Merri-bek City Council Retrofitting Buildings for Climate Resilience

With an aging asset pool, Merri-bek City Council undertook a series of comprehensive risk assessments and leveraged climate science to ensure that their buildings and spaces will comfortably adapt to increasing climate variability.

Prepared by DEECA in collaboration with Merri-bek City Council, please contact climate.action@deeca.vic.gov.au for more information.

The project

Merri-bek City Council undertook an assessment of 24 of their buildings across 2023 and 2024. These assets were assessed based on their physical vulnerability to climate change and ability to continue to deliver service to their users, the community. Included in the assessment pool were a cross-section of various Council building types: town halls, neighbourhood houses, administrative offices, early years centres, maternal & child health centres, sporting venues, libraries, and senior citizens centres.

The assessments were undertaken by consultancies over 2 separate rounds. Merri-bek City Council will continue to apply the assessment approach to new buildings of more than $10 million and aims to continue undertaking assessments on existing buildings to inform priorities for refurbishment spending. Funding will be allocated beginning in the financial year 2025 - 2026 to allow Merri-bek City Council to make tangible upgrades to the facilities, ensuring the opportunities identified through the assessment process are achieved.

How climate science was used

Future emission scenarios were used in the assessments. The first round of assessments used only RCP 8.5 and analysed impacts for 2030 and 2050. Learning from the first round, the next stage expanded to have at least two scenarios, consistent with the Task-force on Climate-related Financial Disclosure (TCFD) recommendations. Council used RCP 4.5 and 8.5 and considered longer timelines to include 2070. In the second round of assessments, RCP8.5 was found to be the preferred scenario on which recommendations were based, given that it allows assets to be as best prepared as possible under more severe climate change conditions.

The recommendations were then prioritised based on what would deliver the most benefits to building users.

A risk assessment approach was used to assess the vulnerability of buildings across a range of climate factors such as indoor comfort, stormwater management, and energy security.

During this project it was found that having access to data in a range of different formats (charts, visuals, plain text etc.) is incredibly valuable when working with stakeholders of various knowledge bases and backgrounds who may be facing unique risks when considering the impacts of climate change. For example, an elderly person in a senior citizens centre may be impacted differently to a child in a kindergarten.

Key points & themes

- Scenario and time horizon selection
- Understanding and prioritising user needs
- Assessing targets and gaps to identify priorities
- Infrastructure and assets adaptation

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The result

While RCP8.5 was used as the basis for recommendations, not every asset assessed will be upgraded to this standard. A prioritisation framework is under development to allow decision makers to identify what to upgrade, when and to what standard based on Council's risk appetite. The framework will be informed by user feedback, vulnerability of users, volume of use, and the cost to upgrade. The program is applying a no-regrets approach to its decisions. Merri-bek City Council is aiming to put the user experience at the forefront of the program. This means that an alternative option to the assessment of recommendations may be used instead, based on users' needs.

For example, in one childcare centre, there was limited insultation, large west facing windows, and large openings without external shading that impacted indoor comfort. The ageing air conditioning system could not be manually controlled and was set to a fixed function and time. Recommendations were made to install external shade structures and operable windows for cross ventilation and update the air conditioning system with smart control-enabled units. This centre is currently prioritised for a retrofit. The planned work includes installation of a split system in the main room, replacement of west facing windows with double-glazed, operable, and child safe windows, draught proofing and installation of curtain rods and new curtains above the west-facing window. Other recommendations that were not prioritised for immediate work include installing a rooftop solar PV and a heat recovery ventilation system.

Climate projections enable a range of future climate risks to be considered. Without them, the recommendations and resulting works would only account for historical and current climate impacts. As a result of this assessment, and other programs being delivered by Merri-bek City Council under its Climate Risk Strategy, the Council and the community are developing a better understanding of climate adaptation and resilience.

One of the goals in Merri-bek City Council's Climate Risk Strategy is that by 2030, Council has improved the ability of its infrastructure, open spaces and natural environments to avoid, withstand and recover from climate impacts, while continuing to provide for community wellbeing, amenity, and ecosystem services. The work outlined in this case study will help deliver on the Foundational Action Plan action to assess climate risk for priority Council infrastructure.

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