





Public Realm
Environmental Guidelines

October 2026

Auckland Council
Te Kaunihera o Tāmaki Makaurau

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01

Introduction

Auckland Urban Development Agency (AUDO) has made a commitment to respond to the climate emergency and take prompt, meaningful action to address climate change and environmental issues facing Tāmaki Makaurau. We also work to respond to Auckland Council group strategic environmental aims.

A key part of our response is to set sustainability standards for ourselves and development partners, to reduce carbon emissions and waste, whilst increasing resource efficiency and environmental quality for all AUDO facilitated projects.

AUDO utilises Homestar and Green Star rating tools from the New Zealand Green Building Council (NZGBC) for residential and commercial developments. We have developed some bespoke guidelines for our public realm developments which are set out in this document.



Manukau Town Centre



Puhinui Stream



Amey Daldy Park, Wynyard Quarter

02

Purpose



Te Ara Awataha



Manukau Town Centre

Public realm investment is one of the AUDO levers and we identify opportunities for public realm improvements through our masterplanning. AUDO wants to ensure public realm projects and masterplans consider and address environmental matters and climate change. We recognise the intrinsic link between the health of te taiao and the health and wellbeing of our communities.

This document is to be used by design teams both internally and externally to guide consideration of key environmental matters. It will be used at both programme and project level as some issues are best dealt with at the programme level via our masterplanning processes and some are project-specific.

The guidelines are a companion document to the AUDO Thriving Town Centres document and are an implementation tool to deliver on the environmental principles of Thriving Town Centres. The guidelines set out what we will consider and our aspirations for our projects. Often our public realm projects are small in scale and with limited budgets. Therefore, we don't set out to achieve all our aspirations on every project. Our council whanau partners will be contributing to this mahi and the guidelines outline a number of joint initiatives.

03

Scope

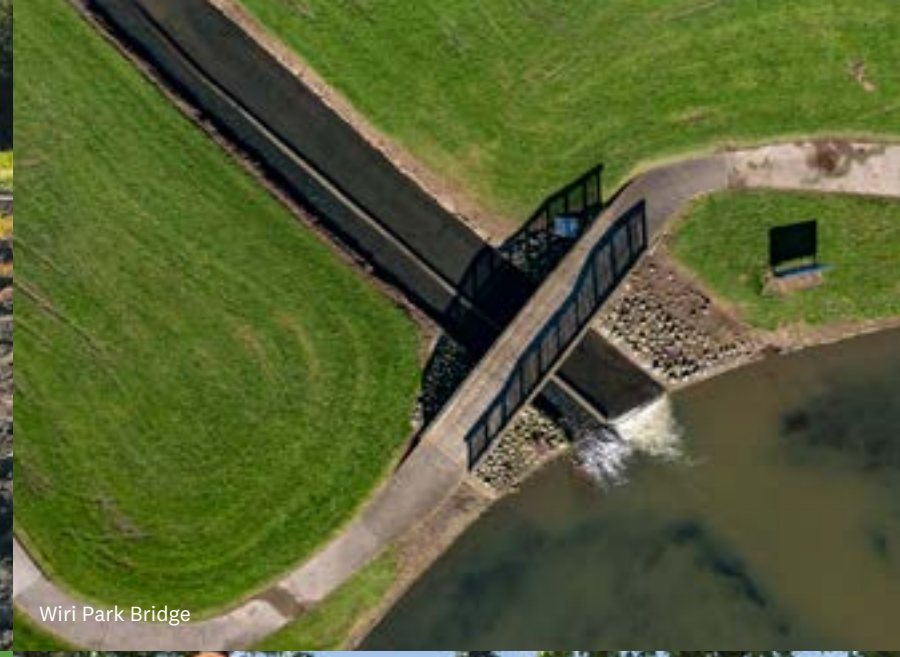
Six environmental pou have been identified and the guidelines set out how these pou can be considered and addressed in the public realm: Urban Ngahere and Biodiversity, Water Sensitive Urban Design, Heat Resilience, Transport, Waste, and Carbon. The guidelines recognise the interconnectedness of the pou with each other and the many synergies between them.

Climate change mitigation is addressed under the pou of Transport, Waste and Carbon, and climate adaptation is addressed under the pou of Urban Ngahere and Biodiversity, Water Sensitive Urban Design and Heat Resilience.





D'Oyly Reserve stream daylighting



Wiri Park Bridge

The scope of the guidelines includes all public realm asset types. The most common are streetscapes, parks, play spaces, town squares and cycleways.

Social and cultural considerations are not addressed within these guidelines. We have existing goals and targets in relation to sustainable procurement and we utilise the guidance within the Auckland Council Sustainable Outcomes Toolkit.

Certain aspects of the guidelines will be mandatory for either all projects or all projects of a certain type; others are potential opportunities to be explored. The approach taken will vary depending on project type, project objectives and site-specific considerations.

These guidelines do not directly apply to projects on AUDO development sites. However, we will encourage our development partners to consider the guidelines for any public realm or private open space aspects within their developments.

Any information gathered though our neighbourhood-wide masterplanning will be shared with Priority Location Directors and project leads for consideration in future projects or site sales. There is an advocacy role we can take in promoting consideration of te taiao with our development partners or wider community stakeholders.

audo.co.nz



Onehunga Mall

04

How to use this document



Te Nukuao, Wynyard Quarter



Daldy Street, Wynyard Quarter

This document sets out six environmental pou that are important to AUDO and relate to the environmental principles within Thriving Town Centres. Under each pou, strategies and opportunities are outlined, as well as KPIs or targets where relevant. A subset of pou have been identified which should be considered at the neighbourhood scale. These are Water Sensitive Urban Design, Urban Ngahere and Biodiversity, Heat Resilience and Transport. For these pou, AUDO is working with partners including Auckland Transport and Healthy Waters, to ensure effective catchment and network-based planning. Healthy Waters is Auckland Council's department responsible for the management, planning and development of stormwater systems and its effects on the environment.

Under each pou, several different strategies are set out for consideration with a range of approaches that could be taken. Not all strategies will be applicable to every project. Appropriate opportunities to be utilised will depend on the individual project and its location. Project leads will need to consider their wider project aims when looking at applicability of environmental pou and strategies. In some instances, there may be outcomes to balance. While many of the pou are self-supporting and interrelated, we will not be able to address all matters on every project.

This document will be referenced at the design brief stage to inform project environmental goals and to ensure appropriate skillsets are included within the design team. Design leads will use this document as a resource to identify opportunities for their projects and specify these in the brief. Under each pou any mandatory requirements are outlined as well as any other relevant considerations to be noted, such as compliance with other council or stakeholder requirements.



Eastern Viaduct



Wiri Playground

Part of our approach to public realm projects is to identify group innovation initiatives. These are pilot projects to test new or different materials or methodologies agreed between AUDO and our future asset owners, Parks and Community Facilities and Auckland Transport.

In implementing these guidelines, we will continue our existing engagement processes with mana whenua to ensure that matauranga māori is reflected.

MANDATORY REQUIREMENTS FOR PROJECTS

Tree assessment

If there are trees on site, a public realm project must either refer to a neighbourhood-scale tree inventory or undertake a site-specific assessment. The intention is to note tree specimens present and their health and use this to inform planting or tree protection and maintenance recommendations.

Stormwater assessment

A stormwater assessment must be undertaken to assess stormwater quality and quantity issues if the project will involve a significant reduction in permeable area or where there are existing water flow issues to be resolved. This assessment can be done either in discussion with Healthy Waters or through use of consultant input from a stormwater engineer.

Waste management plan

Development and implementation of a waste management plan and measurement of diversion is required for all capital works projects above $300,000. All smaller scale projects are required to consider how waste can be minimised.

Embodied carbon assessments

Projects of $5m and above must utilise the AUDO Public Realm Carbon Tool (PRCT) and Project Emissions Estimation Tool (PEET) together to assess project embodied carbon. Assessments are to be delivered in early phases of design (concept, preliminary design) and refined in later stages of design (developed, detailed) to reduce embodied carbon.

05

Environmental pou


Te Ara Awataha


Westhaven Marina

1. Urban ngahere and biodiversity

INTRODUCTION

Auckland's urban ngahere is the realm of Te Waonui o Tāne (the forest domain of Tāne Mahuta) and consists of a green network including all trees and vegetation – both native and introduced. Our urban ngahere is diverse. It includes trees and vegetation in road corridors, parks and open spaces, natural stormwater assets, community gardens, living walls, green roofs and trees and vegetation in the gardens of private properties.

Protection and enhancement of urban ngahere and the biodiversity within has social, environmental, economic, and cultural benefits. Recognising and promoting the role of ecosystems will help with adapting to climate change e.g. through carbon storage, reducing erosion, reducing the heat island effect and the effects of stormwater runoff.

Te Rautaki Ngahere ā-Tāone o Tāmaki Makaurau: Auckland's Urban Ngahere (Forest) Strategy includes three objectives of knowing, growing and protecting, with 18 supporting high-level actions. A key goal of the strategy is that all local board areas achieve a minimum 30% canopy cover.

AUDO is well placed to support the delivery of Auckland's urban ngahere objectives. We will take action to know, grow, and protect urban ngahere across our neighbourhoods and to focus on improving the uneven extent of canopy coverage, to ensure that benefits are widely shared.

Knowing

- Understanding the status of urban ngahere and tree canopy coverage across our neighbourhoods.
- Mapping canopy coverage across our public realm, streetscapes, and development sites to understand deficits and to plan for future planting.
- Understanding tree size, health, and condition to guide decision making.
- Identifying a balance of locations and appropriate species that will result in growth and resilience to a changing climate.

Growing

- Expanding urban ngahere across our Neighbourhoods, ensuring a diverse mix of species, climate resilience and enhancement of biodiversity outcomes.



Wynyard Quarter

- Contributing to local board and stakeholder planting plans and opportunities.
- Addressing any significant uneven coverage of canopy cover within our town centres.

Protecting

- Understanding that it can take decades to see equivalent benefits through new planting.
- Protecting existing trees and maintaining canopy coverage in our neighbourhoods.
- Requiring strong mitigations for mature tree loss.

OBJECTIVE

AUDO contributes to increasing canopy cover within its neighbourhoods.

STRATEGIES

1. Contribute towards delivery of local board urban ngahere plans and objectives of the Auckland Urban Ngahere Strategy.
2. Contribute to increasing road corridor and carparking canopy coverage.
3. Improve biodiversity in AUDO neighbourhoods.
4. Protect mature trees and green spaces in AUDO neighbourhoods.
5. Deliver in conjunction with water sensitive urban design and heat resilience objectives.

OPPORTUNITIES

1. Contribute towards delivery of local board urban ngahere plans and objectives of the Auckland Urban Ngahere Strategy.
    - Measure tree canopy coverage of AUDO neighbourhoods. Identify deficits of coverage and opportunities for planting.
    - Develop neighbourhood and project inventories of existing trees, noting species and tree health.
    - Understand and contribute to local opportunities and priorities for planting (local board urban ngahere plans).
    - Where AUDO neighbourhoods are subject to greater levels of heat stress, target a greater degree of tree planting and canopy coverage.
2. Contribute to increasing road corridor and carparking canopy coverage.
    - Contribute towards Auckland Transport Hikina Te Wero goals of greening the road network. Explore potential for 40% canopy coverage for streetscape projects to support Auckland Transport Green Infrastructure Network proposed targets.
    - Screen carparking from the public realm with quality landscaping and substantial tree canopy coverage.
3. Improve biodiversity in AUDO neighbourhoods.
    - Support restoration and connection of ecosystems, for example creating stepping stones between areas of high ecological value.
    - Ensure the contribution of marginal sites to ecosystem services are recognised, valued, and increased.
    - Consider the enhancement of ecosystem service functions in restoration activity.

- Encourage building integrated vegetation including surface greening on urban facades such as walls.
- Utilise a range of species to increase urban ngahere resilience to disease and a changing climate, with a preference for the use of trees endemic to the area and whakapapa sourcing.

4. Protect mature trees and green spaces in AUDO neighbourhoods.
   - Identify mature trees with significant canopy coverage on AUDO public realm project sites for protection.
   - Require strong justification for mature tree removal (e.g. public safety) and significant planting mitigations to compensate for mature tree loss.

     Deliver in conjunction with water sensitive urban design and heat resilience objectives.
   - Consider tree and planting placement for rainfall interception and water treatment.
   - Consider tree placement for shade and massing to create cool islands.
   - Create green spaces within existing spaces e.g. streetscapes and public squares.

MANDATORY REQUIREMENT

If trees are on-site a public realm project must either refer to a neighbourhood-scale tree inventory or undertake a site-specific assessment to note tree specimens present and their health and use this to inform planting or tree protection and maintenance recommendations.

KPIs

No projected net loss of tree canopy cover.

Tree canopy cover projection is increasing.

GUIDANCE FOR PROJECTS

Auckland Transport Bioretention Planting Guide

LINKS TO MORE INFORMATION

Auckland's Urban Ngahere (Forest) Strategy

Auckland Transport Green Infrastructure Network Framework *(Please email Sustainable Outcomes team members for a copy of this document)*

Albert-Eden Urban Ngahere Action Plan 2021 (Maungawhau to Morningside Corridor)

Henderson Massey Urban Ngahere Action Plan (Henderson)

Kaipatiki Urban Ngahere Action (Northcote)

Ōtara-Papatoetoe Urban Ngahere Action Plan (Manukau)

Waitemata Urban Ngahere Action (City Centre and Waterfront)



Amey Daldy Park, Wynyard Quarter



Manukau Town Centre


Te Ara Awataha


Te Ara Awataha

2. Water sensitive urban design

INTRODUCTION

Making space for water and allowing natural systems to function in our urban areas is a priority.

Water sensitive urban design is an approach which addresses development of urban land in a way that recognises the water cycle and seeks to minimise the impacts that arise from changes to catchment hydrology from urbanisation. Water sensitive urban design seeks to protect and enhance natural freshwater systems, sustainably manage water resources, and mimic natural processes to achieve enhanced outcomes for ecosystems and our communities.

In a brownfield context, water sensitive urban design can be about maintaining or reintroducing ecosystem services into a site or neighbourhood. Climate change and associated increased rainfall events, will make planning for and accommodating water flows in our neighbourhoods increasingly important. We will need to have an awareness of the wider catchment to ensure that we do not exacerbate any existing issues and are exploring the potential of our projects to alleviate wider catchment issues.

OBJECTIVE

AUDO masterplanning and work programme is informed by a jointly planned catchment-based approach with Healthy Waters. All public realm projects take a holistic approach to Water sensitive urban design.

STRATEGIES

1. Protect and enhance the values and functions of natural ecosystems.
2. Address stormwater effects as close to source as possible.
3. Mimic natural systems and processes for stormwater management.
4. Promote inter-disciplinary planning and design to deliver broader outcomes for communities.

OPPORTUNITIES

1. Protect and enhance the values and functions of natural ecosystems.
    - Cluster land development on the most appropriate parts of sites.
    - Protect site soil resources from modification.
    - Maintain or increase the perviousness of the project site. Limit disturbance of vegetated areas.
    - Address pollutants in the land e.g. by remediation of contaminated soils.
2. Address stormwater effects as close to source as possible.
    - Explore options for on-site and near-site treatment. Establish treatment trains through and between AUDO sites.
3. Mimic natural systems and processes for stormwater management.
    - Reduce stormwater volume, peak flow, and pollutant loads.
    - Create and enhance wetlands, daylight and rehabilitate water courses.
    - Utilise swales, raingardens and mass tree planting.
    - Include buildings in mix of water treatment options with green roofs and living walls e.g. toilets and play structures.
4. Promote inter-disciplinary planning and design to deliver broader outcomes for communities.
    - Aim for broader benefits by targeting environmental, social, and cultural outcomes.
    - Consider opportunities to weave planning with urban ngahere and biodiversity, and heat resilience pou.
    - Explore possibilities to retain rainwater and stormwater for reuse on-site e.g. for grey water use and to displace irrigation.
    - Create places that provide for public amenity and play, which provide detention during periods of heavy rainfall.

MANDATORY REQUIREMENTS

All projects must consider stormwater quality and quantity issues. A stormwater assessment must be undertaken to assess stormwater quality and quantity issues if the project will involve a significant reduction in permeable area or where there are existing water flow issues to be resolved. The assessment can be done either in discussion with Healthy Waters or through use of consultant input from a stormwater engineer.

AUDO will manage stormwater discharges in accordance with the Auckland Council Network Discharge Consent.


Puhinui Stream


Te Ara Awataha

AUDO - HEALTHY WATERS JOINT PLANNING

AUDO will work with Healthy Waters to understand natural processes, issues, and opportunities across AUDO neighbourhoods. Based on this information, AUDO interventions and contributions to address catchment water quantity and quality issues will be defined.

- Engage Healthy Waters Waterways Planning team for integration workshop and joint planning.
- AUDO to outline public realm and development planning in catchments, and neighbourhood environmental context (urban heat, urban ngahere).
- Healthy Waters to explore water flows, quantity, and quality issues for neighbourhood catchments.
- Agree drivers and principles to guide decision making for specific neighbourhoods and catchments.
- Joint development of an options report at the catchment scale, exploring overlap between Healthy Waters and AUDO work programmes.
- Assess interventions against agreed drivers and prioritise.
- Inform and update Healthy Waters future work programme, AUDO Masterplanning.

KPIs

To be confirmed following further work with Healthy Waters.

GUIDANCE FOR PROJECTS

GD04 Water Sensitive Design for Stormwater

Auckland Transport Bioretention Design Guide

Auckland Transport Swale Design Guide


Puhinui Stream


Te Ara Awataha


Te Ara Awataha



Hayman Park



Westhaven Promenade

3. Heat resilience

INTRODUCTION

Climate change will subject Tāmaki Makaurau to hotter temperatures and more extreme weather events including droughts and heat waves. In coming years, heat waves are likely to be more frequent, more severe, and longer lasting.

Cities can be subject to the **urban heat island** effect which occurs when natural land cover is replaced with dense concentrations of paving, buildings and other surfaces that absorb and retain heat. Urban heat islands contribute to higher daytime temperatures, reduced nighttime cooling, and higher air-pollution levels. These contribute to heat-related deaths and illnesses such as general discomfort, respiratory difficulties, heat cramps, heat exhaustion, and heat stroke.

The urban heat island effect will exacerbate the effects of hotter temperatures in our urban areas. Several AUDO neighbourhoods are identified as climate vulnerability hotspots. These areas of Auckland are particularly vulnerable to climate change impacts due to factors such as the socio-economic context and low levels of existing tree cover. A critical component of our response to climate change needs to be taking actions that reduce the urban heat island effect. Design decisions in our public realm and masterplanning work are central to this.

OBJECTIVE

Utilise public realm projects to improve heat resilience, by providing shelter and cool spaces in AUDO neighbourhoods.

STRATEGIES

1. Utilise a design process for the public realm aimed at increasing community resilience or adaptive capacity to local climate impacts.
2. Provide shade and shelter in the public realm in town centres to deal with rain and heat, including open spaces, footpaths and other pedestrian areas.
3. Utilise strategies to reduce the effect of the urban heat island on AUDO project sites.
4. Explore opportunities to reduce the effect of the urban heat island beyond the site area.

OPPORTUNITIES

1. Utilise a design process for the public realm aimed at increasing community resilience to local climate impacts.
    - Create cool islands, public areas of respite from high temperatures.
    - Look for opportunities to create cool spaces in formal and informal public spaces e.g. public squares and streetscapes.
    - Address urban heating at scale with multiple interventions across a neighbourhood.
2. Provide shade and shelter in the public realm in town centres to deal with rain and heat, including open spaces, footpaths and other pedestrian areas.
    - Create cool routes with minimal interruption of shade between housing and public and private amenities.
    - Consider co-location of public transport stops with existing mature trees or under building canopies.
    - Provide a variety of shelter in play areas for children.
    - Utilise planting and trees to provide shade for cycleways and shared paths.
3. Utilise strategies to reduce the effect of the urban heat island on AUDO project sites.
    - Consider material type and colour to minimise heat gain.
    - Reduce use of constructed impervious surfaces e.g. roads, sidewalks and car parks.
    - Consider cooling effects of vegetation and tree canopy cover before removal.
    - Increase tree canopy coverage as primary mitigation.
    - Use trees that will provide significant shade within 10 years of planting.
    - Shade hardscaping with tall or overhanging vegetation.
    - Shade hardscaping with permanent structures e.g. walls, vegetated trellises, public art.
    - Design and utilise treatments of unshaded hardscaping elements to reduce solar gain.
    - Incorporate vegetation, including green roofs.
    - Include water bodies and/or watercourses. Delivering with water sensitive urban design goals.
4. Explore opportunities to reduce the effect of the urban heat island beyond the site area.
    - Maximise tree canopy coverage across a larger area to reduce urban temperatures (>40% site tree canopy coverage).
    - Maximise shading of hardscaping adjacent to buildings (e.g. car parks).
    - Connect with adjacent areas of tree canopy coverage.



Te Nukuao, Wynyard Quarter



Hayman Park

KPIs

Percentage of site area utilising strategies to reduce the urban heat island effect.

GUIDANCE FOR PROJECTS

Table 1. Heat vulnerability of AUDO neighbourhoods. Vulnerability identified via Auckland Council and NIWA data.

Areas	Priority location heat vulnerability
North	Northcote – moderate to high Takapuna – low to moderate
Isthmus	Onehunga – moderate to high Panmure – moderate to high City Centre - low to moderate
West	Avondale – moderate to high Henderson – moderate to high Hobsonville – relatively low
South	Manukau – high Old Papatoetoe - moderate to high Pukekohe - moderate

There are several methodologies for measuring the impact of materials or the effectiveness of design strategies on reducing the urban heat island effect. These will be tested on a pilot basis to assess their utility, practicality, and whether they should be adopted for AUDO projects. Examples include formula for measuring the effect of interventions to reduce the urban heat island, included within the American-based Sustainable Sites Initiative SITES V2 rating tool; and measurement of a material's Solar Reflective Index (SRI), included within the Australian Green Star Design & As-Built rating tool.



Hayman Park



Waiwhahariki, Takapuna



Onehunga



Westhaven Promenade

4. Transport

INTRODUCTION

Transport emissions not only contribute to carbon emissions, they negatively impact the amenity of our neighbourhoods with noise and air quality impacts and lost productivity arising from congestion.

Emissions from transport account for around 44% of Auckland's carbon emissions and roughly 80% of these are from light passenger and commercial vehicles. Research shows that many of our short trips are undertaken by private vehicles and the number of people per vehicle has decreased over time. A large proportion of these trips could be made by walking or cycling, but in many cases, there are barriers to be addressed.

Reducing transport emissions is a priority for the Auckland Council group as we need significant transport emissions reductions to meet our carbon reduction targets.

AUDO can help, encourage and facilitate reduced transport emissions through our urban regeneration work. We can make it safer and more attractive for people to use active modes to and within our neighbourhoods. With a mix of land uses and services, integrated with transport infrastructure, we can reduce the need to travel and facilitate the use of public transport and cycling for commuting or longer trips.

An important part of this work is our collaboration with Auckland Transport to develop and implement transport plans that rebalance the transport network to support the shift towards more sustainable modes. A key part of this approach will be reallocation of space that is currently available for parking.

OBJECTIVE

Utilise public realm projects to connect development sites, public facilities, open and green spaces by active travel and facilitate safe, local journeys in AUDO neighbourhoods.

STRATEGIES

1. Provide additional or improved connections within sites and neighbourhoods to support fine grain activity.
2. Ensure it is safe and pleasant to move around on foot or by bike.
3. Provide appropriate cycle infrastructure.

4. Address transport noise effects.
5. Consider air quality in streetscapes and adjacent areas, addressing pollutants from vehicles.

OPPORTUNITIES

1. Provide additional or improved connections within sites and neighbourhoods to support fine grain activity.
    - Create and design for access between housing, public realm and community or commercial uses.
    - Explore options to utilise public realm as thoroughfares and designate access through development sites when undertaking masterplanning.
    - Design for desire lines, facilitate the shortest journeys by active modes and public transport.
2. Ensure it is safe and pleasant to move around on foot or by bike.
    - Provide alternative ‘quiet’ cycle and pedestrian routes away from main roads.
    - Provide dedicated, protected cycle lanes along key routes.
    - Provide visual amenity and protection from wind, sun, and rain.
    - Provide wayfinding and signage and improved lighting within 1km of stations/interchanges/ along cycle paths.
    - Consider co-location of public transport stops with existing mature trees or under building canopies.
    - Address urban ngahere and biodiversity goals with the aim of providing shelter to active and public transport users.
    - Consider pedestrianising existing routes and spaces to improve accessibility.
    - Make foothpaths more walkable through widening, adding connections (paths, bridges) adding missing legs to intersections and removing obstacles.
3. Provide appropriate cycle infrastructure.
    - Provide active modes parking that is secure, visible, sheltered, and convenient.
    - Locate cycle parking close to public amenities and retail.
    - Ensure cycle parking is well lit and visibility is maximised.
4. Address transport noise effects
    - Look for opportunities to screen busy streetscapes with vegetation.
    - Consider speed calming measures or provision of shared spaces to reduce vehicle movements near areas of high amenity and footfall.
5. Consider air quality in streetscapes and adjacent areas, addressing pollutants from vehicles.
    - Utilise roadside planting and vegetative barriers e.g. hedges, located close to emission sources. Or use of trees and other vegetation that has a positive effect on air quality where emissions are an issue.


Wynyard Quarter


Onehunga

Work with Auckland Transport is ongoing to agree Centre Integrated Transport Land-use Plans (CTILPs) for AUDO neighbourhoods. CTILPs outline the strategic transport guidance for a priority location and set out how the urban regeneration programme fits within, and contributes to, Auckland Transport strategy and regional and national transport strategies. The CTILP articulates the transport outcomes and desired end state for a priority location. CTILPs will consider the supply and demand for parking and ensure that appropriate provision is made for different transport modes.

KPIs

To be confirmed following further work with Auckland Transport.

GUIDANCE FOR PROJECTS

Streetscape works to have regard to recommendations of any local CTILP and the Auckland Transport Design Manual.

Auckland Transport Green Infrastructure Network Framework *(Please email Sustainable Outcomes team members for a copy of this document)*

Links to more information

Transport Design Manual

Hikina te Wero



Daldy Street



Hurstmere Road, Takapuna



Henderson Train Station





Wiri Playground

5. Waste

INTRODUCTION

Auckland Council has a waste management and minimisation plan which sets a goal of zero waste to landfill by 2040. AUDO has made a commitment to the use of deconstruction principles to help minimise construction and demolition waste.

Construction and demolition waste is Auckland's largest single waste stream comprising around 40% of the total weight going to landfill. Much of this waste is easily avoidable and AUDO has an opportunity to demonstrate leadership in reducing this waste stream. Waste minimisation and materials reuse have a number of co-benefits. Manufacturing materials contributes to carbon emissions, pollution, and resource depletion.Therefore any strategies that result in use of less materials, or reuse of existing materials, has wider environmental and economic benefits.

OBJECTIVE

All public realm projects take a considered approach to waste minimisation across the whole project life cycle.

STRATEGIES

1. Maintain on-site structures and hardscaping, vegetation, and soils.
2. Reuse existing hardscaping, aggregates, vegetation, and soils.
3. Design out waste from projects.
4. Design new assets for flexibility and deconstruction at stages of renewal and end-of-life.
5. Take a deconstruction approach to assets that need to be removed.
6. Consider opportunities for materials reuse across other AUDO and Council whanau projects within the neighbourhood.
7. Embed commitments to waste management and minimisation within all contract specifications.

OPPORTUNITIES

1. Maintain on-site structures and hardscaping, vegetation, and soils.
    - Identify and inventory structures, including ones that are subgrade that can be refurbished and reused on site.
    - Clean, repair, and refinish existing structures and hardscaping.
    - Design site layout to use existing topography, minimising cut and fill.
2. Reuse existing hardscaping, aggregates, vegetation, and soils.
    - Create an inventory of on-site hardscaping, vegetation, and soils that can be reused.
    - Ensure that any on-site plant matter that cannot be reused should be sent to an appropriate facility for composting.
    - The use of clean fill is not advised and should be a last resort, measures should be taken to find an alternative destination for any unwanted hardscaping and soil.
    - Consider remediation of lightly contaminated soils in-situ e.g. bioremediation.
    - Identify materials that can be reused in structures and landscaping on-site or shared with other projects.
3. Design out waste from projects.
    - Ensure a ‘Design: Waste Minimisation Plan’ is submitted by the consultant at each design phase (concept, preliminary and detailed design) to show progression of waste minimisation considerations and recommended approach.
    - Design in a resource recovery area into the site design plan for sorting and separation of major materials groups for reuse and recycling.
    - Design for simplicity. Fewer materials results in less wastage and fewer opportunities for rework. Less maintenance required.
    - Utilise standard designs and design elements e.g. street furniture. Dimension to standard sizes of materials, reducing waste from unusable off-cuts.
    - Utilise materials with recycled content. Consider durability, reuse, and recycling options.
    - Make waste minimisation through design an explicit project goal. including where there is early contractor involvement.
4. Design new assets for flexibility and deconstruction at stages of renewal and end-of-life.
    - Minimise the use of materials that do not have end-of-life solutions e.g. plastics and composite materials.
    - Design spaces that can be adapted for other uses over time.
    - Utilise fixings (screws, rather than nails) and materials (pavers, rather than concrete) that allow for disassembly.


Silo Park Extension



Clifton Court, Panmure



- Focus on the easy accessibility and removal of elements that need regular maintenance or renewal.
- Limit materials that cannot be deconstructed to key uses, e.g. concrete for bridge supports.

5. Take a deconstruction approach to assets that need to be removed.
   - Create an inventory of the fixtures, fittings, and materials in a build or structure, noting their condition and potential to be re-used.
   - Plan to rehome specific materials with appropriate organisations for reuse, including businesses, community groups, and charities.
   - Remove fixtures and fittings first in a soft-strip exercise. Extract salvageable materials from the structure so that the value of those materials is preserved for reuse.
6. Consider opportunities for materials reuse across other AUDO and Council whanau projects and within the neighbourhood.
   - Utilise procurement planning for physical works and deconstruction. Identify materials in advance that could be shared between projects.
7. Embed commitments to waste management and minimisation within all contract specifications.
   - Reference the waste section of the Auckland Council Group Sustainable Outcomes Toolkit.

KPIs

Measurement of waste diversion from landfill – minimum 70% landfill diversion per project, which represents good practice.

MANDATORY REQUIREMENTS

Waste management plan and measurement of diversion is required for all capital works projects above $300,000 but waste minimisation opportunities should be considered for all projects.

GUIDANCE FOR PROJECTS

- Each project to consider opportunities for waste minimisation; this may look different for each project.
- Projects need to follow a process to consider opportunities and define how they are addressing waste (refer process map).

Links to more information

Construction Waste Matters | Waste Nothing

REBRI: Reducing building material waste | BRANZ

Auckland Council Group Sustainable Outcomes Toolkit *(Internal document only)*



Westhaven Marine Centre



Waiwhariki, Takapuna

6. Carbon

INTRODUCTION

An important part of our climate response is to consider all opportunities to mitigate climate change through our projects, addressing both operational and embodied carbon emissions.

Every act of urban renewal produces carbon emissions. Central to minimising emissions is making better use of the assets we already have through refurbishment and adaptive reuse. Minimising waste, by minimising disturbance and maximising materials reuse, results in fewer emissions from the production and finishing of new materials. From an embodied carbon perspective, the most sustainable asset is the one that is already built. AUDO investment decisions must consider carbon emissions that will be created through urban renewal, and the need for new assets to be long lived to make the most of their associated carbon cost.

Projects of $5m and above must utilise the AUDO Public Realm Carbon Tool (PRCT) and Project Emissions Estimation Tool (PEET) together to assess project embodied carbon. The use of these tools is central to the optioneering stages of our projects, to test the impact of different design decisions on carbon. A certain quantity of emissions is unavoidable, but we can be intentional in our designs, construction methodologies, and can look for innovative solutions to minimise our emissions.

OBJECTIVE

Operational and embodied carbon reduction is a key consideration in all public realm projects. Projects of $5m and above must measure and take steps to reduce project embodied carbon.

STRATEGIES

1. New assets designed for carbon neutrality in operation*.
2. Embodied carbon to be assessed in early phases of project design (concept, preliminary design) to influence design geometry and selection.
3. Projects in developed and detailed design to design out embodied carbon.

OPPORTUNITIES

1. New assets designed for carbon neutrality in operation.
    - Design for appropriate assets to be off grid, that

is no connection to power utilities. Consider applications for solar lighting and small assets e.g. public toilets.

- Utilise renewable energy for larger assets to achieve net-neutral greenhouse gas emissions over a 12-month period. This means that no more energy is used in a year than is produced by on or off-site renewable energy and is based on the Auckland Council Sustainable Asset Standard.
- Utilise asset renewals to target emissions reductions e.g. targeting energy efficiency.

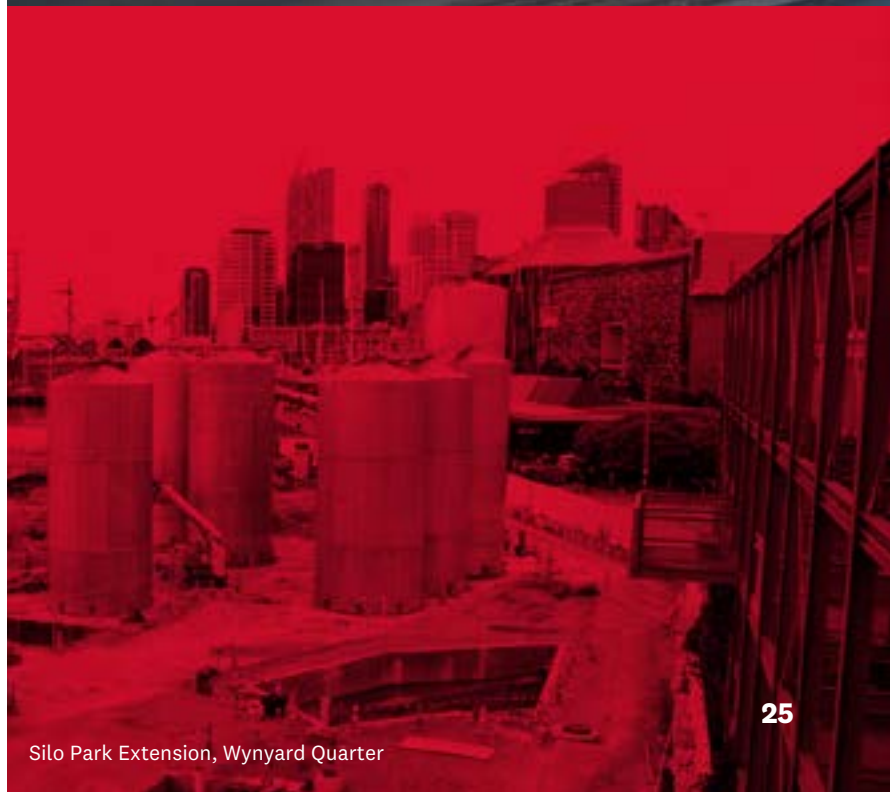
2. Embodied carbon to be assessed in early phases of project design (concept, preliminary design) to influence design geometry and selection.
    - Assess long list of options to determine embodied carbon of materials and construction methodologies.
    - Look for opportunities to deliver designs within existing physical boundaries e.g. install cycleways without moving curb lines.
    - Make use of in-situ materials e.g. reusing and refurbishing existing structures or pavements, integrating materials available on-site into designs (features, elements of play).
    - Include embodied carbon within assessment criteria to proceed to next stages of design.
3. Projects in developed and detailed design to design out embodied carbon.
    - De-materialise, aim for simpler designs. Consider cost of materials as a proxy for embodied carbon.
    - Reduce the use of highly finished materials. A higher degree of finish with more steps in manufacturing generally results in a higher embodied carbon product.
    - Assess materials for lower embodied carbon alternatives e.g. timber as substitution.
    - Assess whether partial materials substitutions can be made e.g. partial substitutions for cement in concrete.
    - Assess materials specifications for appropriateness. Consider whether materials have been over specified e.g. consider use of concrete, specified strengths of concrete.
    - Assess materials for distances travelled.
    - Look to minimise site disturbance, excavation etc. Movement of earth, removal of in-situ materials results in higher embodied carbon through use of machinery so as to displace diesel, petrol use on-site.
    - Plan for site electrical connections to displace or minimise generator use so as to displace diesel, petrol use on-site.

*AUDO and Parks & Community Facility Assets. For assets to be vested with Auckland Transport, this design strategy needs to be agreed in advance.

will be utilised to identify and procure designers and constructers who can measure and reduce carbon in design and construction.



Percy Vos Shed, Wynyard Quarter



Silo Park Extension, Wynyard Quarter

GUIDANCE FOR PROJECTS

Project leads should liaise with the Sustainable Outcomes Team for access to and use of the PRCT and PEET. Advice is being developed for projects under $5m and will be included in a future update to this document. Advice can be sought from the Sustainable Outcomes team on projects of all sizes.

Links to more information

Project Emissions Estimation Tool (PEET)





Silo Park Extension, Wynyard Quarter



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