

# Designing for a sustainable future

The effects of climate change require recreation providers to consider the impact of facilities, parks, waterways and sports fields. Effective design emphasises the positive – the existing site, community and location; and minimises the negative – CO<sup>2</sup> emissions and unnecessary waste.

Facility designers and owners [are shifting their infrastructure focus to](#) a longer term consideration of the environment. With 'fit for purpose' facilities a given; sustainability includes:

- harnessing existing energy sources
- designs that are in harmony with the physical environment
- decreasing carbon footprints in both build and operations
- [co-design with community](#) ensures facility useability and longevity.

Sometimes the costs of building sustainable design are higher, however the potential [financial and environmental savings](#) are significant.

A commitment to longer term sustainability requires collaboration to develop a shared vision, and effective design.

***Sustainable buildings can be evaluated in purely scientific terms by measuring their carbon footprint, energy efficiency and thermal performance. But to fulfil the purpose of architecture, they must also uplift the human spirit. We need to feel the wind on our faces, the sun on our backs. We must be protected from the elements yet still feel connected — both to our environment and to the people with whom we share our lives. Sustainable architecture must reach beyond science.***

***Dave Strachan NZIA<sup>1</sup>***



Figure 1 Auckland Council

## Shared vision

Ensure that iwi, the community, users and designers are all involved in creating a shared vision – intergenerational considerations will ensure effective use over the development's lifetime.

Consider the project outcomes for the site, the development and its ongoing operation, whether it is an indoor facility or a park or body of water.

Plan for sustainable infrastructure – ensuring that key stakeholders are on board with the vision and its implementation.

## Sustainable design

Principles of sustainable design include:

- [Minimise CO<sup>2</sup> emissions](#) and energy demand during both the build and operation phases
- [Respond to climate](#) and the local landforms
- Minimise resource use and [re-use materials](#)
- Reduce and recycle wastes
- Collect conserve and [recycle water](#), managing natural resources and green infrastructure
- Consider connections to public and [active transport](#).

The Case Studies on the following page provide some concrete examples of how sustainable design in practice can result in award-winning, popular facilities, parks and waterways that meet community needs.

## Evidence based

The value of basing new sports field or facility design on evidence is reinforced in Case Study 1, Scott Park. Here, Auckland City Council used the evidence gathered from their project "Measuring the carbon footprint of a sports park" to design the park. Click here for [Insights Report #5](#) and a summary of this project.

## Case Study I: Partnership with Māori on the development of Te Auaunga, Auckland<sup>2</sup>

[Te Auaunga](#) is a significant urban waterway – the largest awa in Auckland that spans three local boards. With the largest waterfall in urban Auckland, it runs through a swathe of public parks and open spaces. Previously it was a very ‘separated’ awa, not perceived as a whole. It didn’t reflect its long history of Māori occupation, including its role as a food basket, possessing highly significant wetlands.

It is a complex and layered catchment with many interests, and a great number of projects both local and national. The success of the planning lay in good collaboration and communication both Internally and externally, and the establishment of a clear long-term vision:

- Restoration of Mauri – Te Auaunga runs clear, healthy and clean. Food source, and habitat
- Empowerment – make Te Auaunga central to our sense of place through kaitiakitanga and celebration



A Tohu has been developed by Māori artists as a symbol to represent the Awa, endorsed by all 3 local boards.

Other projects being delivered to help meet this overall vision include: Restoration (both stream and park), Development (infrastructure projects), Recreation (play and active transport), Erosion Control, and Awareness and Celebration

NZILA recognised this project with an award for sustainability. For more information click [here](#).

## Case Study II: Scott Point Sustainable Sports Park

Many features contribute to the success of this award winning [2018] Auckland park. WSP Opus created the concept plan in collaboration with mana whenua and stakeholders. The preliminary, developed and detailed design was completed by a consortia of Jacobs, Isthmus, SportENG and Studio 106. The Scott Point Park includes:

- Retention of natural landforms
- Sustainable transport options
- Reuse of materials on site
- Reclaimed materials
- Permeable materials (allows for natural filtration, rather than stormwater systems)
- Retention of the critically endangered native species *Epilobium hirtigerum*.

For more details, click [here](#).

## Case Study III: Metro Sports Facility

Sewage will heat up Christchurch’s new [Metro Sports Facility](#). The temperature of the major wastewater pipe in a nearby street is a ‘useful’ 17 degrees Celsius. A heat exchange system located in the facility’s carpark will extract heat and use it to the facility’s heat pumps. The system will save \$100,000 per annum as well as helping reduce greenhouse gas emissions.

***With this system, we can capture and re-cycle otherwise wasted energy to help heat the pools and buildings.***

***John Bridgman, Chief Executive Ōtākaro***

To read Recreation Aotearoa’s submission on Climate Change Response (Zero Carbon) amendment, click [here](#).

## Principles into action

Partnership or co-design	Co-design to ensure relevance
Vision	Develop a long-term intergenerational vision
Minimise CO <sup>2</sup> emissions	Consider transport, <a href="#">embodied energy</a> , operating energy
Minimise resource use and energy demand	Reduce and <a href="#">recycle wastes</a> <a href="#">Collect conserve and recycle water</a> Create a high-performance thermal envelope Select materials according to <a href="#">life-cycle analysis</a>
Evidence based	Accessing current research and <a href="#">good practice guidelines</a>
Sustainable systems	Install systems that optimise building performance
Respond to climate and landform	<a href="#">Form follows climate</a> Respond to the local ecosystem

## References

- 1 Strachan, D. [Design hints and tips – form follows climate](#). NZIA. First published in The Design Guide, Issue 3.  
2 Dixon, Thomas. Parks and Places Specialist, Auckland Council. Accredited Recreation Professional Accreditation Presentation (2021)