



**CONSERVATION
COUNCIL** ACT REGION

Submission to the Education and Community Inclusion Committee (ACT Legislative Assembly):

Inquiry into the management of school infrastructure

May 2021

The Conservation Council ACT Region is the peak non-government environment organisation for the Canberra region. Since 1981, we have spoken up for a healthy environment and a sustainable future for our region. We harness the collective energy, expertise and experience of our more than 40 member groups to promote sound policy and action on the environment.

We campaign for a safe climate, to protect biodiversity in our urban and natural areas, to protect and enhance our waterways, reduce waste, and promote sustainable transport and planning for our city. Working in the ACT and region to influence governments and build widespread support within the community and business, we put forward evidence-based solutions and innovative ideas for how we can live sustainably.

At a time when we need to reimagine a better future, the changes we need will only happen with the collective support of our community.

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Introduction

The Conservation Council ACT Region recognises the efforts of ACT Government to support and improve environmental sustainability and management in ACT schools, and the work of schools themselves across the Territory that have invested in sustainability outcomes.

Sustainability and the environment are not new issues of focus for schools in the ACT. Both at a primary and secondary level, school staff and students have implemented actions to improve environmental outcomes and sustainability outcomes, including establishing recycling schemes, reducing the consumption of unsustainable products such as plastic, and constructing vegetable and forest gardens.

With support from the Education Directorate, public schools in the ACT have undertaken significant investment in greening up energy systems through the installation of solar panels and improving energy efficiency of schools through insulation of walls and windows. These investments have not only had an environmental benefit, but also saved money on energy bills and improved the comfort and wellbeing of staff and students.

In 2019 the new Margaret Hendry School was the first public school in the ACT designed to operate using 100% electricity, taking advantage of the ACT transition to 100% renewable electricity in 2020. Against a backdrop of gas being phased out across the ACT, it was an important milestone for a large public facility to be constructed to run gas-free.

Supported by ACTSmart Schools, schools implement waste management and reduction schemes, and living infrastructure alongside these more system-level changes. Students are passionate about doing their bit to protect the environment: water sustainability initiatives, recycling, and taking action on climate change.

While the ACT public school system has already embraced sustainability, consideration of the ongoing infrastructure and sustainable design (of new schools and also retrofits for older schools) will be important into the future to ensure that student and teacher-led action is supported and that genuine sustainability is embedded in school operations. Projects to improve energy efficiency, manage and reduce waste, and install and distribute clean energy alternatives and living infrastructure, should be introduced at a system-level.

Sustainability and school infrastructure

Energy – heating, cooling and insulation

While the ACT has made significant progress towards the uptake of clean energy infrastructure, the ACT Education Directorate needs to strategically plan for a transition across ACT public schools from gas to all-electric. Clearly any new schools built should, like Margaret Hendry school, be constructed as all-electric, but more importantly, the ACT Government's clear objective to phase out gas will have impacts for existing schools currently relying on gas boilers

for heating. Irrespective of the Government's detailed transition timeline for the community, advance planning for the Education Directorate should include a mandate requirement that any heating system upgrades for existing schools should be to electric heating systems. Installation of solar, for those schools who do not already have it, will ensure full advantage of the ACT's transition to 100% renewable electricity and reduce costs for school operations.

Improving the energy efficiency of existing buildings provides financial and environmental incentives for schools in the ACT. Recent projects to improve energy efficiency through double glazing windows have been implemented in schools across Canberra including North Ainslie Primary School, Southern Cross Early Childhood School, Lyneham Primary School and Wanniasa Hills Primary School. Double glazing windows, and ceiling and wall insulation help regulate classroom temperatures, especially in more extreme weather conditions, and save on heating and cooling costs. Cooling, already a significant challenge, is going to become an increasingly challenging issue as temperatures continue to rise.

Recommendations

- All new schools should be constructed as all-electric schools.
- Major heating system upgrades to existing schools should be electric.
- A strategic plan for how to transition gas school heating systems across school infrastructure should be undertaken.
- All ACT schools should prioritise ceiling and wall insulation, and double glazing windows, as part of a strategic upgrade of school facilities.

Preparing for climate impacts

Consideration should also be given to other impacts that may affect the operation of ACT's schools going forward in a changing climate. Temperature increases will not only affect the comfort and safety of children and teaching staff directly, but also cause other issues that will have a flow-on effect.

For example, the 2019-2020 bushfire season resulted in significant smoke impacts in the ACT, the impacts of which were felt during the school year. The [Asthma Foundation's Bushfire Smoke Impact Survey 2019-2020](#) indicates that young people are more impacted by bushfire smoke, making this a pertinent issue for schools moving forward. While schools managed this the best they could by keeping students indoors, it is questionable as to whether indoor air quality was of a high enough standard to protect health. Public buildings in the ACT, and particularly older buildings such as many of our schools, are unlikely to have good draught sealing which would prevent smoke from entering.

While the impacts of the 2019-2020 bushfire season were not predicted by many, the advent of such fires has been signalled by climate scientists for many years. We have been given a wake-up call and should take the opportunity to now begin consideration of other potential impacts that we could face in a realistic climate scenario for the ACT, and to plan ahead after consideration of those potential risks. The Education Directorate is not alone in needing to undertake this work; it should be developed for the whole of government. But as the manager of

significant amounts of public infrastructure, the Education Directorate will have a large stake in it.

Recommendations

- The ACT Government should undertake detailed analysis of the impacts of climate change on public infrastructure under a range of climate scenarios to enable it to better plan for future infrastructure investment, including in public schools.

Living Infrastructure

The ACT has a comprehensive [Living Infrastructure Plan](#) that will help build resilience against the impacts of climate change, enhance nature connectivity across the urban landscape and increase tree canopy cover to cool the landscape and support native wildlife. The Plan has adopted targets that support living infrastructure in urban landscapes: by 2045 achieve 30% tree canopy cover (or equivalent) and 30% permeable surfaces. ACT schools are ideal public lands for the advancement of these targets.

Schools within the ACT provide an ideal space for living infrastructure. As temperatures continue to rise, there is a growing need for natural infrastructure that improves cooling of the outside environment, reduces the consumption of energy via heating and cooling systems, and addresses water quality in urban areas.

Hard surfaces, common especially in older schools, increase urban heat island effects and contribute to increased water runoff into stormwater systems. While hard surfaces may be considered essential for some educational / sport activities, they should be kept to a minimum in new and refurbished schools.

When natural environments are replaced by non-porous surfaces such as footpaths and quadrangles, water is not easily absorbed, and runs off more quickly into the stormwater system. This water is often contaminated by pollutants such as oil, fertilisers or detergents. This enters creeks, lakes and river systems, impacting on the plant and animal life that depends on this ecosystem, and increasing the risk of blue-green algae outbreaks. In addition, the management of school ovals is likely to utilise significant amounts of high nutrient fertilisers, which are also damaging to waterways.

Living infrastructure can slow the flow of water into our stormwater systems and rivers, and provide an opportunity for filtration and cleaning via natural processes. Porous surfaces that can absorb and treat polluted water can prevent the contamination of vital ecosystems. Trees and shrubs also provide vital refuge for wildlife and pollinators across the urban landscape and cool the urban environment by [up to eight degrees in summer](#).¹

¹Mapping surface urban heat in Canberra, Jacqui Meyers, Drew Devereux, Tom Van Niel and Guy Barnett 6 December 2017, https://www.environment.act.gov.au/__data/assets/pdf_file/0005/1170968/CSIRO-Mapping-Surface-Urban-Heat-In-Canberra.pdf

Micro-forests are urban sanctuaries designed to combat climate change, connect people to nature, enhance biodiversity and reduce ground-surface temperature. Native trees can be used that can withstand hot, dry temperatures. A Canberra initiative, the Climate Factory is undertaking this work across the city, including at Majura Primary School which is on its way to planting 1,500 native plants in the area to encourage outdoor learning, Indigenous bush food, and an alternative, natural playscape. Other schools have implemented “forest gardens”, such as Lyneham Primary School.

While efforts have been made by Actsmart Schools to support and educate students, staff and teachers on the benefits of rain gardens and other living infrastructure, Water Sustainable Urban Design principles could be systematically implemented across all facilities. The co-benefits of such a direction are significant, as the implementation of such principles would extend engagement of staff and students. Installation and maintenance of infrastructure such as rain gardens can be shared school projects and provide learning opportunities for students.

Recommendations

- Develop a living infrastructure plan across ACT schools that increases porous surfaces, supports urban biodiversity opportunities, and provides urban cooling for the built school environment.
- Implement Water Sustainable Urban Design principles across all ACT school exterior refurbishments to reduce the impact of polluted runoff entering the stormwater system.
- Establish standards for installation of hard surface infrastructure that ensure porous / permeable pavement options are utilised in upgrades to school’s exterior environments, and in construction of new schools.

Waste

The reduction and management of waste in the ACT will be a significant challenge as we aim to reduce Scope 3 greenhouse gas emissions and build a genuinely sustainable society.

Waste management is a topic that engages and excites young people, and many schools have undertaken programs around recycling and waste management, such as the recycling program at Garran Primary School. Identifying and sorting waste can also raise awareness of how much is being used and drive behaviour change to reduce usage at source.

But without suitable infrastructure to support waste reduction measures, programs will be harder to implement and more difficult to sustain, particularly with changing student and staff cohorts. Schools require space to collect and store waste, and manage waste streams, and permanent infrastructure is likely to lead to permanent processes being established. This is especially important given teacher resourcing, and the ongoing education that would need to accompany waste management due to the transient school population.

In general, schools would likely utilise mixed use recycling bins and landfill bins as a standard practice. Bins are often located out the back of a school, and on-site waste collection would occur by cleaning / maintenance staff. However, the ACT Education Directorate’s Annual Report

2019-2020 indicates that schools are not reporting on waste to landfill, co-mingled recycling, paper and cardboard recycling or organic and waste recycling² with the implications that there is little systemic support for either managing or measuring waste management targets / programs. These and other other waste streams, such as soft plastics (REDcycle), Bottles and cans through the Container Deposit scheme, and plastics container / bottle lids (via Lids4Kids) could be more effectively managed right now given the downstream processing facilities that are on offer in the ACT.

External infrastructure might include multiple bin systems. Waste streams for processing are likely to expand over the next decade, and so space to install and potentially expand to include new waste streams will be important. Space is required around school grounds and inside buildings to ensure best use of facilities and integration with the school's activities.

Organics can and should be recycled onsite. This can pose a significant challenge for school communities as students may generate significant organic waste. However there are opportunities for students to learn about composting, growing food and supporting plant growth. Composting and gardening can take significant external space and should be considered in a school's external living infrastructure planning. While a residential organics collection is being developed for 2023, schools are well-placed to bypass this service given the organic resource is likely to be needed onsite to improve plant growth and water permeability of soil.

For those schools that don't yet have them, water bubblers should be easily available to reduce the supply and use of single-use plastic water bottles, particularly relevant at schools that have tuck shops where plastic bottles might be on sale.

Recommendations

- New schools should be built with comprehensive waste management systems / infrastructure that have room for expansion and are integrated into the functioning of the school.
- Retrofit school projects should consider inclusion of better waste management structures that can accommodate multiple waste streams.
- All schools should have easy access to water bubblers and disallow the sale of plastics bottles onsite.

Transport

As the ACT aims to reach zero emissions targets outlined in the ACT's Climate Change Strategy, reducing emissions from private car travel is essential. This objective can be supported in school communities by ensuring that parents and students can safely and easily access the school grounds using active travel options - walking, cycling, scootering etc - and that they have suitable places to store active travel equipment, eg bike racks and scooter lockers etc. It is likely that the availability of electric bikes, increasing localisation and flexibility to

² Education Directorate Annual Report 2019-2020, page 103.

work from home, will drive an increase in uptake of active travel, and so facilities will need to have the capacity to be expanded as demand grows.

Infrastructure developments at schools must be cognisant of this and prioritise walking and cycling access to schools ahead of car access, and ensure that cyclists and walkers are kept safe from vehicles as they approach schools. This could mean ensuring that car drop off occurs away from the main school entrance, and that all students approach the main entrance on foot for example.

Recommendations

- Ensure access to secure bike and scooter storage for all parents, students and staff, with the capacity to expand facilities and uptake of active travel grows.
- Ensure easy and safe access to school sites for those utilizing active travel that priorities them ahead of car access.

Summary

There are many aspects of sustainability that are impacted by the management of school infrastructure, and the investment in new infrastructure, from heating and cooling, to external living infrastructure that will deliver benefits for students and staff as well as the urban environment.

The ACT's ageing school infrastructure does not perform well in the face of increasing temperatures and adverse smoke conditions, and many schools were built at a time where living infrastructure issues, such as permeability and cooling, were not a consideration.

However, the ACT Education Directorate has a good opportunity as facilities are refurbished and extended, to ensure that sustainability is considered in all aspects. It is important the future investment in school infrastructure takes account of both the environment and sustainability issues facing us today, as well as give strong consideration to future challenges for schools in the face of an increasingly volatile, intense and hot climate.