farmers Market	LFP Farmers Market	July 23, 2023 and October 1, 2023
Tabled at Picnic in the Park	Animal Acres Park	September 2023
Co-hosted workshop: Go electric, Convection Stoves	LFP Commons	July 18, 2023
Co-hosted workshop: Go electric Solar	Kenmore	August 17, 2023
Co-hosted workshop: Go electric, Heat Pumps	Shoreline	September 19, 2023
Attended Tree Board Meetings	LFP City Hall	July 2023
Attended Parks Board Meetings	LFP City Hall	July 2023
Attended Planning Commission Meetings	LFP City Hall	July 23, 2023, November 14, 2023 and January 8, 2024
Additional Supporting Activities		
Distributed 12 Climate New Flashes to LFP members to announce above events		
Created handouts and displays to use at public events, including on Inflation Reduction Act grants and rebates		
Wrote and distributed several articles to theLake Forest Park newsletter lists.		
Started collaborations with King County north end cities on programs and events for disseminating relevant climate information.		
Currently there are 123 subscribers to the LFP CAC "Notify Me" list; we expect this to grow as the work of the City becomes more evident.		
Met with the Shoreline Schools superintendent to discuss the school system's climate action plan		

Met with representatives from Seattle City Light to discuss grid reliability and undergrounding.

SECTION 2: Strategies and Actions

The strategies and actions section provide a framework for action. These actions are in five focus areas- transportation and mobility, the built environment/land use, natural environment, consumption and solid waste.

The focus areas, strategies and actions outlined below for Lake Forest Park align with and draw heavily upon our neighboring cities' plans, and are informed by feedback from the LFP community and information from the 2019 King County GHG Emissions Inventory. The vision of the future for each focus area is borrowed from the Mercer Island Climate Action Plan released in April 2023.

Lake Forest Park will achieve these Climate Action Plan goals by following strategies and implementing actions in five focus areas, detailed below.

Focus Area 1: Transportation and Mobility (TR)

Vision of the Future: *Low-to-no carbon transportation options are safe, clean, accessible, affordable and widely used.*

Goal: Reduce GHG emissions from transportation by transitioning to electric vehicles (EV's), expanding shared transportation options, and promoting improvement of cycling and pedestrian networks.

Globally and locally, transportation is the largest source of greenhouse gas emissions. According to the Fifth National Climate Assessment, "Since 2017, the transportation sector has overtaken electricity generation as the largest emitter", accounting for the largest percentages of emissions 69% of total community-wide emissions in 2019. In LFP most of these emissions come from gasoline use in passenger vehicles and airplane flights (though the methodology of the King County estimates for per capita flights.) Lake Forest Park has developed a Safe Streets program which could be accelerated to meet emissions goals.

Community Priorities: Residents are driving less and walking and biking more. They are rethinking air travel, reducing the number of cars in their household, and purchasing or considering purchasing an eclectic vehicle. In our survey, one community respondent stated, "we should bike when we can, we should ride-share as much as possible, we should use the bus and light rail more".

In 2020 about 55.2% of Lake Forest Park residents drove alone to their place of employment, another 8.8% carpooled, another 8.8% used public transportation, about 5.0% walked, biked, or used another means to commute, and about 23.2% of Lake Forest Park workers worked from

home. Residents are also adopting battery electric and hybrid vehicles (in 2022, 3% of personal passenger vehicles owned by Lake Forest Park residents were battery electric and nearly 6% used hybrid fuels). Worker commuting methods reported for 2020 were likely affected by the global pandemic; however for this census period an estimated 55.2% of the Lake Forest Park workforce commuted in single-occupancy vehicles, 8.8% carpooled, 8.8% used public transportation, 4% walked, rode a bicycle, or used another means (such as a motorcycle or hired vehicle) and about 23.2% worked from home.

Table 1. Transportation and Mobility Strategies and Actions.

Strategy #1: Accelerate electric vehicle (EV) adoption		
Ref code	**Action**	**How action is accomplished**
TR 1.1	Electrify the City Fleet	Increase the number of municipal EVs to 100% by 2040. Purchase and deploy make-ready Battery Electric Vehicles (BEVs) to transition the City's vehicle fleet to electric by 2035 for all operationally feasible vehicles. As needed, delay purchasing replacement vehicles until BEV options are available and affordable. If BEVs are not available for necessary replacements, consider plug-in hybrid options. Convert LFP Police Fleet to all electric vehicles by 2035.
TR 1.2	Eliminate gas powered vehicles and tools	Develop a transition plan for city owned vehicles from gas to electric. Eliminate and publicize gas powered tools. Explore what other jurisdictions have done to eliminate gas-powered tools. Consider a buy-back program for gas-powered tools. Educate the public about the tool library.
TR 1.3	Increase charging infrastructure	Include charging infrastructure in the city's revised Comp Plan--start with putting charging stations in public facilities. Continue to partner with Bothell, Kenmore, and Shoreline to obtain funding from the state to install charging stations along 522, at City Hall, on 104 and in apartment and condos. Increase electrical capacity and charging infrastructure at City facilities to ensure adequate capacity for fleet and employee EV charging. In alignment with regional efforts through WSDOT and Seattle City Light, expand the public EV charging network by assessing gaps and supporting installation of charging stations for public use on business, institutional, City, and utility properties in key areas. Install charging stations for public use at City facilities open to the public such as parks and recreation centers wherever feasible. Require Installation of a minimum number of charging stations in addition to electrical capacity for all new multifamily residential and commercial construction and during major renovation of parking lots/ structures.

		Include goals in the city's revised Comp Plan--Start with putting charging stations in public facilities.
TR 1.4	Incentivize EV charging stations	Publicize the federal rebates for EV charging stations Apply for the federal and state grant for EV charging
TR 1.5	Community education about Electric Vehicles	Provide community education and outreach to increase EV adoption and promote existing incentives for EV purchases.
Strategy #2: Reduce community wide driving		
Ref code	**Action**	**How action is accomplished**
TR 2.1	Review Municipal Codes for Emission Reduction	Develop regulations that require bike lockers at new or major retrofits at town center, multifamily facilities and parks and municipal facilities. Include bike lockers in the 2024-26 budget.
TR 2.2	Encourage Transit-Oriented Development	Study and support transit-oriented development and missing middle housing
TR 2.3	Develop a pedestrian and bicycle network	Increase the network of safe bike lanes, boulevards, and trails; widening sidewalks; expanding convenient transit stops; and installing effective traffic signals. Partner with public transport services,-community organizations, and surrounding jurisdictions to pilot new routes and diverse transit options (including carpooling) to improve efficiency and reliability Start with strategic areas near schools and commerce; identify and apply for sources of funding.
TR 2.4	Secure bike storage	Purchase, deploy and maintain bike storage in parks, nodes and commercial facilities.
TR 2.5	Expand capacity of the LFP Town Center to act as a mobility hub.	Reexamine the TC Zoning to ensure the Town Center becomes a shared-use mobility hub that enhances cross-community travel by transit, ride-share, electric vehicles, bike-share, and scooter-share and any means other than driving a traditional gas/diesel vehicle alone.
TR 2.6	Review flex schedules for municipal employees.	Review the flex schedule annually to make sure it is working
TR 2.7	Collaborate with the Cities of Shoreline and Kenmore as they adopt shared-use electric bicycle or scooter programs.	Explore north-end cities with a shared bike and scooter program. Partner with community groups to pilot an e-bike library where bikes are available to low-income community members without requiring smartphone technology and a

		credit card to access.
TR 2.8	Limit air travel	Review the travel policy in the city and encourage staff training and professional development to take place locally. Community education on air travel alternatives, opportunities and incentives to electrify; actions being taken at the city, state and federal levels to reduce transportation.
Strategy #3: Improve "last mile access"		
Ref code	**Action**	**How action is accomplished**
TR 3.1	Build Transit oriented development	Uphold the GMA to prioritize dense mixed use TOD and affordable housing and update the comp plan to comply with HB 1110
TR 3.2	Start a Jitney Service	Fund an experimental jitney service
TR 3.3	Support bike infrastructure	Safe streets for bikes and safe storage solutions in parks,nodes and commercial facilities
TR 3.4	Support pedestrian infrastructure	Accelerate and expand safe streets programs and develop a one way street program
TR 3.5	Increase transit ridership through education and outreach	Collaborate with regional transit authorities to install reader boards and informational kiosks and use city website to better inform the community about transit options and apps
TR 3.6	Support city trail system	Accelerate Green Infrastructure program

Focus Area 2: Built Environment/Land use (BE)

Vision of the Future: *Residents live and work in energy efficient buildings powered by clean, renewable energy.*

Goal: Reduce GHG emissions from buildings by reducing energy usage, electrifying buildings, and transitioning to clean and reliable renewable energy sources.

In LFP emissions from buildings represent 22% of the emissions. Most of this comes from natural gas. In 2020, the US Census estimated that 61% of homes use gas for heating, cooking or heating water, and another 7% use fuel oil. Solar panels have been installed on more than 70 residences; however, this represents fewer than 1.5% of homes. As of January 2024 the only retail, commercial, or multi-family housing unit that has installed solar panels is the King County Housing Authority (this system likely provides about 9- to 10% of the total solar energy generated within the City).

Community Priorities: Residents want to reduce their emissions, but are concerned about becoming more vulnerable to weather related events. They will be looking to the City to provide solutions to some of these issues. For example, one resident on our survey asked, "If the City requires homes to be all electric - what obligation does the City have to make sure the power grid works? In case you haven't noticed - it hasn't worked very well over this winter. My gas-powered home had hot water and the ability to cook during those times. If it was all-electric - I guess I would have just sat here shivering? You can't dictate that people use one source of heat/cool/etc. and then not have that actually work - that's irresponsible."

Table 2. Strategies and Actions for Focus Area 2, Built Environment/Land use

Strategy #1: Use Cleaner Energy		
Action code #	**Action**	**How action is accomplished**
BE 1.1	Encourage transition to electric or solar energy	Incentivize a full transition to electric or solar energy in existing commercial and residential buildings.
BE 1.2	Encourage enrollment in Seattle City Light's Green Up program	Encourage businesses, large energy users, and residents to enroll in Seattle City Light's (SCL) Green Up program to expand the use of green energy.

BE 1.3	Support community solar projects	Add to the legislative agenda of the city to provide for community solar. Use incentives and partnerships to support the development of local community solar projects and micro-grids that provide alternative energy sources for critical community facilities, especially during brownouts or unexpected power loss.
BE 1.4	Enact code requiring electrification	Enact code to phase out fossil fuel infrastructure in new construction.
BE 1.5	Advocate for increased electricity grid reliability	Encourage local utilities to update regulations that increase the flexibility of the electricity grid and incentivizes large-scale energy customers to reduce their electricity use during peak times.
BE 1-6	Advocate for Green infrastructure	Provide information about green infrastructure programs like green roofs.
Strategy #2: Build strategically for less energy and clean energy		
Action code #	**Action**	**How action is accomplished**
BE 2.1	Increase incentives for infrastructure improvements	Increase incentives and promotion of green stormwater infrastructure and urban forests on developed properties, with emphasis on areas prone to urban heat islands, flooding and identified environmental health disparities.
BE 2.2	Develop green building regulations	Require new and retrofitted multifamily housing to have EV charging stations. Restrict the addition of new gas lines and installations in residential and multifamily zones.
BE 2.3	Review environmental justice criteria into land use decisions	Incorporate environmental justice criteria and priorities into zoning, land use planning, permitting policies, and development of new projects. In collaboration with utilities and local jurisdictions, develop a residential home energy program to provide education, technical assistance, and financial assistance to replace gas and oil heating systems with electric heat pumps, improve home efficiency, and install renewable energy systems. Options include a rebate program, bulk-purchase retrofit campaign, or other financing mechanism.

		Prioritize low and middle income households for assistance and incentives.
BE 2.4	Prioritize dense, mixed use, transit oriented developments and affordable housing	Uphold the Growth Management Act and HB 1110 to prioritize dense, mixed use, transit-oriented development (TOD) and affordable housing.

Focus Area 3: Natural Environment, Ecosystems, Sequestration (NE)

Vision of the Future: *The community protects, conserves, and restores our natural systems, landscapes, and habitats.*

Goal: Foster climate resilient natural landscape by restoring natural systems, protecting vital habitats and ecosystems, and conserving water resources.

Lake Forest Park is a unique city with a large tree canopy (50%), undeveloped watersheds (12%) and other natural ecosystems so preserving and restoring these rare resources should be given the greatest priority As we move away from fossil fuel use in the energy sector we can increase uptake of carbon dioxide by restoring and enhancing the health of our trees and waterways. In addition to capturing carbon, healthy ecosystems provide a wide range of interconnected benefits and services, such as improving mental health, offering recreational opportunities, acting as natural cooling areas during heat waves, and providing habitat for local wildlife.

Climate Change strategies that focus on reducing emissions from transportation and supporting dense, walkable, transit-oriented development, should also work to protect and increase our existing urban tree canopy and restore and protect waterways to make the city of LFP climate resilient. The actions in this section enhance our efforts to protect tree canopy and waterways.

Community Priorities: Residents value our canopy and ecosystems and seek to retain them as natural resources and community assets. One community resident responded in the survey, "We see many stressed, dying, and dead trees in the neighborhood. When we lose our canopy, the understory suffers as well. I feel we are in danger of irreversibly and negatively impacting the area, and with loss of trees and other plant life, the region's temperatures will soar higher."

More Information on Tree Canopy and Climate Change Resilience and Urban Watersheds and Climate Change Resilience in Appendix 6

TABLE 3. Strategies and Actions for our Natural Environment

Strategy #1: Maintain healthy urban forest		
Ref code	**Action**	**How action is accomplished**
NE 1.1	Implement Policy and Practices for sustaining tree canopy.	Support the Tree Board's policy and strategies to protect large-stature species with dense wood, identify most effective carbon-capturing trees, and develop a plan for maintaining tree canopy in perpetuity. Adopt planning and funding programs for urban dense vegetative growth programs such as Miyawaki Forests
NE 1.2	Incentivize Climate-conscious tree planting.	Review city policy and ordinances for planting trees around buildings to promote energy efficiency, enlarge and improve planting sites with tree longevity in mind, increase stormwater infiltration, and include trees in street improvement projects. Implement in city open space plan project to plant a diverse mix of pest-tolerant, well-adapted, low-maintenance, long-lived, and drought-resistant trees to ensure greater resilience, while planting small groves of especially water-tolerant species in areas receiving peak volumes of stormwater runoff to reduce flooding and pollutant transport.
NE 1.3	Allocate resources for urban tree maintenance.	Require new developments to maintain new tree planting for 5 years. Provide information on how to plant and care for new plantings. Require the city to establish and adhere to a regular tree maintenance cycle with an eye towards helping protect cities from extreme weather events.
NE 1.4	Address tree canopy cover inequity.	Supporting the Tree Board expansion of tree cover is an opportunity to address inequitable access to trees and green space.
NE 1.5	Outreach and education on forest conservation strategies	Support nonprofits efforts to educate and engage residents on tree retention and health and the value of trees as a mitigating strategy in climate change.

Strategy #2: Increase carbon sequestration		
Ref code	**Action**	**How action is accomplished**
NE 2.1	Evaluate municipal parks for greater carbon sequestration.	Support nonprofits and the Park Board to implement a plan to re-evaluate existing parks and other existing green areas for carbon sequestering sinks..
NE 2.2	Evaluate open spaces for greater carbon sequestration.	Support nonprofits and the Planning Department to implement a plan to re-wild unused areas by converting impervious surfaces into permeable habitats.
Strategy #3: Maintain healthy waterways		
Ref code	**Action**	**How action is accomplished**
NE 3.1	Recognize and protect all waterways	Review and revise existing codes and ordinances to enhance protection by widening buffer zones even for minor streams. Coordinate with federal and state agencies for funding to develop a plan to reroute the sewer system so it is out of the streams.
NE 3.2	Safeguard our water supply.	Host 4 water districts to discuss and plan for safeguarding supply, encouraging conservation and reusable water containers
NE 3.3	Reduce the impact of runoff	Review and revise building codes for new or redevelopments to require onsite stormwater control measures (SCM). (Examples of SCMs are rainwater tanks, infiltration systems that receive overflow from tanks and impervious surfaces, and biofiltration systems, rain gardens, etc.).
NE 3.4	Restore water ways to enhance natural flow	Work with federal and state agencies and non-profits to fund the removal of any impediments (concrete channels, rip-rap, culverts, etc.) to the natural flows of streams.
NE 3.5	Maintain riparian environments.	Work with nonprofits to secure funding to wok with community groups to remove invasive species Review guidelines for native plantings for the riparian environment.

NE 3.6	Restore degraded stream beds.	Work with federal and state agencies and non-profits to fund restoration of hyporheic zones of streams in heavily impacted areas. Re-seeding healthy benthic invertebrates into restored areas should be researched and considered.
NE 3.7	Reintroduce native kokanee salmonid populations (*Oncorhynchus nerka*)	Support nonprofits and private citizens for reintroduction programs facilitated by Fish and Wildlife and Department of Ecology.

Focus Area 4. Consumption and Solid Waste (CW)

Vision of the Future: *The community practices circular economy principles, reducing the amount of resources used, reusing and repurposing materials, and recycling and composting almost all of what is left.*

Goal: Reduce community waste and the GHG emissions associated with the consumption and disposal of goods and materials.

Solid waste disposal and wastewater treatment account for 2% of community wide GHG emissions. Consuming products also creates "upstream" emissions from the energy and fuel used to produce and distribute goods and materials. The City can reduce these emissions by promoting sustainable consumption and increasing waste diversion. In addition to reducing emissions, waste prevention and diversion can also reduce pollution and litter. Sustainable consumption, in turn, supports Lake Forest Park businesses by promoting local goods.

Community Priorities: Clarify effective recycling and composting in residential and businesses and demonstrate the link to climate change. One community resident responded to the survey that we should,"recycle and compost heavily, use washable towels in place of paper towels, reusable bags, and limit use of plastic".

Table 4. Strategies and Actions for Consumption and solid waste

Strategy #1: Implement circular economy		
Ref Code	**Action**	**Implementation Ideas/How action is accomplished**
CW 1.1	Reduce municipal purchase of paper	Switch to digital whenever possible for both internal and external
CW 1.2	Investigate resource sharing across municipalities	Host a Northend cities meeting to plan for the use of shared resources such as vehicles, equipment, and cost saving ideas.
CW 1.3	Develop Environmentally Preferable Purchasing Policy	Use the federal environmental preferable purchasing policy for products or services that have a reduced effect on human health and the environment.
Strategy #2: Prevent Waste		
Ref Code	**Action**	**Implementation Ideas/How action is accomplished**
CW 2.1	Support sustainable local food economy	Support food assistance programs in partnership with the Farmers Market; join the John Hopkins meatless Monday campaign and publicize it to residents
CW 2.2	Promote educational programs on waste prevention.	Revise the format of the newsletters to have a "climate corner"; distribute information and meal ideas through various city-sponsored media outlets, support the master Gardeners Program and their efforts to encourage home food growing. Require Republic to upgrade their community outreach on what goes where in commercial venues and expand education on household recycling.
Strategy #3: Reduce input to landfills		
Ref Code	**Action**	**Implementation Ideas/How action is accomplished**
CW 3.1	Mandate recycling and composting	Revise solid waste Contract to require evidence that commercial and restaurants are effectively recycling and composting, and haulers are documenting diversion rates.

CW 3.2	Conduct education on zero waste programs.	Promote alternatives to single use materials. Promote buy nothing and second hand sales. Support community organizations efforts to recycle more and use less plastic and recycle lithium batteries.

Focus Area 5. Community Resilience and Preparedness (CR)

Vision of the Future: *People and ecosystems are healthy, thriving, and can respond and adapt to climate change.*

Goal: Ensure that all Lake Forest Park residents are prepared for current and future climate impacts.

Increasing community resilience—the community's ability to adapt and respond to unavoidable climate impacts—is a necessary part of effective climate action. We will center the most vulnerable members of our community as we communicate and build resilience. We will work to clearly define goals and ways partnerships between individuals, communities, and the city will help us attain those goals.

Community Priorities: Climate change is happening so fast that residents are unsure of how to prepare. In our survey, one community respondent stated, "this will take an extraordinary cultural/paradigm shift at all levels (individual to global systems). A gradual rebuild of society in order for all the interconnected systems to be healthy is the only solution."

Table 5. Strategies and Actions for Focus Area 5: Community Resilience and Preparedness

Strategy #1: Prepare for climate emergencies		
Ref code	**Action**	**Implementation ideas/How action is accomplished**
CR 1.1	Hire an Environmental Specialist	Hiring an Environmental Specialist is necessary to oversee the implementation of the cities CAP
CR 1.2	Create a resilience and energy subsidy information center.	Create and maintain a central resource, e.g., web presence on the city website, where federal and state incentives are posted and updated.
CR 1.3	Increase resilience hubs	In partnership with local agencies, neighboring cities and organizations identify buildings/rooms to use as resilience hubs, for electricity, public heating and cooling centers, and information to the public about these resources. Publicize these locations through regular and routine outreach to residents.
CR 1.4	Create age specific communication strategies	Co-create climate communications with target communities and organizations —especially youth organizations to ensure that the next generation has a say—on climate and health impacts and emergency resources/warnings during extreme events. Create a neighborhood and youth ambassador program to train and give people the tools and resources to work with their peers to implement many of the actions identified in this plan.
CR 1.5	Create an Climate Emergency management education program	Collaborate with emergency management staff to provide community-based education and engagement activities each year to increase awareness of climate impacts and opportunities for action. Provide free or discounted air filter box fans to vulnerable community members.
CR 1.6	Educate residents about NEMCO	Support NEMCO efforts to provide information and facilities to deal with extreme weather and plans for respite locations from the impacts of heat, cold, flooding, e.g., cooling stations and rehoming plans.
Strategy #2: Increase adaptive capacity and resilience		
Ref code	**Action**	**How action is accomplished/implementation ideas**

CR 2.1	Mitigate impacts of green gentrification	Mitigate impacts of green gentrification by pursuing community centered anti-displacement strategies (e.g., eviction prevention and cash assistance) and expanding access to affordable housing resources such as home ownership strategies and climate-related home improvements.
CR 2.2	Review WSDOT's vulnerability assessment	Identify potential climate vulnerabilities e.g., flood prone roads, landslides areas, canopy areas especially vulnerable to climate change, and assist impacted residents to create an emergency action plan.
CR 2.3	Provide environmental mini grants	Provide mini-grants for community climate projects, perhaps in partnership with Kenmore and Shoreline. Projects that either reduce GHG emissions or build community climate resilience and increase funding for community-driven projects.
CR 2.4	Promote multi-jurisdictional collaboration	Continue to collaborate with nearby municipalities on ways to empower our constituents to reduce their carbon footprint.

(* a “resilience hub” is an existing community-serving facility that is enhanced to support residents and coordinate resource distribution and services before, during, or after a natural hazard event).

Role of the Municipal Operations for the 5 Focus Areas

Vision of the future: Community members and City government are informed and active in local climate action and work together to meet emission reduction targets.

Summary: City operations that produce GHG’s include fleet vehicles, employee commutes, electricity to power municipal operations, and natural gas used in power tools. The City can adopt actions that reduce emissions and increase community resilience, while also acting as a model and resource for LFP residents. This document provides specific strategies and associated actions that can be taken by our city government that create regulations that generate a sustainable future by eliminating GHG’s in government operations and in transit, that enhance our natural resources and that ensure our citizens reduce consumption and build resilience to climate change.

Goal: City prioritizes adoption of actions to eliminate municipal GHG emissions, and integrate climate considerations into city reporting and decision-making, while increasing community awareness and empowering community resilience to climate changes.

Community Priorities: One community respondent answered on the survey that our City government should install charging stations in front of city hall, and solar panels on roof of city hall". Another respondent stated that our City should "partner with the school district to educate students and families about how they can reduce their carbon footprint at school (recycle, walk to school, carpool, compost at lunch, etc.). This is the next generation who is worried and needs to see their city doing something!"

Section 3: Implementation Plan

When implemented the strategies and actions outlined above will move us toward a low-emissions, resilient Lake Forest Park. However, before a detailed implementation plan can be designed, the LFP Climate Action Plan needs an equity review. The Climate Action Committee worked to gather input from representatives of the entire community of Lake Forest Park, and brought some ideas around equity into the action plan. However, it is now time to bring in a professional who thinks about equity every day, to read the LFP CAP and provide equity recommendations.

Once we've addressed equity considerations we will need a strong implementation plan. A strong implementation plan will include a full time city staff member, timeline, estimated costs, lead departments, community partners (e.g., Public Utilities, KCLS, Shoreline School District, neighboring cities, Rotary), and more (current actions, existing legislative processes, etc.) for each action. It will include a process for accountability.

The urgency of action on climate change and therefore in the urgency of designing an implementation plan and acting on that plan, argue for bringing in a full time paid professional staff member for LFP. Climate Action Managers in Shoreline and Kenmore are working with the LFP Climate Action Committee on outreach and educational events, and their positions can be models for the role of a similar hire in LFP.

Box 2. LFP Climate Action Manager

Under the general supervision of the LFP City Administrator, the Climate Action Manager is responsible for implementing the City's Climate Action Plan (CAP) to achieve the City's GHG emission reduction targets and to ensure the development of community resilience to extreme climate and weather events. The Climate Action Manager will coordinate across all City departments and the community, and monitor and evaluate the City's progress towards meeting climate goals.

The manager's responsibilities include:

- Oversight and accountability of meeting LFP climate goals,

- Formation of partnerships with government and nonprofit organizations to advance emission reduction
- Pursue grants and partnership opportunities to support implementation of CAP actions. Includes identification of/application for state and federal grants.
- Annual reporting to the City Council, Climate Action Committee and community on implementation, challenges and overall progress on meeting GHG reduction goals.
- Develop budget and work plan recommendations for City Council consideration each biennium to support CAP recommended actions. Management of allocated budgets.
- Identify CAP-related advocacy items for inclusion in the City's annual legislative priorities.
- Create community resources, update the web, write articles and newsletters.

Guidance for a hiring committee in the form of potential interview questions for such a position are given in Appendix 7 .

The impact of our efforts, measured in achievement of specific GHG reduction targets specified in the implementation plan, and greater community resilience, will require coordination and cooperation between the City government (including the newly hired City Council, the newly hired Climate Action Manager, and the Mayor), the LFP Climate Action Committee, and the LFP community.

The role of the LFP Climate Action Committee. The CAC will continue to serve the LFP City Council and LFP Community. In the next phase the CAC in collaboration with the City Council will be to support the efforts of the City to reach its emission goals and build a community more resilient to climate change. The CAC's emerging role will be to

- Collaborate with the mayor, City Council and City Administration on the best ways to reduce emissions.
- Provide outreach to the community, acting as a liaison between the city and the residents of LFP through, e.g., tabling at community events.
- Create and host workshops and other events in partnership with neighboring cities.
- Write articles for newsletters, Instagram, Facebook and other sources.
- Continue to be partners in implementation of the climate action plan.

The role of the LFP City Government

The City of Lake Forest Park must provide leadership in eliminating GHG emissions, mitigating impacts, and building a resilient city. An example of leadership: the community needs an information hub, a place for citizens to find up to date information, including on rebates. The City can make that happen.

The role of the Community

Community support and participation are key to achieving community-wide emission reduction and climate resilience goals. Community members can support CAP implementation in a variety of ways by participating in the process, including:

- By staying informed through, for example, the proposed information hub, and sharing opportunities with friends, family, and neighbors.
- Volunteering to help with education and outreach, and implementing specific actions suggested here, and that will become part of the detailed implementation plan.
- Advocating for funding for converting energy systems in our homes and buildings, redesigning our roads, and more, by engaging with local, regional, State and Federal representatives.

Lake Forest Park and neighboring communities are beginning to be actively involved in and taking action related to reducing emissions and preparing for changes to come. Individual actions and those done in conjunction with neighbors and friends are key to our community's ability to come together in our work towards a climate changed future. Specific actions we can do now, as the implementation plan is finalized are listed below. Appendix 1 is a living document of actions and activities completed to date. Appendix 1 is intended to be a living document that will become part of the information hub and/or available through the city's website, maintained by the LFP CAC.

Community actions

- Build Miyawaki forests in LFP, similar in strategy to the one built at the Shoreline Historical Museum. https://www.nytimes.com/2023/08/24/climate/tiny-forests-climate-miyawaki.html
- Plant trees in town center parking lots.
- Support and volunteer at Shoreline tool library.
- Facilitate or join workshops (e.g., Climate Fresk) and book clubs– supporting and learning from each other.
- Encourage stream restoration on private and public property.
- Put together civics learning sessions/field trips, e.g., where does our water come from? Where is our water treated? Where does our waste go? How/where is hydropower made? What are other renewable energy resources in our state?

Individual Actions

The most important action is to get your family, circle of friends and colleagues, and community thinking about both climate change mitigation and resilience, so:

• Learn about climate change and new building and energy options
• Talk about climate change and new building and energy options

Specific actions you can take in different parts of your life:

Transportation
Walk, scooter or bike for short range
Use public transportation, carpooling and trains when possible
Telecommute, if possible
Reduce air travel and/or use carbon offsets

Household/Built environment
Plan for purchase of electric tools, vehicles
Join a tool library
Wash clothes in cold water, air dry on clothesline
Get ready to purchase new appliances and prepare for home upgrades
Update to Energy Star appliances and fixtures

Consumption/Land Use
Reduce meat and dairy consumption
Recycle and compost more
Plant native species
Garden/grow your own food/get a pea patch
Purchase and sell clothing from consignment stores
Reduce food waste
Shop locally
Join the King County Library System for books and other media
Bring your own reusable cup/water bottle, cutlery

Protect the Environment
Volunteer with local environmental groups
Reduce use of pesticides and fertilizers

Adapt
Get or make an air purifier.
Prepare household and car emergency kits

References

Natural Systems

Baschak L.A., Brown R.D., 1995. An ecological framework for the planning, design, and management of urban river greenways. Landscape and Urban Planning, 33, 211-225.

Bolund P., Hunhammar S., 1999. Ecosystem services in urban areas. Ecological Economics, 29, 293–301.

Walsh C.J., Roy A. H., Feminella J.W., Cottingham P.D., Groffman P.M., Morgan R.P., 2005. The urban stream syndrome: current knowledge and the search for a cure. *J. N. Am. Benthol. Soc.*, **24(3)**, 706–723.

Fourth National Climate Assessment, Vol. II: Impacts, Risks, and Adaptation in the United States (2018)

Soo-Hyung Kim, Uran Chung, Joshua J. Lawler, and Royce E. Anderson, 2012. Assessing the Impacts of Climate Change on Urban Forests in the Puget Sound region: Climate Suitability Analysis for Tree Species. School of Environmental and Forest Sciences, College of the Environment, University of Washington.

Safford, H.; Larry, E.; McPherson, E.G.; Nowak, D.J.; Westphal, L.M. (August 2013). Urban Forests and Climate Change. U.S. Department of Agriculture, Forest Service, Climate Change Resource Center. www.fs.usda.gov/ccrc/topics/urban-forests

Bratman, Gregory N et al. "Nature experience reduces rumination and subgenual prefrontal cortex activation." Proceedings of the National Academy of Sciences of the United States of America vol. 112,28 (2015): 8567-72. doi:10.1073/pnas.1510459112

Lee, K.O., Mai, K.M. & Park, S. Green space accessibility helps buffer declined mental health during the COVID-19 pandemic: evidence from big data in the United Kingdom. Nat. Mental Health 1, 124–134 (2023). https://doi.org/10.1038/s44220-023-00018-y

Kate E. Lee, Kathryn J.H. Williams, Leisa D. Sargent, Nicholas S.G. Williams, Katherine A. Johnson, 40-second green roof views sustain attention: The role of micro-breaks in attention restoration,Journal of Environmental Psychology, Volume 42, (2015)

Wilker, Elissa H et al. "Green space and mortality following ischemic stroke." Environmental research vol. 133 (2014): 42-8. doi:10.1016/j.envres.2014.05.005

General

IPCC, 2023: Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee and J. Romero (eds.)]. IPCC, Geneva, Switzerland, pp. 35-115, doi: 10.59327/IPCC/AR6-9789291691647

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Lake Forest Park Mayors
Mayor Jeff Johnson

Mayor Tom French
LFP Council members
Lorri Bodi
Thomas French, (2024 elected mayor)
Tracy Furutani
Larry Goldman
Paula Goode
Jon Lebo
Semra Riddle
Ellyn Saunders
Philippa Kassover, (retired 2024)

CAP committee members
Tracy Furutani, Council Liaison
Miriam Bertram
Dana Campbell
Jessica Côté
Tamara Erickson
Linda Holman
Sarah Phillips - Chair
Brian Saunders
Anne Udaloy - Vice Chair
Matt Son
Anna Côté graduated, Student member - currently vacant
Bella Tancretti graduated, Student member - vacant

Cory Roche, staff to the Climate Action Committee

Thanks to the Citizens of Lake Forest Park engaged with the committee including the people that responded to the Climate Survey and those who volunteered to help tally survey responses, the many people that attended our booths at community events, made suggestions and comments, initiated and joined our book club, and those that attended the LFP CAC monthly meetings.

Neighboring cities and their climate/sustainability managers

Cascadia Consulting Group

Appendices

Appendix 1: Past and Present Actions Implemented in LFP

The City of Lake Forest Park has some experience with planning for the environment. For example, the city was among the first cities to use integrated pest management on public property. The City's first Climate Action Plan was developed in 2008. The city purchased hybrid

vehicles for the police department. The Climate Action Committee is encouraging the City to increase its efforts to meet the GHG emissions goals.

2008: The first formal action of the City of Lake Forest Park to address climate change was a climate action plan written for the City of Lake Forest Park by Emily M. Templin at the University of Washington Evans School of Government. It focused on city actions to reduce GHG emissions. The 2008 recession limited action taken by the city. Two important products that came from this were are:

1. Completed a municipal and community greenhouse gas (GHG) emission inventory
2. Developed a suite of potential greenhouse gas reducing actions at the community and municipal level. [2]

2019: Lake Forest Park city council voted to join the King County Cities Climate Collaborative (K4C) in 2019, thus committing to reduce city-produced greenhouse gas emissions to 50% of 2007 levels by 2030 and 95% by 2050.

June 2022: Lake Forest Park City Council unanimously voted to create The LFP Climate Action Committee of 11 residents with the specification that 2 would be students, and all would be confirmed by LFP city council. The committee's mission was to design a Climate Action Plan guiding the city towards equitable actions to fulfill its commitment of rapid GHG reduction and to increase community resilience to climate change impacts.

2008-2023 Since the first Climate Action Plan in 2008 through the present, the City has implemented:

- **Lights out** City Hall lights are almost all LED. The conversion of remaining lighting is scheduled. Many of the rooms have motion sensors that turn off the lights if there is no activity in the room.
- **Computers off** The City established a practice that computers automatically go into energy saving mode when not in use.
- **HVAC (heating, ventilation, and air conditioning systems) Maintenance** The HVAC systems are regularly maintained and upgraded. HEPA filters that filter out dust, pollen mold, bacteria and airborne particles have been installed.
- **Appliance replacement** The appliances are certified as Energy Star efficient.
- **Solar Panel Installation** Municipal sites are being investigated for the potential installation of solar panels.
- **Electrical Conversions** City has plans to purchase its first electric vehicle in 2024. Landscaping equipment is being transitioned to battery-powered (blowers, mowers, chainsaws, etc.).

[2] Lake Forest Park Preliminary Greenhouse Gas Inventory and Proposed Climate Action Plan, *Emily M. Templin, page 6*

- **Alternative Transport Incentives for government employees** In addition to Bike to work Month implemented each May since 2009, the City has instituted work from home policies.
- **Expansion of Recycling Programs –** The City recycles LDPE plastic within City Hall Compost bins have been added in meeting rooms, kitchen, and bathrooms. Battery recycling for the public is available at City Hall.
- **Environmental Purchasing Program** The City has instituted a practice on food service containers. The city shall not provide, purchase or use non compostable food service containers, straws, lids, and utensils at any city facility or city-sponsored event. All parties who contract with the city shall be prohibited from using non compostable food service containers, straws, lids, and utensils in city facilities or on city-funded projects within the city. (Ord. 1224 § 2, 2021; Ord. 1181 § 1, 2018)
- **Going Digital** The City Council has shifted from providing paper Council packets to purchasing portable computers and providing electronic versions of packet materials. City departments have shifted toward digital systems and have gone paperless where feasible.

PART B. Current Opportunities for Coordination with other LFP efforts

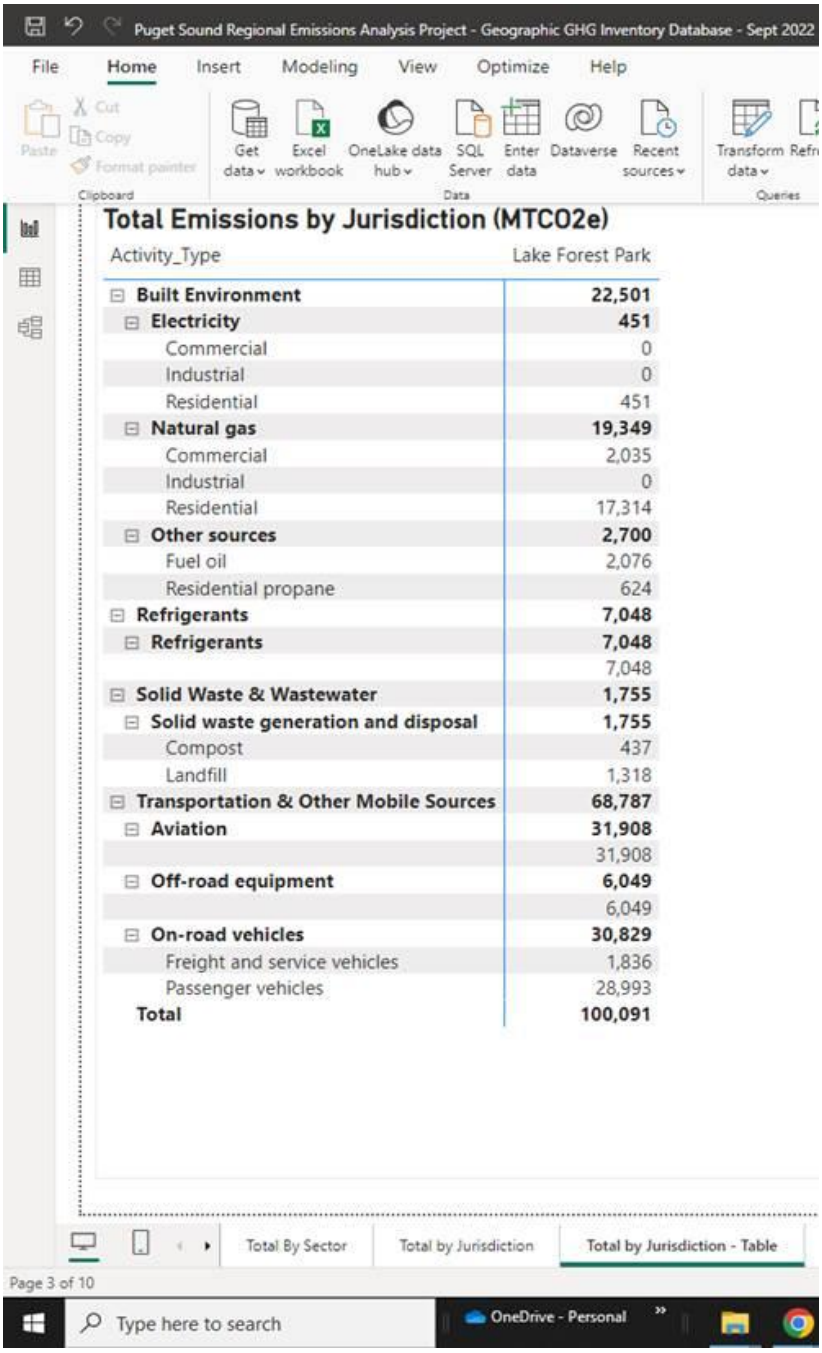
List/describe Other existing LFP City Planning efforts, citywide strategic initiatives, and committees/organizations with efforts that are synergistic with our focus of mitigating emissions and adapting our community and environment to climate impacts.

Examine the municipal code:
City of LFP Adopted provisions - eg building codes, environmental protection, planning and land use (What regulations have been passed that support climate safety/preparation/protection/emissions?)
Tree Ordinance
Land Use Ordinances
Storm water runoff ordinances
Water Quality ordinances
Compost/recycling/solid waste management/landscaping

Initiatives/Agendas/legislative priorities - eg culverts, stormwater management, transportation…

Stewardship committee
Parks committee
Planning commission

Appendix 2 K4C database – City operations



Puget Sound Regional Emissions Analysis Project
https://your.kingcounty.gov/dnrp/climate/documents/puget-sound-regional-emissions-project-summary.pdf

Appendix 3 Regulations enacted at federal, state, and regional levels that will affect implementation:

(info below comes from Burien CAP, reference if this info is used in this section)

- Washington's Climate Commitment Act, which places an economy-wide cap on carbon to meet state GHG reduction targets and remain consistent with best available science, while minimizing the use of offsets. It works in concert with the state's Health Environment for All (HEAL) Act to assess environmental justice (EJ) impacts and direct 35-40% of investments to overburdened communities. The HEAL Act defines EJ in state law and embeds it in state agency work including engagement, budgeting, funding, and strategic planning. Among its requirements are that 40% of investments in climate-related actions be directed to overburdened communities.
- Washington's Clean Energy Transformation Act (CETA) requires a phase-out of coal by 2025, carbon-neutral electricity sales by 2030, and 100% clean energy by 2045. Utilities are the primary implementer of CETA.
- The Washington State Clean Buildings Act establishes a state energy performance standard, natural gas conservation standard, and other measures for new and existing large buildings over 50,000 square feet with an early adopter incentive program. It also directs the State Building Code Council to develop, by 2021, rules requiring EV charging capability at all new buildings with on-site parking. The greater of one space or 10% of spaces must be provided. In 2021, the legislature passed HB 1287 extending these requirements, by rule, to new single-family construction by 2024. HB 1287 also requires the Washington Department of Transportation to develop and maintain a publicly available mapping and forecasting tool with information regarding the location of EV charging infrastructure.
- Washington's Clean Fuel Standard reduces the overall carbon intensity of fuels by requiring a 20% reduction in the carbon intensity of transportation fuels by 2038, using cleaner fuels or purchasing clean fuel credits. Boats, trains, aircraft, and military vehicles, and equipment are excluded. Other legislation supports the Clean Fuel Standard. For example, SB 5811 allows Washington to adopt and implement California's stringent vehicle emissions standards. SB 5000 establishes a pilot program to exempt new and qualifying used fuel-cell-powered EVs from the sales and use tax between the years 2022–2030 (Burien Climate Advisory Group 2021).

Appendix 4: Survey Data

The online and paper survey including both multiple choice and short answer formats was distributed via 39 unique locations including local Facebook groups, the LFP Sunday Farmer's Market, the City newsletter, Shoreline Area news, Next Door, every city board and commission, organizations located in LFP such as Rotary, the garden club and Stewardship Foundation. It was distributed to condos and rentals through the business offices, and to schools through PTAs and environmental clubs. Neighborhood associations distributed the link to their members. We received a total of 446 responses.

Appendix 5: Demographic Data

A set of spreadsheets will be provided in support of text citations and the data summary presented here.

Lake Forest Park Demographics Summary (Source: (US 2020 Census)

Population

The 2020 US Census reports that Lake Forest Park has a population of 13,603 persons. The median age for Lake Forest Park residents is 42.6 (±2.6). About 18.2% of the Lake Forest Park population is 65 years old or older. The largest Lake Forest Park racial/ethnic groups are White (73.6%) followed by Asian (11.2%) and Two or More races (10.7%).

Median Income

The median household income of Lake Forest Park households was $152,010, significantly higher than the statewide median income of $91,306. However, about 3.2% (± 1.1%) of Lake Forest Park residents live in poverty.

Appendix 6: Natural Systems

Green Spaces and Climate Change Resilience.

Urban green spaces can help mitigate climate change by sequestering atmospheric carbon (from carbon dioxide) in tissue and by altering energy use in buildings. Understanding an urban forest's structure, function and value can promote management decisions that will improve human health and environmental quality. Specifically, the urban forest can help improve air quality by reducing air temperature, directly removing pollutants from the air. Emissions of pollutants into the air can result in changes to the climate (FNCA, 2018). Pollution removal by trees in Lake Forest Park was estimated using field data and recent pollution and weather data available. For complete details, see the 2010 Tree Inventory Report (Urban Forest Effects and Values January 2011).

Climate Change will directly and indirectly affect the urban forests of Lake Forest Park.

1. Changing plant hardiness zones by a half zone towards the end of the century (Kim, et al. 2012) by shifting seed transfer zones around the Salish Sea for western redcedar, western hemlock, and Douglas-fir further northwest, or disappear by the end of the century.
2. Increase the likelihood of winter kill (unnatural warming followed by rapid cooling)
3. Favor many populations of tree pest and pathogen
4. Alter water cycles by increasing winter precipitation and summer evaporation and transpiration.
5. More frequent and intense extreme weather events increase the likelihood of severe flooding, which may uproot trees and cause injury or death to tree root systems if waterlogged soils persist for prolonged periods.

Proactive management is necessary to protect urban forests against climate-related threats, and to sustain desired urban forest structures for future generations. Seattle recently formed the Urban Forestry Core Team (2020) to provide better oversight of their urban forests to facilitate existing policies, programs, regulations, and incentives that are used to manage Seattle's urban forest and combat climate change.

Specifically, urban green spaces can mitigate climate change effects by (from World Resource Institute):

1. Acting as a yearly net carbon removal resource.
2. Reducing economic costs from climate change adverse effects. Conserving forests and avoiding forest degradation is the most cost-effective strategy to lower emissions. Trees can provide significant benefits for adaptation by providing buffers to certain climate risks and making urban spaces more livable.
3. Improve residents' health and life expectancy. Urban trees provide many benefits beyond climate mitigation and adaptation, including improving residents' health and well-being by decreasing high blood pressure, reducing stress, and improving mood, boosting immune systems, reducing the risk of some psychological disorders, and supporting mental development in children.

Urban green spaces have recently been shown to have positive effects on resident health and cognitive abilities.

1. Green spaces are linked to an improved mental health state due to COVID-19 lockdowns. Londoners in closer proximity to nature and parks reported better mental health than those living further away from nature and parks during COVID-19 lockdowns. (Lee et al. 2023)
2. Being in nature can improve mental health and cognitive function (Bratman et al. 2015). Also, just by looking at a picture of a green roof on a computer instead of concrete, increased cognitive function. (Lee et al. 2015)
3. Nature can make us physically healthier. This study shows post-stroke patients who had more exposure to green space survived longer than those with less green space access. (WIlker et al. 2014)

Any Urban Forest policy should be constructed as comprehensive considering future populations, commit to race and social initiatives that are proactive in promoting equity and environmental access for all citizens.

Strategies to preserve and restore urban green spaces of Lake Forest Park should include (Safford et al., 2013):

1. Climate Smart policies and protections for urban trees. Urban forest managers can help aid reductions efforts by preferentially allocating resources to trees that are more effective at mitigating emissions. These should include protecting large-stature species with dense wood, identifying the best carbon-capturing trees, and maintaining tree canopy in perpetuity.

2. Green Corridors provide both ecological services, such as habitats and resources for urban wildlife; but also providing services to urban populations such as mobility networks and access to green spaces through the provision of sustainable and active transport routes that link transport with mixed land use (residential, commercial, education, recreation etc) and open spaces.
3. Smart Climate-conscious tree planting. Planting trees around buildings to promote energy efficiency, enlarging and improving planting sites to improve tree longevity and increase stormwater infiltration, and including trees in street improvement projects. Planting a diverse mix of pest-tolerant, well-adapted, low-maintenance, long-lived, and drought-resistant trees ensures greater resilience, while planting small groves of especially water-tolerant species in areas receiving peak volumes of stormwater runoff reduces flooding and pollutant transport.
4. Allocate resources for urban tree maintenance. Establishing and adhering to a regular maintenance cycle can help protect cities from extreme weather events. Young trees must be pruned early and often to encourage development of strong branching structures that are less vulnerable to storm and wind damage, and hazardous or diseased trees must be removed.
5. Mitigate effects of climate change inequities based on social and cultural classes. Expanding tree cover is an opportunity to address inequitable access to trees and green space.
6. Enhance collaborative governance across traditional boundaries to engage constituents, increase environmental and political awareness across generations, and enable communities to better address complex issues such as climate change. Due to limited staff and budget resources, many cities rely on partnerships with private landowners, organized citizen groups, and nonprofit agencies to effectively manage urban ecosystems. In some areas, citizens participate in advisory commissions that provide input to local officials on policy and regulations governing urban forests. In others, partnerships promote innovative greening strategies that complement or augment existing programs.

Urban Watersheds and Climate Change Resilience

Urban watersheds are key contributors to climate change mitigation strategies and protecting urban stream environments should be considered a high priority in terms of climate resilience and adaptation.

The ecological, functional value of streams in urban environments can be divided into four categories: biodiversity, maintaining hydrological processes, improving climate, and providing direct and indirect financial benefits. Watersheds in the city will help even out temperature deviations both during summer and winter. The vegetation associated with streams, known as riparian zones, reduces the temperature of the surrounding area during the summer by shading and evapotranspiration (Walsh et al., 2005).

Climate Change will directly and indirectly affect the urban watersheds of Lake Forest Park by:

1. Increased magnitude and unpredictability of flows
2. Increased water temperatures, elevated nutrient, and contaminant concentrations.

3. Decrease in the number and variety of plant and animal communities. Many of the effects of climate change on stream ecosystems are indirect via effects on riparian vegetation and canopy structure.

Lake Forest Park offers a unique glimmer of hope given our large tree canopy cover and large greenbelts associated with the two main watersheds, McAleer and Lyon Creek Basins. However, unless high priority in preventing further development and disruption of these basins is implemented, Lake Forest Park may concede to the constraints that most other urban areas cannot avoid.

Specifically, urban watersheds can mitigate climate change effects by:

1. Acting as green corridors or natural air vents because they create air flows, thus contributing to the renewal of the air we breathe and the control of pollution in the atmosphere.
2. The riparian zones filter air by holding suspended dust particles induced from the road traffic, the building activities, and they enrich the atmosphere with oxygen.
3. The vegetation and the soil of streams contribute to the retention and infiltration of the rainwater and the reduction of the surface runoff which can constitute a significant flood prevention mechanism.
4. Hosting a variety of habitats of plant species, birds and animals and facilitating species migration by connected species-rich areas, act as corridors which are suitable for wildlife habitat and migration and can be the tool to mitigate habitat loss and fragmentation and conserve biodiversity.
5. Offer social values such as recreational use, participation, nature and scenery, sanitary management, and water safety as being important factors relating to public perception of urban stream corridors and greenways.
6. Provide scientific information and function as indicators of the state of the urban environment.
7. Venues for ecological and environmental education. The city of Lake Forest Park should have an obligation to educate children about the environment surrounding them and the role urban streams play in the environment and how they are connected and affected by negative impacts on them.

Successful rehabilitation of urban watersheds can only be achieved once stormwater management and the spatial distribution of water storage are re-established and protected throughout the urban basin. There are five principles for urban stormwater management as proposed by Walsh (2016).

1. Ecosystems to be protected must be identified, and objectives for their ecological preservation must be set.
2. Prevent significant runoff volumes from reaching the stream so that the interplay between evapotranspiration, infiltration, and streamflow should resemble predevelopment conditions.
3. Stormwater control measures (SCMs) should yield flow regimes that resemble the predevelopment regime in both quality and quantity.

4. SCMs should be able to store water from high flow events so that the frequency of disturbance to biota does not increase in comparison with predevelopment conditions.
5. SCMs should be implemented on all impervious surfaces in the catchment of the target stream. Examples of SCMs are rainwater tanks, infiltration systems that receive overflow from tanks and impervious surfaces, and biofiltration systems.

Strategies to preserve and restore the watersheds of Lake Forest Park should include:

1. Restore geomorphology through channel rehabilitation by replacement of concrete or riprap streambed with a more natural substrate, such as gravel and sand, and, in cases where banks cannot be re-naturalized, the incorporation of engineering-based methods, such as porous concrete that allows the development of riparian vegetation.
2. Maintaining riparian environments by removal of invasive species and establishing buffer zones for riparian environments.
3. Restoration of stream hyporheic zones have also been key mitigation for salmon recovery programs. Restoration of hyporheic zones in heavily impacted areas should be prioritized and can be done relatively cheaply. Re-seeding healthy benthic invertebrates into restored areas should be researched and considered.
4. Establish routine biological monitoring annually to assess stream health through macroinvertebrate assemblages (Biological Integrity of Benthic Invertebrates (B-IBI). This can be done with community involvement and educational outreach programs.
5. Reintroduction of native kokanee salmonid populations (*Oncorhynchus nerka*) into both Lyon and McAleer Creek basins, as outlined by Lake Sammamish Kokanee Work Group (KWG). Salmonid populations are keystone species and play an essential role in the health and function of ecosystems. Both Lyon and McAleer Creek basins once had large populations of this native species of landlocked salmonid kokanee, as outlined by Lake Sammamish Kokanee Work Group (KWG). Salmonid populations are keystone species and play an essential role in the health, resilience, and function of ecosystems. Keystone species will be vital components of ecosystem resiliency during climate change.

Any Urban Stream policy should be constructed as comprehensive considering future populations, commit to race and social initiatives that are proactive in promoting equity and environmental access for all citizens.

Appendix 7: Guidance for a hiring committee in the form of potential interview questions for a city Climate Action Manager

As the city's first Climate Action Plan Manager, what steps would you take in the first six months to develop and begin implementing the Climate Action Plan? What outcomes would you try to achieve by the end of that period?

What is your experience working with communities, including (for example) conducting research and education outreach? Based on that experience, how would you approach building the relationships, both internally and externally, that are needed to achieve the City Council's program goals and priorities? Who would you engage? What strategies might you employ to

secure the parties' support and engagement?

Give an example of a project that required you to research, collect, analyze, organize, synthesize, and present a variety of data accurately and clearly in both written and graphic form.

What does diversity, equity, inclusion and accessibility mean to you in the context of the Climate Action Plan and its implementation?

In thinking about your goals for the next stage or phase of the Climate Action Plan and the Climate Action Committee, what is one area that you need to focus on to grow and develop your skills for achieving those goals?

Glossary

The most important words:
Mitigation: what we can do to change the rate and amount of future climate change
Adaptation: what can we do to reduce harm

Resilience: what we can do to prepare for an upcoming hazard

Glossary of Terms

Afforestation	The act or process of establishing trees or a forest, especially on land not previously forested.
Carbon sequestration	The process of capturing and storing atmospheric carbon dioxide, often through organic forms such as trees and soils.
Enteric fermentation	Part of the digestive process in ruminant animals such as cattle, sheep, goats, and buffalo that emits methane, a potent greenhouse gas.
Fugitive emissions	Emissions of greenhouse gases that are not produced intentionally by a stack or vent and can include leaks from industrial plants and pipelines. Fugitive emissions may be caused by the production, processing, transmission, storage, and use of fuel (IPCC, 2006).
Greenhouse gas (GHG)	A gas that absorbs and emits radiant energy within the thermal infrared range, causing the greenhouse effect. Primary greenhouse gases are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated gases (e.g., HFCs).
Ozone-depleting substances	Compounds that contribute to stratospheric ozone depletion, such as chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs). Many of these compounds have recently been substituted with hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs), which are not ozone depleting, but are potent greenhouse gases.
Switchgear insulation	The environment within switchgears that are used in electricity transmission systems. Sulfur hexafluoride (SF6), a potent greenhouse gas, is often used in switchgears due to its excellent insulation properties.
Upstream or "lifecycle" GHG emissions	Greenhouse gas (GHG) emissions associated with the production, processing, transmission, storage, and distribution of goods and services, beginning with the extraction of raw materials and ending with the delivery of the goods and services to the site of use.

Table of Acronyms

Phase 1:

- Formulate best practices through Research/comparison of Climate Action Plans & outreach strategies of neighboring cities
- Identify and inventory municipal and townwide sources of GHG emissions
- Establish targets for reducing GHG emissions.
- Assess likely local climate impacts. Inventory vulnerabilities and strengths in adapting to impacts
- Obtain community input and perspectives on climate change through design and implementation of a 30-question survey of LFP community members

Phase 2

- Specific professional consultations to ensure all actions are justly and equitably proposed and implemented.
- Written draft distributed to community for feedback
- Initiation of community engagement workshop program, in concert with the cities of Kenmore and Shoreline.
- Written draft distributed to community for feedback
- Initiation of community engagement workshop program, in concert with the cities of Kenmore and Shoreline.

Phase 3

- Incorporation of comments/feedback from community and other experts
- Plan ratification by the Lake Forest Park City Council as a living document
- Implementation: pursue funding/revenue sources formalize a city administration position to oversee progress, initiate and support community-wide projects and education, and expand networks with neighboring cities