VERSION 1 JAN 2025

OPEN SPACE & STREETS DESIGN GUIDE

Kāinga Ora
Homes and Communities

DOCUMENT CONTROL

Version:	1.0
Date:	January 2025
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Urban Design + Planning + Landscape

Kāinga Ora
Homes and Communities

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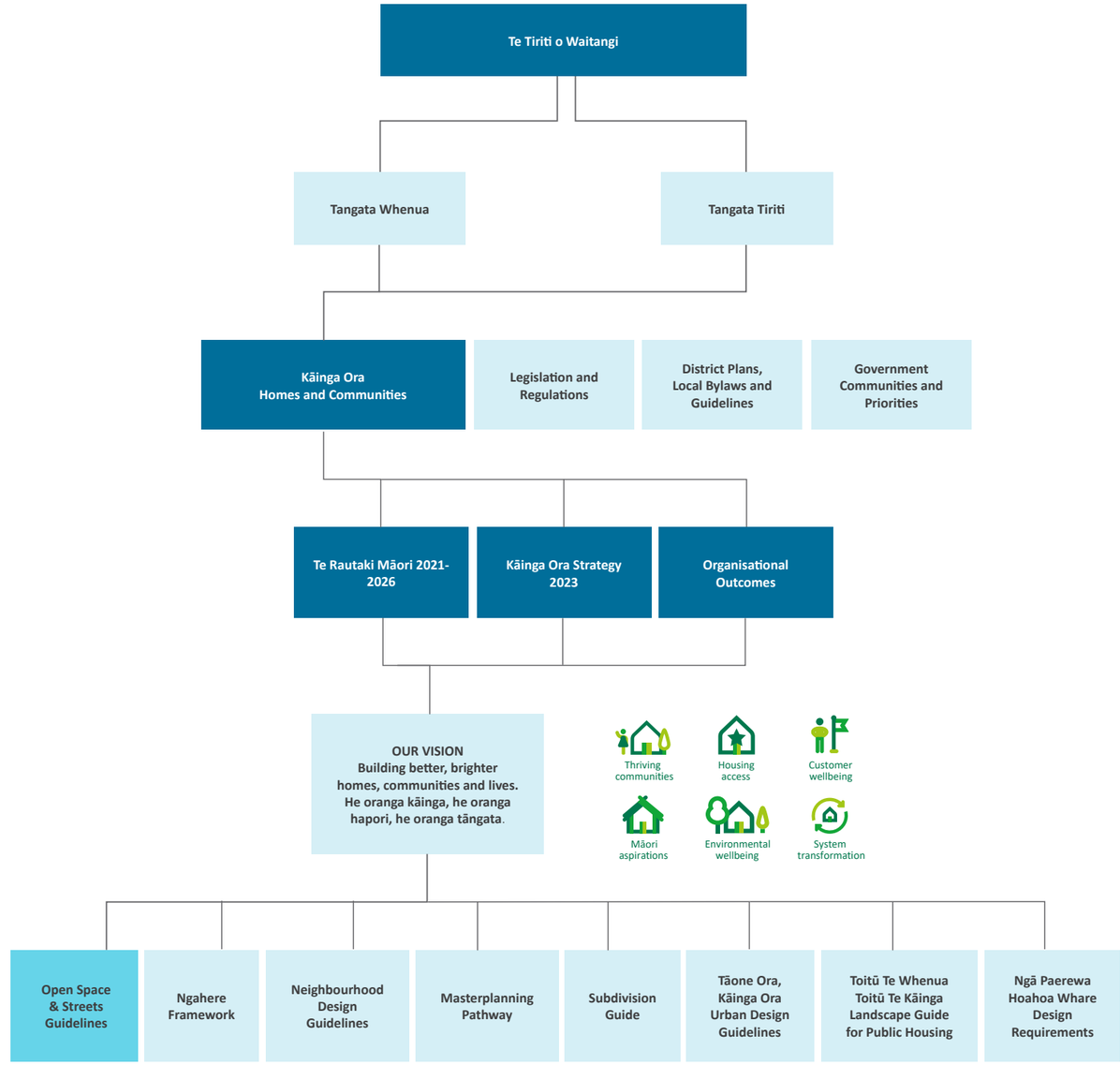
PURPOSE

Open space and streets provide communities opportunities to connect with nature and create a blue-green infrastructure where the natural and built environment seamlessly interact. An open space comes in various unique forms that benefit the community.

When a proposed development gets underway, a number of agencies, led by Kāinga Ora – Homes and Communities, collaborate on the design of open space and streets. When our multi-agency delivery teams are in sync with the design principles for open space and streets, we are more likely to succeed by creating an environment that fulfils the needs of the community.

We reviewed our delivered large-scale projects by analysing designs and organising community workshops. The review identified a need for an Open Space and Street Design Guide to help agencies work together and for Kāinga Ora project teams to deliver successful projects.

While the size or scale of each development requires different approaches, the delivery teams using this guide will be able to design open space and streets for a development in a strategic and cost-effective manner.



EXECUTIVE SUMMARY

As population density increases and the size of backyards for our homes decreases, open space and streets provide much needed access for our communities to move, play and gather.

We need well-designed open space and streets that provide communities with:

- an extension to their backyard
- improved and safe pedestrian connections
- a place for sport, recreation and social gatherings

Additionally, an open space is home to a thriving ecology, and the cultural values of the Iwi and Rōpū Māori are visible.

When we design open spaces, we need to consider the process, economic outcomes and resilience of doing so.

PROCESS

- Identify and build strong partnerships with key stakeholders including:
  - Iwi and Rōpū Māori
  - more inclusive communities
  - local authorities/ elected officials
- Deliver outcomes consistently throughout the project lifespan of a development

It is our statutory obligation to partner and have early and meaningful engagement with Māori and offer Māori opportunities to participate in urban development. This may include actively facilitating their role as kaitiaki (guardians) or providing the opportunity to be involved directly. Design of the open space and streets should be reviewed through a Te Ao Māori lens.

PROJECT COST PRINCIPLES

- Foresee and control potential cost overruns during the design phase of the process
- Use a consultant's time efficiently
- Provide standard typologies to reduce the cost of a project
- Allocate budget to delivering functional and flexible open space and streets, avoiding expensive materials and furniture
- Consider purchases of hardscape and furniture items that significantly reduce implementation, replacement and ongoing maintenance costs

RESILIENCE

Resilience is about protecting our communities and assets from significant weather climate events. There are a number of ways we can build resilience into our open spaces and streets.

- Respect the existing natural and built environment
- Trees are retained and increased, where possible
- An open space should be designed to futureproof the community from extreme weather events
- Where possible, an open space and street are designed to either store or mitigate stormwater
- An open space can act as a stormwater reserve to help manage and mitigate a developments stormwater capacity

ABOUT THIS GUIDE

This guide has been created for the process of designing an open space and streets for Kāinga Ora employees, designers, development partners and local authorities.

Use this guide when creating an open space or street, as a basis to deliver practical solutions and meet the community's expected outcomes.

WHEN TO USE THIS GUIDE

- For a development where there is a provision for a new or upgraded existing open space and street
- The open space or street are within a new or existing neighbourhood to be delivered by or in partnership with Kāinga Ora
- The new or upgrade to an existing open space and/or streets to be vested to the local authority. This includes when the open space and/or streets are already owned by the local authority
- The open space is part of a development that is identified by the asset owner's strategy or vision and needs to align with the Kāinga Ora and the local authority's vision.

DEFINITIONS

The term Iwi and Rōpū Māori are used in this guideline in recognition of the Crown's responsibility to Māori. This includes Mana Whenua, tangata whenua, hapū and Māori organisations.

Blue-green infrastructure- is a system of waterways (blue) and parks (green) that give stormwater space to flow and help reduce flooding where people live.

Consultant design team - Includes landscape architects, architects, , planners, surveyors and quantity surveyors.

Engineers- includes civil works, geotech, structural, environmental, traffic, lighting

Construction team - Includes engineer to the contract (ETC) contractors (builders, landscapers, roadworks, maintenance crews)

Local authority - Each region has its own elected authority. The term 'local authority' is used to cover local authorities, local or community authorities, councils, local boards and other elected bodies.

Ngahere- Ngahere is forest. Refer to the Ngahere section for more information

Road Controlling Authorities (RCA) refers to local and national RCA street standards aligning with and being coordinated with new and retrofitted street typologies by Kāinga Ora.

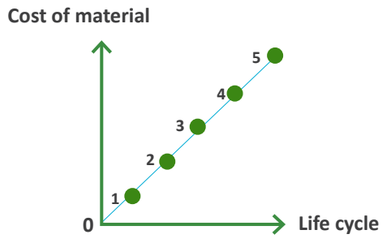
Specialists - Includes an arborist, archaeologist, ecologist, play consultant, cultural advisor and other specialist roles.

Property Legal/Land Compliance and Advisory Teams
Refer to this team for all sub division, land swaps and acquisitions.

COST VALUE

For each element of an open space and/or street, the relative cost of materials or solutions in terms of its whole of life value and/or cultural or social value should be considered.

This graph below is a visual guide to compare the relative cost of one material or solution to another on a scale that measures value. For example, a high-cost material or solution might last for 50 years equating to good value (pine over hardwood)



Cost vs Life cycle

There is a wide range of variables that need to be taken into consideration such as capital and operation costs. There is still a requirement for a detailed cost investigation for each project.

PRINCIPLES

Use the following key design principles to guide you through the planning, design and delivery phases of each development project.

The most successful outcomes have come from careful and thoughtful consideration of these principles, resulting in developments with a high level of design quality that are embraced by the communities that live in them.

MAURI
Environmental Benefits

- Mauri is the fundamental principle of life as it ensures vitality within the spaces we inhabit
- This is an important part of our holistic environment where we are all interconnected, and our actions should be responsive to the needs of the landscape to evolve. The health and wellbeing of people is intrinsically linked to the health of the natural environment
- Flourishing natural environments, communities, and the availability of open spaces provides opportunities for people and nature to connect

WHIRIWHIRI
Building Lives and Communities

- Whiriwhiri is the principle of negotiation and consideration which is vital to how we design spaces that support our communities. Ensuring a collective approach in decision making is an important part of how we plan for proposed developments and deliver successful design of open spaces and streets

TŪHONONGA
The User Experience

- Tūhononga is the principle of connections, ensuring residents feel akin to their surroundings and are given the opportunities to experience quality living
- Providing attractive and functional landscapes can enable the community to take pride in their home and environment while also having access to well-functioning infrastructure and services

ĀHURUTANGA
Accessible and Safe Living Environments

- Āhurutanga is the principle of feeling comfortable within the spaces we inhabit. It's about ensuring quality urban design, safe access and connections, clear sightlines, and quality care towards good public areas
- The design of the built environment can have a significant impact on personal safety, security, and social behaviour within a neighbourhood
- Landscape design plays a critical role in enabling safer and more attractive environments, by applying the principles of Crime Prevention through Environmental Design (CPTED)– which in turn encourages accessibility

TOITŪ TE WHENUA
Sustaining the Landscapes

- Toitū te whenua reflects the principle of working together in collaboration with our environment to ensure sustainable and healthy living
- The Kāinga Ora Environment Strategy (2022) sets out four key environmental outcomes, and it is expected that open space and streets will deliver on these principles
- To achieve this, constant consideration is required through reciprocity between people and nature, understanding the need to co-exist in unity and establish a sustainable future

SUMMARY OF KEY GUIDELINES

This section looks at each key project component and guides you through the related design controls for developments nationwide

1.0 PROJECT & PARTNERSHIPS

- Stronger collaboration between Kāinga Ora, Iwi and Rōpū Māori , local authorities, communities, and design professionals
- Ensure consistency across national, regional and local policy, strategy, and community resource planning
- Early engagement with stakeholders is key to the success of a project
- Key design and planning moves to be negotiated with the local authority at the master planning stage. Improve delivery outcomes through collaborative planning
- Drive value for money with cost-effective solutions to achieve the desired project outcomes

→ Section 1.0

2.0 ENGAGEMENT

- Early and meaningful engagement with stakeholders is paramount to the success of any development - see Kāinga Ora He Toa Takatini our Partnership and Engagement Framework for our approach
- Build strong relationships with all Iwi and Rōpū Māori to actively facilitate their role as kaitiaki (guardian of the land). This will include direct involvement in design processes through the lens of Te Ao Māori
- The design process is agreed in collaboration with the relevant council, Iwi and Rōpū Māori and the local community

→ Section 2.0

3.0 ASSET OWNERSHIP & MAINTENANCE

- Early in the project, set up agreements with local authorities involved and outline expected development contributions
- A project plan should be developed early to allow for funding to complete a feasibility study and prepare an investment case
- Clearly outline the maintenance criteria for parks and open space early in their development
- Early engagement with Property Legal and Land Compliance and Advisory Teams is recommended in relation to vesting of roads, reserves and pocket parks; land exchanges and/or reconfiguration; road stopping or road widening.

→ Section 3.0

4.0 OPEN SPACE

- We aim to provide a safe, accessible open space that promotes the beauty and versatility of the environment for community wellbeing. We want to provide equitable open spaces across the country. For example, a park in Māngere has the same investment and design as a park in Porirua
- Open space will provide opportunities for residents to connect and play
- Look at the opportunity to incorporate blue-green infrastructure into open space design
- Cost-efficient design solutions are provided with clear natural surveillance

→ Section 4.0

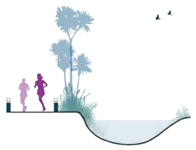
5.0 STREETS

- Provide coordinated street typologies that meet both RCA and local authority standards
- Prioritise safe pedestrian and cycling routes
- Engage with relevant internal teams and external organisations to achieve positive transport outcomes
- Engage with Land Compliance and Advisory Team where roading is to vest in local authority or where road stopping or road widening is a consideration
- Maintain parking capacity within the street to meet current demand, consider adaptability to enable future reductions

→ Section 5.0

SUMMARY OF KEY GUIDELINES

6.0 RESILIENCE



- Provide nature-based solutions that utilise open space for stormwater mitigation and climate resilience
- Invest in blue-green infrastructure
- Provide consistency across national, regional, and local policy, and between water, land and community resource planning.
- Ensure ongoing research, monitoring, evaluation and sharing of project data is continued to achieve wider acceptance and technical understanding of nature-based solutions

Section 6.0

7.0 NGAHERE

- Ngahere is forest. Where possible, retain existing trees in the open space and street. If tree removal is required, allow early engagement with the local authority for any work on or adjacent to the tree
- If existing trees can't be retained, consider transplanting elsewhere or propagating replacements
- Planting palettes align to local climate and ecology and promote diversity of species
- Increase canopy cover in key areas such as streets, school routes, and parks, and link gaps in ecological corridors
- Introduce edible trees and plants in appropriate areas, for example in parks with local authority agreement

Section 7.0

8.0 HARDSCAPE & FURNITURE

- Use standard and approved elements as far as practicable and in agreement with local authority as this will significantly reduce implementation and ongoing maintenance costs
- Use local authority approved off-the-shelf, proprietary furniture that is affordable and easily maintained or replaced
- Engage with the local authority to establish standard and approved finishes and furniture suites to assist the design teams
- Ensure practical paving surface layout and transitions to ensure practical formwork and placing
- Be selective in the use of concrete finishes and treatments to achieve value for money and provide function over aesthetics

Section 8.0

9.0 PLAY

- Play and fitness areas are designed to accommodate the entire community as far as practicable and in agreement with local authority
- Playground infrastructure is accessible to all ages and abilities
- Play areas offer opportunities for play, learning and social interaction for a wide range of ages
- Playground equipment to be common, proprietary items that are approved by local authorities allowing for easy maintenance or replacement
- Design spaces to accommodate nature play as a cost effective play element low maintenance or replacement

Section 9.0

10 CULTURAL EXPRESSION

- Opportunities for cultural interpretation and expression are explored through early and meaningful engagement and consultation with Iwi and Rōpū Māori
- Relevant local authority teams (such as parks and facilities) are included throughout the process, providing approvals where required
- Scope for any artwork or wayfinding items to be agreed with the local authority
- To simplify contracting, funding, and budget controls, any non proprietary (artwork/bespoke/ uniquely crafted) items are to be included in separate scopes

Section 10.0

1.0

PROJECT AND PARTNERSHIPS

Key Advisory Guidelines

- Stronger collaboration between Kāinga Ora, Iwi and Rōpū Māori , local authorities, communities, and design professionals

- Ensure consistency across national, regional and local policy, strategy, and community resource planning

- Early engagement with stakeholders is key to the success of a project

- Key design and planning moves to be negotiated with the local authority at the master planning stage. Improve delivery outcomes through collaborative planning

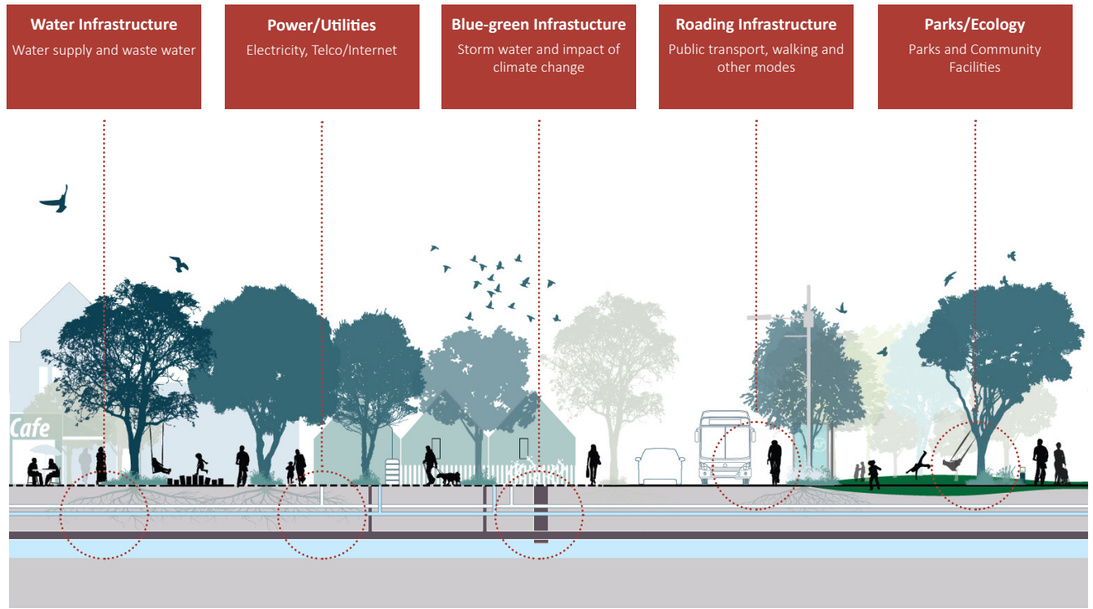
- Drive value for money with cost-effective solutions to achieve the desired project outcomes

The design and delivery of a development project involves multiple organisations and stakeholders. Close collaboration is required between all parties to ensure the project is on time and on budget, delivering positive outcomes. The challenges of coordinating a multi-agency project workstreams include:

- Council and infrastructure providers will have their own project priorities
- Programme, desired outcomes and aspirations can be mismatched
- Funding can be uncertain or change over the duration of the project
- Processes evolving without structured approvals can result in delays and increased cost

EARLY ENGAGEMENT IS THE KEY TO SUCCESS

- Ensure early engagement and planning with stakeholders
- Communicate opportunities for future open space and streets to partner organisations and key stakeholders as early as possible. This maximises the chance of project success through strong connections and a shared understanding of desired outcomes
- Be future focused, resilient and flexible in approach, allowing opportunities for change in the project direction
- Collaboratively develop plans for open spaces and streets, and establish joint assumptions and outcomes
- Adopt a consistent approach for interaction between project partners and stakeholders. Set regular meetings with both the design teams and project governance groups
- Operationalise efficiency by coordinating with other project partners and infrastructure providers to align workstreams
- Uphold cultural values and principles of Te Tiriti o Waitangi



The above illustration represents a typical project involving multiple agencies and stakeholders.

ENSURING THRIVING COMMUNITIES ARE DELIVERED

- Create safe, accessible and liveable communities and resilient urban environments
- Create an open space that will provide for future generations
- Design for sustainable and low carbon outcomes
- Encourage shared governance and agreed processes
- Integrate planning, funding and delivery with participating organisations
- Programme time frames to deliver on time

1.1 PROJECT PATHWAY

The following project road map will help guide the design process and outline the relevant documents to be referred to along the way

1. PRECINCT PLANNING

INVESTMENT MANAGEMENT FRAMEWORK (IMF GATE)

Actions

- Project brief identifies 'Gate 0 to 4 'a new open space and/or street provision

2. BUSINESS CASE/ FUNDING

BUSINESS CASE, FUNDING AGREEMENTS

Actions

- Kāinga Ora and local authorities agreed asset and funding outcomes

3. PROJECT MAPPING

SITE INVESTIGATIONS AND MAPPING

Actions

- Show neighbourhood plan sitting within a precinct plan. This should include city - precinct, neighbourhood, open space & streets

4. PROJECT PLANNING

PROJECT INITIATION

Actions

- Identify Project Partners
- Outline project scope
- Consider design budget and funding availability
- Establish Project Control Group (PCG)
- Engage with Placemaking team to identify key community stakeholders
- Identify opportunities and constraints
- Engage with Kāinga Ora Landscape Team to define a scope and outline brief for business case

5. PROJECT PARTNERS

IWI AND RŌPŪ MĀORI ENGAGEMENT

Actions

- Honour statutory obligations
- Engage with Te Kurutao and Kāinga Ora Placemaking team to develop engagement plan
- Meet with Iwi and Rōpū Māori to understand aspirations and values
- Support Iwi and Rōpū Māori in developing cultural values assessment

ASSET OWNER LIAISON

Actions

- Agree provision requirements
- Agree programme and budget
- Negotiate and agree delivery funding
- Outline asset handover and maintenance requirements

6.DESIGN STAGE

DESIGN PHASE

Actions

- Establish design brief, scope of services and deliverables with the Kāinga Ora delivery teams
- Provide reference design if required
- Procure a landscape architect consultant
- Involve Iwi and Rōpū Māori in developing a cultural narrative and expression
- Define project milestones and design programme
- Set up frequent design team meetings
- Undertake design review at all stages, and PCG approval
- Undertake cost management
- Engage with asset owner to review maintenance requirements and agree to maintenance period

7.DELIVERY

PHYSICAL WORKS

Actions

- Create a procurement plan
- Ensure relevant subject matter experts (SME) included in tender review
- Review contractor's programme of works and consider seasonality in relation to earthworks and planting
- Set up risk register, health and safety in design register
- Involve project partners in site monitoring
- Allow for regular site meetings and site observations up to the end of the defects liability period
- Ensure compliance and certification for all consents

8. HANDOVER

dd

ASSET HANDOVER AND MAINTENANCE

Actions

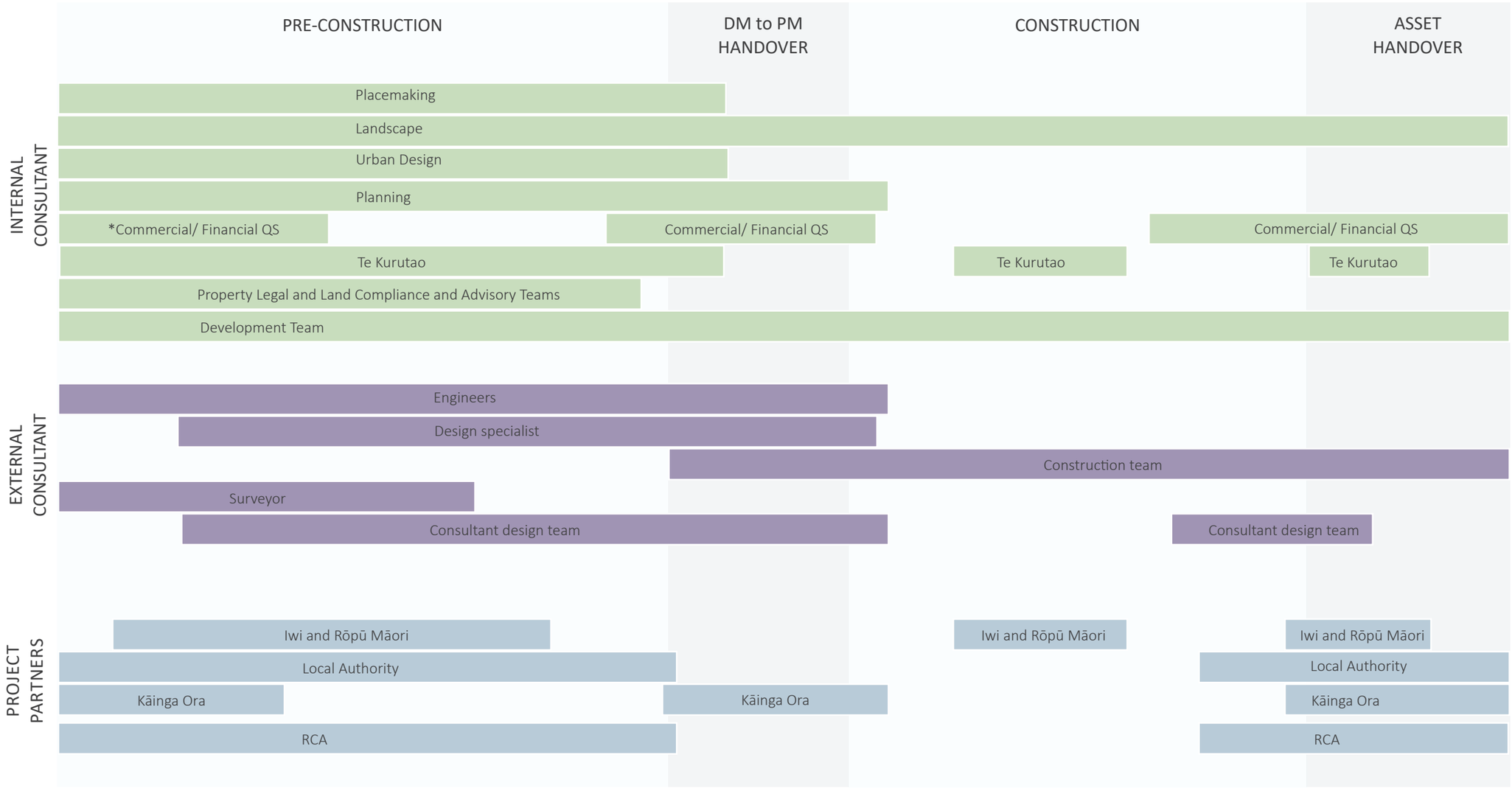
- Ensure requirements for code of compliance are met
- Involve project partners and stakeholders for opening day
- Ensure maintenance is monitored and enforced as per contract agreement
- Developer led maintenance period begins

1

1.2 PROJECT TIMELINE

Key Considerations

- Early engagement with all stakeholders is key to success of a project
- Allow for a programme that has a regular core design team meeting with key stakeholders (for example, project governance groups)
- Agree on principles and typologies early on in the conversation, allowing for no surprises
- Consider QS reports at every milestone to ensure the project remains on budget
- Collectively deliver climate resilient, cost-effective parks and street infrastructure that meet the needs of the communities that will use them
- Improve delivery outcomes through collaborative planning
- Drive value for money through linking desired outcomes with cost effective solutions



* QS= Quantity Surveyor
DM = Development Manager
PM = Project manager

2.0 ENGAGEMENT

Key Advisory Guidelines

- Early and meaningful engagement with stakeholders is paramount to the success of any development - see Kāinga Ora He Toa Takatini our Partnership and Engagement Framework for our approach

- Build strong relationships with all Iwi and Rōpū Māori , to actively facilitate their role as kaitiaki (guardian of the land). This will include direct involvement in design processes through the lens of Te Ao Maori

- The design process is agreed in collaboration with the relevant council, Iwi and Rōpū Māori , and the local community

For a development to be endorsed by a local authority, it is important that a stakeholder engagement plan has been developed and incorporated into the project. This allows feedback from Iwi and Rōpū Māori , and the wider community to be collected and considered in the design phase

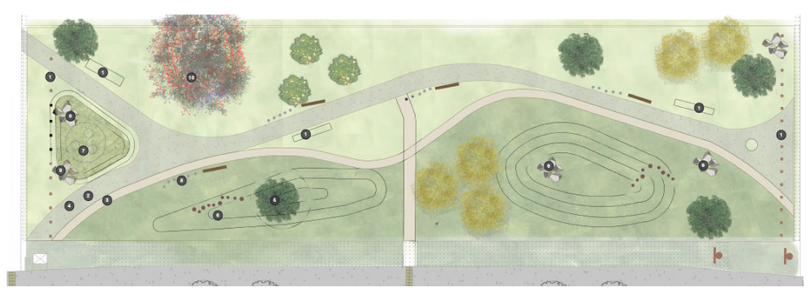
Depending on the location and land use, the local authority will share the proposal and engage with Iwi and Rōpū Māori and other stakeholders. This engagement evidence will be included within the resource consent and the reserves act consent submission.

Benefits of stakeholder engagement include:

- understanding the community's aspirations for open space and streets
- ensuring we are delivering a space that caters to all ages and abilities and meets the needs of the community as its population grows
- ensuring we design for the future, with an understanding of the community's requirements and flexibility to adapt to changing needs over time

Tools to engage with the community include a:

- stakeholder engagement plan that outlines an engagement strategy, programme, desired outcomes and key stakeholders
- reference design or a detailed diagram overlaid on the plan depending on the type of development
- ensuring any legal or regulatory considerations are met and potential risks are highlighted



Aorere Pocket park was drawn in-house prior to engaging via community workshops and consultants

IWI AND RŌPŪ MĀORI

We are committed to working closely with Iwi and Rōpū Māori across all phases of the project and in the care and maintenance of Māori art and taonga in public spaces. We work with local authorities to engage with Iwi and Rōpū Māori in the earliest stages of planning new projects to identify areas of shared interest and opportunities to work together.

Iwi engagement is to be carried out early and meaningfully through Kāinga Ora operational programmes such as land use, sale and disposal of land and housing development. As part of the resource consent process, this is a statutory requirement for our planned open spaces and blue-green infrastructure projects.

From the outset of any public realm project, cultural expressions and collaborative process driven outcomes are required to have been identified by the Iwi and Rōpū Māori project working group.

Iwi and Rōpū Māori actively offer a deep matauranga Māori perspective whereby the life essence and potential of the project, its mauri ora, would be fully enhanced. This perspective acknowledges the significance of whenua to and within the context of mana rangatiratanga, place-specific emphasis within the development on te taiao (the natural world), particularly focusing on the mauri of the neighbourhood and the quality of wai, puna, whenua and air and the cultural landscape of Iwi and Rōpū Māori .

As highlighted in the Iwi and Rōpū Māori engagement process, it is imperative to engage at the earliest stages of a development.

Engagement should refer to local statutory guidance such as in Auckland, the strategic information developed by Iwi called **Te Anga Whakamata** incorporates the eight key priorities and aspirations of Iwi with consideration to their cultural, environmental, ecological, strategic, social and economic interests.

We are committed to working closely with Iwi and Rōpū Māori across all phases of the project

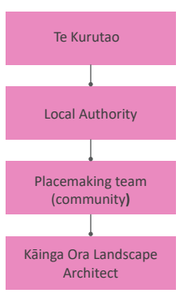
Mechanisms to facilitate partnership and collaboration between a local authority and Iwi and Rōpū Māori include shared management guidelines or written protocols. Iwi and Rōpū Māori may also play a role in how a local authority works with iwi endorsed artists, such as providing employees with recommendations and introductions where appropriate.

2.1

Key Considerations

- ☐ Identify key Iwi and Rōpū Māori and other stakeholders in the community at the start of the project
- ☐ Develop and communicate the stakeholder engagement strategy
- ☐ Use in-house preliminary sketches and reference design, instead of sourcing them at a cost from consultants
- ☐ Provide a reference design prior to consulting with stakeholders and the community outlining any opportunities and constraints so they have full information on the proposal

WHO SHOULD BE INVOLVED



LOCAL BOARD AND ELECTED OFFICIALS

Local boards are responsible for approving the design and development of a new open space. An infrastructure funding agreement, alternative funding mechanism, or other commercial arrangement would need to be agreed with the council if a developer intends to undertake the development of a new open space. Developers are encouraged to confirm with the council early in the development process if they plan to develop a new open space.

COMMUNITY

The community use the open space and streets we design and create - which is why we need to consult with them early in the project.

In community workshops, a narrative and subject themes can emerge such as ecology and conservation, history, community storytelling, and approaches to water and food. These elements can be used to develop concepts for wayfinding and artwork.

- Refer to the Play section pg 69 and pg 70 for more information on community engagement

Community engagement events

The above diagram illustrates the benefits of community/stakeholder feedback with narratives and subject themes that can be revealed at consultation workshops.

3.0

ASSET OWNERSHIP & MAINTENANCE

Key Advisory Guidelines

- Early in the project, set up agreements with local authorities involved and outline expected development contributions

- A project plan should be developed early to allow for funding to complete a feasibility study and prepare an investment case

- Clearly outline the maintenance criteria for parks and open space early in their development

- Early engagement with Property Legal and Land Compliance and Advisory Teams is recommended in relation to vesting of roads, reserves and pocket parks; land exchanges and/ or reconfiguration; road stopping or road widening.

It is critical that ownership and responsibility for maintenance is agreed between asset owners and the developer at the outset of the project. These written agreements form the basis of funding agreements for the design, ongoing maintenance and management of assets.

DEVELOPMENT OF A NEW OPEN SPACE

The majority of local authority funding for acquiring land for open space and streets comes from development contributions. The Local Government Act 2002 allows local authorities to collect development contributions to fund planned infrastructure required to accommodate growth, including for open space and streets that sit within land developed by Kāinga Ora.

Any land acquired for an open space funded from development contributions must meet increased needs resulting from growth. The proportion of the cost of acquiring an open space that may be funded by development contributions is determined by the cost allocation methodology within the local authority's Development Contribution Policy.

Maintenance and fair contract agreements need to be agreed between the asset owners at the outset of a project

PRIORITISING OPEN SPACE CRITERIA

The priorities for an open space include:

- meeting community needs, now and in the future
- connecting new and existing developments to open space
- protecting and restoring unique local features, stories and meanings
- improving existing open space and streets

FUNDING AND DELIVERY AGREEMENTS FOR AN OPEN SPACE

Agreements need to be in place early to allow for a fair joint programme of works and development contributions.

Framework Agreement

These agreements can occur between Kāinga Ora and each asset owner such as Road Controlling Authorities (RCA), water utility providers, power/energy network providers and parks and community facilities. The benefits of these agreements include:

- a commitment to a joint programme of works to deliver developments
- establishing the principles and processes for agreeing the funding split and addressing affordability gaps
- determining how any cost variations will be managed
- standard terms for delivery, monitoring, and reporting
- the Housing Appropriation Fund (HAF) period and process to collaborate to address further funding requirements post-HAF period through the Smarter Funding & Financing Working Group

Project Agreement and Relationship Agreement

Short-form agreements are used for a project or project bundle and reference the framework agreement signed by Kāinga Ora and each asset owner involved in the project.

- Project agreements confirm precise funding and delivery requirements, and any specific terms executed after business cases have been approved by each organisation's investment governance group
- A relationship agreement is set up between Kāinga Ora and local authorities finance departments. They include funding allocations and HAF requirements

Key Considerations

- Partnership - strengthen the relationships Kāinga Ora has with external asset owners by initiating early conversations on future developments
- Alignment - common understanding of each stakeholder's business needs, organisational structures, funding and approval requirements
- Clarity - work within defined delivery frameworks and processes to navigate project planning, funding and delivery
- Consistency - a repeatable cross-organisational approach with standardised deliverables and documentation
- Efficiency – creation of agreed processes and supporting documents that can be utilised by multiple audiences, across multiple organisations
- Longevity - ensure long term maintenance is discussed and agreed as part of budget allocation

Key components of the agreements

Project Works Programme and Joint Programme are essential parts of these agreements. They allow the project to achieve the following:

- an in-principle works programme required to deliver the agreed project outcomes
- internal approvals of in-principle works programme (expected to include local authorities and local boards)
- a forecast of the works programme- agreed every 6 months
- review of works programme every 3 years
- coordination across asset types and network providers to form the joint programme
- key design and planning moves to be negotiated with the local authority at the master planning stage

Funding contributions

It is important that funding is sought and obtained to fund the development from preliminary budgets. The following sequence should be applied to ensure funding is confirmed:

- a project plan should be developed to allow for funding to complete a feasibility study and prepare an investment case
- the investment case is then taken to the relevant Programme Control Group (PCG) for approval
- endorsed PCG approval will then allow for the business case to proceed
- prepare and agree the agreement contracts

Contractors mulching and maintaining new planting

Planning budgets

These enable all parties to have an increased level of certainty for planning and budgeting purposes, including identifying short, medium and long-term affordability gaps that need to be addressed.

- Early identification and agreement of funding contributions informs scoping discussions and reduces administration effort
- Tracking project-specific expenditure indicates risk of any budget overrun
- Transparency of where one group is picking up cost or risk for another
- Provide the necessary support for funding tools such as development contributions
- Allocate an equitable share of project costs between the various funding streams (for example, ratepayers, taxpayers, developers, service users)

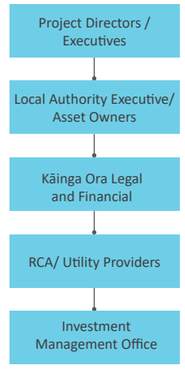
Contractors weeding and maintaining new gardens

Maintenance agreements

Once an open space receives funding, it is important to discuss how it will be maintained on an ongoing basis after completion:

- When an open space or street is proposed, a plan should be discussed outlining the expected outcomes of its design
- This design only needs to be a reference design to identify expected outcomes
- The site plan then needs to be taken to local authorities for feedback and approval- this includes the 12-month maintenance period from main contractor and ongoing maintenance
- Maintenance feedback should then be put into a schedule and included in the open space's budget
- Plans for the open space and street should then be developed allowing for meetings and feedback with the local authorities maintenance teams prior to consent
- Ensure the purchase of quality tree stock to avoid maintenance issues

WHO SHOULD BE INVOLVED



4.0 OPEN SPACE DESIGN

Key Advisory Guidelines

- We aim to provide a safe, accessible open space that promotes the beauty and versatility of the environment for community wellbeing. We want to provide equitable open spaces across the country. For example, a park in Māngere has the same investment and design as a park in Porirua
- Open space will provide opportunities for residents to connect and play
- Look at the opportunity to incoporate blue-green infrastructure into open space design
- Cost-efficient design solutions are provided with clear natural surveillance

Open space plays a vital role in conserving the rich natural and cultural heritage of Aotearoa New Zealand. Understanding the characteristics and values of a place can be just as important as designing new or existing open spaces and streets. When planning for a new project, the following aspects should be included:

- creation of interesting multi-functional open space that provides educational opportunities by co-locating areas of natural and cultural value with compatible recreational and social open spaces
- buffers around sensitive natural or cultural areas to improve conservation and storytelling and to address the effects of development
- corridors of open space along the coast, watercourses and flood plains that provide for blue-green infrastructure, conservation and recreation outcomes
- ngahere retained or planted
- safe pedestrian connections provided to the community areas of natural and cultural value within the open space to address the effects of development

Open space must facilitate the regeneration and growth of surrounding new development areas. Investment in open space in the new and existing development areas needs to account for:

- investing in the established open space network to offer a wider range of activities for greater numbers of people
- improving linkages between open spaces, such as establishing greenways
- optimising assets through land exchange and reconfiguration
- acquiring new open spaces as opportunities allow, particularly in large greenfield and brownfield developments

TYPES OF OPEN SPACE

NEIGHBOURHOOD PARKS

Neighbourhood parks provide basic informal recreation and social opportunities for the local community within a 5 to 10 minute walking catchment. These are typically between 0.3 to 0.5 hectares in size.

Park elements include:

- formal and informal play space
- pedestrian pathways and cycle routes
- flat, unobstructed, kick-around space for informal games (30m by 30m)
- areas for socialising and relaxing such as barbecue and picnic facilities
- specimen trees
- park furniture
- amenity landscape and gardens

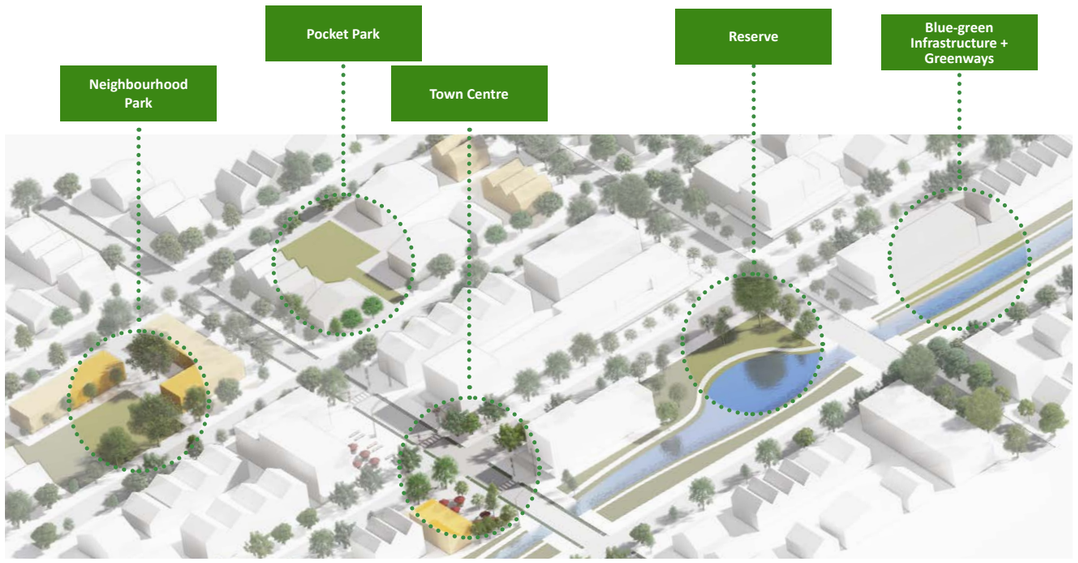
RESERVES

Reserves have a distinctive feature or value and are used to protect and preserve natural areas or species or to mitigate stormwater by providing a detention feature. Reserves are administered by the Department of Conservation (DOC) or an administrative body such as a local authority, iwi or a voluntary organisation. It is important that these stakeholders are involved in any subsequent planned upgrades.

Reserves provide a variety of informal recreation and social experiences for residents in the neighbourhood. They are often found in prominent locations, for example, near water bodies, and will often accommodate planned sport facilities, such as sports fields. These are typically 3 to 5 hectares in size if providing for informal recreation use only, and larger if accommodating sports fields.

Elements within reserves include:

- walking and/or cycling circuits or trails
- multiple informal sport or games spaces
- socialising spaces, including picnic and barbecue facilities
- space for community events
- larger and more specialised informal recreation attractions, such as large playgrounds, skate parks and hard courts or other sport facilities
- beach and riverside swimming areas and watercraft launching facilities
- car parking, changing facilities and toilets
- cycle parking and charging stations



How an open space interfaces with the nearby built, natural and social environment can significantly influence the quality of the surrounding area. It is important to identify these factors when making decisions about where open space should be located and how it is configured. The importance of each of these factors will depend on the intended function of an open space and the local context.

TYPES OF OPEN SPACE

POCKET PARKS

Pocket parks provide smaller outdoor amenity and social spaces in residential areas, as well as visual relief from intensive developments. Pocket parks can be vested through agreement with local authorities, however, it is important to consider any increased maintenance burden. It is recommended to keep pocket parks under 2500m² for this reason.

For all properties that are adjacent to a pocket park, consider access or natural surveillance through permeable fencing. If the development site is more than 3 to 5 minutes walk from an existing open space, then provision of a pocket park is recommended as part of the development.

Pocket Park elements include:

- area for socialising and relaxing
- informal/natural play
- hard surface treatments
- specimen trees
- site furniture including seating and lighting where necessary
- amenity planting and lawn area

Freeland Reserve, Roskill South is designed to accommodate large rain events

Pocket park

TOWN CENTRES

Town centres are urban spaces that provide a social and civic function. They provide space for socialising, play, gathering, and community events in the heart of a city, suburb or town.

These spaces are typically associated with civic, commercial, and retail buildings that draw a large amount of pedestrian traffic. They can include a network of public spaces including squares, plazas, lanes, lawn areas, streets and shared spaces. Typically, we see the size of town centres matching those of a local village that includes a convenience store, cafe and other food and beverage outlets.

Town centre elements include:

- highly structured and well-developed urban spaces
- predominately hard surfaces
- meeting and socialising opportunities
- seating elements for a range of group sizes and abilities
- formal or informal event space
- amenity planting and/or gardens
- permanent or temporary public artworks
- a relationship to public transport nodes
- restriction of vehicular traffic through pedestrianisation and traffic calming

BLUE-GREEN INFRASTRUCTURE AND GREENWAYS

Greenways are slow-speed, highly traffic-calmed streets or pedestrian pathways that also provide mitigation for stormwater or watercourses.

These spaces should prioritise pedestrians and cyclists over vehicle movement and parking, and provide opportunities for education, social interaction in a way that makes effective use of the space.

Blue-Green infrastructure includes natural elements that hold, filter and improve water quality. These elements are based on the principles of water-sensitive urban design. They can also mitigate exposure to flood events, as demonstrated by Te Ara Awataha Greenway, in Northcote, Auckland, during the floods of January 2023.

These elements include:

- daylighting culverted waterways – opening up and exposing a buried or piped stream or creek
- greenways
- swales – an overland flow path for stormwater
- pedestrian priority and shared user pathways
- safe environments for children to play
- safe street crossings
- consideration of play interventions – adding play elements alongside built infrastructure such as stepping stones, logs and balance beams next to shallow water courses
- traffic calming measures such as kerb buildouts, surface treatments and raised tables or speed bumps
- water-sensitive urban design
- amenity planting and street trees
- impervious surfaces should be kept to a minimum

Stream daylighting Te Ara Awataha, Northcote

4.1 OPEN SPACE STRATEGY

When designing an open space, it is important to refer to the engagement process outlined in the Project and Partnership and Engagement sections of this document, so a plan can be made for how the open space can contribute and serve the community, mitigate stormwater flows and provide a habitat for flora and fauna.

The following section highlights the important frameworks and strategies that need to be considered for an open space to function well and meet the needs of the community.

FUNCTIONING LANDSCAPE AND AMENITY

- Provide attractive landscape areas with planting used to create variation in scale, space and park activities.
- Planting should be included in consolidated blocks of mass planting for maximum growth potential, and to enhance ecology, biodiversity and visual effect.
- Allow for respite, play and learning for people of all ages and abilities.
- Include a mix of hard surface treatments and park furniture that caters for different sized groups, and users of different abilities. For example, a place for one to two people to sit quietly and for a family group to have a barbecue or picnic.
- Allow for lawn areas for recreational play.
- Use a variety of specimen trees that are a mix of deciduous and dense to provide both open and enclosed spaces. Ensure CPTED principles have been applied. Allow for setback of tree planting to neighbouring buildings. Refer to the Ngahere section for more information
- Consider the local biodiversity and ecology of a site when selecting tree and plant species. It is recommended that pocket parks consider integrating aspects of the public landscape strategy for indicative planting palettes.

A functional park will be designed to allowing pedestrian circulation while providing storm water mitigation Freeland Reserve, Roskill

PASSIVE SURVEILLANCE

It is important when designing an open space that a Crime Prevention Through Environmental Design (CPTED) review is conducted to ensure all risks to the public are mitigated.

It is also important to consider:

- lighting to be provided at key entry points, and along the periphery where roads are vested back to council. Most local authorities prefer to avoid lighting within the park due to safety and security issues.
- open spaces to have clear lines of sight and visual displays at entrances and exits.
- dwellings are encouraged to face parks to improve natural surveillance opportunities.
- mitigate anti-social behaviour and a lack of passive surveillance by enhancing sightlines into the parks, for example, by lifting the canopy of trees along pathways to open up visibility.
- alternative routes should be created, increasing permeability and pathway options.
- further measures should be implemented to eliminate motorbike access to parks (community respondents stated this as being a primary concern in surveys conducted by Kāinga Ora).
- fences and boundary treatments to provide public and private delineation and a balanced approach between achieving privacy to outdoor living space and surveillance.
- work with neighbours adjacent to the open space to improve boundary fences to restrict animals straying into the park.

SAFETY AND ACCESSIBILITY STRATEGY

Open space and streets need to provide for people of all abilities. It's important to be mindful of those using mobility aids.

Safety and accessibility concerns can cover a wide range of issues that are barriers to increasing open space usage and amenity value for the local community. Future open space projects must address and actively mitigate concerns expressed by stakeholders and community.

There are a number of initiatives to improve safety and accessibility in open spaces:

- Engage with community accessibility organisations to establish requirements and best practice.
- Ensure adequate parking and drop-off zones for mobility-impaired users.
- Ensure seats have back and arm rests.
- Improve path gradients, install handrails where required and take whatever applicable measures to improve park accessibility for disabled people.
- Where bike trails are installed, provide clear demarcation to avoid conflict and contact between pedestrians and cyclists.
- Provide clear wayfinding to ensure entry and exits are clear to all open space users.
- Provide alternative pathways if cycling opportunities risk dangerous activity.
- Provide clear sightlines.
- Ensure surface materials meet slip resistance and visibility requirements.

4.2 PATHWAYS

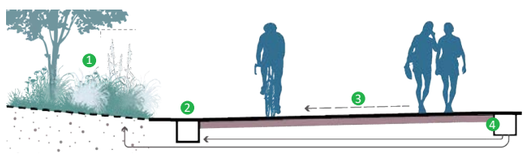
CIRCULATION STRATEGY

It is recommended that a circulation strategy for an open space be created to identify proposed enhancements to pedestrian and cycle routes. The strategy aims to create a safe and intuitive network, including a proposed hierarchy of path types to respond to current open space usage along with potential new connections. The following suggested widths are a guide to be designed with consideration of local authority standards.

- Tertiary paths – narrow concrete/gravel paths 800–1800 mm minimum width
- Secondary paths – standard concrete paths 1500–3000 mm minimum width
- Primary paths – wide concrete paths 2400–4000 mm minimum width

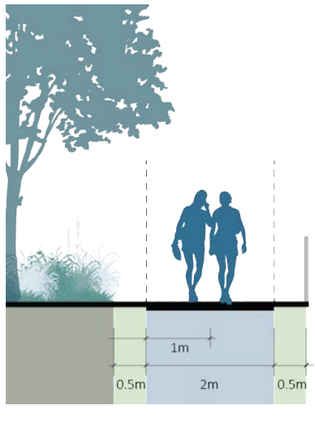
Also, for the circulation strategy, we need to consider the following:

- Minimise earthworks
- Where possible, avoid or minimise the use of retaining walls
- Generally, a ramp or a series of ramped paths are preferable to stairs for accessibility. Stairs might be considered in situations where there is steep topography that results in excessive cut and fill
- Shorter stepped routes of higher gradient are preferable to longer ramped routes with a shallower gradient
- Consider creating wider pedestrian and cycle networks (refer Streets section for multi-modal pathway detail)

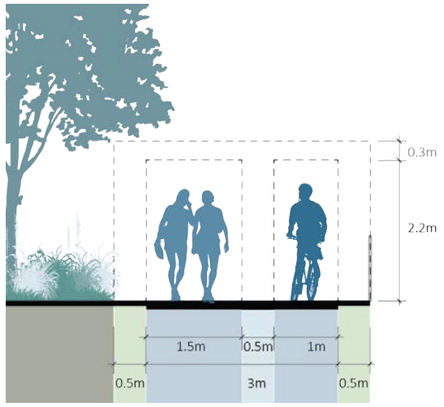


Typical Pathway Section

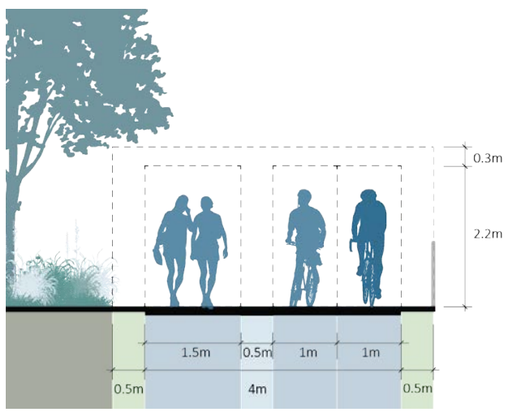
1. Where soil and space allow, drain to permeable soils, vegetated areas and grass areas
2. Where 1 is not possible, drain to existing stormwater system
3. Provide a sloped crossfall
4. Pervious paving, filter drain or cross culvert to prevent seepage across path surface. Water should be diverted to permeable soils, vegetated areas or the stormwater network.



*Tertiary Path
Desirable Width- 1.8m
Minimum Width- 0.8m
Minimum Offset- 0.5m



*Secondary Path
Desirable Width- 3m
Minimum Width- 2.4m
Minimum Offset- 0.5m
Minimum Clearance Height- 2.5m



*Primary Path
Desirable Width- 4m
Minimum Width- 2.4m
Minimum Offset- 0.5m
Minimum Clearance Height- 2.5m

* The above dimensions are suggested spatial arrangements and should be confirmed with local authorities and RCA

4.2 PATHWAYS

HARD SURFACE (IMPERMEABLE) STRATEGY

The surface treatment of paving helps to determine the accessibility, safety, comfort and experience of the park. It is also the key factor determining its durability, life expectancy and future maintenance requirements.

The hard surface strategy should identify areas used frequently and outline appropriate treatments. For example, the main path should be concrete whereas maintenance paths can be gravel. Concrete should be used where pedestrians will be using the park. This includes:

- provide sealed paths at park entrance points and where higher use occurs such as for primary paths and key entrances
- provide wider paths for the main route through the park in consideration of shared user paths and maintenance vehicles
- provide boardwalks over water bodies or areas prone to flooding. These should be wheelchair accessible
- upgrade existing paths and build new gravel paths so that a full circuit of the park can be easily made in response to the circulation strategy

The preferred material for a typical concrete pathway through a park or open space is a lightly exposed aggregate which has very good slip resistance. If oxides are used, it reduces glare and marking. Where there is the opportunity for threshold crossings and wayfinding, oxides and speciality aggregates can be included. Note this needs to be weighed in consideration of project cost and agreed outcomes.

Carefully consider the need for edging. In many instances edging is needed to hold the pathway together and for ease of maintenance. In some cases, edging can concentrate water flows and erode the path, increasing maintenance requirements and creating a trip hazard. Engage with the local authority for direction on the use of path edges.

- Refer to the Streets section for pathway information and multi-modal pathway information

Standard concrete finish should be specified for all main courses of concrete for walkways within a park and public pedestrian pathways along the street.

Pathways along esplanades, water courses and areas prone to flooding can be have a exposed aggregate concrete finish to add extra levels of slip resistance.

For all boardwalks, decks and bridges its encouraged to only use pine timber for the decking.

PLACEMAKING OPPORTUNITIES WITH HARD SURFACES

It may be appropriate to include additional or specialty aggregates and/or oxides to reference and reflect the local environment. For example, areas of archaeological significance such as middens could include shell and/or sand in the path, and a pathway near the mouth of a river or maunga could include river pebbles or aggregates in volcanic fields and lava flows.

In many locations, the opportunity might arise to include additional recycled aggregates and/or oxides to reference and reflect the local community and/or take advantage of a readily available recycled material.

Oxides with midden concrete

PERMEABLE SURFACES

Permeable paths, while not as durable as impermeable paths, have a range of benefits including reduced initial cost, site specific applications around tree roots and the opportunity to provide a unique look, feel and user experience. There is a wide variety of permeable materials suitable for a pathway through an open space such as bound gravel, permeable concrete, permeable unit paving or crushed concrete or brick.

Loose aggregates near a street or pathways will need to be agreed with local authority due to maintenance concerns. Larger aggregates may need to be fixed in with concrete footing or haunching.

Permeable path options can provide a solution for installing a pathway over the roots of an existing tree without detrimental effects to the tree.

For pathways over tree roots, a “no-dig” solution must be employed. This may require engineering input to establish a means to stabilise the existing ground.

No compaction should occur in the structural root zone of existing trees- advice from an arborist is strongly recommended in these cases.

Permeable surface

4.3 BRIDGES, BOARDWALKS

BRIDGES AND BOARDWALKS

Many of our neighbourhoods are adjacent to water bodies and require bridges or boardwalks to connect users and bridge over tree roots or boggy areas.

The major considerations for the design of a bridge or boardwalk are the structure and foundations, the walking/cycling surface and the edge treatment or balustrade. In most cases, timber construction is the most appropriate and economical approach. Thought needs to be given to the accessibility and safety of the boardwalk surface, particularly with regards to the level of slip resistance. It is important that the design of these elements undergoes quality assurance to ensure they meet the required standards and legislation.

TIMBER BOARDWALK

Depending on the structural and treatment requirements, it is recommended to use treated pine to minimise cost. Other considerations include:

- Forest Stewardship Council (FSC) certified hardwood, or appropriately treated pine decking boards, with an adequate anti-slip treatment in wet or shaded environments
- tamper proof screw fastenings to be countersunk and sized to suit timber dimensions and loadings
- planks run perpendicular to the line of travel and gaps between boards to be between 3mm and 6mm in width
- treated timbers for the potential risk of chemical leaching into water bodies
- additional costs can be incurred to install and maintain non-slip surface treatments
- demand for structure is reduced due to timber being lightweight
- alternative construction methods may be required where larger spans or slimmer bearing profiles are required.
- all timber balustrades vertical slats to have a fixed top rail
- where no significant fall from height exists, consider an upstand at boardwalk edges to prevent wheels leaving the boardwalk
- the Building Code for other compliance requirements

ALTERNATIVE SOLUTIONS

There are certain situations that will require solutions beyond what timber structure can achieve. If these structures are not required for the open space, it is best to avoid including them in the design as they tend to be expensive.

STEEL

- A galvanised steel structure can carry heavy boardwalk surfaces such as precast concrete panels or steel grates.
- Consideration is required when proposing galvanised steel close to coastal environments.
- All structures should be to engineering structural design and specifications.

PRECAST CONCRETE PANEL

- Precast concrete panels used as a boardwalk surface will usually require a steel support structure due to the weight of the panels.
- The precast panel surface can be poured to a finish to meet slip resistance requirements. This reduces the maintenance requirement over the life of the material.
- Where the use of timber is deemed problematic, alternative boardwalk surfaces may be considered such as metal, concrete or synthetic surfaces like glass reinforced polymer (GRP) and other surface panels.

Timber boardwalks and bridges should be constructed with pine timber to allow for practical maintenance replacement.

Steel bridge with artwork

WHO SHOULD BE INVOLVED

- Local authorities, parks team
- Placemaking teams
- Consultant Design Team + Specialists
- Käinga Ora Landscape Architect
- Quantity surveyor
- PCG

4.4

SOFT LANDSCAPING

Key Considerations

- ☐ Select durable surfaces for pavements in high traffic areas
- ☐ Consider incorporating place-based or upcycled aggregates and oxides, if suitable
- ☐ Allow loading zones for maintenance vehicles
- ☐ Install a permeable path over the roots of an existing tree, if required
- ☐ Avoid using bound or loose materials paths where there is risk of erosion because of steepness or run-off
- ☐ Use boardwalks and bridges to navigate over and alongside water bodies and courses
- ☐ Engage with the local authority on the specification of lawn and sports fields and planting areas

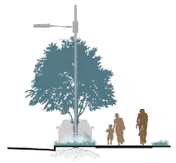
LAWN AND SPORTS FIELDS

- For any lawn or turf areas, engage with the local authority park maintenance team to ensure their preferred methods and specifications are followed
- Ensure any gradients or mounds conform to the local authority maintenance standards. For example, gradients are not too steep for a commercial lawn mower.
- For areas that are too steep to mow safely, it is recommended they are planted instead
- It is recommended that sports fields are included in neighbourhood and destination parks. Work with the relevant local board and local authority on a sports field design process and budget considerations. Local authorities have specific design requirements and a preferred sports field specialist

PLANTING

- Refer to local authorities and Iwi and Rōpū Māori endorsed planting guidelines
- It is preferred that the planting in garden beds is a mix of native species. Refer to the Kāinga Ora Landscape Design Guide for Public Housing for planting selections
- Garden beds with edible herbs and fruit trees are encouraged
- Garden beds should not be too fragmented or small. Allow for a maintenance requirement review with the local authority during the design stage
- Refer to the Ngahere section for tree and biodiversity guidance
- Refer to the Asset Ownership section to ensure maintenance requirements meets available budget

5.0 STREETS



Key Advisory Guidelines

- Provide coordinated street typologies that meet both RCA and local authority standards
- Prioritise safe pedestrian and cycling routes
- Engage with relevant internal teams and external organisations to achieve positive transport outcomes
- Engage with Land Compliance and Advisory Team where roading is to vest in local authority or where road stopping or road widening is a consideration
- Maintain parking capacity within the street to meet current demand, consider adaptability to enable future reductions

It is important to understand the spatial characteristics of each street, as this will ensure that the design is responsive to their context and meets the needs of street users.

The majority of streets we deliver are in low speed residential areas and need to align to Kāinga Ora's development aspirations. To gain a greater level of certainty in terms of a joined-up partnership approach and a greater level of standardisation to deliver on time and more cost effectively, it is important to have standards accepted and used by Road Controlling Authorities (RCA) and local authorities.

The following section profiles the various street typologies accepted as standard departures in the Auckland Housing Programme and diagrammatically provide an approach that can be used in all regions.

THE ROLE OF STREETS WITHIN NEIGHBOURHOODS

When it comes to delivering new or retrofitted streets, there are two street typologies that suit the type of developments we deliver. These are defined by indented parking or kerbside parking. All other street edge types will sit with other RCA such as New Zealand Transport Agency Waka Kotahi (NZTA) or the local authority.

INDENTED PARKING

Whakamua Parade, Northcote

PROS:

- There is more activity on the carriageway edge, which creates a slower speed environment
- Less complex build, less costly and quicker delivery
- More consistent in design with newly delivered streets

CONS:

- Access to parked cars can be more challenging for those with kids or with shopping
- Opposing traffic streams may be in conflict
- Less spatially efficient in terms of overall road width

KERBSIDE PARKING

Cessna Place, Māngere.

PROS:

- Safer, more convenient access to parked cars
- The "live lane" is clearer, and less congested for cyclists
- More spatially efficient in terms of overall road width

CONS:

- More complex build, more costly and takes longer
- Less contiguous berm space for stormwater management or trees

STRENGTHENING THE EXISTING STREET NETWORK

- Strengthen the existing street network by upgrading to modern standards, improving pedestrian and cycle infrastructure
- Improving accessibility, wellbeing, and safety for the community
- Support modal shift, in particular walking and cycling
- Improving flood resilience
- Increasing and retaining tree cover
- For areas of consolidated landholding, ensure buildings front onto the street to activate the street edge
- Create improved pedestrian paths and routes, providing better and safer block and neighbourhood connectivity

NEW STREET

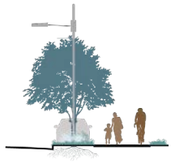
For a new street, it is important to engage with the civil engineer and local authority to discuss what type of street should be designed and to maintain parking capacity within the street that will meet current demand, and to consider adaptability to enable future reductions.

In principle, using an agreed and standardised set of typologies that is familiar to all parties will reduce design and approvals time and reduce construction costs. The following three street typologies are a diagrammatic example of what we expect to deliver in our developments.

Specific layout of these street typologies will be coordinated and agreed with the local authority and utility providers for each new street prior to consent. This coordination should include the:

- location of vehicle crossings, as far as practicable
- number and location of car parks
- berms, kerbs and pavement treatments
- light poles, wayfinding and furniture
- planting, trees, and soil structure
- utilities and stormwater mitigation
- traffic calming measures, if appropriate

5.3 SMALL STREET

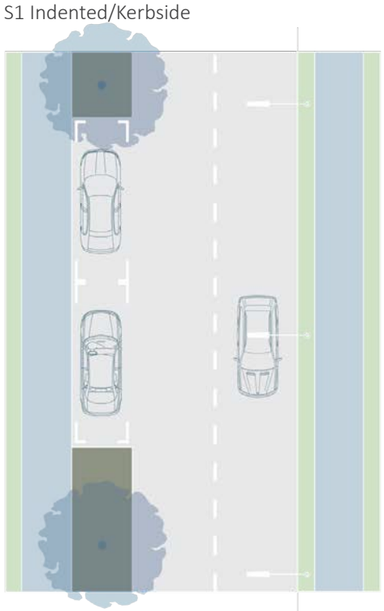


Local/Retrofit streets 12–16 metres wide

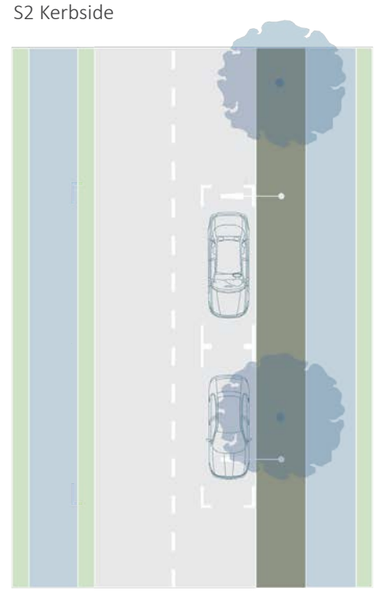
- This is the default option for extensions and retrofits of existing narrow streets.
- All retrofitted existing streets should have pathways upgraded to wider pedestrian pavement and berm sizes increased to accommodate native specimen trees as per agreement with local authorities. For example, in Auckland a new typical pathway should be 1800 mm minimum to fit with Auckland Transport standards specifications.
- When upgrading an existing street ensure kerb and channel civil engineer details align with the wider network stormwater upgrades and ensure nature base solutions are applied to allow quick discharge of large events.
- Ensure all existing trees are protected and monitored during construction.
- Retrofitted street upgrades should allow for larger tree berms if the existing street layout lacks tree canopy coverage.
- Smaller, local streets support access to housing and support public and community activity by enabling walking and cycling to destinations and transit stops.
- These residential streets can also act as recreational wellbeing spaces.
- Slow street design in a low-traffic neighbourhood provides safer setting for more informal play and social spaces for neighbourhoods.
- As with medium streets, modal filters support more liveable residential neighbourhoods by limiting vehicle traffic, promoting low-speed shared facilities and allowing active modes of transport. For example, it could include on-street bicycle parking and end of trip facilities.
- Provide footpaths on both sides of the street
- Roadway narrowing and material changes are needed as a threshold treatment at the entrance to the residential street to indicates a change in urban environment requiring a change in vehicle behaviour. To be confirmed with local authority and or supported with a safety audit by a traffic engineer.

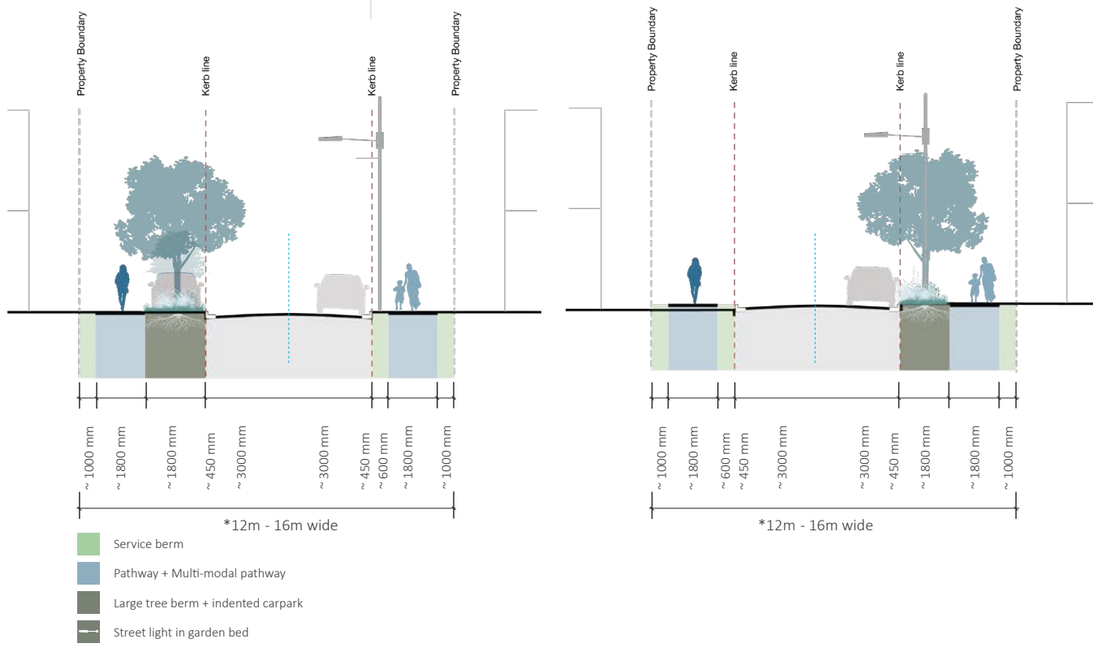
Kotero Road, Roskill South. Small streets are the default option for extensions and retrofits of existing narrow streets

S1 Indented/Kerbside



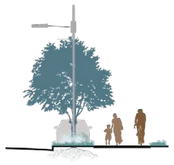
S2 Kerbside





* The above dimensions are suggested spatial arrangements and should be confirmed with local authorities and RCA

5.2 MEDIUM STREET

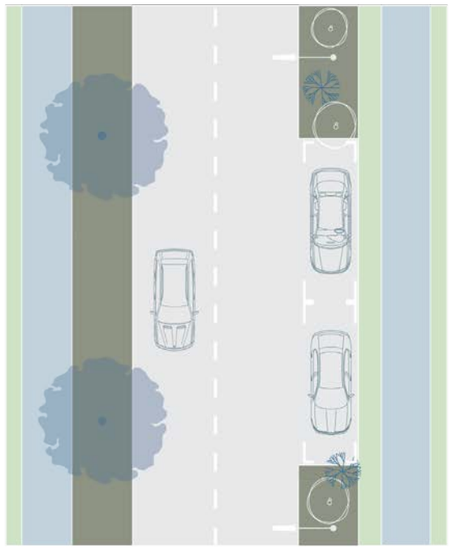


Residential connector streets 14–18 metres wide

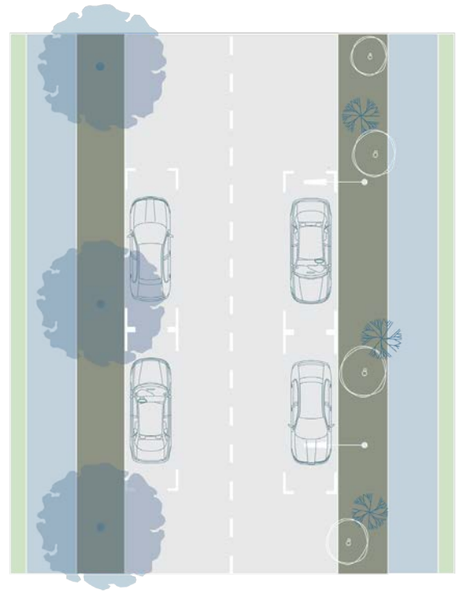
- Medium streets are a default option for the majority of streets in our developments and need to be designed to have multiple service functions and high-quality interventions enforcing traffic calming.
- This type of street provides access to the wider neighbourhood, and supports cycling and walking to destinations and transit nodes - which increases community activity.
- Well-designed medium streets can provide opportunities for walking and cycling if a shared-user path width is applied.
- Traffic should ideally be slowed to 30-40km/h, depending on the level of activity, to provide safe and liveable neighbourhoods.
- Medium streets are where school drop-off and pick-up zones will be more common - these can help reduce through-traffic and create opportunities for social interaction and green infrastructure.
- Streets outside schools may consider additional speed management, including potentially time-limit restrictions at pick-up and drop-off times, subject to location and consultation.
- Modal filters, such as bollards or traffic blocks, are encouraged in high pedestrian areas, allowing permeable connectivity for active modes, while restricting unnecessary traffic . They also create opportunities for social interaction and green infrastructure.
- Informal and unmarked kerb side parking helps to slow traffic as lane width is reduced and side friction increased.
- Slow speed thresholds such as raised tables can be used as a gateway to low traffic neighbourhoods and is encouraged in school zones.
- Safe, on-street cycling is enabled on these streets through low and slow street design which makes it safe to mix with low levels of slow-moving vehicles.
- Option to add a shared path to a single side by increasing carriageway width by 1.2m.

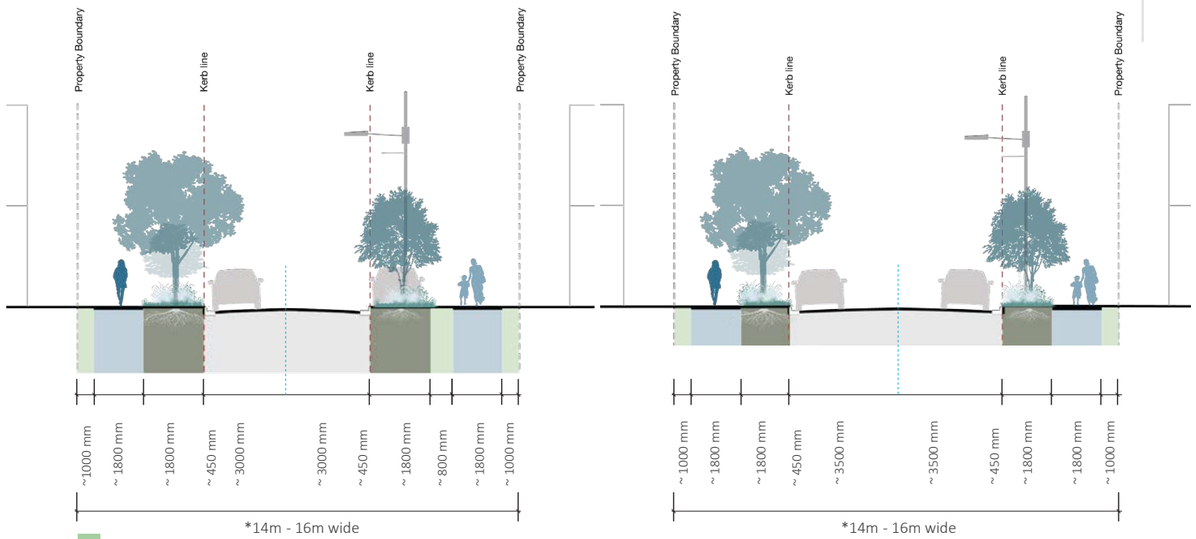
Cessna Place, Māngere. Medium streets are the default option for the majority of streets Kāinga Ora delivers

M1 Indented/Kerbside



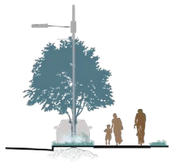
M2 Kerbside





* The above dimensions are suggested spatial arrangements and should be confirmed with local authorities and RCA

5.1 LARGE STREET

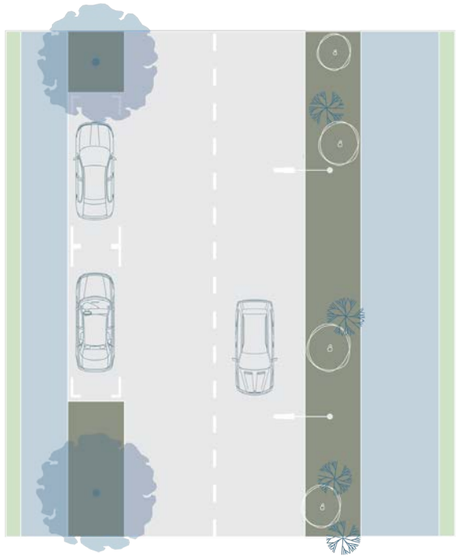


Town centre / Connector Road 18– 20 metres wide

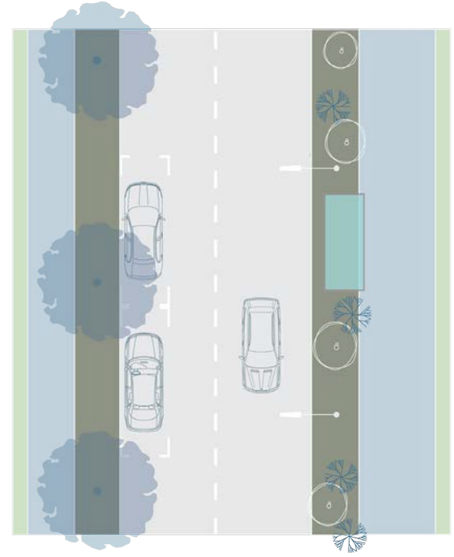
- Large streets provide more flexibility for public transport, parking and cycling provisions. Depending on its connections, large streets can provide planting amenity and serve all mode types.
- Large streets can support intensification, with improved pedestrian environments such as wider footpaths, trees for shade and seating opportunities. The street balances the competing demands of local activities and important traffic movement requirements.
- Prioritising pedestrians creates places where people want to visit and support local businesses.
- Street design to include reduced carriageway width, and clear definition of carriageway features.
- Large streets can support public transport and non-motorised options by accommodating bus routes, cycle paths and shared-user paths. Cycle paths can be single and bidirectional, and promote safe cycling speeds, giving priority to pedestrians.
- If a bus lane/stop is included in the carriageway, parking can be limited to one side of the street with additional parking provided on side streets. Larger streets also create opportunities for a higher level of public amenity, with space for rest stops and social areas. These should be applied in town centres where large streets connect and intersect. Seating provision supports business activity and public life and should be carefully located so it does not impede pedestrian movement.
- Trees should be located for shade and comfort at pedestrian-focused pause points, supporting the function of the street.
- Pedestrian scaled lighting and signage should be included.
- Versions of this street type can be delivered incrementally, spreading the cost of a complete streetscape upgrade over a longer time frame.
- On larger roads, consider limiting on-street parking to provide wider footpaths, space for bus stops, street trees, seating and outdoor dining/street trading. This helps support local businesses and promotes easy pedestrian movement.

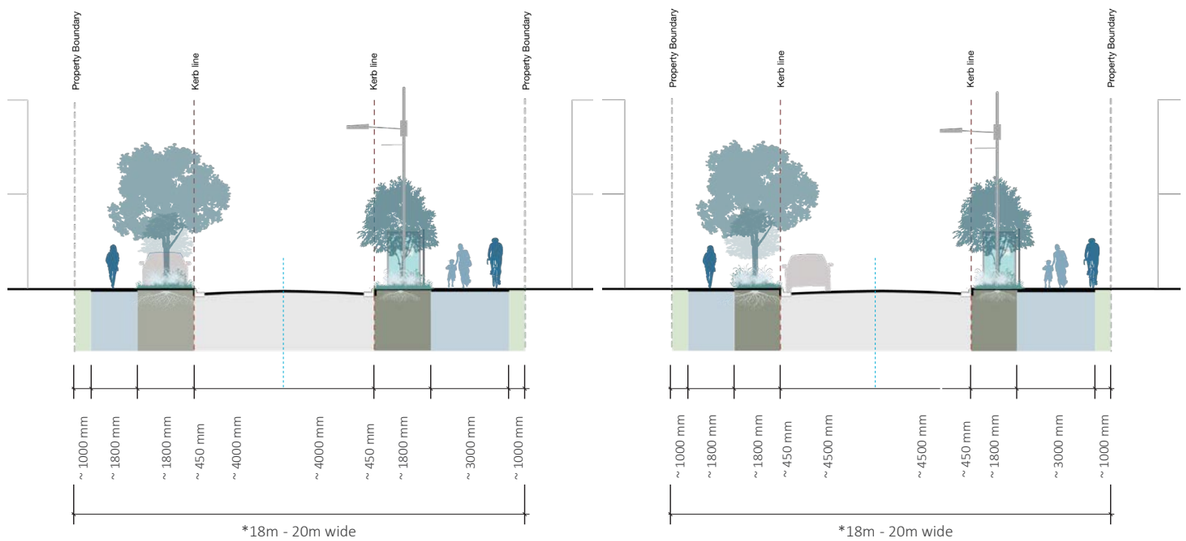
Wallace Road, Hobsonville. Large streets are the default option for new streets with buses and shared paths

L1 Indented/Kerbside



L2 Kerbside

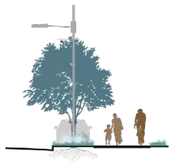




Service berm
Pathway + Multi-modal pathway
Large tree berm + indented carpark
Street light in garden bed

* The above dimensions are suggested spatial arrangements and should be confirmed with local authorities and RCA

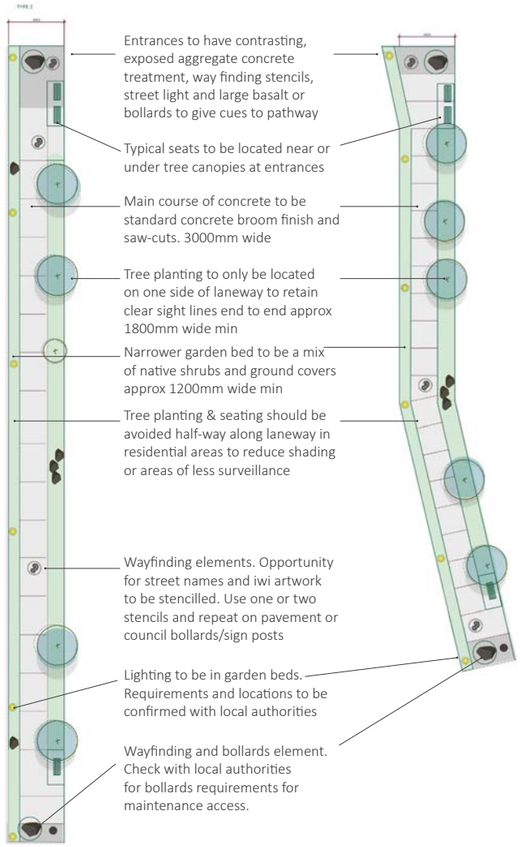
5.4 STRATEGY FOR STREETS



STREETSCAPE AND MULTI-MODAL PATHWAYS

- Use local authority standards wherever possible.
- Support and promote modal shift, in particular walking and cycling.
- For connecting multi-modal pathways between streets, ensure there is clear surveillance end to end . Multi-modal concrete pathway should be 3000mm minimum width to allow for cyclists to pass pedestrians safely.
- Allow for wide entrances and exits to multi-modal pathways to accommodate bollards, lights and wayfinding elements.
- Lighting and wayfinding to be provided at intersections for all transport modes - vehicles, walking and cycling.
- Improve flood resilience by offering controlled road and pathway falls and grading with swales, raingardens, or open space detention basins where appropriate
- Locate footpaths away from carriageway kerbs as much as possible - unless this results in removal of specimen trees, or conflicts with power poles and other infrastructure.
- Consider existing street infrastructure and driveways when designing new street and berm configurations.
- All pathways to be standard concrete finish up to street junctions or, landmarks/wayfinding markers. Only using specialty mixes for small detailed areas.
- Provide footpaths on both sides of the street with trees, amenity planting and grass berms supports public and community activity and promotes walking to destinations and transport stops.
- All pathways to be standard broom finish with added oxides or have light exposed aggregate concrete up to street junctions or, landmarks/wayfinding markers.
- While parking is important for our developments, consider limiting on-street parking where appropriate to provide wider footpaths, space for bus stops, street trees, seating and outdoor dining/street trading. This helps support local businesses and promotes easy pedestrian movement.

Stencil artwork on concrete pavements is a good way to provide wayfinding and a cultural narrative at a low cost

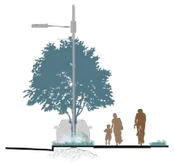


Example of a multi-modal pathway in a medium density housing area
Connecting multi-modal pathways away from vehicle traffic provides more informal play and social spaces for neighbourhoods.

PEDESTRIAN + CYCLING

- Bi-directional cycleways are encouraged where applicable as they can save space on narrower corridors and still deliver safe separation from buses, trucks and other vehicular traffic. However, compared to uni-directional cycleways, they have limitations on network connectivity and seamless access to destinations.
- Bike parking is best at key destination points and rest stops.
- Wider footpaths should be provided in areas where cyclists and pedestrians share the pathway. If a carriageway is large enough, a separate cycling lane can be located on the road, buffered from traffic with generous planting strips or alternative separation features.
- All cycling infrastructure is to be clearly demarcated, to meet RCA standards.
- Formal pedestrian crossings should be plentiful in built-up areas.
- Intersections, especially larger intersections, should be pedestrian and cycle-friendly.
- Raised table / zebra crossings where minor side streets intersect allow for easy walking journeys along the street, including access to public transport and nearby centres.
- Building setbacks should be considered – that is the position of the building against its lot boundary. Depending on typology and use, consider the building setback to create space for pedestrian movement and cycle parking, as well as spaces for seating, respite and commercial activation, for example cafes and restaurants.

5.4 STRATEGY FOR STREETS



Key Considerations

- ☐ With the local authority, RCA and project partners, agree on a set of street typologies – see page 46
- ☐ Incorporate public transport infrastructure and nodes to provide improved connections and support opportunities for mode shift
- ☐ Consider traffic speeds appropriate to the activity, such as schools, town centres, thresholds and intersections
- ☐ Provide street trees and stormwater mitigation planting to allow on-street amenity for local residents, providing shade and cooling to mediate temperature, reducing heat island effects and reduce stormwater discharge
- ☐ Involve the local community in placemaking design to reflect local character and encourage a sense of ownership

PLANTING

- Increasing canopy cover aims to meet ngahere, biodiversity, and canopy cover targets. Design to maximise opportunities for new street tree planting and retain existing established specimen trees.
- Maximise visibility by specifying low-growing species in planting beds, and high, branching tree species to provide shade, shelter and clean air.
- Consideration of tree species to be light in form to maximise visibility and solar gain to properties. Support native street tree selection with deciduous exotic trees where appropriate.
- Where there is ample space consider clustering trees at closer centres in that location to meet overall canopy cover
- Where berm width is less than 1800mm wide use longer, continuous tree pit to ensure adequate soil volume; setback for trees from vehicle crossings to be 2500mm min and setback from kerb line to be min 600mm;
- Avoid specifying strappy plants and bushy species that may hinder pedestrian movement without frequent maintenance.
- Street trees can assist with speed management through creating a sense of definition and enclosure.
- Lower pedestrian volumes require narrower footpaths, which allow grass berms, swales, rain gardens or low planting.
- Street trees and stormwater mitigation planting are needed to provide on-street amenity for local residents, providing shade and cooling to mediate temperature, reducing heat island effects and reduce stormwater discharge.
- Enhances native ecology through continuous green connections and nature-base stormwater solutions. Include low impact swales as part of the planting strategy.
- Refer to the Ngahere section for more info.

PARKING

- While the general trend is for less parking, on-street parking is an important provision for our developments. This applies especially to locations that lack public transport, and areas where public transport exists but does not yet meet the needs of the community.
- Engage with the appropriate RCA to address a parking management strategy.
- Service and delivery parking should be located close to destinations and in places that do not compromise public space and walking paths.
- Mobility parking should be practical, easily accessed and conveniently located close to key destinations. This should be developed in partnership with key stakeholders.
- Car share and electric vehicle charging should be focused on dense housing pockets, or near transport and commercial and retail areas.
- Check with local RCA to see if wheel stops are required for carparks.

TRAFFIC

- With agreement with local authority design speeds to be less than 50km/h and reduced to 30km/h or lower around areas of high pedestrian movement, such as schools and town centres.
- Thresholds, where side streets connect to the main street, should suit the design speed of side streets.
- Reduce the number of driveway crossings along a street and reduce the width of driveway crossings where possible.
- Work with RCAs to reduce through-traffic by redirecting through the wider network.

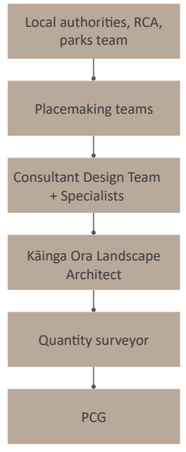
PUBLIC TRANSPORT

- New streets provide opportunities for high-quality public transport infrastructure that improves links to existing routes, nodes and pedestrian or cycle infrastructure.

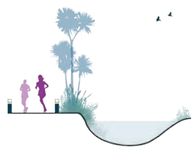
Balfron Lane, Roskill South

- Bus or transit lanes should have reduced speeds near crossings, schools and intersections.
- Re-routing through-traffic onto highways and bypasses reduces traffic flows, making public transport more efficient.
- Bus stops should be in line to save space, allow for more efficient operation and be close to pedestrian crossings. This also aids the slowing of traffic.
- High quality, well designed public transport nodes can provide shelter and acceptable lighting.

WHO SHOULD BE INVOLVED



6.0 RESILIENCE



Key Advisory Guidelines

- Provide nature-based solutions that utilise open space for stormwater mitigation and climate resilience

- Invest in blue-green infrastructure

- Provide consistency across national, regional, and local policy, and between water, land and community resource planning.

- Ensure ongoing research, monitoring, evaluation and sharing of project data is continued to achieve wider acceptance and technical understanding of nature-based solutions

Open spaces and streets are required to mitigate stormwater runoff and to be resilient to future climate events.

For early project investigations and business case preparation, it is important to investigate whether land is susceptible to flooding or coastal inundation. This is achieved by understanding the wider hydrological system, including catchment flows, water tables, and overland flow paths.

This information and local authority geographic information system (GIS) data can be used to investigate whether proposed and existing parks might be impacted by climate events. In some cases, there may be opportunities for a land swap if a park has better ground conditions than the proposed development areas. Early conversations with stakeholders will enable these opportunities.

Project teams should also consider investing in infrastructure to implement stormwater mitigation systems that can enable density in the wider neighbourhood. Areas of a park can be used as detention basins for significant stormwater events, reducing the need for on-site stormwater detention within adjacent developments.

Freeland Reserve, Roskill South serves as a detention basin for large flood events when not used as a park

SIMPLE NATURE-BASED SOLUTIONS

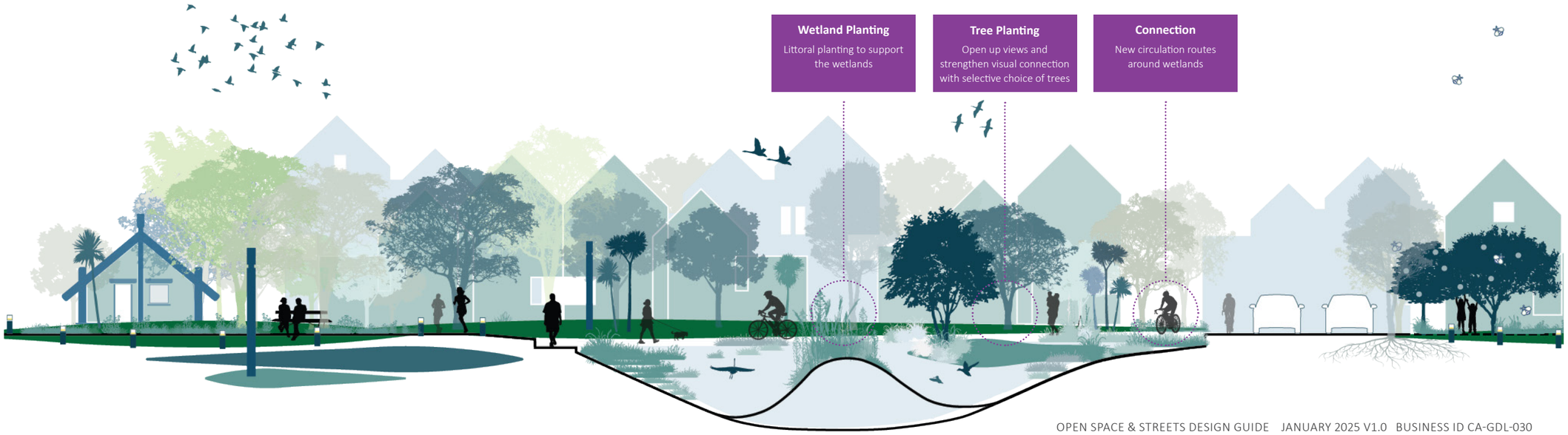
Nature-based solutions (NBS) are strategies that use nature's power to address environmental challenges. These solutions aim to work harmoniously with natural ecosystems and biodiversity while providing sustainable and effective ways to solve complex problems.

When it comes to NBS, a design framework can integrate sustainable practices into the planning and implementation of NBS projects. This includes considering the lifecycle of materials used and ensuring they are sourced responsibly from renewable or recycled sources.

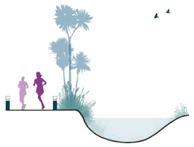
In green infrastructure projects, we can focus on using locally sourced materials, incorporating natural processes that promote regrowth and biodiversity.

The aim of NBS is to promote sustainability and minimise environmental, social, and cultural impacts by incorporating principles that align with the circular economy.

NBS can encompass a wide range of approaches, such as reforestation, habitat restoration, green infrastructure development, wetland conservation and sustainable land management practices. These methods often leverage the natural processes and functions of ecosystems to provide valuable services like flood regulation, carbon sequestration, water purification, and climate change adaptation.



6.1 OTHER NATURE-BASED SOLUTIONS



PERVIOUS PAVEMENT

This can include porous asphalt, no-fines concrete, permeable paver systems and porous pavers to provide downward percolation of stormwater runoff and reduce runoff volume and peak flows. Can be used in large carparks to help offset impermeable surfaces. Due to current high supply costs, permeable pavers and concrete should only be used if requested by RCA or local authorities.

VEGETATED SWALES

A vegetated swale is a channel designed to slowly convey stormwater runoff, reducing soil scouring, while also filtering contaminants along its base. It also provides opportunities for infiltration or percolation, can be used to offset overland flow paths or areas of large open space to help mitigate stormwater.

RAIN GARDEN

A rain garden is a temporary storage area, designed to reduce stormwater peak flows and runoff volume, and filter contaminants through vegetation. They can be designed to infiltrate to groundwater or be collected and piped to a discharge point and drain in the following hours or days. Due to current high maintenance costs, raingardens should only be used if requested by RCA or local authorities.

DETENTION BASIN

This is an area to temporarily store stormwater, limiting the severity of flooding. When not in flood, it can be designed to provide community benefit, such as informal sports fields. The use of these basins needs to consider public health following a stormwater event.

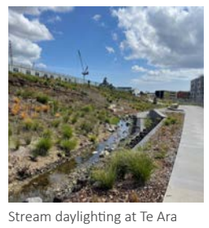
STREAM DAYLIGHTING.

Stream daylighting brings piped or reticulated stormwater flows or buried streams to the surface and into restored stream environments. It provides increased hydraulic capacity for flood management, reduces runoff and can improve water quality through filtration.

Pervious Pavement

Vegetated swales

Freeland Reserve, Roskill South detention basin

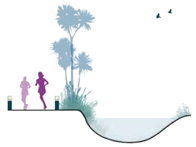


Stream daylighting at Te Ara Awataha, Northcote

WHO SHOULD BE INVOLVED

- Local authorities, (parks teams)
- RCA's utility providers
- Consultant Design Team + Specialists
- Kāinga Ora Landscape Architect
- Quantity surveyor
- PCG

6.2 BENEFITS OF NATURE-BASED SOLUTIONS



Key Considerations

- ☐ Invest in blue-green infrastructure in open spaces as part of a wider stormwater management system
- ☐ Design an open space and streets to be resilient to future climate events
- ☐ Consider nature-based solutions (NBS)
  Use locally sourced materials
- ☐ Think about solutions that encourage regrowth and biodiversity
- ☐ Design for adaptability as landscape conditions change over time
- ☐ Consider the lifecycle of materials used in NBS, ensuring they are sourced responsibly from renewable or recycled sources

CLIMATE CHANGE MITIGATION
Open space vegetation stores carbon and helps regulate local temperatures

CONNECTION TO NATURE
Access to open spaces improves mental and physical health, providing areas for recreation, relaxation, and community interaction

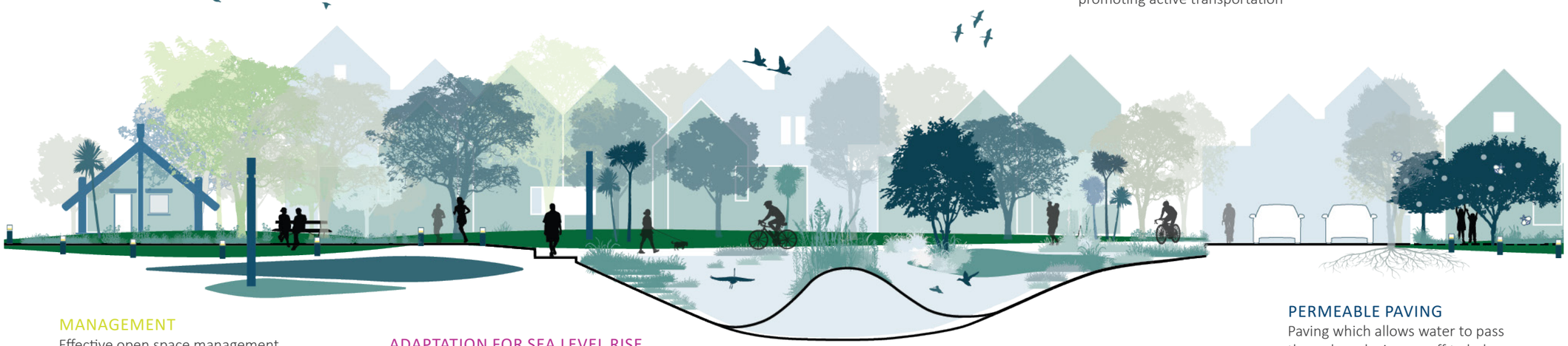
URBAN COOLING
Vegetation reduces local air temperatures through evapotranspiration and shading

STORMWATER MANAGEMENT
Trees can help manage stormwater runoff, reducing the load on city sewer systems and decreasing the risk of flooding

INCREASED AWARENESS
Green spaces provide areas for education and community engagement

GREEN NETWORKS CONNECTION AMENITY
Open spaces form vital nodes in green networks, creating more space for wildlife and biodiversity

SUPPORTS ACTIVE MODE TRAVEL
Attractive green spaces along travel routes encourage walking and cycling, promoting active transportation



MANAGEMENT
Effective open space management ensures these areas continue to provide multiple benefits, balancing ecological needs with community use and enjoyment

ADAPTATION FOR SEA LEVEL RISE AND COASTAL EROSION
Vegetated open spaces can act as natural buffers against sea level rise and erosion, enhancing community resilience

STORMWATER RETENTION BASIN
A large basin which detains and slowly releases stormwater during a flooding event

PERMEABLE PAVING
Paving which allows water to pass through, reducing runoff to help manage stormwater

TE AO MAORI
Open spaces can reflect Te Ao Māori principles, preserving native biodiversity and providing areas for cultural practices and education

FLOOD RESILIENCE & WATER MANAGEMENT
Permeable open spaces with vegetation help manage flood risks by slowing water flow, reducing erosion, and improving water quality

7.0 NGAHERE

Key Advisory Guidelines

- Ngahere is forest. Where possible, retain existing trees in the open space and street. If tree removal is required, allow early engagement with the local authority for any work on or adjacent to the tree
- If existing trees can't be retained, consider transplanting elsewhere or propagating replacements
- Planting palettes align to local climate and ecology and promote diversity of species
- Increase canopy cover in key areas such as streets, school routes, and parks, and link gaps in ecological corridors
- Introduce edible trees and plants in appropriate areas, for example in parks with local authority agreement.

Ngahere is defined as the mutually beneficial and interwoven relationships across te taiao (the natural environment) that sustains whakapapa (genealogy), mauri (life essence) and the diversity of life.

Ngahere aims to demonstrate how we can respect the interconnectivity of people, place and nature so that, through indigenous, place-based knowledge, we evolve our urban environments towards a flourishing future.

Ngahere invites us to look at the landscape as a whole: rere ki uta rere ki tai- whole of catchment – from the mountain to the sea. It is about taking an integrated, collaborative, place-based approach to understanding, restoring and contributing to Ngahere – particularly in places with low tree canopy cover.

Within our developments, it is important to:

- retain existing healthy, established trees including native, exotic and fruit trees.
- increase tree canopy coverage
- increase the biodiversity network and outcomes through reconstructing native habitat and establishing connectivity between habitat patches and diversity of plant species.
- contribute to the health and wellbeing of residents and the community through bringing nature into our neighbourhoods and developments.
- increase access to fresh food through the planting of fruit trees and spaces for māra kai (food gardens).
- prioritise investment in ngahere where it will have the greatest impact, for example, connecting biodiversity corridors between reserves and park networks providing shading for walking and cycling routes to schools and community destinations. Where there are no open spaces, street trees have a greater role in providing biodiversity and pedestrian routes to schools to benefit from shading.
- ensure quality soil conditions for all planting.
- to understand biodiveristy and the process of plant selection please refer to an Auckland planting guide example, the Ngaa Hau o Māngere Ngahere planting guide to specify the right tree for the right place.

Species selection suggestions

- Complementary species selected to enhance biodiversity of existing species.
- Preference for native species to protect and enhance local biodiversity, bringing in trees and plants that would have originally flourished in the area.
- Engage with the local community to understand trees and plants with cultural importance.
- Appropriate species selection for street typology, noting successful species use in a similar context, or are found locally, as successful street trees.
- Large tree species selected where possible to create space, shade and provide increased ecosystem benefits.
- Narrow species selected for sites with width constraints, such as roads next to bus networks.
- Some exotic species can give streets a particular character, or be utilised for seasonal shading, but should make up less than 10% of total planting. Ensure exotic species are not invasive to native species, for example, exotic palm trees.
- Fruit trees selected for parks should be low maintenance. Most fruit trees should have skin/peel, that is generally washed or removed, to reduce potential pollutant contamination.
- Species selected for open spaces to give each area a particular character.
- Consider species that might be less resilient for the street. In an open space setting, these species benefit from being away from the harsh, exposed street environment and having companion species.
- High-use tree species should be verified as having a climate resilience prevalence rating of at least 1. For example, 19°C is the average temperature expectation for year 2090 in the Auckland region.
- Species selected for possible or likely inundation areas are tolerant of wet or waterlogged soil. Soil salinity should also be considered when selecting species.
- Soil sampling should be considered to check for tree growth for suitability.

Nīkau palm transplanted from Ōwairaka to Māngere

Pōhutukawa tree relocated in Aorere

Tōtara tree protected during site demolition in Ōwairaka

WHO SHOULD BE INVOLVED

- Local authorities, (parks + arborist)
- Ngahere specialist
- Consultant Design Team + Specialists
- Kāinga Ora Landscape Architect
- Quantity surveyor
- PCG

7.1 BENEFITS OF NGAHERE

Key Considerations

- ☐ Identify and record the existing trees worthy of retention and enhancement
- ☐ Ensure project partners and site teams are aware of trees to be retained.
  Follow arborist direction on tree protection measures
- ☐ Make early allowance for additional trees where they are most needed, for example, along key pedestrian and school routes and where there are no open spaces
- ☐ Focus investment where the most benefit can be achieved for the community
- ☐ Ensure early engagement and collaboration with asset owners and utility providers to agree the plan for street trees including departures from standards to enable trees to be planted
- ☐ For more information on ngahere, refer to the management of trees and vegetation policy + Ngahere framework

CLIMATE CHANGE MITIGATION
Trees store carbon and help regulate local temperatures

REDUCED ENERGY USE
Trees provide shade to buildings and reduce heating and cooling costs

HABITAT CREATION
Undisturbed areas allow biodiversity to thrive. Provide habitat for birds and invertebrates through no mow areas, wood and rock piles, leaf litter and pollinator plants

AIR QUALITY IMPROVEMENT
Trees and plants act as natural air filters absorbing pollutants, significantly improving local air quality

NOISE REDUCTION
Trees can help with sound attenuation and reduce noise pollution in busy areas

ECOLOGICAL BENEFITS
Improved soil quality and erosion prevention, water retention and provision of habitat

TEMPERATURE REGULATION
Ngahere reduces the urban heat island effect and cools the local area through evapotranspiration and by providing shade

CARBON SEQUESTRATION
Trees absorb carbon dioxide from the atmosphere, helping to mitigate climate change by reducing the amount of greenhouse gasses

MĀRA KAI / COMMUNITY GARDENS
Food gardens and orchards provide local food growing and social connection.

NATURAL PLAY SPACES
Play areas made from locally sourced natural materials such as logs encourage imaginative play and placemaking

EDUCATION AND SCIENCE
Urban trees can serve as an educational resource, helping city residents, especially children, to understand nature, ecology, and environmental stewardship

SOCIAL IMPACT
Parks and tree-lined streets encourage outdoor activities and community interaction, fostering social cohesion and community strength

INCREASE OF BIODIVERSITY
Open spaces with diverse native plantings provide habitat and food sources for birds and invertebrates

RAIN WATER HARVESTING
Collection and storage of rainwater from roofs and other impermeable surfaces for later use

HEALTH BENEFITS
Green spaces and trees have been linked to improved mental health and reduced stress. Studies also suggest a correlation between access to green spaces and a reduction in cardiovascular disease

STREAM DAYLIGHTING
Uncovering and restoring culverted urban streams allowing for wetland planting and bird habitats

AESTHETIC VALUE
Ngahere adds beauty to built environments, creating a pleasing visual contrast to the hard surfaces of buildings

8.0 HARDSCAPE + FURNITURE

Key Advisory Guidelines

- Use standard and approved elements as far as practicable and in agreement with local authority as this will significantly reduce implementation and ongoing maintenance costs
- Use local authority approved off-the-shelf, proprietary furniture that is affordable and easily maintained or replaced
- Engage with the local authority to establish standard and approved finishes and furniture suites to assist the design teams
- Ensure practical paving surface layout and transitions to ensure practical formwork and placing
- Be selective in the use of concrete finishes and treatments to achieve value for money and provide function over aesthetics

For hardscape and furniture selections, it is important to understand the maintenance requirements of the local authority's parks' maintenance teams. When an open space or street project is a completed, the local authority takes ownership of the asset and is responsible for maintenance and replacement of damaged items.

For this reason, it is critical that project and design teams work closely with local authority's parks' maintenance teams to establish standard approved materials and furniture.

Notwithstanding the high initial cost, bespoke furniture or artwork is expensive to replace or repair if damaged and elaborate paving patterns and materials cannot be repaired, replaced, or replicated to the same standard. Ensuring design teams specify approved materials and furniture will avoid ongoing maintenance issues.

Specialty or bespoke designs might be considered for the following scenarios:

- Special aggregates or additives to concrete paving surfaces as part of cultural narratives of archaeological discoveries.
- Artwork including bespoke wayfinding elements.
- Sculptural and natural play elements.

PAVEMENT SURFACES

When selecting paved surface treatments, it is important to understand the cost implications of various surface finishes. For example, overly complicated concrete pavements result in difficult form work and numerous separate pours. This adds time and complexity to a project, which ultimately increases cost.

The design team should consider the construction methodology from the outset, allowing budget to be allocated to more beneficial elements, rather than complex concrete finishes which can quickly escalate cost and cannot be easily repaired or replicated.

Concrete guide

- Follow the local authority specifications for surface treatment. On pathways use lightly exposed aggregate or brushed finish with oxides for standard finish.
- Surface finish and treatment to be appropriate to the intended use, such as cycleway, pedestrian crossing shared use path or vehicular paths.
- For thresholds, pedestrian crossings and pathway intersections, highly contrasting materials are recommended. Surface treatments should reinforce pedestrian priority and have a high levels of slip resistance.
- Provide edge thickening to all pavement edges. Allow for saw cuts and construction joints as required by the engineer. Decorative saw cuts can be useful in breaking up large areas of a single material, but the additional cost of these should be carefully considered.
- For cycle path finishes, reduce unnecessary joints. If trowelled or formed joints are required, sealing or filling of the joint may be necessary to provide a smooth junction.
- Avoid any joints or corrugations running in the same direction as cyclists.
- Construct new surfaces to match existing features, for example, sumps, service access covers, catchpits, to 5mm tolerances.
- Allow for vehicular loading where applicable.
- For repairs, whole panels should be replaced - from expansion joint to expansion joint.

Ōwairaka's new Park edge road. Brush concrete finish with standard concrete mix and oxides can be used for all main courses of concrete paths.

EXPOSED AGGREGATE

BRUSHED FINISHED

PLACE BASED PEBBLE

PLACE BASED SHELL

OXIDE EXPOSED AGGREGATE

8.1 MATERIALS + FURNITURE

Key Considerations

- ☐ Agree paving materials, furniture, play equipment and lighting with the local authority or asset owner
- ☐ Ensure pavement surfaces are appropriate for the intended function
- ☐ Use simple materials for pavement surfaces and add detail and variation in focused areas
- ☐ Select off-the-shelf proprietary furniture items for easy maintenance and replacement
- ☐ Seek approval for furniture from the local authority or asset owner.
  Consider the installation of ducting or allocating space for ducting so lighting can be added to an open space in future, if required
- ☐ Incorporate lighting at entry and exit points, intersections and key routes
- ☐ Refer to the P2 and P3 standards of the Australia / New Zealand Standard on exterior lighting - AS/NZS 1158

FURNITURE AND FACILITIES STRATEGY

It is recommended that a furniture strategy is established at the concept design stage, with input from the local authority or asset owner. The design team should specify a furniture suite commonly used and accepted by the local authority or use one already in used in a comparable, recent open space in the region.

Furniture increases the recreational capability of the open space, encourage usage and provide comforts that prolongs the length of time people can spend in public spaces.

When selecting furniture, consider the following:

- Ensure that proposed social spaces have the facilities required for their intended purpose, for example, a street entrance is the open space start point
- Restrict furniture to appropriate locations, for example, locate waste bins at the entrance to facilitate easy collection by parks' maintenance teams
- Consider furniture placement to avoid cluttering spaces and restricting use or movement
- Use a consistent suite of furniture for spaces in close proximity to each other
- For bespoke signage elements or artworks, ensure ease of maintenance and replacement
- Ensure furniture is sustainably sourced, particularly timber
- Look to reuse or harvest timber from site for seating, play elements and habitat elements such as bug hotels
- All seats to be accessible with arm and back rests

SHELTERS/PAVILIONS

- Shelters and pavilion structures should be designed in partnership with the asset owner. If a shelter or structure is serving a large community, then a bespoke design may be considered. For smaller spaces, off-the-shelf products should be considered.
- All shelter designs will require building consent. A benefit of utilising off-the-shelf products is that they may have compliance certificates, saving time and cost.
- Shelter selections should be reviewed and accepted by the local board and authority as the asset owner.
- Opportunities for cultural expression should be explored for both bespoke and off-the-shelf structures.

LIGHTING

Lighting design is to be carried out by a qualified lighting engineer to the standard and the requirements of the local authority or asset owner. In most instances, an open space is required to be lit to a level of either P02 or P03 rating (see AS/NZ 1158).

Special consideration needs to be given to whether or not a local path is lit. Lighting should be provided when the local path is used regularly by the community after hours, if no other lit path exists, and/or if the use of the path is adversely affected by not having lighting. Lighting should not be implemented on pathways that are infrequently used or are significantly isolated with limited surveillance as this can lead to a perceived degree of safety and security that does not exist.

Lighting and lighting columns can be used as a wayfinding element during both night and day. Some parks do not allow lighting within the park. It is important that this is considered, as deliberate light spill from entrances, streets and surrounding new developments can contribute to reducing CPTED risks.

Off the shelf items such as shelters are a lot cheaper than bespoke designs and easier to maintain and replace

Street and park furniture needs to be strong and robust to withstand use from the general public and be accessible with arm and back rests. Only use off the shelf furniture to allow easy maintenance and replacement

A communal barbecue can be expensive and should only be included in the development with sign off from local authorities who will manage ongoing maintenance

WHO SHOULD BE INVOLVED

- Local authorities, (parks)
- Placebased teams
- Consultant Design Team + Specialists
- Käinga Ora Landscape Architect
- Quantity surveyor
- PCG

9.0 PLAY

Key Advisory Guidelines

- Play and fitness areas are designed to accommodate the entire community as far as practicable and in agreement with local authority

- Playground infrastructure is accessible to all ages and abilities

- Play areas offer opportunities for play, learning and social interaction for a wide range of ages

- Playground equipment to be common, proprietary items that are approved by local authorities allowing for easy maintenance or replacement

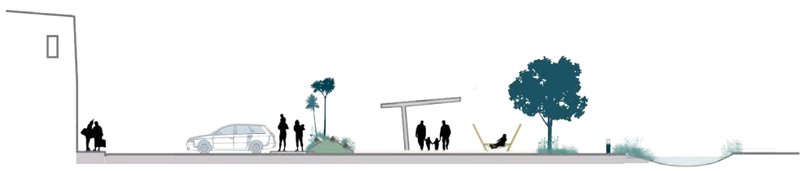
- Design spaces to accommodate nature play as a cost effective play element low maintenance or replacement

The addition of play spaces is an opportunity to provide children of all ages and abilities physical and social learning opportunities, as well as a space for adults to gather and interact. The play space can also incorporate sculpture or artwork to create something unique and valuable for the neighbourhood, potentially becoming a landmark feature.

When it comes to designing a play space, consideration of what is needed for the area should take precedence in the design process.

- Engage with the local authority or asset owner to establish the condition of any existing play equipment and identify what elements the new play space can include that other surrounding open spaces might not have. It is an inefficient use of budget to duplicate the play space within the same neighbourhood or community.

- Engage with key stakeholders. This can be broken down into a series of workshops aimed at different groups. It is important to start with the local authority or asset owner to establish opportunities and constraints before consulting with the community this can be represented in a diagrammatic reference design. This step ensures that the community's expectations are managed throughout the process, and their efforts are focussed on achievable outcomes, rather than those that are not achievable within project and budget parameters.



Playground designs should be located near entrances to parks. To avoid safety fences, use planting buffers and raised mounds to naturally enclose play area. Ensure awa and water courses near by are also enclosed with a natural barrier or are designed to continuously have a shallow depth. Image is for reference only

Slides offer play for people of all ages. Softfall material is expensive and should only be used fall zones around play equipment.

Climbing play equipment is important for a child's learning and development

Swings suitable for all ages provides good value

WHO SHOULD BE INVOLVED IN ENGAGEMENT WORKSHOPS

Schools, early childcare centres, Iwi and Rōpū Māori , and other community groups and users of the space should be invited to facilitated workshops, so they can share their needs and wants. These workshops also help representatives to understand and balance the needs and perspectives of other stakeholders.

The aspirations of Iwi and Rōpū Māori are to be discussed and represented as a cultural narrative. If requested or agreed by the local authority or asset owner, the narrative can be expressed throughout the play space.

The local authority should also provide guidance and direction on materials, safety surfaces, approved equipment and maintenance requirements and help to ensure there is no duplication of play space in the immediate area.

Engagement activities are encouraged and should be included in broader community events to gain insight and feedback. A summary report of the engagement process is a valuable output and should be considered from the start.

ENGAGEMENT PROCESS

The design and planning of the engagement with communities about an open space can determine its success. Work with placemaking teams to identify key stakeholders and community representatives. The initial group may also identify members or groups in the wider community that can add value.

The design of the engagement process should be carefully aligned to the project programme. Poor community engagement is often the result of processes that were started too late in the programme or timelines that don't align with the project's programme.

The starting point should always be talking with the local authority or the asset owner to establish existing play equipment inventory, identify gaps in play spaces, standard and/or approved play equipment, maintenance requirements and standards. This sets a series of constraints that can help to shape and direct the discussion with the community, ensuring expectations are managed throughout the process.

Refer to the Engagement section pg 20 for more information.

Play space connections design considerations

1. Large trees
2. Māra Kai (food) forest
3. Use natural defensive planting mounds instead of fencing
4. Locate playground away from carpark to avoid fencing
5. Streets to have planting above carparks for shade and amenity
6. Waterbody bridges strategically placed
7. Waterbody to be contoured with shallow depth
8. Park edge road to have multi-modal pathway

When developing a park, its important to envision the whole open space as a potential play area. Location of car parks, planting, pathways and amenities all need to be considered for function and practicality

Note: Image is for reference only

Engagement from the community helps to determine what is needed for a community. For example, a basketball court needs to be carefully located and be signed off by the local authorities. Basketball courts also give opportunity for cultural design input.

WHO SHOULD BE INVOLVED

- Local authorities, (parks team)
- Placebased teams
- Consultant Design Team + Specialists
- Kāinga Ora Landscape Architect
- Quantity surveyor
- Te Kurutao

- It is also important to consider a mix of nature play and off-the-shelf conventional elements to allow accessible play as well as traditional playground equipment such as swings and slides.

Key Considerations

- Consider providing enclosures without fencing
- Design natural play element spaces away from vehicular areas
- Check the local authority's requirements for play provision
- Organise community workshops to get feedback on play design

LEARNING ENVIRONMENT

There is a trade-off between benefit and risk when participating in any form of play. Because of the benefits of participation in play, these activities are recognised as providing children with confidence and skills despite the inherent risks involved. Risk reduction is still the main focus taken by most organisations, borrowing from workplace health and safety culture and practices. These can be applied to a playground site by using soft fall landing areas and playground setback fall zones.

For example, a child who likes climbing trees just needs the time, space, and permission to do so. Injury from falling out of the tree is a risk, but the developmental benefits of the experience are highly important. If they fell out of a tree and got injured that is unfortunate, but even the learning that might come from an accident is an important part of the play experience.

The types of play equipment identified should also consider physical and mental development as research suggests the types of play such as monkey/climbing bars can be vital for a child's motor skill development.

PROPRIETARY PLAY EQUIPMENT

Proprietary play equipment which is conventional and off-the-shelf, can provide a range of play opportunities that cater to different groups across the community. The local authority will decide on what goes into a park by assessing play provision, include unique elements, across nearby play spaces.

Monkey bars and other climbing play equipment can support children's skill and confidence development

Other important items to consider:

- using proprietary play equipment to allow for easy maintenance and replacement
- if reusing old playground equipment, ensure this has been checked and inspected by appropriate playground specialists or landscape architects
- refer to the Material Selections section for more information

NATURE PLAY

Designing a nature play environment can be a unique community collaboration as it brings a diverse range of natural resources to re-establish cultural spaces for fun, contemplation and education.

It is an opportunity to bring together a collection of ancient Māori play artefacts into a single space to create a traditional Māori playground. Nature play is the most beneficial and affordable type of play as it is designed to use natural elements such a balance beams, mounds and stepping logs. It also allows multiple children of all ages to use the environment at the same time.

- A nature play project should be reviewed and signed off by an external play specialist or landscape architect to ensure the safety of fall heights, accessibility and that cushioned falls are compliant with standard regulations.
- Constructing a conventional playground at a site can cost a lot and risks the budget being all used up for not much result. Nature play will provide a low-cost option.

Trees that need to be removed can be reused as nature play

Nature play provides a learning environment and enhances a child development, skills and confidence

Felled tree stumps can be reused for nature play activities in a play area. Waimahia Reserve

10.0

CULTURAL EXPRESSION

Key Advisory Guidelines

- Opportunities for cultural interpretation and expression are explored through early and meaningful engagement and consultation with Iwi and Rōpū Māori

- Relevant local authority teams (such as parks and facilities) are included throughout the process, providing approvals where required

- Scope for any artwork or wayfinding items to be agreed with the local authority

- To simplify contracting, funding, and budget controls, any non proprietary (artwork/ bespoke/uniquely crafted) items are to be included in separate scopes

CULTURAL DESIGN ELEMENTS

At the project outset, discussions with Iwi and Rōpū Māori , and key community cultural groups can draw out valuable themes and stories that can add a rich layer of meaning to a project, giving an open space or street a sense of identity and reflecting the community that will use it. The design team should draw on these themes and stories to develop cultural design elements for the project.

These cultural design elements can be represented through artwork or wayfinding. It is important that there is a brief or scope of works for any bespoke elements within an open space or street. This is usually advertised as Expressions of Interests (EOI) to allow for a fair tendering process. It is encouraged to receive a reverse brief from the artist to ensure that both sides of the contract have a clear understanding of scope, budget and programme.

- Early works procurement of an artist or wayfinding cultural interpreter will allow time to nominate and engage artists. This is especially important when working with an iwi artist and to be endorsed by the Iwi and Rōpū Māori .

- Any design and production of bespoke artwork or wayfinding should be carried out under a separate contractual agreement, with a specific allocated budget. This is to avoid any potential delays to the main works' contract.

- To get the best outcomes for public art or wayfinding elements, a close working relationship between the local authority and stakeholders is essential to the success of the project. This enables the integration of public art into the local authority's programme and, where appropriate, ensures new artworks are included.

Freeland Reserve kowhatu and art work

PUBLIC ARTWORK

For public artworks, a local authority's governing body approves:

- Programme and budget concepts
- Gifts, re-siting or removal
- Site review
- Regional public artworks review
- The region-wide programme of renewals
- Care and maintenance plan

For local public artworks in their area, local authorities approve:

- Budget
- Concept
- Site gifts, re-siting or removal

Groups involved in planning and delivering permanent public art located on local authority owned or controlled land are required to follow public art administration and governance processes. This means that a local authority involved in major placemaking activities and infrastructure projects should work with the public art team early in the project planning phase to consider the inclusion of permanent public art. It is then possible to assess the project's potential to:

- Integrate permanent public art into design briefs and business cases
- Include provision within project budgets for the integration of public art

Development and major infrastructure projects that may warrant the inclusion of permanent public art include:

- Capital works that involve placemaking
- Town and village centre improvements, major street upgrades and developments
- Major infrastructure that is funded or jointly funded by the local authority, for example transport infrastructure such as train stations, bridges and cycleways
- Major park and landscape developments
- Greenfield and brownfield precinct developments funded or partnered by the local authority

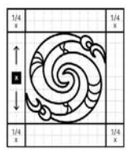
Te Ara Awataha shelter, Northcote. Cultural expression is important for giving a open space or street a sense of place and landmark feature

10.1 WAYFINDING

Key Considerations

- Use feedback through facilitated community workshops to get ideas for wayfinding concepts
- Set up meetings with the local authority to establish existing strategies, approved fixtures, and agree opportunities for the location of interpretive signage
- Use art and wayfinding in a strategic manner to deliver natural cues in navigating space

Tohu applied on timber bollard



Tohu with grid demonstrating proportions

There is opportunity to add simple artwork to off the shelf items such as stencil etchings to timber bollards

ENGAGING WITH THE LOCAL AUTHORITY AND THE ROAD CONTROLLING AUTHORITY

A vital part of establishing a wayfinding strategy is engaging with the local authority and the appropriate Road Controlling Authority (RCA). These organisations will have standards and strategies that will dictate what kind of wayfinding can be used in different situations and locations, for example, coordinating with in-ground services or aligning with standard signage suites.

Wayfinding signs are typically placed at key locations leading to and along routes, including where multiple routes intersect and at key decision points.

The signs displaying destinations and distances assist pedestrians and cyclists to estimate travel times to destinations, including commercial districts, transit hubs, schools and universities, and other cycle ways.

They can also visually cue motorists to upcoming bicycle and walking routes and junctions, so they can use due caution.

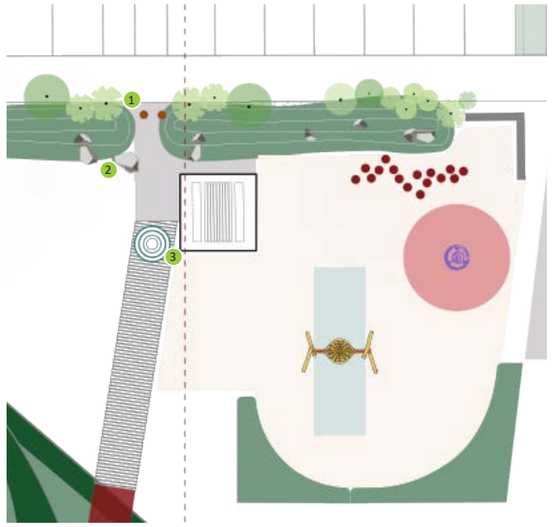
Design teams should aim for natural wayfinding in the first instance and be aware of sign clutter which can diminish the effectiveness of overall signage.

COMMUNITY WORKSHOPS

As mentioned in the Engagement and play section, it is important to include the local community in the open space or streets process. In community workshops, a narrative and subject themes can emerge such as ecology and conservation, history, community storytelling, and the presence of water and food. These elements can be used to develop concepts for wayfinding and artwork.

Artwork can be used for landmarks and wayfinding throughout the park and surrounding streets. The concept is to deliver stories with a combination of trailhead signage structures and maps that indicate locations of interest.

WAYFINDING ELEMENTS



Wayfinding Art work

1. Wayfinding Bollard
2. Kowhatu (basalt)
3. Stencil in pavement

Kowhatu (basalt) wayfinding markers: A cost-effective and high-impact wayfinding solution. Can be used as large bollards along pathways and within garden beds. Note loose basalt will need a concrete footing or haunching to prevent movement.

Stencils: An affordable and visually striking option for wayfinding. Stencils can be etched into concrete pavements and be suitable for other elements such as timber vertical markers

Where possible way-finding elements should be off the shelf items to allow easy maintenance and replacement. Considerations and approvals from local authorities should be given to cultural expression or art work.

WHO SHOULD BE INVOLVED

- Local authorities, (parks team)
- Placebased teams
- Consultant Design Team + Specialists
- Kāinga Ora Landscape Architect
- Quantity surveyor
- PCG

Documents considered and further reading

Landscape Design guide for Public Housing (v1.3 March 2023)

Urban design guidelines (v1 march 2024)

Masterplanning for universal design (v1.2 April 2024)

Sub Division plan guide (v1 December 2022)

Ngā paerewa hoahoa whare design requirements (v1.1 January 2024)

Ngahere Framework (v1 Novmber 2024)

Ngaa hau o maangere ngahere planting guide

https://www.hud.govt.nz/our-work/government-policy-statement-on-housing-and-urban-development

Tamaki Design-guidelines (2019)

Nga Kaupapa her Toi Tumatanui Public Art Policy (Auckland Council refresh 2021)

Open Space Provision Policy (Auckland Council 2016)

https://www.aucklanddesignmanual.co.nz/

Local Path Design Guide (Rev 1.2 Auckland Council/ Resilio Studio/ MRCagney March 2017)

Urban Street and Road Design Guide (Auckland Transport, 2022)

https://at.govt.nz/about-us/manuals-guidelines/transport-design-manual

Hamilton Kirikiriroa central city Public Space Design Guidelines (June 2023)

Te Ra Nui Eastern Porirua Development https://teranuidevelopment.co.nz/

Working-better-together-presented-by-kainga-ora (AT/Kaingaora 31 October 2023)

Auckland housing Projects Streetscapes Discussion Document (26th August 2024)

PC14-Residential-Aotearoa-Urban-Street-Planning-and-Design-Guide)NZTA Waka Kotahi December 2022)

Image reference

Pg 0- Title page and contents- Greenslade reserve, North cote

pg2 - Freeland Reserve, Roskill South

Pg4 - Te ara awataha, Northcote

Pg6 - Freeland Reserve, Roskill South

Pg21- Molley Green reserve

Pg 22- Northcote community day

Pg24- Molley Green reserve

Pg 26-27- Freeland Reserve, Roskill South

Pg36- 39 Freeland Reserve, Roskill South

Pg41- Te ara awataha, Northcote

Pg50- Te ara awataha, Northcote

Pg57 -Middle Freeland Reserve, bottom image Te ara awataha, Northcote

Pg 61- Top and bottom image Ōwairaka's new Park edge road, middle image Reporepo park, Aorere

Pg 65 - Ōwairaka's new Park edge road

Pg 67 -Top image Greenslade Reserve, Middle Freeland Reserve and bottom image Te ara awataha, Northcote

Pg 69 -Top and bottom image Te ara awataha, Northcote, Middle image Archibald Park

Pg 71-Northcote basketball court

Pg 72- Archibald Park, Kelston

Pg73- Top 2 images Sunderland park, Bottom image, Waimahia reserve

Pg74- Freeland Reserve, Roskill South

Pg75 - Te ara awataha, Northcote

Pg77- All images Freeland Reserve, Roskill South