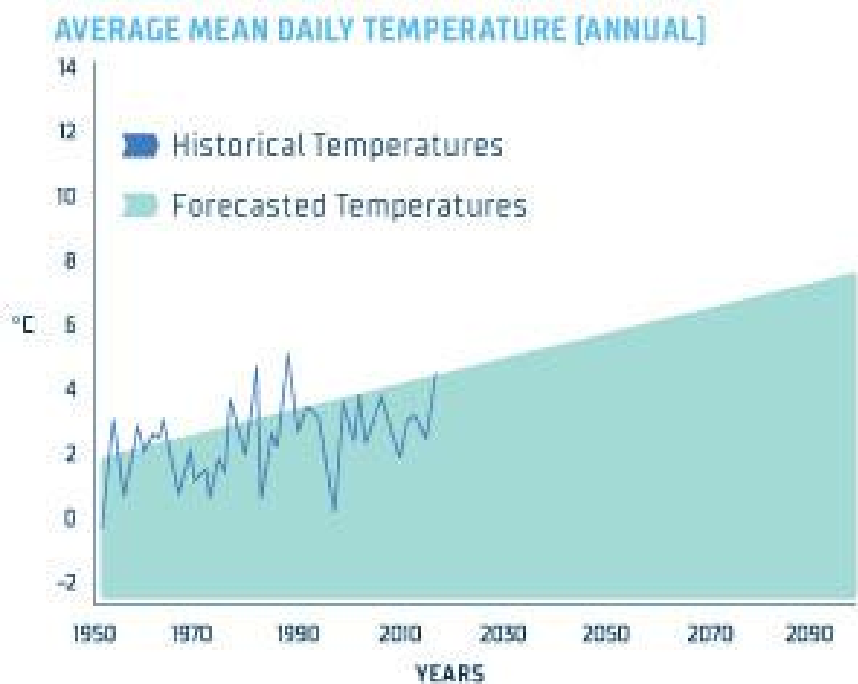


Cost of Climate Change

In 2021, the Intergovernmental Panel on Climate Change indicated that changes are already being observed in Earth's climate in every region of the world, and across the whole climate system. This same report projected that in the coming decades climate change will increase in all regions. In some regions these climate impacts will be so severe that people will be forced to leave their homes. While Edmonton is already experiencing climate change, it is also working to welcome one million more people to its community, including people from all around the world. The energy transition represents a unique opportunity to catalyze and create a new era of economic growth in the region to attract and retain these new Edmontonians.

Climate change is already causing economic impacts, and will continue to do so in the future. These impacts affect different aspects of the economy, public health, infrastructure and the natural environment. Cities, as concentrations of infrastructure, people and socioeconomic activity are vulnerable to these climate impacts. Edmonton is already warming, and at one of the fastest rates in Canada outside of the Arctic region. Edmonton's average annual temperature is forecasted to be six to eight degrees Celsius warmer by the 2080s. Climate change research indicates that as temperatures rise, climate risks, and the costs associated with those risks, increases.



A 2020 report from the Insurance Bureau of Canada and Federation of Canadian Municipalities has estimated that building resilience and adapting cities to unavoidable climate change requires an annual investment of 0.26 per cent of GDP.¹ Using this analysis, an investment of approximately \$185 million per year for the next 10 years is needed for Edmonton to invest in adaptation efforts to prepare the community and corporation for a changing climate. This analysis does not include energy transition investment, which focuses on reducing emissions that are causing climate change. The United Nations has said that for every dollar invested in climate-resilient infrastructure, six dollars can be saved.

In the 2021 World Economic Forum report on global risks, climate change was identified as a catastrophic risk to which no one is immune. Additionally, this report stated that a shift to a greener economy cannot be delayed until the shocks of the COVID-19 pandemic subside.

In February 2022, the Intergovernmental Panel on Climate Change released a report that found the cumulative scientific evidence is unequivocal; that climate change is a threat to human well being and planetary health. This report indicated that, with very high confidence, “any further delay in concerted anticipatory global action on adaptation and mitigation will miss a brief and rapidly closing window of opportunity to secure a liveable and sustainable future for all”.

To better understand what these climate change costs mean for Edmonton, a study specific to the city was conducted to model and project the economic consequences of climate change.² This study found that climate change could cause direct annual costs of approximately \$1.0 billion by the 2050s, and \$4.1 billion by the 2080s. These costs arise from the physical impacts of climate change, such as damage or disruption to tangible goods and services that can be monetized (ex., costs incurred to repair damaged infrastructure) as well as costs to intangible goods and services, such as travel delays due to damaged infrastructure. Looking at annual GDP losses due to climate-related impacts on Edmonton, by the 2050s this loss is estimated at \$2.1 billion annually, and \$6.0 billion annually by the 2080s. This economic analysis illustrates that climate change will have real economic consequences for Edmonton, and that there will be a cost incurred on future Edmontonians if climate change action is not taken.

¹ IBC and FCM 2020. Investing in Canada's Future: The Cost of Climate Adaptation at the Local Level, Final Report, February 2020.

² Boyd, R. 2022. Costs of Inaction: Economic Impacts of Climate Change on Edmonton. Prepared by All One Sky Foundation for the City of Edmonton.

Attachment 1

Social and GDP costs for Edmonton increase with each degree of additional warming.

