

MOVEMENT NETWORKS

The importance of movement networks

The design of movement networks within parks should aim to achieve clear sightlines, gentle grades, generous curves and comfortable flows. Appropriate surfaces and efficient drainage should also be considered; as well as keeping obstructions to a minimum and ensuring ease of maintenance. The planning, design and installation of movement networks should aim to meet three key goals: connecting people to places (whether in or outside of the park), connecting with nature, and providing the opportunity for active recreation.

Movement networks should be designed to provide attractive routes and surroundings, taking into account the park's unique topography, heritage, culture and natural features. Movement networks should provide continuity of design, helpful wayfinding signage, (particularly at entrance and exit points), and intersections and crossings. They may encompass a wide range of track types depending on the level of use, range of user groups and site conditions. Tracks may be concrete paths, timber boardwalks, aggregate walking tracks, unformed trails, bridle trails or shared use tracks.

Designing movement networks:

Ensure the network responds to the surrounding context by:

- working with the existing landforms, to ensure that earthworks are kept to minimum
- ensuring the width of track meets user needs but is also relative to its physical location and in context with the landscape
- has minimum visual impact by not locating paths on prominent ridgelines or within important view shafts, and using a backdrop of landform or natural vegetation where possible
- protecting existing site features such as sensitive ecologies, heritage features, existing trees and vegetation. Boardwalks and low impact unformed trails may be appropriate in these sensitive areas
- using materials and forms that reflect local materials and colours
- ensuring the movement network is well connected with the surrounding area, including streets, parks or greenways
- ensuring the movement network is well connected with the surrounding community, civic and transport infrastructure such as libraries, community centers, cycleways, retail centres and public transport

Track types

Paths:

- are typically used for primary movement networks in urban and suburban parks
- commonly consist of sealed, concrete or compacted gravel surfaces, and may contain timber boardwalks and bridges over permanent waterways
- are typically 2.0m wide plus clearance from vegetation and side obstructions. 1.8m minimum width with appropriate clearance and sightlines is acceptable
- should be avoided sensitive ecosystems and tree roots need to be protected. Use boardwalks instead
- should be sign-posted with wayfinding signs at track entrances and junctions. Safety signs should be included where required
- should have easy grades, all-weather surfaces and, if necessary, steps
- should incorporate seats and or viewing platforms at areas of interest and look out points

- should be accessible to those with limited mobility. Not all paths will be able to be universally accessible, but every park should have at least one path that is
- can include distance markers to allow people to measure how far they have travelled
- should be wider in areas where stairs are planned, to encourage people to use them for exercising up and down

Walking tracks:

- are typically used in primary movement networks in regional parks or secondary networks in forest, bush and volcanic parks
- generally consist of a compacted and drained surface and may contain timber boardwalks and bridges over permanent wet areas and waterways
- Should be a minimum 1.0m wide with drained surfaces
- should avoid sensitive ecosystems and tree roots
- should be sign-posted with directional signs at track entrances and junctions, and should include safety signs where required
- should allow for easy to moderate grades with minimum steps provided on excessively steep areas. Suitable walking foot ware is recommended
- can include seats at areas of interest and key views

Tramping tracks:

- are typically used for primary movement networks through regional parks
- will consist of formed and drained surfaces
- Should be a minimum 1.0m wide
- may contain steep grades and difficult terrain
- have signage at entrances and key junctions with wayfinding information, distances, estimated walking times, equipment recommendations (if any) and level of difficulty
- can have seats at areas of interest and key views

Routes:

- are typically used for secondary networks through regional parks or wilderness areas
- consist of unformed trails with marker posts only
- may have seats at areas of interest and key views
- are typically found on open farmland and areas outside main arrival and destination zones

Shared paths:

- are typically used for greenway routes, cycle ways and main connecting routes through urban parks
- are typically two-way and shared by cyclists and pedestrians
- are typically 3.0m wide plus clearance of 1.0m from vegetation and side obstructions n2.5m is the absolute minimum width, with appropriate clearance and sightlines
- must be clearly sign posted as multi-use with user hierarchy outlined
- can sometimes have separate uses where conflict between user groups is common
- Must accommodate older people and blind or vision impaired pedestrians who may not know which side of path to use

Park roads or service roads:

- are typically used as access roads for service vehicles, mowers etc.
- are typically 3.0m wide plus clearance from vegetation and side obstructions of 1.0m 2.5m is the absolute minimum width, with appropriate clearance and sightlines
- should not be shared paths
- should be traffic calmed

Design movement networks for accessibility by:

- designing paths to meet the needs of all existing or potential identified user groups, the intended purposes and other required uses
- engaging with the Disability Strategic Advisory Group to get a perspective on how to make networks more accessible to a greater number of people within the community
- designing paths that meet high-level accessibility (for the physically impaired, wheelchairs, mobility scooters, pushchairs etc.) wherever practicable, if this is achievable without causing adverse environmental effects or incurring excessive cost
- ensuring paths have good visibility and clear sightlines, where practicable
- ensuring paths are durable, stable, firm, even, slip resistant and obstacle free
- ensuring path alignments are either straight or curvilinear along a smooth alignment. Avoid short angular changes in direction
- ensuring paths constructed for wheelchair and scooter access have a maximum gradient of 1:12
- providing ramps as an alternative to stairs where possible
- providing non-slip safety mesh over boardwalks in damp areas
- ensuring path surfaces are compact, stable, non-slip and obstacle free. Avoid sand, loose gravel, cobbles or wood chips if possible, but where they are necessary ensure loose particles do not exceed 5mm in size
- avoiding grates, manholes and other service covers in the direct line of travel
- ensuring step risers are no greater than 180mm, ensuring nosing provides strong colour contrast and ensuring that protruding nosing and open risers are avoided

Design for comfort and amenity by:

- providing looped tracks rather than dead ends wherever possible. Linking a number of tracks to provide different options for journey length is also encouraged
- providing stopping points on each route along the network, to add interest to the route. Rest spaces should be available every 200m. All seating areas should be set back or forward to maintain the required path width
- orientating seats to encourage surveillance of the network, and to allow appreciation of views and activities
- using vegetation to enhance seating areas for shelter and shade, without compromising views or passive surveillance from other users
- providing an attractive setting for the route, with good planting which is consistent with its location, function and degree of use
- ensuring paths have well-drained surfaces and are free from surface water
- ensuring materials complement the park environment, are simple and unifying
- avoiding tree roots where possible. Where this is not possible use boardwalk or aggregate
- leaving a clear envelope around each route in urban and suburban environments. Vegetation should be cleared to the total width of the path, with an additional 1.0m either side and to 2.5m in height. Either grass or low planting to 700mm is acceptable within this envelope
- Including plantings at rest and viewing points, to add variety to the routes. Thinning of tall trees may be necessary to provide wider views, particularly across the green corridor

Design safe, user-friendly bridges by:

- Carefully selecting the location, design and materials for cycleway and walkway bridges on off-road routes. These typically cross streams within green corridors, therefore minimum impact on the surrounding environment is a key consideration
- ensuring clear sight lines on entry and exit
- enabling bridge users to clearly identify other uses on the bridge, e.g. a lookout point, on entering and exiting the bridge
- maintaining a minimum width of 1.8m, to allow two wheelchairs to pass each other

- keeping handrail height to a minimum of 1m, and complying with Building Code requirements
- providing a landing of a minimum 2.0m at each end of the bridge

Provide clear signage on transport routes by:

- keeping signage to track entrances, key junctions and car parks. If required, low-impact interpretive signage may be implemented along the route
- maintaining a consistent approach to signage, to help reduce conflict on paths and increase use
- using signage to identify secluded recreational tracks and possible uneven surfaces associated with these track types
- providing mandatory signage on any road facility or facility that crosses a legal road
- providing directional and information signage, including gateway signage, wayfinding information and maps, interpretive signs and directional and distance signage

Maintain and manage transport networks by:

- maintained tracks at a reasonable standard, consistent with their historical use. Tracks should be designed to withstand wear and tear
- re-routing tracks to avoid dips, wet spots and rare plant species
- include easy maintenance details in the design, e.g. regular control joints in concrete paths, to make the long term maintenance and management easier and to keep costs down

Technical standards

- Guide to Traffic Engineering Practice Pt 14 – Bicycles Austroads, Part 14 – Standards Australia 1999
- Guide to Traffic Engineering Practice Pt 13 - Pedestrians Austroads, Part 14 – Standards Australia 1995
- New Zealand supplement to Austroads Part 14 Guide to traffic engineering practice, Part 14 Bicycles - Transit New Zealand 2004
- Cycle network and route planning guide - Land Transport New Zealand 2004
- National Cycle Network - Guidelines and Practical Details Issue 2 - Sustrans UK 1997
- Road and Traffic 14 – Guidelines for Facilities for Blind and Vision-impaired Pedestrians - Land Transport New Zealand 2003
- LTNZ - Pedestrian Planning and Design Guide
- Sustrans Off-road Cycleways - Sustrans UK 1997
- Cycling Aspects of Austroads Guides
- Austroads Research Report - Pedestrian-Cyclist Conflict Minimisation on Shared Paths and Footpaths
- Austroads Research Report - Guide Information for Pedestrian Facilities

Other resources

Flat Bush Cycleways and Walkways Master Plan 2005

Good practice examples

Albany Lakes Civic Park, Albany

Porous aggregate surfacing is used as an alternative to concrete on this path.



Albany Lakes Civic Park, Albany

A simple barrier rail is used to delineate a steep drop off. The rail is not visually intrusive and provides an opportunity to pause and take in the surrounding views.



Stonefields Park, Mt. Wellington

This main connection route includes lighting to enable safe evening use. Seating is provided at regular intervals to ensure users have frequent opportunities to rest.



Te Puru Bridge, Beachlands to Maraetai Walkway

This 2.4m wide boardwalk is wide enough to comfortably allow for multiple of users. Geogrid was used to increase slip resistance on ramped sections.



Comans Track, Karekare

