

# Welcome!

## UBC's Neighbourhood Climate Action Plan is our pathway to a net-zero, climate resilient community.

We'd like to hear from you on the Neighbourhood Climate Action Plan's emerging directions, which include proposed goals, targets and actions to help inform the policies, programs and infrastructure needed to build a sustainable, healthy, and resilient community.



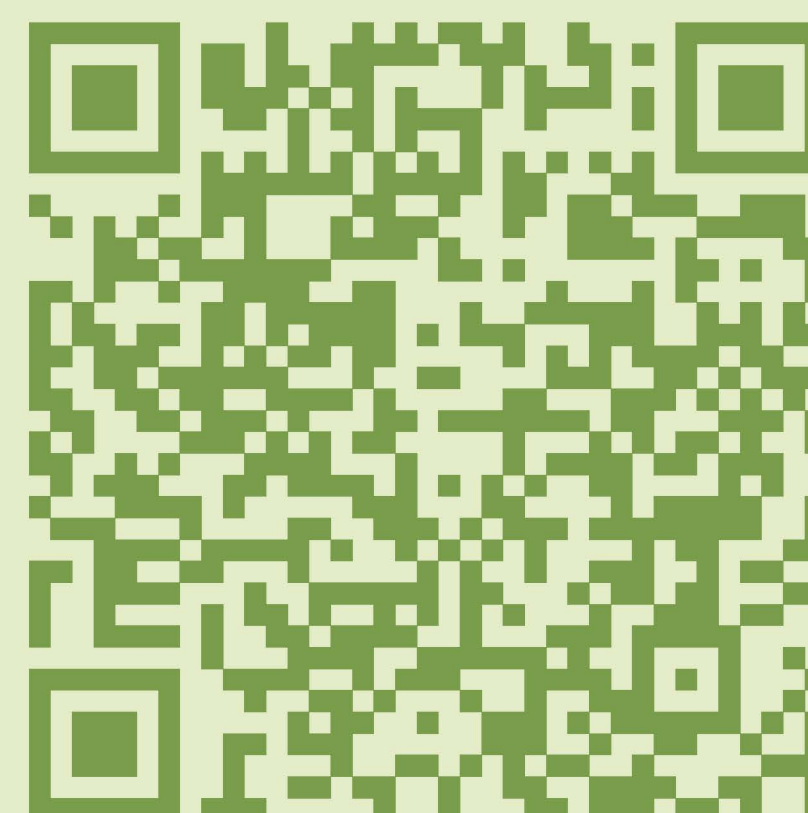
### We want to hear from you!

#### Public Engagement:

**Oct 17 - Nov 3**

Engagement with community members like you is an important component of the NCAP process as it is critical for our team to understand your needs and interests to help shape the priorities and actions of NCAP.

Scan the QR code or visit the link below to learn more and get involved.



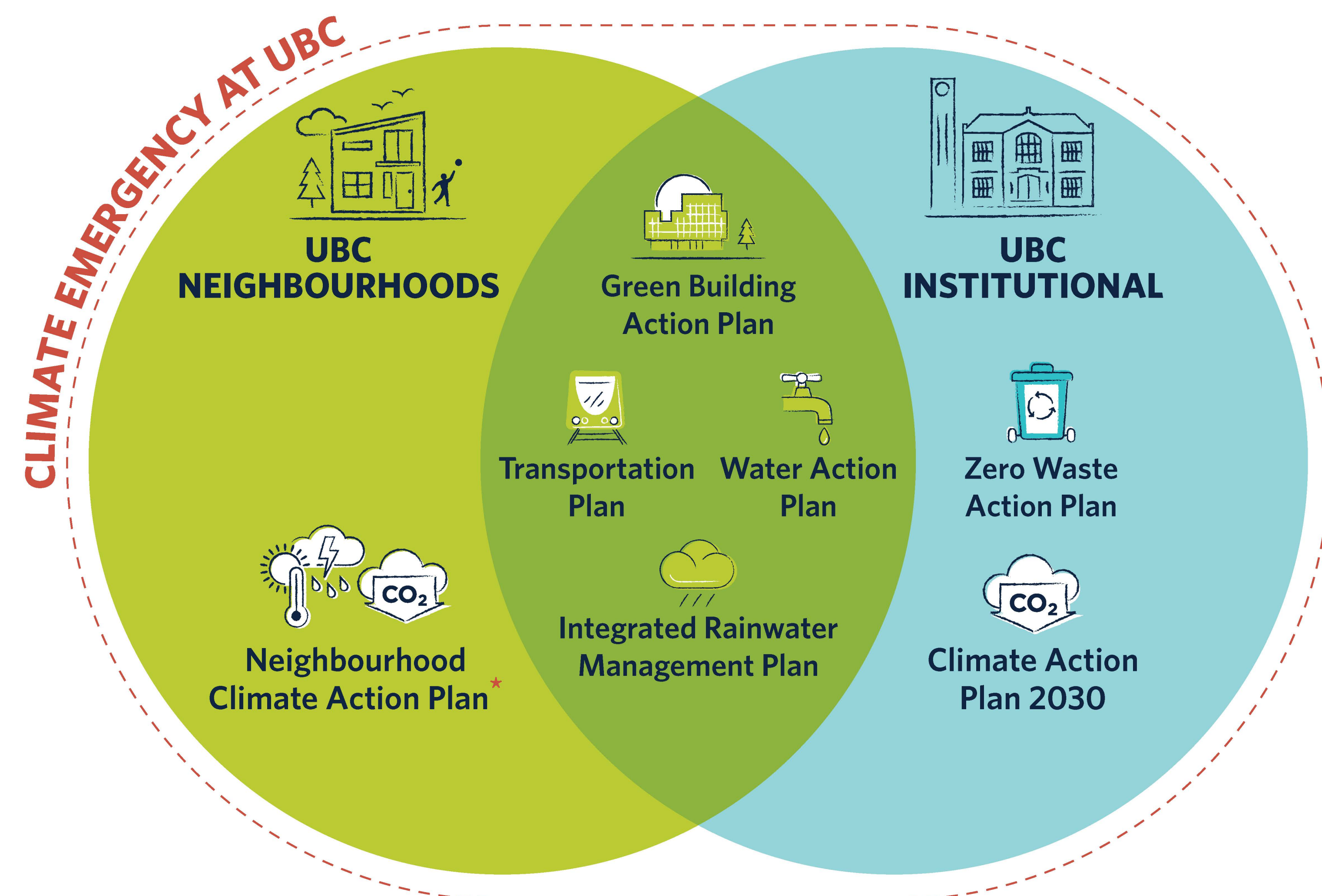
### Next Steps

Your feedback, alongside ongoing technical work, will inform the draft NCAP which will be presented to the community for further feedback in early 2024 before going to the UBC Board of Governors for endorsement. The approved NCAP will shape future development, starting with the completion of Wesbrook Place over the next seven to ten years.



## UBC Sustainability Action Plans\*\*

NCAP will ensure any future growth planned through Campus Vision 2050 remains consistent with our commitments to sustainability. NCAP will also be informed by and will inform the following sustainability plans and policies:



\*Replaces Community Energy and Emissions Plan and adds adaptation scope  
 \*\*Current and future plans align with and are informed by Campus Vision 2050

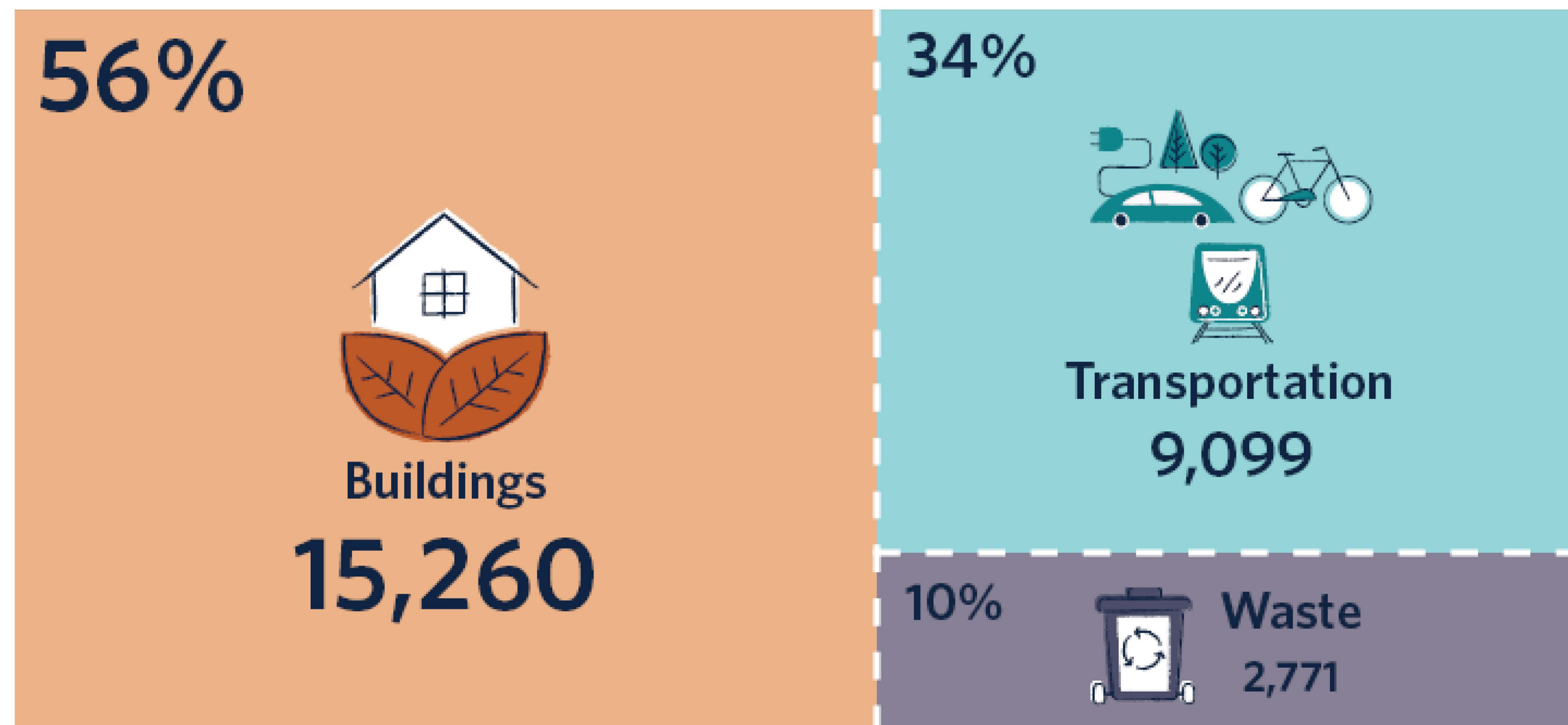
## NCAP Guiding Principles

The Guiding Principles for NCAP are how we will prioritize the NCAP goals and actions and evaluate their success.



# Community Emissions

## 2022 Community Emissions by Source (tonnes CO<sub>2</sub>e)



Greenhouse gas emissions from buildings, which includes heating, cooling and hot water, are the largest source of community emissions, followed by emissions from resident vehicle travel and direct emissions from waste at the landfill.

### What's net zero?

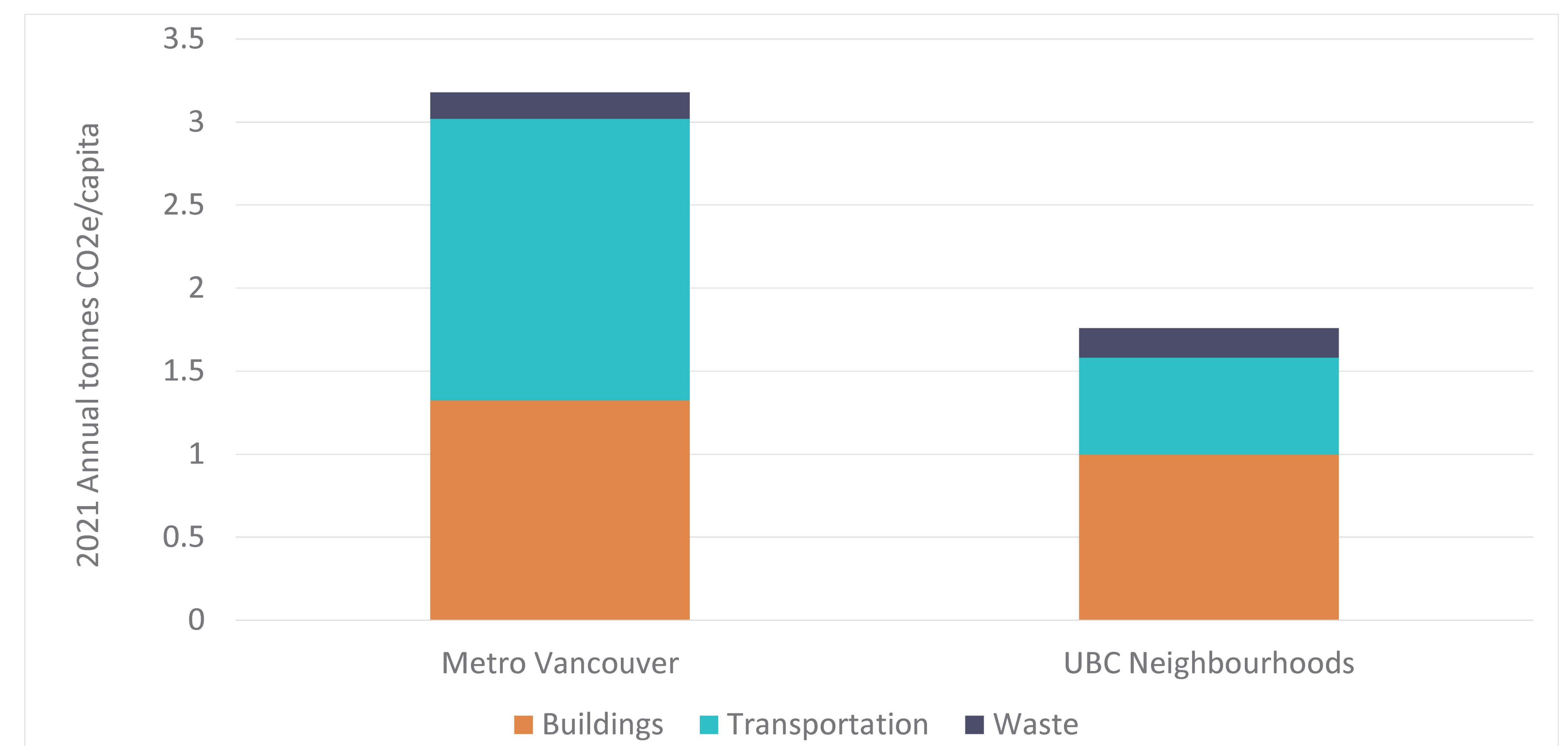
*Net zero emissions means that all human-caused emissions (such as those from fossil-fueled vehicles and heating our homes and hot water) should be reduced as close to zero as possible and then the remaining emissions are balanced by the removal of an equivalent amount of greenhouse gases from the atmosphere (i.e. offset).*

*Net zero emissions is the global, collective target set in the Paris Agreement, with the goal of limiting global warming to 1.5oC. That's the threshold many scientists have said is crucial to avoid the most disastrous effects of global warming.*

## 2021 Per Capita Emissions (tonnes CO<sub>2</sub>e /capita): Metro Vancouver vs. UBC Neighbourhoods

UBC community emissions are estimated to be significantly lower than the Metro Vancouver region on a per capita basis. Existing UBC plans and policies such as our compact land-use planning and Residential Environmental Assessment Program requirements for new buildings, have helped us achieve this.

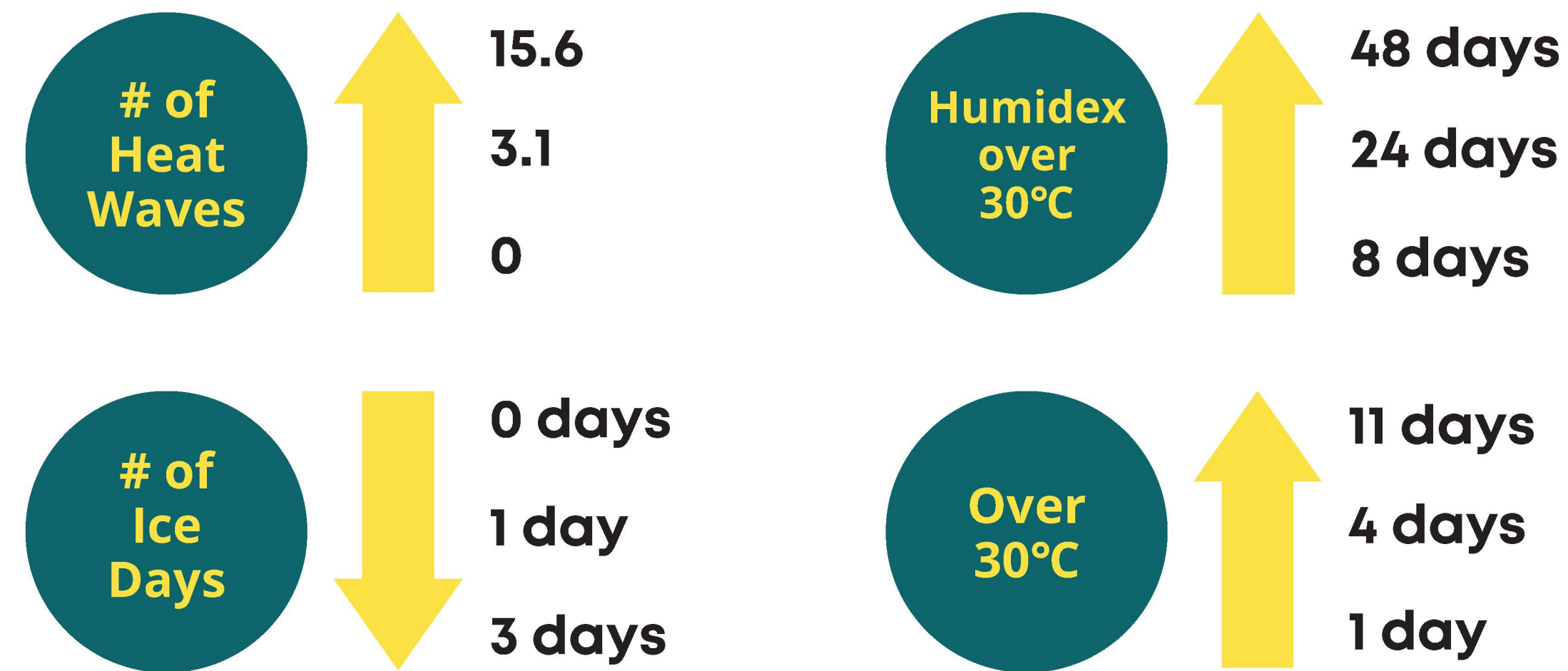
That said, without additional actions community emissions are projected to rise 35% over 2022 levels by 2050. NCAP will define how UBC turns that trend down to achieve net zero community emissions.



# Climate Change at UBC

## TEMPERATURES EXTREMES

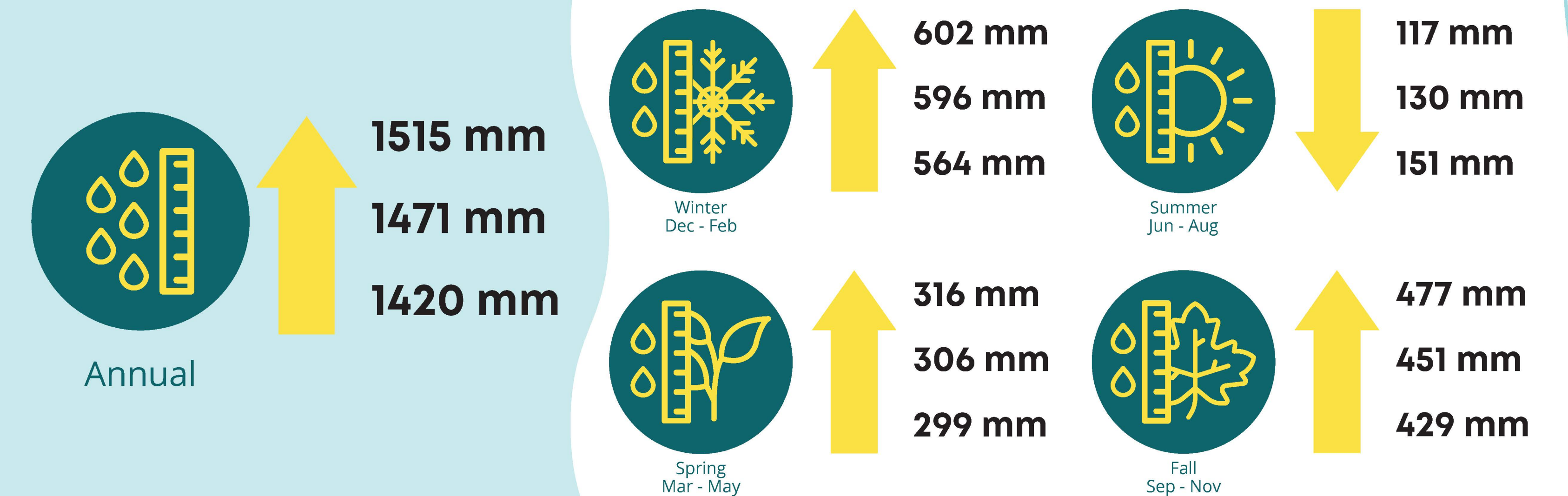
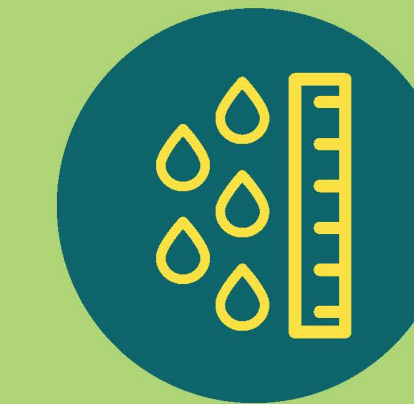
Extreme heat is projected to increase annually and Ice Days, days that do not exceed 0°C, are expected to decrease.



THREE TIME PERIODS: Bottom (Baseline: 1971-2000), Middle (Present/Near Future: 2021-2050), Top (Future: 2051-2080)

## MEAN PRECIPITATION

Annual precipitation is expected to increase. Winter and Spring are projected to get significantly wetter, with a slight decline in the Summer.



THREE TIME PERIODS: Bottom (Baseline: 1971-2000), Middle (Present/Near Future: 2021-2050), Top (Future: 2051-2080)

Climate projections show the UBC Vancouver campus will have more extreme day-to-day weather and also gradual constant changes, including rain, droughts, and warmer summer temperatures. NCAP will define how UBC adapts to these changes to build a resilient neighbourhood community.

### What's climate resilience?

NCAP is doing more than addressing emission reductions. It is also about being prepared for a changing climate that is leading to more frequent severe weather events such as extreme heat and flooding. The impacts are felt in our day-to-day lives and threaten our health and wellbeing by affecting the air we breathe, the water we drink and the natural ecosystems of our community.

A climate resilient community has the programs and infrastructure in place to proactively understand and prepare for a changing climate and reduce climate-related risks.

# New Construction

## Goal

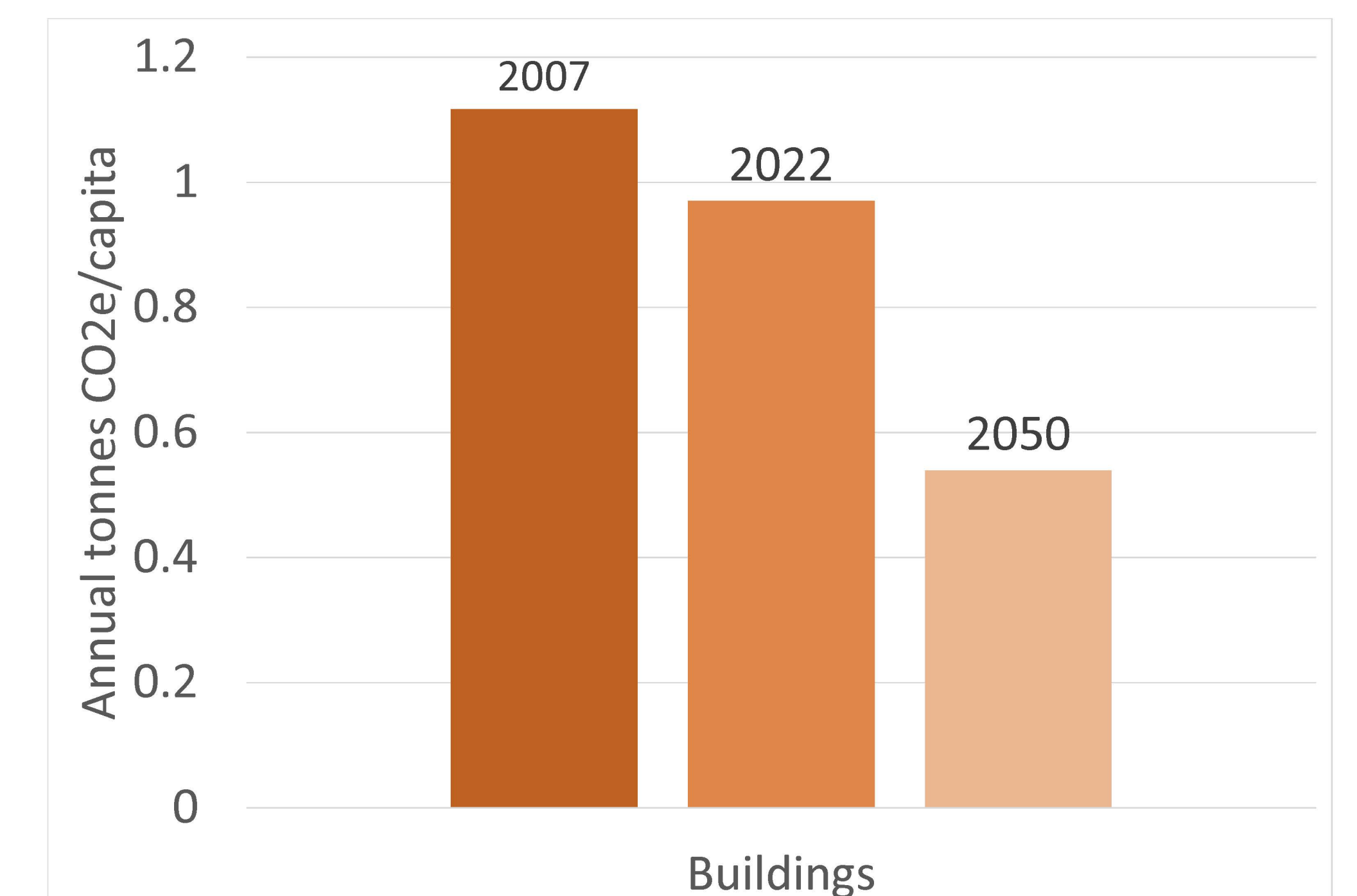
New developments are models of low carbon, energy efficient and passive design, built to provide safe and healthy homes that are resilient to the effects of climate change.

### Targets

- By 2025, require low carbon energy (i.e., energy from low carbon district energy, or electricity) for all new neighbourhood buildings, and by 2030, define a pathway to achieve net zero operational emissions in new neighbourhood buildings.
- All new buildings are designed to meet cooling and air quality needs for a 2050's climate scenario (this has been our current policy since 2020) and are optimized for efficiency using passive (e.g., external shading) and active strategies (e.g., heat pumps).
- Require the highest energy efficiency standard ahead of adoption by the BC Building Code in 2032.

### Examples of key actions to achieve these targets

- Reduce the amount of carbon emitted by new buildings by increasing performance targets as set out by the Residential Environmental Assessment Program (REAP), a UBC-specific green building rating system that's mandatory for multi-unit residential construction in the neighbourhoods.
- Require cleaner, low carbon energy sources (such as electricity) to heat, cool and power our homes.
- Transition the Neighbourhood District Energy System (NDES) to low carbon energy supply.
- Strengthen and expand mandatory climate resilience building design requirements to address our climate projections.



Projected annual carbon emissions per capita (tCO<sub>2</sub>e/capita) for buildings under a business-as-usual scenario

# Existing Buildings

## Goal

Existing neighbourhood buildings have been retrofitted to achieve low carbon, energy-efficient operations, providing safe and healthy homes that are resilient to the effects of climate change.

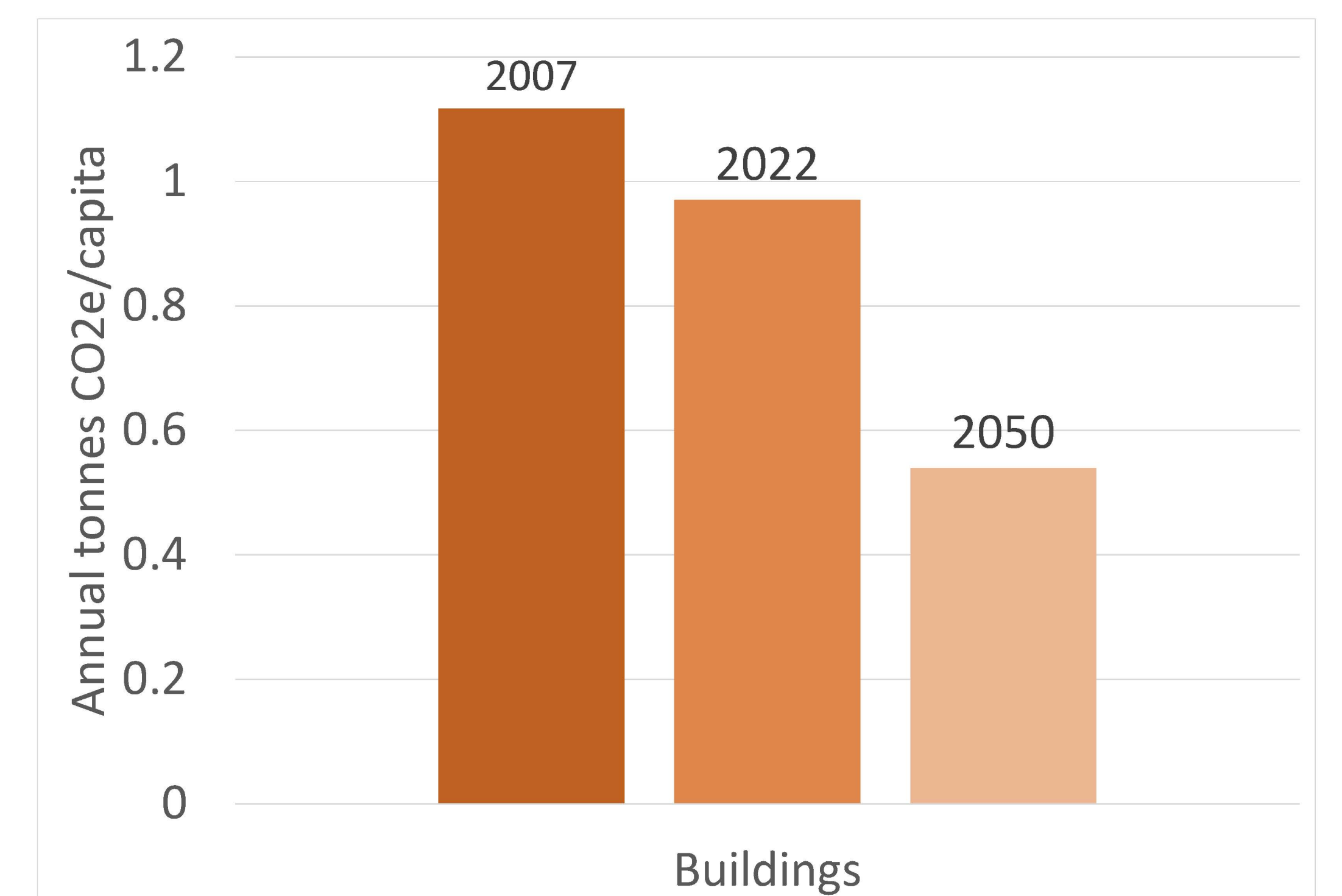
### Targets

- By 2030 convert Neighbourhood District Energy System (NDES) to low carbon energy supply.
- From 2030 onwards, all retrofits of building domestic hot water and space heating systems will be supplied by low carbon energy.
- By 2030, at least 50% of homes have active, low carbon cooling and establish a target date for achieving 100%.
- By 2050, all existing buildings in UBC's residential neighbourhoods achieve net zero operational emissions and have completed retrofits to adapt to 2050's climate conditions.



### Examples of key actions to achieve these targets

- Require cleaner, low carbon energy sources to heat, cool and power our homes. For example, using electric systems to replace hot water, space heating systems and natural gas fireplaces.
- Transition the Neighbourhood District Energy System (NDES) to low carbon energy supply.
- Retrofit buildings to improve thermal comfort, improve indoor air quality and provide cooling systems.



Projected annual carbon emissions per capita (tCO<sub>2</sub>e/capita) for buildings under a business-as-usual scenario

# Embodied Carbon

## Goal

UBC has established the most ambitious targets for embodied carbon for new construction in the region. All materials for neighbourhood buildings and infrastructure are considered from a life cycle perspective accelerating progress towards net zero embodied emissions. Enhanced standards and integrated design principles drive innovation in building design and construction, lowering the impact of development at UBC.

## Targets

- By 2030, UBC will require at least 40% reduction of embodied carbon (with an interim target of at least 10% by 2025) in new neighbourhood buildings.

## Examples of actions to achieve these targets

- Establish targets to reduce embodied emissions for new neighbourhood buildings through updates to REAP, a UBC-specific green building rating system that's mandatory for multi-unit residential construction in the neighbourhoods.
- Improve the way embodied carbon is calculated and reported to help more accurately assess environmental impact of each stage of the building lifecycle, including considering adopting a total carbon footprint (i.e. combining embodied and operational emissions) target for new buildings.
- Explore expanding embodied carbon standards to include existing building retrofits, building deconstruction, and neighbourhood infrastructure.

## What's embodied carbon?

*Embodied carbon in buildings is the greenhouse gas emissions associated with the production, transportation, construction, maintenance, replacement, and disposal of building and construction materials.*

*Embodied carbon combined with operational emissions arising from building operations (e.g. from energy use) define the whole lifecycle carbon impact of a building.*

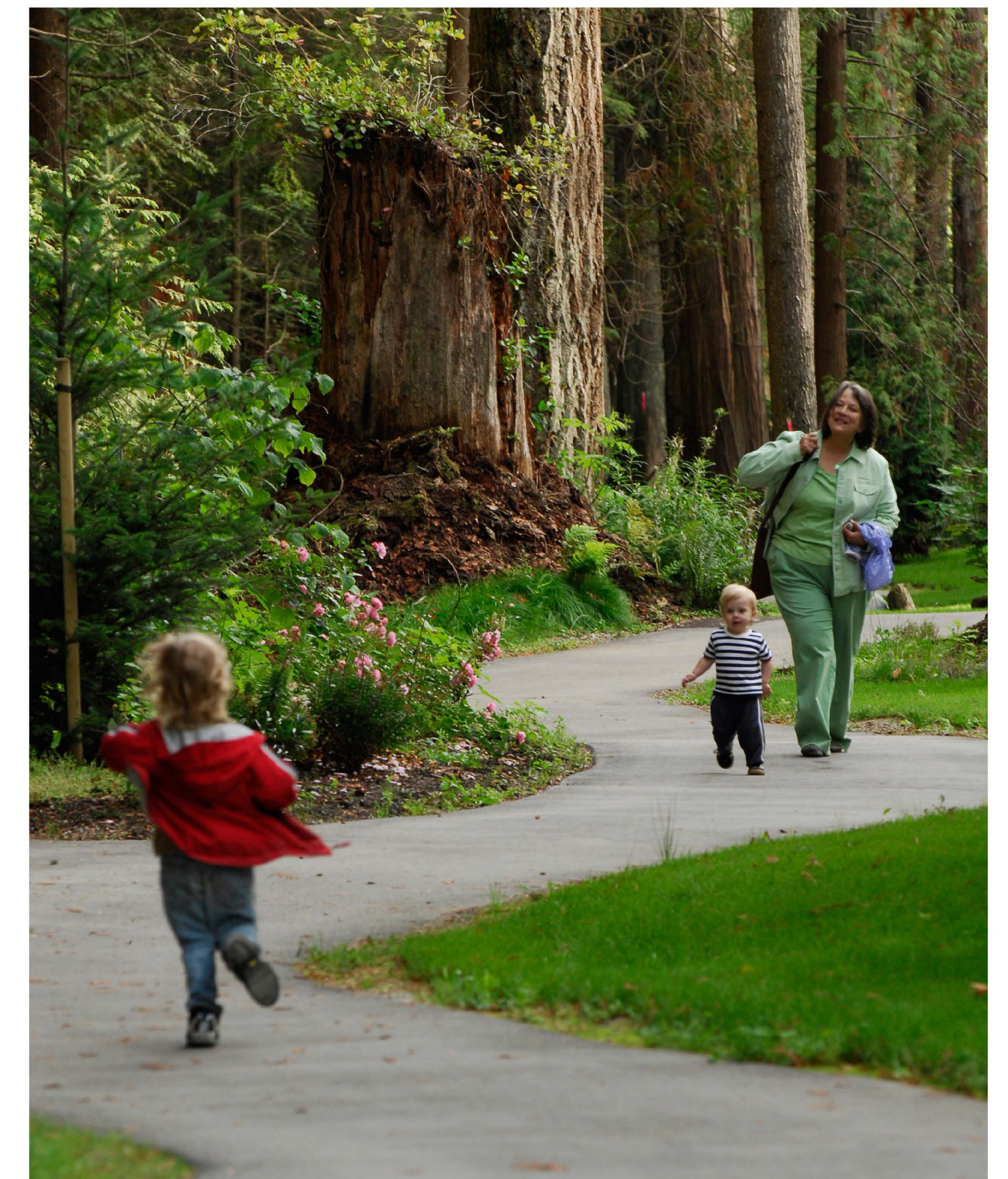
# Ecology

## Goal

Trees, landscapes, and other natural assets provide vital services to help UBC's neighbourhoods adapt to a changing climate. A network of resilient, connected green public spaces, courtyards, and corridors are integrated with neighbourhood buildings, help support ecosystem services, and are welcoming and restorative places that provide opportunities for connection between residents.

## Targets

- By 2025, complete a climate change adaptation vulnerability and risk assessment on expected impacts to natural systems and develop actions to plan for and respond to these expected impacts.
- By 2025, update the Residential Environmental Assessment Program (a UBC-specific green building rating system that's mandatory for multi-unit residential construction in the neighbourhoods) with enhanced biodiversity and ecosystem services requirements for new construction.
- By 2025, promote climate resilient plants and materials, including Indigenous plants traditionally harvested by Musqueam.



## Examples of actions to achieve this goal

- Address climate action by integrating ecosystem services into neighbourhood planning (e.g. tree canopy to address urban heat island effect, use of landscaping and other natural systems in flood regulation).
- Support development of UBC's biodiversity strategy, which will identify tree canopy targets and opportunities to create and enhance ecological corridors.
- Support the University Neighbourhoods Association in developing climate resilient landscaping practices (e.g., drought resistant plants).



# Climate Emergency Preparedness

## Goal

UBC's neighbourhood communities are strong and resilient in the face of emergency events related to climate change impacts. Information, infrastructure, services, and community-led initiatives will provide a comprehensive and responsive support system for neighbourhood residents

## Targets

- By 2025, complete a climate change adaptation vulnerability and risk assessment on expected impacts to the neighbourhood community and develop actions to plan for and respond to these expected impacts.

## Examples of actions to achieve this goal

- Support establishing emergency cooling spaces throughout residential neighbourhoods (e.g. indoor cooling centres, misting stations, spray parks).
- Support wildfire preparedness efforts for residential neighbourhoods.



# Transportation & Mobility

## Goal

Expanded public transit networks and improved active transportation infrastructure will provide neighbourhood community members of all ages and abilities with reliable, affordable, inclusive and low carbon transportation options for traveling to, from and around campus.

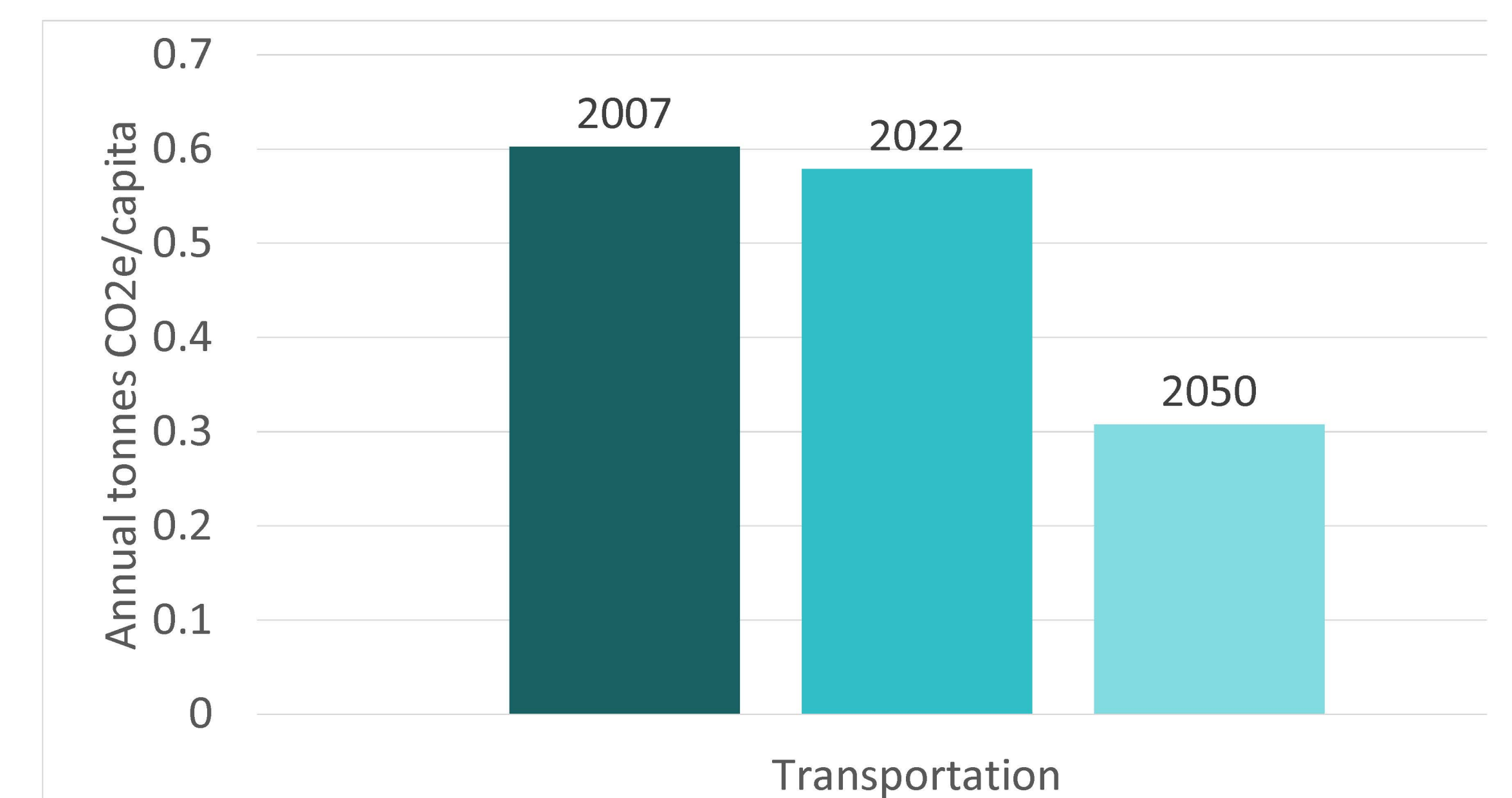
## Targets

- By 2050, all trips from UBC's residential neighbourhoods are made via active or sustainable modes and are net zero operational emissions.
- Establish a 2035 target for emissions reductions from neighbourhood trips, based on:
  - a target for % trips made by active transportation or public transit, and
  - zero emission vehicle adoption.



## Examples of key actions to achieve this target:

- Implement design standards for streets to ensure they're convenient and accessible for everyone who uses them whether they're walking, rolling, cycling, or taking public transportation.
- Expand bike share programs to better connect us to the region.
- Continue to advocate and plan for rapid transit expansion to campus.
- Improve intra-campus and intra-neighborhood transit service.
- Provide infrastructure to support transition to zero emissions vehicles such as retrofitting existing buildings to include EV charging stations.
- Improve resilience of sustainable transportation network (e.g. shading and covered shelters at public transit facilities, shading along walking and cycling routes).



Projected annual carbon emissions per capita (tCO<sub>2</sub>e/capita) for transportation under a business-as-usual scenario

# Waste, Materials and Consumables

## Goal

UBC's residential neighbourhoods support sustainable resource use throughout the community and are progressing towards a zero-waste community. Zero waste initiatives are driving sharing, reuse, and repair within UBC's neighbourhoods making it easier and more convenient to consume less. Thoughtful building and neighbourhood design, as well as community programming, make waste sorting and diversion easy and efficient for all residents and visitors. Construction and demolition practices ensure optimized reuse and diversion of materials.

## Targets

- By 2030, 90% of waste from new construction, retrofits and demolition will divert from landfill.
- By 2050, UBC's residential neighbourhoods will achieve net zero emissions from solid waste.

## Examples of actions to achieve these targets

- Support the University Neighbourhoods Association (UNA) in establishing and expanding zero waste initiatives such as community yard sales, tool sharing, or repair facilities.
- Support and facilitate programs to improve waste diversion such as expanding the UNA Green Depot and ensuring all existing buildings have recycling and organic services.
- Strengthening construction and demolition standards to eliminate waste from landfills.



# Neighbourhood Infrastructure

## Goal

Neighbourhood Infrastructure is resilient and ready to respond to extreme and long-term changes to our climate. Neighbourhood energy supply is upgraded to provide resilient, efficient, affordable, and low carbon energy throughout the neighbourhoods. Water infrastructure is upgraded, expanded, and adapted to support climate action throughout the residential neighbourhoods.

## Targets

- By 2025, update UBC's Integrated Rainwater Management Plan to adapt to the anticipated impacts of climate change.
- By 2025, complete a climate change adaptation vulnerability and risk assessment on expected impacts to built systems and develop actions to plan for and respond to these expected impacts.
- By 2030, convert Neighbourhood District Energy System (NDES) to low carbon energy supply.

## Examples of actions to achieve this goal

- Upgrade our low carbon energy infrastructure (e.g. electricity, low carbon district energy) to ensure sufficient supply to support climate action (e.g. to heat, cool and power our homes, support electric vehicle adoption).
- Support work to assess our current rainwater infrastructure and support actions to adapt these systems to the anticipated impacts of climate change, which help to reduce the impacts of stormwater flows and enhance water quality on campus.

