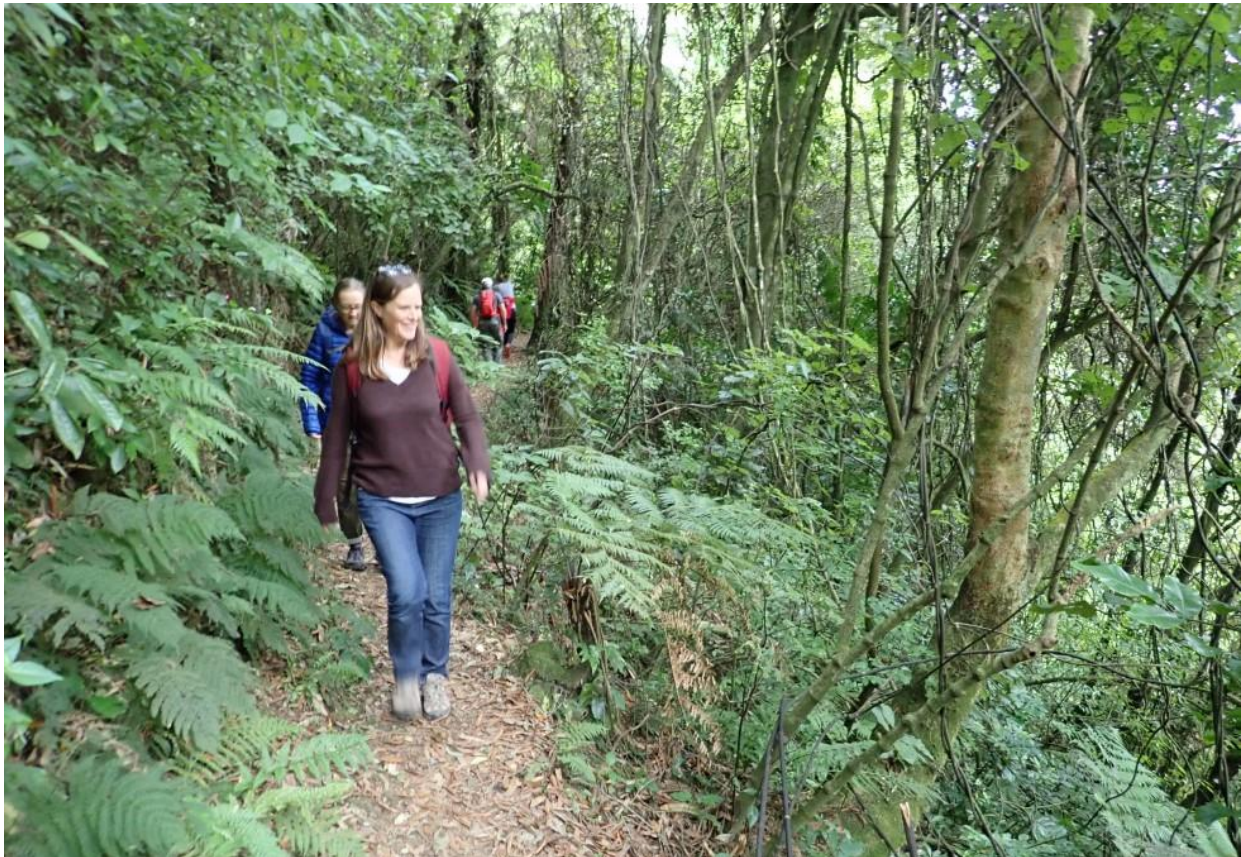


Otari-Wilton's Bush Trail Review

May 2020

Prepared for Wellington City Council by Kennett Brothers Ltd.



Brief

To conduct a review of the trails at Otari-Wilton's Bush and develop a preliminary concept plan for staged potential trail improvements.

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Note: Individual trail reviews are saved as nine separate documents due to their large size.

Introduction

Wellington City Council has commissioned a review of the trail network at Otari-Wilton's Bush to gain oversight of the current condition of each trail as well as the potential to reconceptualise the network in order to better achieve the council's strategic goal of *Getting Everyone Active and Healthy*.

A key focus for council is providing accessible tracks within our open spaces that are available to people of all ages and abilities and connecting people to nature.

Reviewer details

This review and report were prepared by Jonathan Kennett. Jonathan has a BSc majoring in botanical ecology from Victoria University of Wellington. He co-managed the Kaiwharawhara Valley reforestation project for five years, conducted an oral history of Otari-Wilton's Bush, established the volunteer trapping programme at Otari and has designed over 50 kilometres of bush tracks for Wellington City Council.

Methodology

The review draws from several sources of information, including:

- *Otari Native Botanic Garden and Wilton's Bush Reserve (Otari-Wilton's Bush) Management Plan, 2007*
- *Open Space Access Plan: Plan for the management of the Open Space Access Network, 2016*
- *Outer Green Belt Management Plan, 2019*
- Otari Open-Air Native Plant Museum path and other locations map and booklet by Rodney Lewington, 2009
- Wellington City Council website, Tracks
- Stan Reid's 1934 thesis map, with notes added by Stan in 2009
- Mick Parson's Otari bush tracks reviews 2004–2005
- Frame Group Structures Review, 2019
- Eco-Visio counter data, 2020.

Every track was walked and GPSed at least once, some several times. Photos and measurements were taken at all notable sites, and comments and recommendations were recorded.

The aim was to provide an in-depth understanding of the current state of each significant track in the reserve and offer options for individual improvements, track by track, as well as informing future high-level network plans and programmes.

Executive summary

Otari-Wilton's Bush comprises two distinct areas: the Otari native botanic garden and Wilton's Bush forest reserve. The two areas are basically divided, or joined, by the Kaiwharawhara Stream valley, which acts as a spine running through the centre of the reserve.

In a WCC survey, the majority of Otari-Wilton's Bush users stated walking and jogging as the main purpose of their trip. The largest amount of use occurs along the Kaiwharawhara Valley.

The Otari native botanic gardens are well presented and maintained. They are less popular than the Wellington Botanic Garden but still receive a high number of visitors throughout the year.

This report focuses predominantly on the trails located in the Wilton's bush forest reserve. The review audit covered: the Kaiwharawhara Track, the Circular Walk, the Red Trail, the Yellow Trail, the Blue Trail, the Blue Trail to Karori cemetery and other trails running up to the Skyline Walkway and Wilton Road.

The audit has revealed a range of maintenance and improvement issues for the track network of Otari-Wilton's Bush. These can be split into three categories:

- Urgent maintenance work that is necessary for user safety (such as damaged structures) or is low cost and easy to do immediately (such as updating signs)
- Intermediate improvement work that will not require significant budget but will improve the user experience, including minor track realignment
- New track development to provide a series of graduated experiences that will encourage users to continue to use and expand their use of the Wilton's Bush forest reserve.

The report includes details of every track audit.

We found that the relationships between track condition, user numbers, maintenance input and gradient was consistent with other tracks throughout the Wellington Region.

Steeper tracks require more maintenance to keep in good condition. On steep (over 15 degrees) sections of all the tracks between the Kaiwharawhara Valley and the Skyline, where maintenance has been deferred, the surface has eroded and the condition is poor. In many places steps have been installed to ameliorate the steep eroded sections, and have improved access. However, steps are expensive, and require additional maintenance, as well as limiting access for some users.

The most popular tracks in Wellington, and those that best achieve the strategic goal of providing access for all ages and abilities, have the easiest gradients and the least erosion. These are also the tracks that require the least resources for maintenance. It is for this reason that the Concept Plan in this report presents five new track build projects, each between 650 metres and 905 metres long and all with a maximum gradient of ten degrees. These new sections of track would unlock three significant walking loops at Otari-Wilton's Bush, all of which would be easier, yet longer, than the Blue, Red and Yellow trails that they would replace.

We have also inspected three tracks that were closed in the 1960s, and recommend that one of those be reopened, the Rimu Spur Track.

Otari-Wilton's Bush track network

Otari-Wilton's Bush is a recreation destination for people from all around Wellington, the local community, and for tourists. The most popular activities are walking, running, sight-seeing and picnicking. A range of pedestrian experiences are offered, from the well-used and maintained Circular Walkway to the more 'rugged' routes of the Yellow, Red and Blue trails. There are also major links to the Outer Green Belt, Johnston's Hill Reserve and Karori Cemetery.

WELLINGTON CITY COUNCIL, OTARI NATIVE BOTANIC GARDEN AND WILTON'S BUSH RESERVE (OTARI-WILTON'S BUSH) MANAGEMENT PLAN, AUGUST 2007

Otari-Wilton's Bush comprises two distinct areas.

- To the east lies the Otari native botanic garden.
- To the west lies Wilton's Bush reserve, which runs up to the skyline and outer green belt.

The two areas are basically divided, or joined, by the Kaiwharawhara Stream valley, which acts as a spine running through the centre of the reserve.

Recreational goals of Otari-Wilton's Bush

The Wellington City Council's 2007 Otari-Wilton's Bush Management Plan lists the reserve's goals as:

To provide recreational opportunities for experiencing New Zealand's unique flora and natural heritage, and ensuring that these experiences are accessible to all by:

- *Providing for a range of recreational experiences; from backcountry routes to easily accessible paths*
- *Promoting recreational activities and events that are in keeping with the natural and peaceful environment of Otari-Wilton's Bush*
- *Maintaining links with the Outer Green Belt, Kaiwharawhara Stream and the reserve network.*

Summary of the current trails

Otari-Wilton's Bush features about 11km of walking tracks through native bush and garden collections.

Tracks are signposted. Forest trails are slippery when wet. Sturdy footwear is recommended.

WELLINGTON CITY COUNCIL WEBSITE, TRACKS; AND TRACKS INTERACTIVE STORYMAP 2020

Native botanic garden trails

The native botanic gardens involve a network of well-maintained gravel trails, supported by sections of well-presented, robust boardwalk. The trails run at an easy gradient through collections ranging from alpine to lowland forest. The area is closely linked to the main carpark, information centre, toilet facilities and education centre. A canopy walkway and the Cockayne lawn are attractive and easy-access destinations.

These gardens attract both local visitors and, less commonly, visitors from outside the area. (Their proximity to the Otari primary school boosts local visitor numbers.) They are less popular than the Wellington Botanic Garden but still receive a reasonable number of visitors throughout the year.

The Wilton’s bush forest acts as a distant but interesting backdrop, clearly visible from the canopy walkway.

Wilton’s bush forest reserve

This report focuses predominantly on the trails located in the Wilton’s bush forest reserve.

There are four main trails branching off from the Kaiwharawhara valley (see map below). These are, from north to south, the Circular Walk, the Red Trail, the Yellow Trail and the Blue Trail. Other minor trails run from these significant trails up to the Skyline Walkway, across to Karori cemetery, across to other trails, up to Wilton Road and up to the information centre.

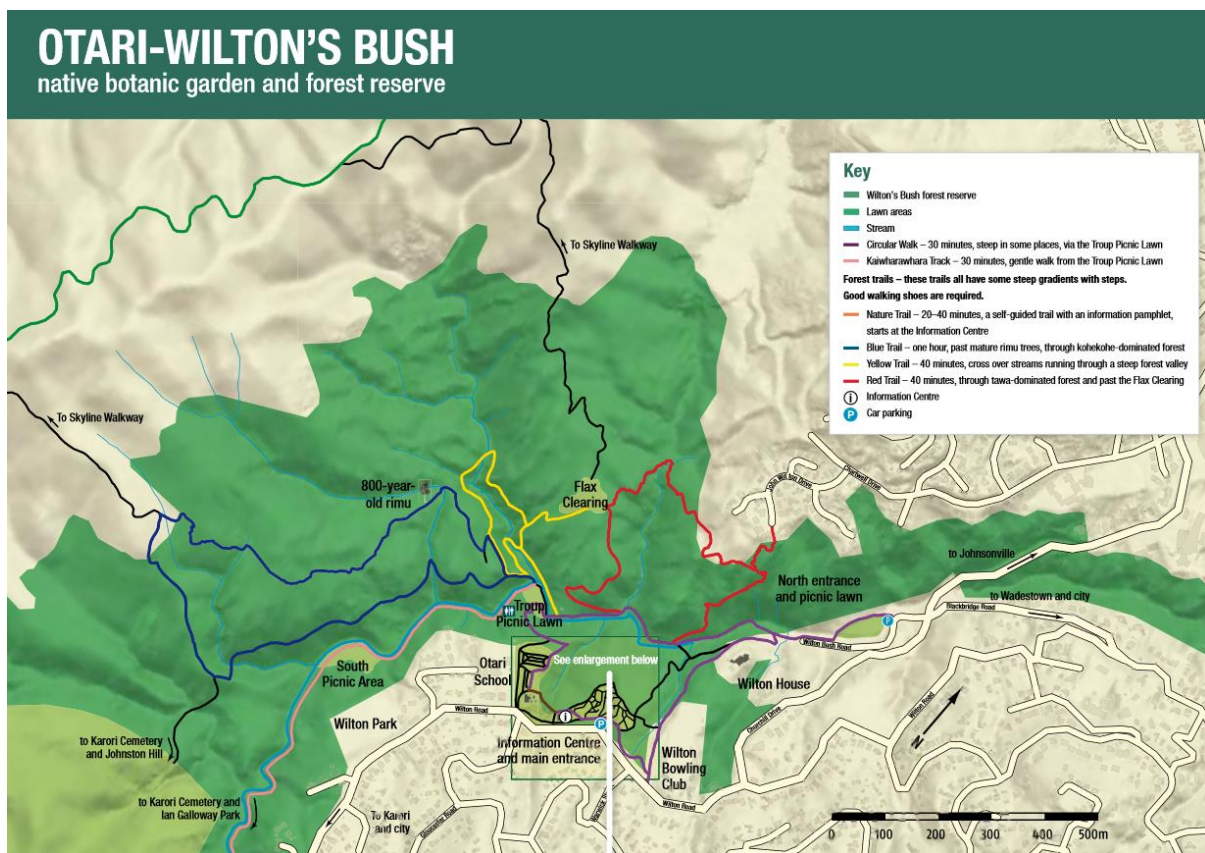


Image: WCC map used online, in pamphlets and on mapboards in the reserve

The Kaiwharawhara Track

30 minutes; gentle walk from the Troup Picnic Lawn (WCC OTARI-WILTON’S BUSH MAP)

The Kaiwharawhara Track is a well maintained path, with a pleasant outlook over Kaiwharawhara Stream and an easy gradient. There are three main destination points: Ian Galloway Park at the southern end, the Troup Picnic Area, with barbecues and toilet facilities, and the Churchill Drive carpark and picnic area at the northern end.

This trail appeals to a wide range of users, from the very young to the very old, all genders and a range of ethnicities – with wide ranging abilities – as it offers an attractive walking or running option through sheltering native bush. It is not only a destination in its own right but also an access point for trails to the west and east. It is very well used.

The Circular Walk

30 minutes; steep in some places, via the Troup Picnic Lawn (WCC OTARI-WILTON'S BUSH MAP)

The Circular Walk runs from the Churchill Drive entrance along the Kaiwharawhara valley to the Troup picnic area. From there, it heads up to the native botanic gardens, past the Wilton Road entrance, and back down to its starting point via Wilton's old dray road. Most users would not consider the valley track to be anything other than the Kaiwharawhara Track for its whole length – from the northern carpark through to Ian Galloway Park, so the Circular Walk can be confusing.

The Red Trail

40 minutes; through tawa-dominated forest and past the Flax Clearing (WCC OTARI-WILTON'S BUSH MAP)

Taking this trail in an anticlockwise direction from the north valley entrance

The northern end of this trail is intimidating, starting steeply with narrow, rooted sections and a lot of high (eroded) steps. There is a short diversion of 15 steps up to John Witton Drive. Ignoring the diversion to John Witton Drive, the trail sidles nicely for a few minutes before diving steeply to a stream crossing (4 m wide with no bridge). The trail then crosses a 3.5m boardwalk and climbs steeply to reach the bottom edge of the Flax Clearing. From there, it joins an old gravelled road that descends moderately to the valley once more.

The diversion to John Witton Drive includes a side-track option south and back to the main track.

This track would be used predominantly by locals from Crofton Downs. It requires good fitness and confidence with walking over very rough ground and stream crossings. It is enjoyed in low numbers, partly for its remoteness.

The Yellow Trail

40 minutes; cross over streams running through a steep forest valley (WCC OTARI-WILTON'S BUSH MAP)

The Yellow Trail is more complicated again as there is a 'lower' and 'upper' path and a linking path to the Flax Clearing – all of which are referred to as the Yellow Trail.

There were signs of minimal use and minimal track maintenance. Much of the upper Yellow Trail has steep steps and eroded sections with roots.

The Blue Trail

One hour; past mature rimu trees, through kohekohe-dominated forest (WCC OTARI-WILTON'S BUSH MAP)

This is a significant trail, with many visitors of varying abilities keen to see the ancient rimu – a great destination. There have been major upgrades in the last 12 months to improve access to a new viewing platform beside the 800-year-old rimu.

For many walkers it is a difficult undertaking to reach the rimu, with many steps from the get-go. Beyond the rimu the Blue Trail becomes much more eroded and in places the vegetation alongside the track has been trampled as users walk to the sides to avoid roots and ruts. The 'dead zone' (area with no vegetation) is now 2 metres wide in sections along the upper Blue Trail. It requires a lot of work and realignment.



Example of steep and eroded section of track on the upper Blue Trail.

Other minor tracks

Several other tracks have been reviewed, such as the links to Karori via the Karori Cemetery and the links to the Skyline Track. Some of these tracks perform an important network function for Otari-Wilton's Bush, although they may be outside the reserve's boundary. Their conditions range from good quality Short Walks to poor condition Tramping Tracks. Some are retired, and others should be retired.

Due to the location of the Kohekohe Track it is recommended that it be re-designated as a shared use track. This would achieve Open Space Access Plan, 5. Network Principle: Tracks will be shared use for example, by walkers and cyclists wherever this is appropriate. We feel the Kohekohe Track is a sustainable shared use track that could be used by both walkers and cyclists in the expected low numbers.

Multi-modal transport to/from Otari-Wilton's Bush

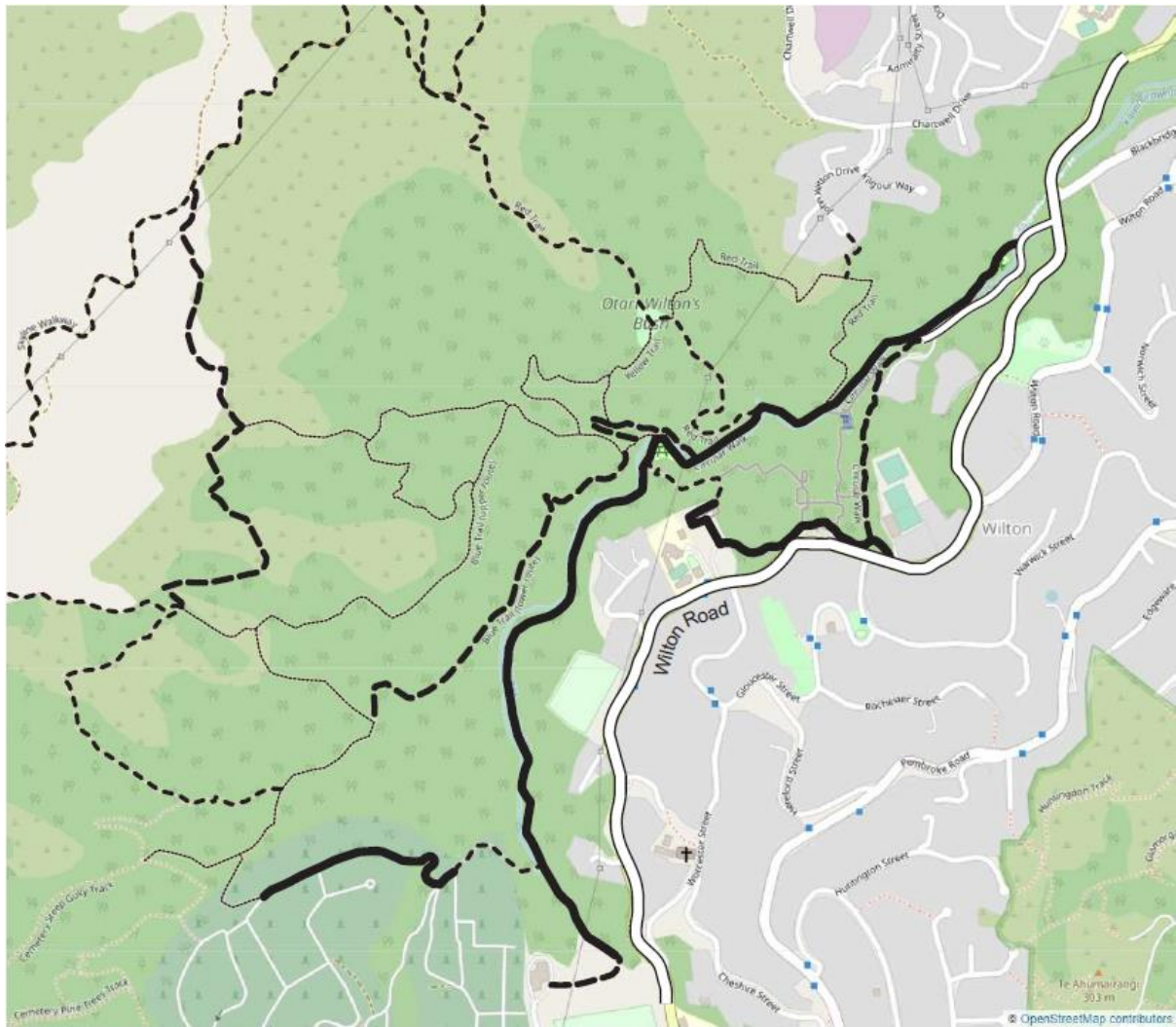
The main entrances to Otari-Wilton's Bush have been designed to facilitate car access, and are not particularly friendly to other modes of transport. For example, the street side footpaths do not connect to the trails/paths and only one entrance has bicycle racks. Maps and signs do not show all the connections (ie, Ian Galloway Park and Karori Cemetery) or where the nearest bus stops are.

To help council achieve its multi-modal transport goals, more could be done to encourage people to walk, cycle and use public transport to get to Otari-Wilton's Bush.

Trails by New Zealand Standards for Tracks

Visualising the track network by track standards (or classification) provides a good way of viewing the accessibility issues at Otari-Wilton's Bush. This is more than just accessibility by mode (ie, walkers versus wheelchair users). Over 99% of users are walking and running the tracks at Otari and those 'able bodied' people are of wide-ranging ages and abilities.

While all users have the ability to explore the easy *paths* at Otari, relatively few have the ability, or inclination, to explore the *tramping tracks*. Thus, the track standards map below helps highlight the weakness of the current network – along with some opportunities.



- Path (2m wide, 0-5 degrees slope)
- Short walk (1m wide, 0-10 degrees slope)
- Walking track (1m wide, 0-15 degrees slope)
- Tramping track (0.4m wide, 0-20 degrees slope)

Each track standard has an associated user group as described in the *NZ standard for Tracks and Outdoor Visitor Structures : SNZ HB 8630:2004* which is referred to in the *Open Spaces Access Plan*. These are described in the table over the page.

NZ TRACK STANDARD	CHARACTERISTICS	ASSOCIATED USER GROUP
PATH	<p>Flat (0-5 degrees), wide (2 metres), usually in urban areas, close to public amenities. Well-formed, all weather surface.</p> <p>Example: Kaiwharawhara Track</p>	<p>Urban Residents. Caters for the widest range of ages and fitness levels, with most paths accessible to people with mobility difficulties or limitations. Tracks usually allowing walking two abreast.</p>
SHORT WALK	<p>Up to 10 degrees, generally 1-2 metres wide, preferably no steps and never over 12 per flight. Well formed, all weather surface. All watercourses are bridged. Clearly marked at all entrances and junctions to guide inexperienced users.</p>	<p>Short Stop Travellers. Up to 1 hour's easy walking. Caters for all ages and most walking abilities. Some tracks may be accessible to people with mobility difficulties or limitations. Tracks usually suitable for walking shoes and trainers. Can be used by mountain buggies and push chairs.</p>
WALKING TRACK	<p>Average maximum gradient up to 15 degrees, generally 1 metre wide with minimum of 0.75 metres allowable. Maximum step riser of 0.2m. Well defined and clearly marked at all entrances and junctions to guide inexperienced users.</p>	<p>Day Visitors. Up to a full day. Suitable for relatively inexperienced people with a low level of backcountry skill. Recommended footwear is light walking boots or trainers. Relatively demanding for mountain buggies.</p>
TRAMPING TRACK	<p>No maximum gradient, but it should be noted that over 20 degrees is not sustainable in Wellington soils. Generally, 1.0 metres but minimum of 0.6 metres allowable. Maximum step riser of 0.3 metres. Track surface generally a natural surface. Information regarding unbridged streams and steep sections at track entrances.</p> <p>Examples: much of the Blue, Yellow and Red trails.</p>	<p>Backcountry Comfort Seekers and Adventurers. Caters for trampers or experienced walkers with good level of fitness, generally going for tramps of one day or longer. Recommended footwear is light walking boots or tramping boots.</p>
ROUTE	<p>No minimum width or maximum gradient.</p>	<p>Remoteness Seekers. Caters for people with a high degree of fitness, skill and experience. Recommend tramping boots.</p>

Use of the reserve

The Sport New Zealand 2018 Active Participation survey found that walking was by far the most popular physical activity among kiwi adults, with gardening being a distant second. Among children, running/jogging is the most popular activity.

Adult activity	Total	Male	Female
Walking	57%	53%	61%
Gardening	24%	22%	27%

Source: <https://sportnz.org.nz/assets/Uploads/Published-Final-Active-NZ-Main-Report.-The-New-Zealand-Participation-Survey-2018-12-August-2019.pdf>

In Wellington, a council’s survey of Otari-Wilton’s Bush users found that the majority (47%) listed walking and jogging as the main purpose of their trip to the reserve. Dog walkers accounted for an additional 11%.

Only 17% of people were visiting Otari-Wilton’s Bush for the first time, with 20% visiting several times a week, and 21% visiting 2-6 times a year.

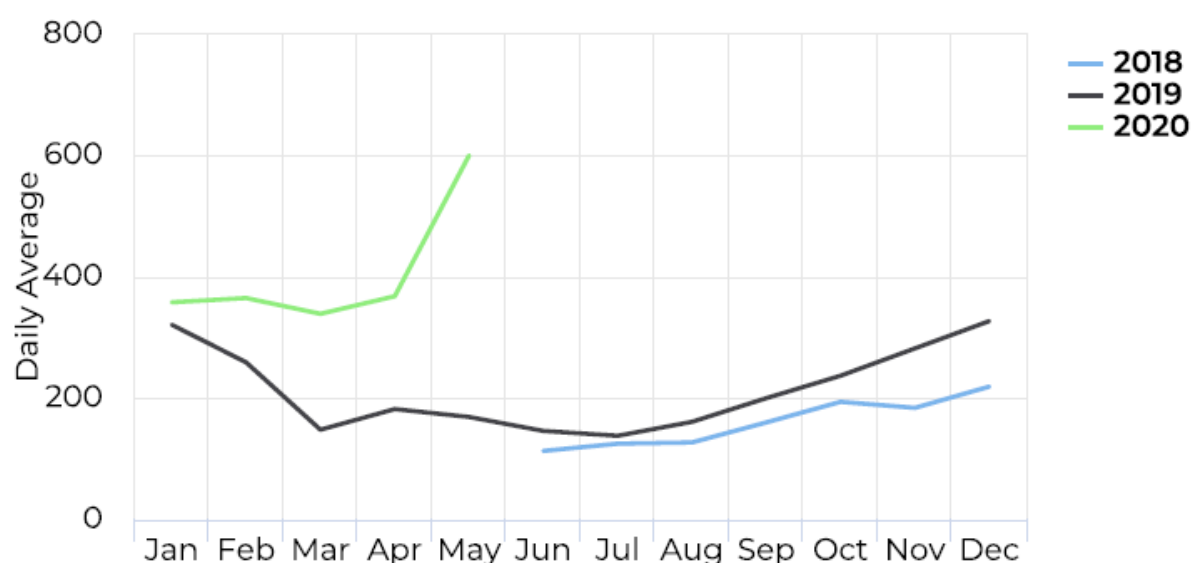
Electronic counters at the two main entrances show that use is seasonal, and has been significantly boosted during the Covid-19 lockdown. Walking activity increased nationwide during the lockdown, but in the Kaiwharawhara Valley, use was significantly higher than the previous year, even before Level 2 was announced.

Northern carpark first bridge across the stream counter

Daily average: 363 counts (an increase of 61% on 2019 figures)

Peak: 832 counts on Sunday 2 May (Note: this was during Covid-19 lockdown)

Annual Comparison by Month

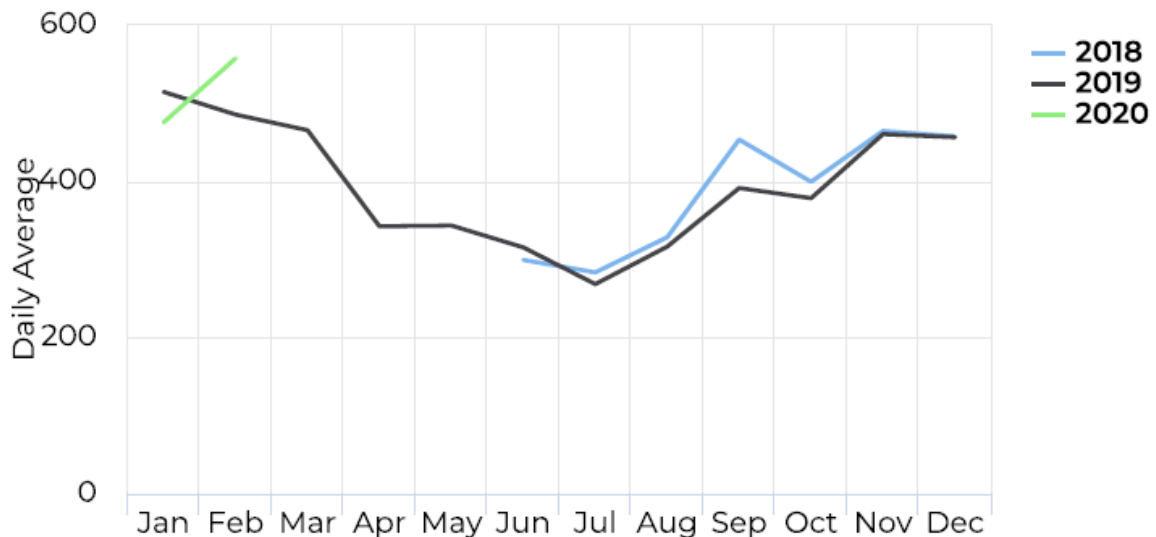


Canopy walkway counter

Daily average: 505 (an increase of 13.2% on 2019 figures)

Peak: 986 on 6 Feb (Note: This counter ceased working from 20 February due to a failed battery).

Annual Comparison by Month

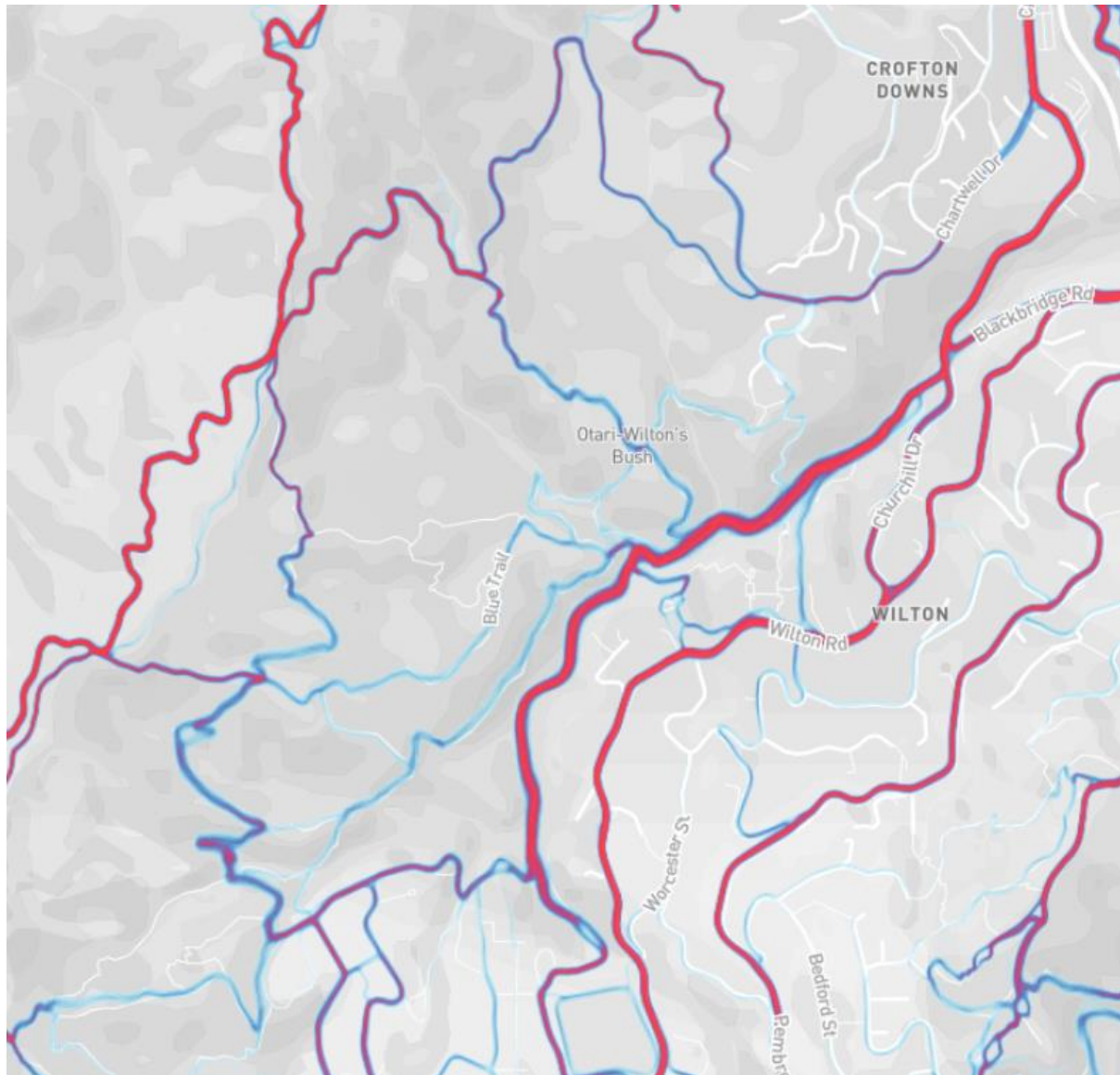


This data does not capture visitors to Otari-Wilton Bush who are:

- entering the reserve from the minor Wilton Road entrances and heading straight down to the valley via the Circular Walk
- entering and leaving the reserve from Ian Galloway Park, Karori Cemetery, John Witton Drive, Wilton Bush Road, or other minor entrances.
- The Canopy Walkway counter records staff movements between the information centre and the nursery and education house. It will also record movements of students and parents associated with the primary school next door to the reserve.

However, the counters are good at showing trends over time. We also looked at Strava heat maps to gain an understanding of how runners/joggers are using Otari-Wilton's Bush (see the next page).

Strava heat map data



This Strava heat map represents the gps data from app users phones/gps's to show running and some walking use around Wilton.

The thicker and redder the line, the more often the track has been used by Strava users. Strava users are growing rapidly worldwide, however, they generally represent younger more tech savvy people.

This map shows that the largest amount of use occurred along the Kaiwharawhara Valley. Many of these visitors will have run/walked up and down the valley.

The next highest use was along Wilton Road and along the Skyline Track.

We can see that Strava users are hardly using the Upper Yellow Trail at all, and the majority of the Red Trail is also receiving little use.

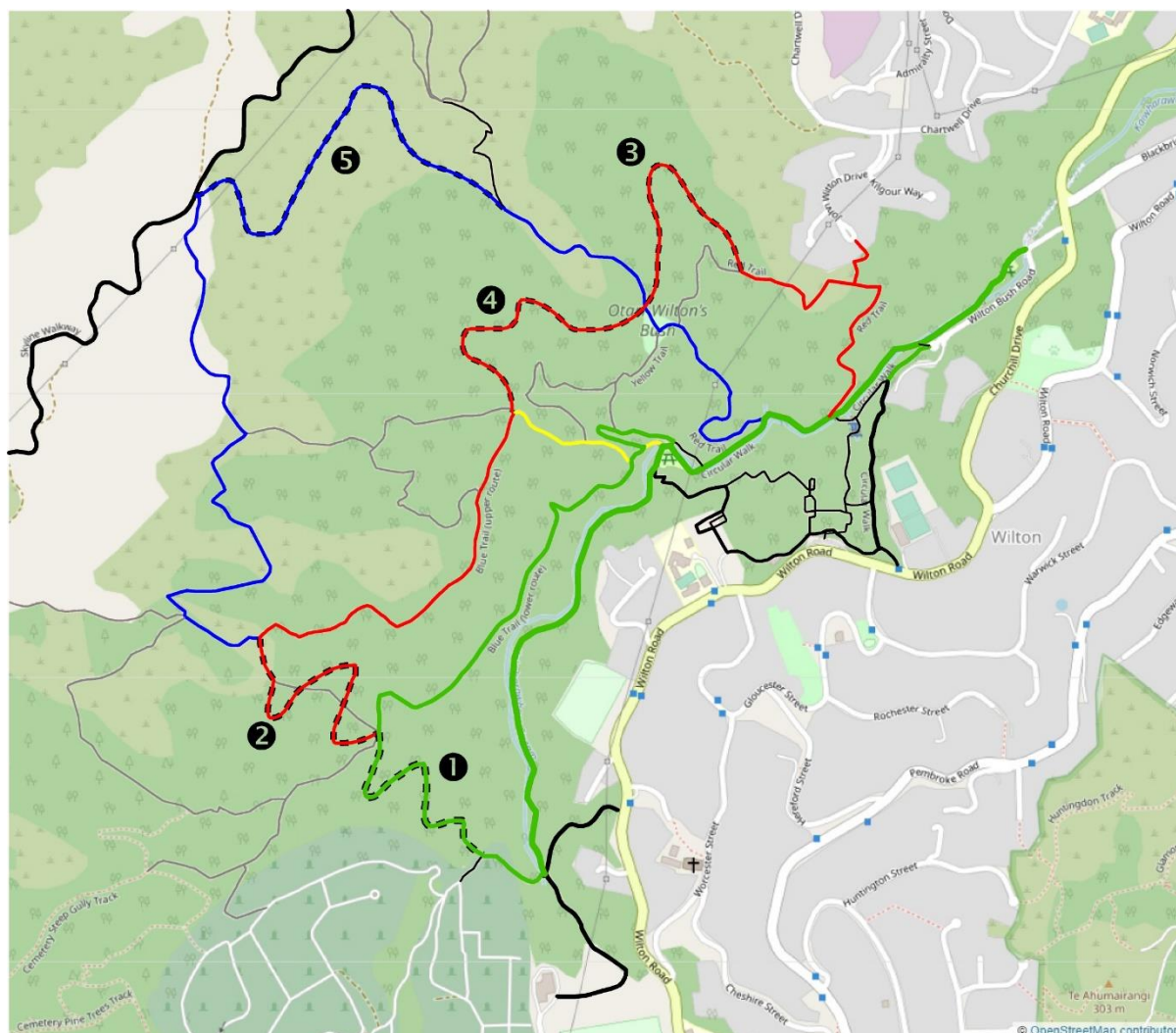
Trail summary table

Trail	NZ Standard	Strengths	Weaknesses	Opportunities
Circular Walk	Path, Short Walk and Walking Track	Introductory walk from main entrances	Slippery, steep, zig-zags to Troup Picnic Area	Seal steep zig-zags to make more accessible
Kaiwharawhara Track	Mostly Path and 50 metres of Walking Track to Ian Galloway Park	Most accessible track in reserve, destination of Troup Picnic Area, Kaiwharawhara Stream.	Steep climb to Ian Galloway Park, illogical start, maps not showing full length	Associate with stream and extend to Churchill Drive. Upgrade to Walking Track.
Blue Trail	Tramping Track, Walking Track, and Short Walk	Destination of 800-year-old rimu, links to Cemetery, forest	Inconsistent standard, steps, erosion on upper section.	Reconceptualise, upgrade and realign to meet user needs and mitigate erosion.
Yellow Trail	Tramping Track, Walking Track, and Short Walk	Forest, easy access to Blue Trail	Inconsistent standard, steps, confusing layout.	Reconceptualise, upgrade and realign to meet user needs.
Red Trail	Tramping Track, Walking Track, and Short Walk	Forest, perception of remoteness	Inconsistent standard, steps, erosion.	Reconceptualise, upgrade and realign to meet user needs and mitigate erosion.
Other Tracks				
Jock's Track, Flax to Skyline	Walking Track	Leads towards Skyline Walkway. No steps.	Top half in scrub not scenic and has ruts due to being steeper and exposed to weather.	Realign top half to better connect to Skyline Walkway and mitigate erosion.
Kohekohe Trail	Short Walk	Open space views, easy gradient.	None	Upgrade slightly and open to cyclists.
Cemetery Tracks	Tramping Track, Walking Track, and Short Walk	Links between Karori and Otari. Creates loops.	Network is confusing. Some tracks are too narrow.	Upgrade tracks and install mapboards.

Future concepts

By considering the NZ track standards and the Open Space network principles we can see the following opportunities for creating three new loop walks by building five new sections of ecologically sustainable track that would connect the best sections of the existing tracks.

These loops would deliver higher environmental and recreational benefits than the existing network.



- | | | |
|---------------------------------------|--------|--|
| — | Green | Family friendly track (meets “short walk” standard) |
| — | Red | Otari Explorer (meets “walking track” standard) |
| — | Blue | Skyline Loop (walking track to the Skyline and back) |
| — | Yellow | steep short-cut routes |
| - - - - - | Dashed | new trail to build (to achieve coherent trail experiences) |
| — | Grey | “tramping track” standard sections to be retired |
| — | Black | other tracks |
| ① ② ③ ④ ⑤ | | possible build order for new trail sections |

Family Friendly Short Walk

4.1 km, 1-2 hour, Short Walk standard.

The Family Friendly Track would combine the easy lower Yellow Trail and the lower Blue Trail, with 700 metres of new track to connect to the southern end of the Kaiwharawhara Valley (note, we did assess an historic track that connected the Blue Trail to the Valley, but it was too steep to be sustainable).

Highlights: Kaiwharawhara Stream, native forest, bridges over gorges, Troup Picnic Area, and a satisfying journey, rather than a there-and-back trip.

New Track required: 700 metres from the far end of the Blue Trail down to the valley.

Otari Explorer

6 km, 1.5 – 2 hours, Walking Track standard.

The Otari Explorer Loop would be the next step up in difficulty and length. It would entail upgrading half the Red Trail and then building 1.5 km of new sidle track around the hillside and head of gullies to connect with the upper Blue Trail near the 800-year-old rimu. The upper Blue Trail would need to be upgraded, and this would involve building 650 metres of new track to meet Walking Track standard. Users would complete the loop by descending back to the Kaiwharawhara Valley.

Highlights: Kaiwharawhara Stream, views from top of Flax Clearing, boardwalk around the edge of the Kauri forest, Kilmister boundary waterfall, 800 year old Rimu and other large trees, a sense of having seen the best that Wilton's Bush has to offer.

New Track required: three sections as follows:

1. 650 metres to replace the steep eroded trail between upper Blue Trail and lower Blue Trail.
2. 790 metres to replace the steep back half of the Red Trail from near John Witton Dr to Flax Clearing.
3. 775 metres to connect the Flax Clearing to the upper Blue Trail at a reasonable gradient.

Skyline Loop

7km, 2 hours, Walking Track standard.

The Skyline Loop would be the longest loop, and best workout due to the amount of climbing to reach the Skyline ridge. It would climb from the valley directly up to the Flax Clearing, then follow the existing Skyline Link Track (Jock's Track) halfway before taking a new sidle track to the Kohekohe Track and back via other tracks that would be built for the two new walks described above.

Clearly there would be other options that people could create from this reconfigured network. But it would be a clear network, with distinct options that met well defined track standards.

Highlights would be: Kaiwhararara Stream, views from Skyline and Kohekohe Track, sense of accomplishment.

New track required: 905 metres to sidle from the old Wilton's Bush Boundary to the Skyline.

Network benefits

The current network of tracks beyond the gardens is in a wonderful forest setting, but serves a low number of visitors due to its difficulty, and lack of network inspiration. Many users desire a longer walk, but on easier tracks than the Blue/Yellow/Red options, which were hemmed in by the pre-1990s reserve boundaries when built.

Because of subsequent council land purchases, there is now much potential to be realised, and to understand the full extent of that potential would require preliminary design/survey of the options outlined above.

Ecological impacts, benefits and potential mitigation

Any new track build has an immediate ecological impact, and if poorly built, it will have a slow, ongoing ecological impact as well. On the recently built Paparoa Track, the Department of Conservation took track building mitigation to a new level. They instructed contractors to carefully place all topsoil from the track corridor on the lower track side and to transplant ferns and trees from the track corridor into that moved topsoil. The result is a vegetation lined track that looks in most places like it had been there for decades.

This approach in Wellington would require careful timing as our climate is too dry in summer for transplanting seedlings and ferns. It would also increase the cost of the track build by as much as 10 percent. In terms of larger trees, any new track can be designed to avoid them altogether.

It is worth noting that three of the new track sections proposed in this report would provide access into land acquired by WCC since 1990 (Kilmister land). This land was farmed for over a century, and does not yet have the same ecological values as the original native forest. The new tracks on the Kilmister block would provide enhanced access for pest control and planting.

Some concern has been raised about having a track near/through the planted kauri stand. There is a risk of spreading Kauri die-back (*Phytophthora agathidicida*) to these trees. We believe this can be eliminated by following the same Department of Conservation methodology used when building the new boardwalk to Tane Mahuta at Waipoua Forest in Northland.

The most important aspect for ensuring the long-term sustainability of a track it to keep the gradient below 15 degrees (preferably below 10 degrees) so that soil erosion is minimised. Refer below:

NZ standard for tracks and outdoor visitor structures: SNZ HB 8630:2004

Path:	2m wide,	0-5 degrees,	gravelled or sealed
Short Walk:	0.75–2m,	0-10 degrees	
Walking Track:	0.75–2m,	0-15 degrees	
Tramping Track:	0.6m,	0-20 degrees	
Route:	not a formed path		

Potential programme of works for trails

The following programmes divide works into three categories according to timing and funding source. It is important to note some of the most significant renewals/upgrades could be avoided by building the new tracks. For example, if a new sidle track was built from the Flax Clearing to the Blue Trail then the work identified for the upper Yellow Trail would no longer be needed.

CATEGORY	TYPE OF WORK	EXAMPLES
1. DEFERRED MAINTENANCE AND URGENT REPAIRS	Reshaping trail surfaces back to their original state.	Raking/digging out accumulated material on upper track sides and covering protruding roots.
	Refurbishing old timber routed signs and replacing illegible faded plastic signs.	Cleaning and sanding signs and replacing faded plastic arrows. Removing redundant signs.
	Repairing faulty structures.	Urgently backfilling steps that have become trip hazards.
2. RENEWALS AND FUNDED UPGRADES	Largely drawn from the Otari-Wilton's Bush Management Plan 2007	Discard the 'placeless' track names (Red, Yellow, Blue, Circular) and rename based on NZ track standards, natural and cultural heritage, and user demand.
		Upgrade 200 metres of track from Kawharawhara Valley to Ian Galloway Park.
		Install entrance signs and map boards at Ian Galloway Park and track fork just above Blue Trail (southern end).
3. FUTURE CONCEPT	This concept plan reimagines the OWB network to better align with the Open Space Access Plan 2016. It should be read before committing to category 2 works.	Use the Lower Yellow Loop and Lower Blue Loop followed by a new zig-zag track descending to the valley to create a step-free Short Walk (this would require two or three new bridges).
		Build a new sidle track from the top of the Red Trail to the top of the Blue Trail.
		Build a new track from near the top of 'Jocks Track' sidling across to the Kohekohe Trail.

Programme of works: Circular Walk

CATEGORY	WORKS	COST ESTIMATES
1. DEFERRED MAINTENANCE AND URGENT REPAIRS	1. Refurbish 12 wooden signs	\$1,200
	2. Replace 2 faded green arrows	\$100
2. RENEWALS AND FUNDED UPGRADES	1. Install standard WCC bike racks at Wilton and Churchill entrances.	\$1,700
	2. Seal the steep ziz-zags down to Troup Picnic Area (improve traction).	\$20,000
	3. Modify top of wire netting on barriers.	\$1,000
3. FUTURE CONCEPT	None	

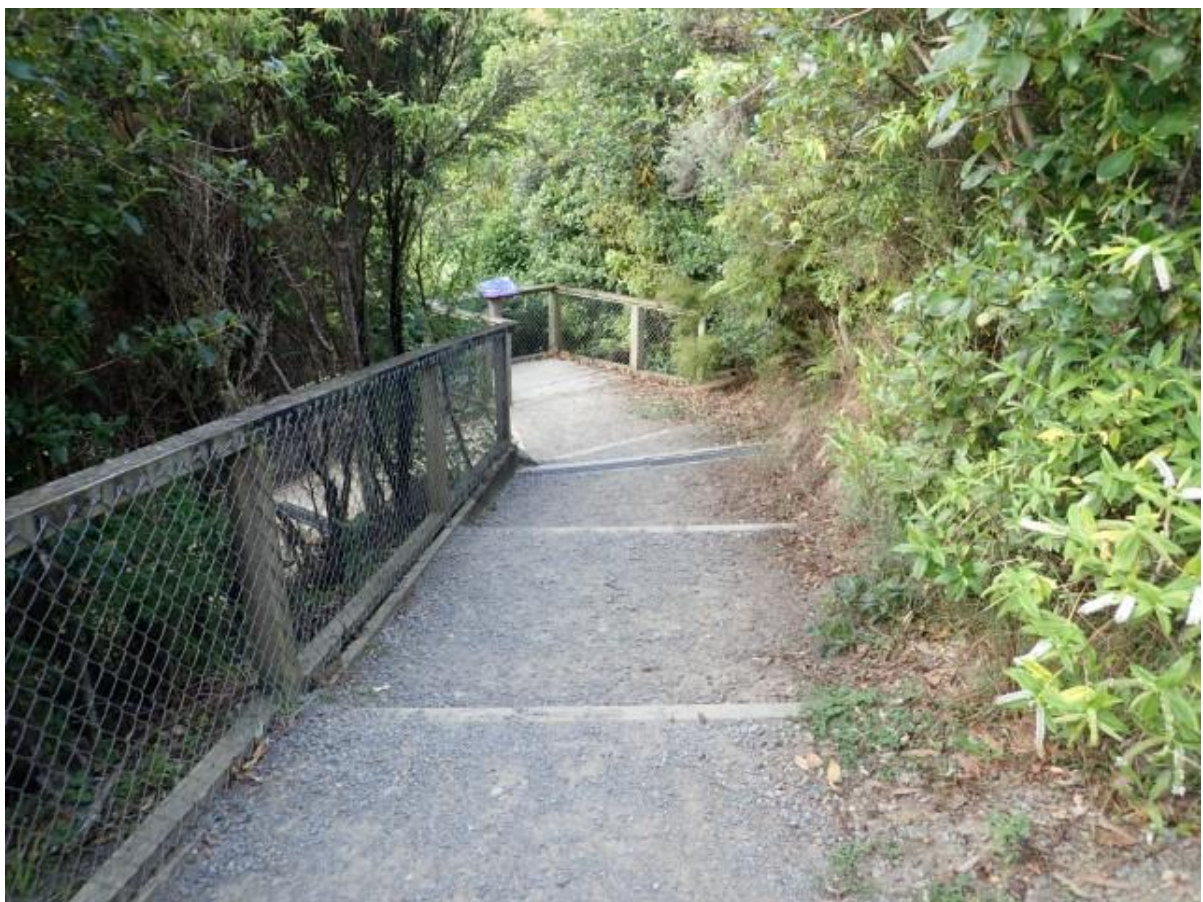


Photo: the steep zig-zags are the most challenging section on the Circular Walk.

Programme of works: Kaiwharawhara Track

CATEGORY	WORKS	COST ESTIMATES
1. DEFERRED MAINTENANCE AND URGENT REPAIRS	1. Build up level of track at all utility covers	\$1,500
	2. Tuck bridge wire netting under the top rail	\$300
2. RENEWALS AND FUNDED UPGRADES	1. Upgrade final 200 metres to Ian Galloway Park	\$5,000
	2. Install OWB entrance signs at Ian Galloway Park	\$1,500
	3. Widen narrow bridges	\$3,000
3. FUTURE CONCEPT	Extend trail name to northern car park	\$500



Photo: a wide range of users enjoy the Kaiwharawhara Track., mostly for walking and running.

Programme of works: Blue Trail

CATEGORY	WORKS	COST ESTIMATES
1. DEFERRED MAINTENANCE AND URGENT REPAIRS	<ol style="list-style-type: none"> 1. Refurbish 4 wooden signs 2. Replace rotten steps 3. Cut back vegetation and branch at far end 4. Remove graffiti markings on signs 	\$400
2. RENEWALS AND FUNDED UPGRADES	<ol style="list-style-type: none"> 1. Replace 4.7m bridge at Troup Picnic Area 2. Move rails at Rimu and sand off branding 3. Install new steps on steep rooty sections (if not realigning steep trail). 4. Reshape sections of trail. 5. Rebuild and extend sunken boardwalk (if not realigning). 6. Low retaining wall around large mahoe roots. 	\$9,000
3. FUTURE CONCEPT	<ol style="list-style-type: none"> 1. Realign degraded sections of upper trail 2. Realign to use lower Yellow Loop 3. New bridge on lower Blue Trail 	



Photo: long flights of old steps on the Blue Trail. These could be avoided by realigning along an upgraded lower Yellow Trail.

Programme of works: Yellow Trail

CATEGORY	WORKS	COST ESTIMATES
1. DEFERRED MAINTENANCE AND URGENT REPAIRS	Refurbish wooden routed signs (5)	\$500
	Update plastic arrow signs (6)	\$300
	Clean mouldy plastic signs and move the bridge ones.	\$200
	Control African clubmoss at Flax Clearing, 3 yrs	\$300
	Cut back mahoe stump and other vegetation	\$300
2. RENEWALS AND FUNDED UPGRADES	Reshape the bench for 390 metres	\$4,000
	Replace 4m retaining wall	\$2,000
	Replace 7m retaining wall	\$3,500
	Upgrade steps where they are too large (20)	\$2,000
	Install steps on steep section (10)	\$1,000
	Extend bridge handrail.	\$500
	Install timber routed sign at Yellow/Blue junction.	\$600
3. FUTURE CONCEPT	10m bridge at current ford	\$30,000
	15m bridge from Troup Picnic Area	\$45,000
	Nib walls, 6m, 14m and 5m on lower Yellow Trail	\$2,500
	Add place names to streams, gorges, etc.	\$7,000
	Reroute 100m of steep sections if not being retired.	\$1,000
	Install 10m handrail on steep link track steps if not being retired.	
	Retire upper Yellow Trail and replace with new trail from Flax Clearing to Blue Trail (775 m)	\$42,000



Photo: the Yellow Trail offers a wide range of trail standards.

Programme of works: Red Trail

CATEGORY	WORKS	COST ESTIMATES
1. DEFERRED MAINTENANCE AND URGENT REPAIRS	Refurbish wooden signs (7)	\$700
	Remove graffiti wayfinding marks (2)	\$100
	Replace faced plastic arrow (1)	\$100
2. RENEWALS AND FUNDED UPGRADES	Replace large wooden steps to John Witton Drive (90 old steps with 120 new steps)	\$1,200
	Reshape rough sections of track to John Witton Drive (100m)	\$1,000
	Replace 39 steps on top section with 60 metres of new track	\$2,100
3. FUTURE CONCEPT	Choose between option a and b	
	a) upgrade existing gorge section (350m) with 180 new steps and 10m bridge, etc, or b) realign existing gorge section (790m)	\$32,500 \$37,650



Photo: the Red Trail offers a short tramping experience while close to an urban environment. This is a strength for trampers, and a weakness for most urban dwellers.

Programme of works: Jock’s Track (Flax Clearing to Skyline 4WD Track)

CATEGORY	WORKS	COST ESTIMATES
1. DEFERRED MAINTENANCE AND URGENT REPAIRS	Replace plastic signs (7)	\$350
	Clean plastic signs (1)	\$100
	Add plastic sign (1)	\$100
	Refurbish wooden sign (1)	\$100
2. RENEWALS AND FUNDED UPGRADES	Remove stile and create gap in old fence.	\$250
	Reshape top half of the track (300 m)	\$3,000
3. FUTURE CONCEPT	Replace top half of this track with new sidle track (905m and 1 boardwalk)	\$36,700



Photo: Jock’s Track (Flax Clearing to Skyline 4WD track) offers a good link to the Outer Green Belt.

Programme of works: Kohekohe Track

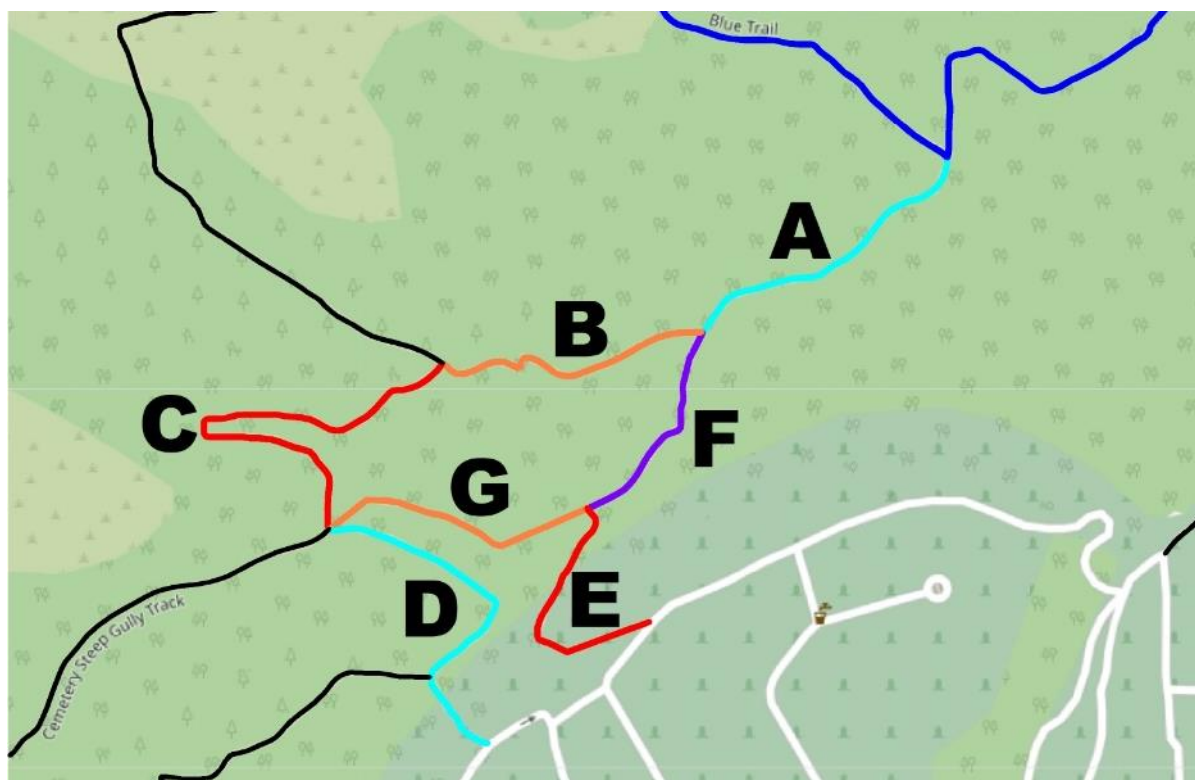
CATEGORY	WORKS	COST ESTIMATES
1. DEFERRED MAINTENANCE AND URGENT REPAIRS	Reshape Track to 0.75m width (900m)	\$9,000
	6m by 0.25m nib wall around large tree root.	\$300
	Replace damaged plastic bollard signs (6).	\$300
	Remove one of the no MTB signs.	\$50
2. RENEWALS AND FUNDED UPGRADES	Wooden routed entrance signs each end	\$3,000
	Mapboards each end	\$2,000
	Replace internal boundary fence with 1m wide gate.	\$400
	Remove novaflow pipe and build swale	\$200
	Remove redundant stile above Blue Trail	\$300
	Top up 80 box steps with AP20	\$2,000
3. FUTURE CONCEPT	Realign the track around the 80 steps.	\$5,000



Photo: the Kohekohe Track offers a unique experience of open vistas at Otari-Wilton's Bush.

Programme of works: Tracks from Blue Trail to Karori Cemetery

CATEGORY	WORKS	COST ESTIMATES
1. DEFERRED MAINTENANCE AND URGENT REPAIRS	Refurbish wooden signs (5)	\$500
	Replace wooden entrance sign (1)	\$400
	Clean plastic bollard signs (20)	\$100
	Replace plastic signs (3)	\$150
	Add new plastic signs (5)	\$250
	Move bollard (1)	\$100
	New bollard (1)	\$200
	Aggregate top up on steps	\$500
	Remove leaning mahoe (3)	\$350
	Fix alignment of WCC track (100m)	\$1,000
2. RENEWALS AND FUNDED UPGRADES	Widen narrow bits of Grant's track (800m)	\$8,000
	Replace old retaining walls (21m)	\$2,000
	Install nib walls (46 m)	\$2,300
	Install retaining wall (4m)	\$1,500
	Replace two boardwalks (2 x 4m)	\$8,000
	New bearers on short boardwalk (1.5m)	\$450
	New bearers on long boardwalk (5m)	\$1,200
	New steps (10)	\$1,000
3. FUTURE CONCEPT	Retire one section.	



Map: the network of tracks between Otari-Wilton's Bush and Karori Cemetery is complicated.

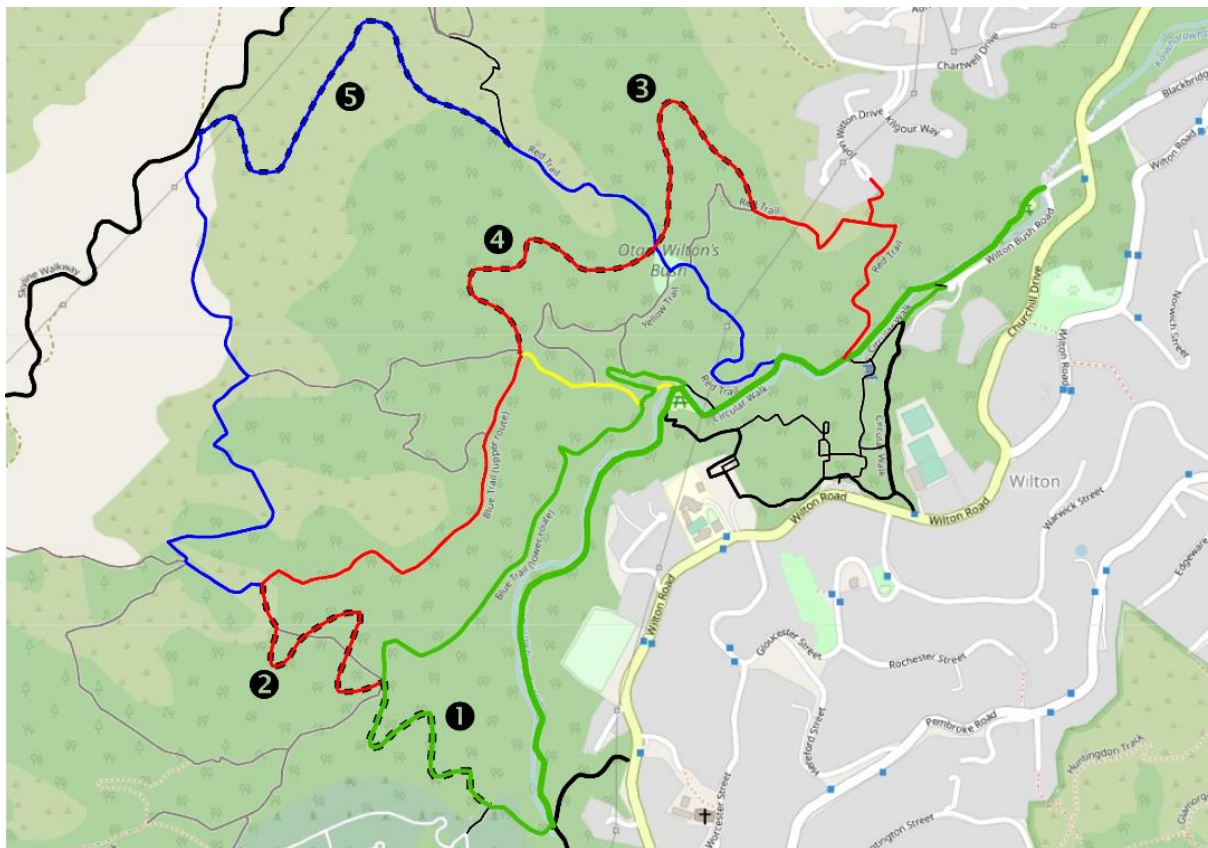
Programme of works: Other minor tracks

CATEGORY	WORKS	COST ESTIMATES
1. DEFERRED MAINTENANCE AND URGENT REPAIRS	Refurbish wooden signs (1)	\$100
	Replace plastic signs (1)	\$100
	New plastic signs (6)	\$600
	Clean plastic signs (7)	\$100
	New bollards with plastic signs (3)	\$450
	Upgrade wooden steps (8) or realign track	\$800
2. RENEWALS AND FUNDED UPGRADES	Install steps or realign track (5)	\$500/\$1,000
	New steps at bottom of existing flights (4)	\$400
	Widen track opposite Surrey St (30m)	\$300
	New entrance sign opposite Surrey St	\$500
	Install 200mm culvert pipe (Surrey St)	\$150
	Cut back leaning mahoe (2)	\$200
3. FUTURE CONCEPT	Build 50m track from I.G. Park to Cemetery	\$1,750
	Reopen Rimu Spur Track (minor works and two new signs)	\$1,500



Photo: some of the minor tracks around Otari-Wilton's Bush are valuable connections to the network.

Potential programme of works: proposed track



It is recommended that the tracks are prioritised as below to gain the greatest network benefits early in the programme.

Trail	Length	NZ standard	Structures	Cost Estimate
1. Family Trail (lower Blue Trail to Kaiwharawhara Valley)	700m	Short Walk	None	\$24,500
2. Explorer (realign steep back end of Blue Trail)	650m	Walking Track	None	\$22,750
3. Explorer (realign steep gorge section of Red Trail)	790m	Walking Track	2 boardwalks	\$37,650
4. Explorer (connect Flax Clearing to upper Blue Trail)	775m	Walking Track	1 Bridge, 2 boardwalks	\$42,125
5. Skyline Link (connect Jocks Track to Kohekohe Track)	905m	Walking Track	1 boardwalk	\$36,700

Getting Around: Maps, Signs and trail names at Otari Wilton's Bush

The original track names at Otari related to benefactors and famous botanists. To the new curator who arrived from overseas in the mid-1960s, having fifty different track names may have seemed too many for visitors to digest, and the people they were named after may not have seemed relevant any more.

However, most of the current names (Circular, Nature, Red, Blue, Yellow) have no sense of place or heritage. They could be the names of trails anywhere in the world and a quick google search shows that they are not unique to Otari-Wiltons Bush. There is even a 'Circular Walk' signposted on the nearby Johnston's Hill.

The only exceptions to these 'placeless' names are the Kaiwharawhara Track, which is named after the stream, and the Kohekohe Track which is named after the dominant canopy tree along the track.

Ideally, all the names of tracks should add to the sense of place and/or heritage that makes Otari-Wilton's Bush the wonderful place that it is, as well as making navigation straightforward.

Signage existing in the reserve has been developed over 50 years and is now inconsistent and, in places, quite confusing.

As photos below show, there are four main types of sign at Otari now, and in varying states of condition. Old wooden routed signs are sometimes covered in moss and hard to read. Some of last decades plastic arrows and pictograms have faded. And the use of colour is sometimes misleading.

There are blue arrows for the Blue Trail, yellow arrows for the Yellow Trail, red arrows for the Red Trail, but green arrows for the Circular Walk, and green, black and blue arrows for other trails and destinations.

The Circular Walk is, as the name suggests, a loop. But the Blue, Yellow, and Red trails are also circular loops.

There is a Nature Trail, even though every trail in the reserve is in nature.

And there is a Flax Clearing, with now hardly any visible flax in it.

There are times given in some places, but it's not always clear which loops they refer to with lower and upper Yellow Trail loops.

Recommendation: after deciding the future network of tracks, consult with key stakeholders before consolidating and communicating the revised network by renaming the 'placeless track names' with descriptive names that are evocative and inviting. Ideally, they would allude to the ecological features waiting to be experienced and/or the unique heritage of Otari-Wilton's Bush. Consider using some of the original names used up until the mid-1960s.

Otari-Wilton's Bush maps

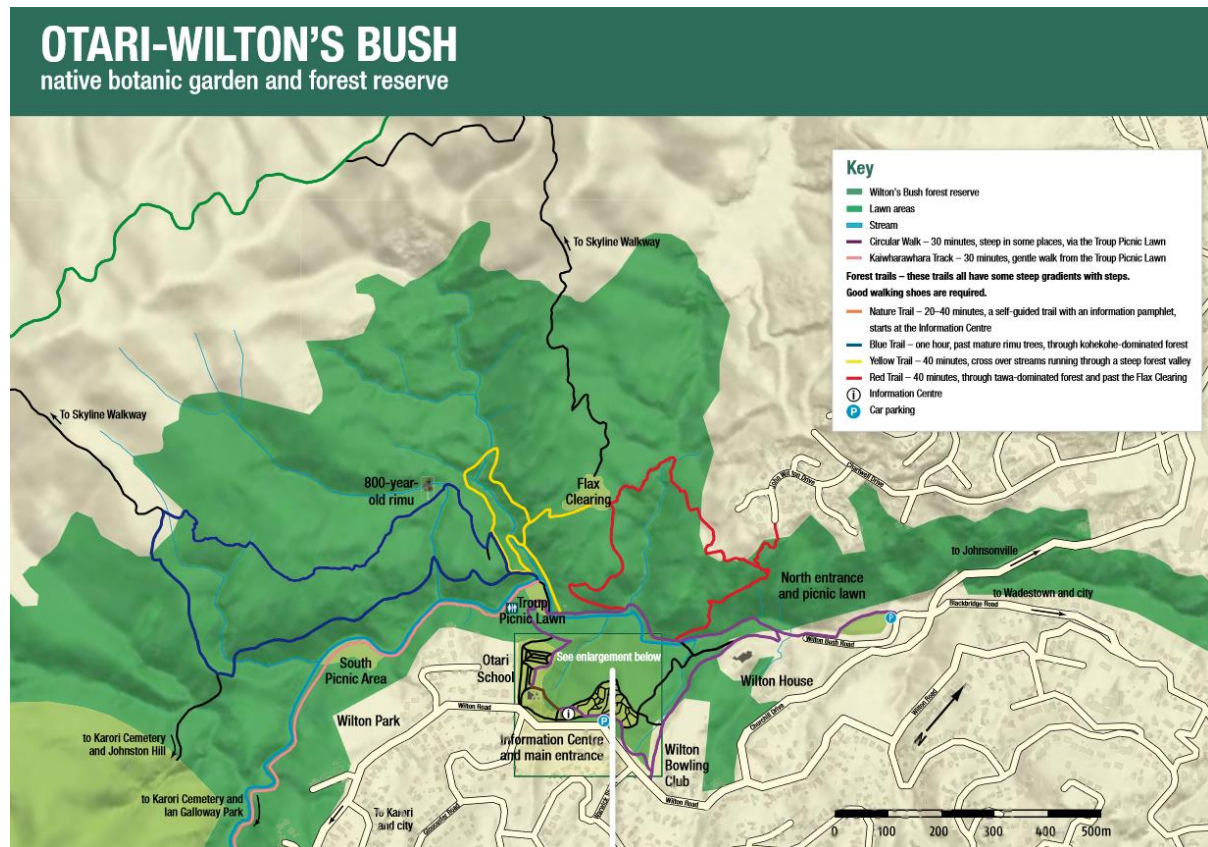


Image: WCC map used online, in pamphlets and on mapboards in the reserve

Users would benefit by having the map extent increased by a few hundred metres to show how Otari connects to the Skyline Track, Ian Galloway Park and Karori via the cemetery.

Navigation around the south end of Otari-Wilton's Bush is particularly challenging. While writing this report, we have not found any publicly available map that shows the connections between Otari and the Skyline Track and Karori.

Signposts on the ground have improved over the last 10-20 years, but maps at the main entrances of Ian Galloway Park, Karori Cemetery and the Skyline Track would help improve the user experience enormously.

It would also be useful to indicate the difficulty of tracks. Many people are unable/unwilling to walk up and down the large steps that exist on parts of the Blue Trail, Upper Yellow Trail and half the Red Trail.

Photos of various types of signs at Otari Wilton's Bush



New wayfinding sign style in the Native Botanic Garden area.

Clear and easy to read. But note inconsistency of 'Troup Picnic Lawn', compared with other signs referring to 'Troup Picnic Area'.



Older wooden routered signs are most common throughout Otari-Wiltons Bush



The use of coloured arrows can be confusing. Where does the Yellow Upper Loop Track go from here? Not in the direction of both yellow arrows.



Some wooden routed signs are now hard to read. Each case of required maintenance has been noted in the individual trail reviews.



Some arrows have faded. And people have written directions on several of them.



Faded pictograms.



It is difficult for new visitors to navigate past intersections like this with only coloured arrows, especially as the blue and yellow trails overlap each other.



There are a number of older versions of wayfinding markers around the trails.



Some signs, like this one add to the confusion. This adds another brand (Sanctuary to Sea Walkway) into the trail name mix, and it points to faraway places such as Trelissick Park, Kaiwharawhara.



A mapboard here would help guide users more than 6 arrows. The colour blue should only be used for the Blue Trail, not also pointing up to the Skyline Walkway.

Also note that the text on the plastic signs is really too small, especially considering many of the visitors to Otari no longer have 20/20 vision.

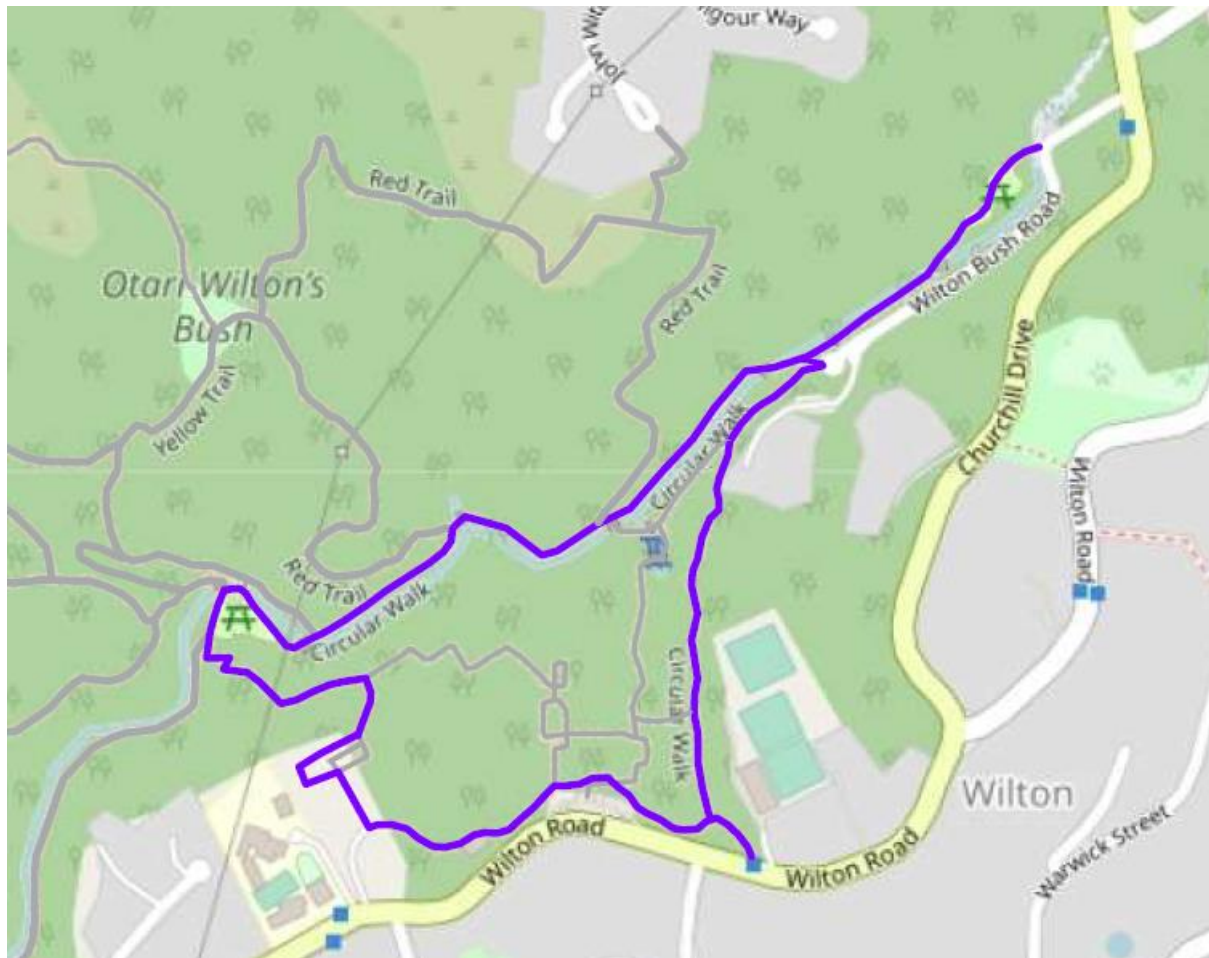


Mapboards are essential. It would be good to have one just a bit larger than this one, that extended to Ian Galloway Park, Churchill Drive, and the Skyline. Also, smaller ones at major locations like the Flax Clearing, the 800-year-old rimu, Karori Cemetery and the far end of the Blue Trail.



Sign repetition, and older signs should be removed.

Track Audit 1: Circular Walk



WCC classification	Walking Track
Length	1,705 metres
Average width	1.5–2 metres
Gradient (degrees)	0–5, 11 (down to Troup), 13 (down to Troup), 0–5, 6, 10 (120m up from valley), 0–5 (dray road)
Surface	Consistent gravel surface with some shallow steps on the 13 degree slope down from the native botanic gardens to the Troup Picnic Area.
Wayfinding signs	Well signposted. New signs in the upper gardens area and older routed signs from the Troup Picnic Area back to Wilton Road.
Mapboards	At main entrance and the Troup Picnic Area.
Interpretation signs	One sign just above the Troup Picnic Area.
Structures	<ul style="list-style-type: none"> • 25 shallow steps to the Troup Picnic Area • 2 bridges over Kaiwharawhara Stream • 1 boardwalk at the alpine garden.

Threats (weeds, erosion, etc)	None found.
User number estimates	High user numbers between the lower Kaiwharawhara valley and the Troup Picnic Area. Much lower numbers on the 10–13 degree tracks to the native botanic gardens and information centre. Note: <i>This indicates that the steepness of the track between the information centre and the Troup Picnic Area is an impediment to visitor access.</i>
Public safety record	The downhill from the native botanic gardens to the Troup Picnic Area is steep and slippery.
Network significance	Wilton Rd to Kaiwharawhara valley and down valley are critical access links.
Strategic alignment with Open Spaces Plan	High
Potential/Notes	
<ul style="list-style-type: none"> • Sealing the steepest section on this loop would improve accessibility, as the slippery downhill is a challenge for some visitors. • The Circular Walk through the gardens has been realigned – all maps now need to be updated. • It is confusing for maps to show the connector to the reserve’s northern entrance as being part of the Circular Walk. 	

Photos



Photo 1: Wilton Road entrance

Comment: High landscape values and the mapboard shelter help make this an attractive and inviting entrance to Otari-Wilton's Bush.

Recommendation: None.

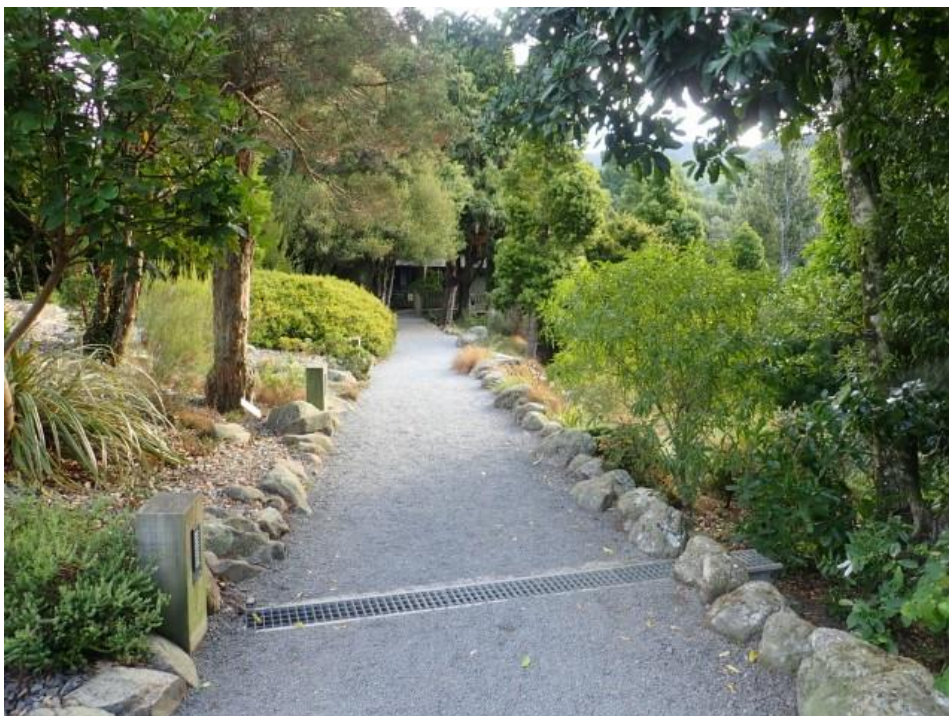


Photo 2: Entrance path

Comment: All the main paths in the botanic gardens are of this high quality.

Recommendation: None.



Photo 3: New signs through gardens area

Comment: Highly legible wayfinding sign; but the warning sign is aesthetically out of place.

Recommendation: Improve the traction on the deck and use temporary warning signs when needed. Warning signs are more effective if only put up when needed.



Photo 4: Mapboard at information centre

Comment: Visually excellent, but the Circular Walk alignment needs updating, and it would be helpful to show links to Ian Galloway Park and Karori Cemetery.

Recommendation: Update map and show connections to the south, as well as closer connections of Crofton Downs, Ngaio and Khandallah to the north.



Photo 5: Signs near the information centre

Comment: Very clear design.

Recommendation: This sign could include a fifth line marking 'Access to forest trails'.



Photo 6: Track fork

Comment: The Circular Walk has been realigned here and now goes to the left.

Recommendation: Install a sign pointing left for the Circular Walk, Troup Picnic Area and forest walks.



Photo 7: Grave site of Leonard and Maud Cockayne and lookout over the bulk of the reserve

Comment: This is a significant site – both for heritage values and as a lookout.

Recommendation: Provide more interpretation for the Cockaynes’ grave and a 3D mapboard near the seat, introducing the viewer to all the possible trails on the far side of the valley – a great opportunity for visitor orientation and greater engagement.



Photo 8: Wayfinding signs

Comment: It is interesting to meander through the native botanical gardens. The existing wayfinding signs are essential.

Recommendation: None.



Photo 9: Wayfinding sign

Comment: Unsure why the ranking of locations changes from sign to sign. The Troup Picnic Area/Lawn is referred to variously on different signs.

Recommendation: Provide consistency in location hierarchy and naming in future.



Photo 10: 13 degree steep slope to valley

Comment: This path is too steep for the very young, old or disabled.

Recommendations: The high barrier could be modified to provide a more usable handrail. The trail surface could be sealed with exposed aggregate to provide better traction; at the same time, the shallow steps could be removed, which would make it easier to manoeuvre prams and wheelchairs.



Photo 11: Warning sign on steep track to valley

Comment: The handrail is not easy to use – it is too high for children / short people and has wire that can snag clothes and fingers.

Recommendation: Modify handrail and upgrade path surface so that this negative sign can be removed.

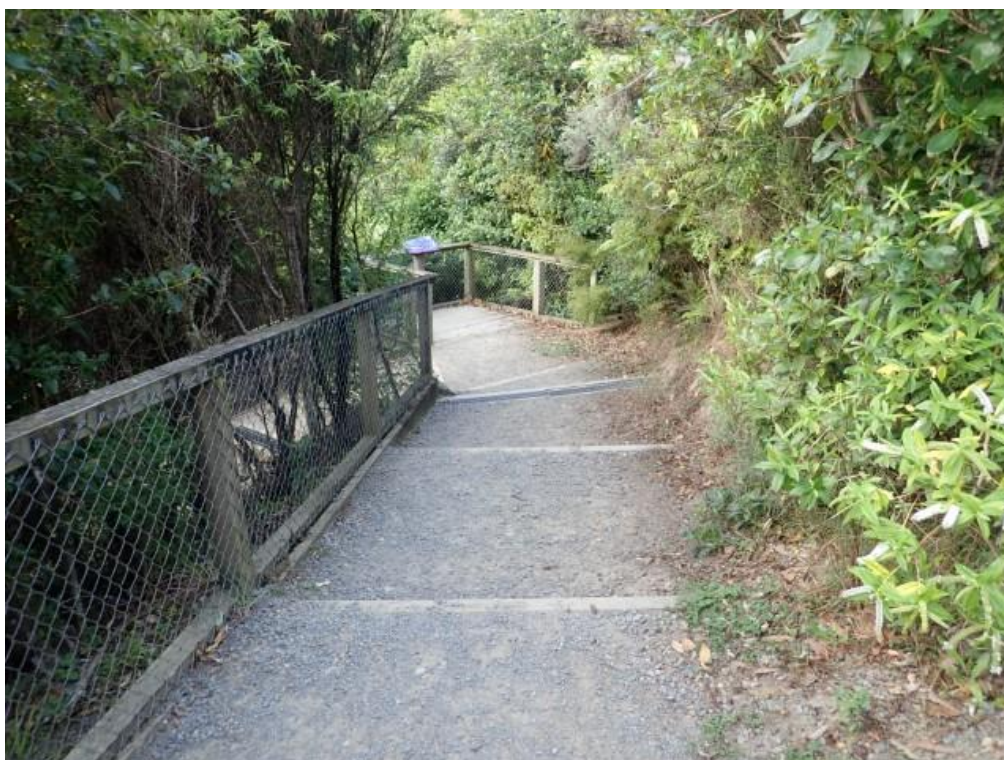


Photo 12: Path down to lookout

Comment: Poor handrail (is more a barrier to fall rather than a handrail) and slippery surface.

Recommendation: As above, consider sealing the loose surface.



Photo 13: Interpretation sign

Comment: The sign has faded and lost all its green colour. Is it the Troup Lawn or Troup Picnic Area?

Recommendation: Reprint sign with UV overlay and reinstall. Consider relabelling it as Troup Picnic Area.



Photo 14: Wayfinding sign at edge of Troup Picnic Area

Comment: The 'Circular Walk' doesn't mean much to most visitors.

Recommendation: Add signpost to 'Wilton Road entrance'.



Photo 17: Sign at southern end of picnic area

Comment: In some places, the Troup ... is referred to as 'Picnic Area' and others as 'Lawn'.

Recommendation: Ensure consistency in future labelling. 'Lawn' is only part of what this picnic area has to offer; the stream and forest surrounds are what really make it special.



Photo 18: Bridge at northern end of the Troup Picnic Area

Comment: None.

Recommendation: None.



Photo 19: Wayfinding sign

Comment: Maintenance required.

Recommendation: Simply take off the arrows, sand/plane the front surface and reinstate appropriate arrows. The sign will look like new.



Photo 20: Wayfinding sign

Comment: This path northward does not lead to Trelissick Park, Kaiwharawhara. It leads to Churchill Drive, then Crofton Downs or Wadestown, and then Trelissick Park. Karori Sanctuary has been rebranded as Zealandia. The path southwards leads to Ian Galloway Park first and foremost.

Recommendation: Consider updating these signs.



Photo 21: Wayfinding sign

Comment: Maintenance required.

Recommendation: Simply take off the arrows, sand/plane the front surface only and reinstate appropriate arrows. The sign will look like new. Use a red arrow to point to Flax Clearing.



Photo 22: Bridge over side stream

Comment: What is the name of the side stream? McKenzie Burn.

Recommendation: Name these places at their bridges to help develop a sense of place.



Photo 23: The main path beside Kaiwharawhara Stream – the Kaiwharawhara Track

Comment: This is a great trail and in excellent condition. Most people using it are not doing the Circular Walk (they are walking/running up and down the valley).

Recommendation: Rename this path at all track signs along its length as Kaiwharawhara Track, after the Kaiwharawhara Stream.



Photo 24: Track fork where the Red Trail branches off

Comment: See below.

Recommendation: See below.



Photo 25: Wayfinding sign

Comment: Maintenance required. And it is confusing using green arrows on the Red Trail.

Recommendation: Simply take off the arrows, sand/plane the front surface only and reinstate appropriate arrows. The sign will look like new.



Photo 26: Wayfinding sign

Comment: Maintenance required. Also, this is a challenging walk to the gardens, and it is better to follow the Circular Walk instead. Note the graffiti wayfinding.

Recommendation: Simply take off the arrows, sand/plane the front surface only and reinstate appropriate arrows. May need to repair the 'W' on Waterfall.



Photo 27: Retaining wall on Kaiwharawhara Track
Comment: Fencing required because of drop to stream.
Recommendation: None.



Photo 28: Wayfinding sign
Comment: Maintenance required.
Recommendation: Sand/plane the front surface only and reinstate appropriate arrows. The signs will look like new.
When due for replacement, suggest changing 'Main Carpark' to 'Wilton Rd Carpark'.



Photo 29: Wide path (mostly the old dray road from Wilton House) up to Wilton Road and 'Wilton Entrance'

Comment: Gradient is 6–10 degrees to start with then connects to dray road and is a steady 5 degrees.

Recommendation: Consider an interpretation panel with definition of dray road and a photo.



Photo 30: Wayfinding sign

Comment: Maintenance required.

Recommendation: Need to paint the letters black and repair the damage on the top board. Take off the arrows, sand/plane the front surface only and reinstate appropriate arrows.



Photo 31: Sign near Wilton Gate entrance

Comment: Back at the start.

Recommendation: Replace bike stands.



Photo 32: Old regulatory sign at Wilton Gate entrance

Comment: There are no bike stands within sight.

Recommendation: Replace with new sign if still needed and advise where bikes can be parked.



Photo 33: Alpine garden boardwalk

Comment: An interesting end to the walk.

Recommendation: None.



Photo 34: Bike stands

Comment: This is a poor design. It offers low security as any saw can cut through wood. And it is difficult to use with a standard D-lock – in fact, impossible to lock two bikes with one D-lock.

Recommendation: Replace with standard WCC bike stands.



Photo 35: Wilton Road entrance

Comment: Back at the start.

Recommendation: None.



Photo 36: Sign next to waterfall

Comment: This Circular Walk sign is not on the Circular Walk, and is therefore confusing.

Recommendation: Add the word 'to' so it reads as 'to Circular Walk'.

Photos from Chartwell Drive end of Circular Walk



Photo 37: Chartwell Drive entrance

Comment: This entrance does not encourage multi-modal outcomes. It is dominated by cars, which often block the entrance for people.

Recommendations: 1. Yellow pavement marking to stop cars parking directly in front of the pathway entrance. 2. Standard WCC bike rack, painted forest green, beside the mapboard.



Photo 38: Mapboard at entrance

Comment: Map doesn't quite extend to Ian Galloway Park and Karori Cemetery, which is where many users are going.

Naming this branch track as part of 'Circular Walk' is confusing.

Recommendation: 1. Change map to extend to end of Kaiwharawhara Track at Ian Galloway Park. 2. Consider renaming the path beside the Kaiwharawhara Stream as the Kaiwharawhara Stream Path.



Photo 39: Bridge, 15 by 1.5 metres

Comment: This is the location of the Eco Counter. Wire mesh on bridge can rip clothes and cut users.

Recommendation: Modify top of wire mesh.



Photo 40: Path beside Kaiwharawhara Stream

Comment: Path is now too narrow for existing use.

Recommendation: Develop plan for widening path.



Photo 41: Barrier with wire mesh

Comment: Top of wire mesh is a hazard.

Recommendation: Modify top of wire mesh.



Photo 42: Vines encroaching into track corridor

Comment: Can walk around them, but best to tie back before a volunteer cuts them.

Recommendation: Tie back the vines.



Photo 43: Intersection adjacent to old Wilton dray road.

Comment: Demand path is developing beside the steps. Lack of signs leads to confusion.

Recommendation: Consider additional signage and planting out with low vegetation to define this track fork. Just needs a sign at base of steps pointing towards Wilton Road.



Photo 44: Existing sign opposite steps

Comment: Useful information. Sign needs cleaning and sanding.

Recommendation: Refurbish these signs.



Photo 45: Dirty bollard signs

Comment: Old destinations and small arrow size.

Recommendation: Clean signs and change Karori Sanctuary to Zealandia. Also increase size of arrow.



Photo 46: Bollard sign

Comment: Strange destinations.

Recommendation: Clean sign. Add Churchill Drive. Remove Kaiwharawhara (it's just confusing as there is the Kaiwharawhara Track and the Kaiwharawhara Stream at Otari) and increase size of arrow.



Photo 47: Bollard sign from other direction

Comment: Strange destinations. Kaiwharawhara is confusing because you are beside Kaiwharawhara Stream, and very few people know where the small and distant suburb of Kaiwharawhara is.

Recommendation: Clean sign. Add Churchill Drive. Remove Kaiwharawhara and increase size of arrow.

Programme of works: Circular Walk

CATEGORY	WORKS	COST ESTIMATES
1. DEFERRED MAINTENANCE AND URGENT REPAIRS	1. Refurbish 12 wooden signs	\$1,200
	2. Replace 2 faded green arrows	\$100
2. RENEWALS AND FUNDED UPGRADES	1. Install standard WCC bike racks at Wilton and Churchill entrances.	\$1,700
	2. Seal the steep ziz-zags down to Troup Picnic Area (improve traction).	\$20,000
	3. Modify top of wire netting on barriers.	\$1,000
3. FUTURE CONCEPT	None	

CIRCULAR WALK REVIEW ENDS

Track Audit 2: Kaiwharawhara Track (Troup to Ian Galloway)



WCC classification	Path
Length	1,180 metres from the Troup Picnic Area to Ian Galloway Park. (Note: The valley track from the Troup Picnic Area to Churchill Rd carpark is 720 metres long and is discussed as part of the Circular Walkway.)
Average width	1.5–2 metres, but with pinch points at two narrow bridges and in the 200 metres up to Ian Galloway Park.
Gradient (degrees)	Mostly 0–5 degrees, except for the climb to Ian Galloway Park, which is 5–20 degrees.
Surface	Gravel
Wayfinding signs	Routed signs and bollards at almost every track fork.
Mapboards	One at the Troup Picnic Area, but it doesn't show Ian Galloway Park.
Interpretation signs	One panel about the valley revegetation at the southern picnic area.
Structures	<ul style="list-style-type: none"> • 1 boardwalk • 2 narrow bridges • 2 seats • 1 picnic table.
Threats (weeds, erosion, etc)	Tradescantia and African clubmoss in places beside the track.
User number estimates	High
Public safety record	The direct climb to Ian Galloway Park up the old tip face is steep, with poor traction. Users have been cut by ends of wire netting on barriers.
Network significance	Important walking link between Karori and Otari-Wilton's Bush.

Strategic alignment with Open Spaces Plan	High
Potential/Notes <ul style="list-style-type: none"> • Upgrade last 200 metres to Ian Galloway Park. • Designate all of the track that runs beside Kaiwharawhara Stream as the Kaiwharawhara (Valley/Stream) Path – from Ian Galloway Park down to Churchill Drive. This is how the public think of it. • Change ‘Track’ to ‘Path’ to better describe what it is. 	

Photos



Photo 1: Official start of the Kaiwharawhara Track at the Troup Picnic Area

Comment: Unclear why the start of the track is designated here rather than running the whole distance beside the stream? This path is the spine of the Otari-Wilton’s Bush track network and follows the most notable geographical feature (Kaiwharawhara Stream). Its whole length forms the most popular track in the reserve.

Recommendation: Relocate the start to Churchill Drive carpark.



Photo 2: Sign at start of Kaiwharawhara Track

Comment: Most people think this track goes the full length of the stream.

Recommendation: Refurbish routed signs.



Photo 3: Small arrow signs

Comment: They are the same colour as the Circular Walk, which is confusing if you refer to the arrow colours to help orient yourself.

Recommendation: Consider changing the colour of the arrows to standard black to avoid confusion with Circular Walk arrows.



Photo 4: Barrier to stream

Comment: Top of the wire mesh causes cuts and prevents the barrier being used as a handrail.

Recommendation: Remove the mesh and replace with wooden rails.



Photo 5: 30 metre boardwalk beside stream.

Comment: Non compliant rail spacing was flagged in the 2019 Frame Group structures audit.

Recommendation: "Replace 40m or decking and add extra rails to reduce barrier gap to 300mm."
Cost estimate at that time was \$15,400.



Photo 6: Barrier to stream

Comment: Top of the wire mesh causes cuts and prevents the barrier being used as a handrail.

Recommendation: Remove the mesh and replace with wooden rails.



Photo 7: African clubmoss

Comment: This weed is found in small patches beside the track.

Recommendation: Control invasive weeds or they will be tracked further into the forest.



Photo 8: Tradescantia beside the trail

Comment: It's a pity to see so much tradescantia right on the edge of the track.

Recommendation: Schedule regular weed control.



Photo 9: Southern picnic area

Comment: Popular for people to pass through, but few people appear to have picnics here.

Recommendation: Perhaps another table is needed?



Photo 10: Project Kaiwharawhara interpretation panel

Comment: An interesting story that develops a sense of place for this valley. More could be added to it, and interpretation panels could be installed at other relevant points along the valley, for example, the history of Ian Galloway Park and the source of Kaiwharawhara Stream (Zealandia).

Recommendation: Update and reprint the existing interpretation panel and consider creating more panels to build up the sense of place for the upper stream section of the track.



Photo 11: Pinch point at sewer pipe cover

Comment: The track needs building up to be flush with the sewer pipe cover. (Note: there are six such sewer pipe covers that are trip hazards and need addressing – all in the upper reaches of the track south of the southern picnic area.)

Recommendation: Build up the track level and remove accumulated material. Retain on the outer edge of the track to stop it collapsing into the stream.



Photo 12: View of revegetated area of Kaiwharawhara Track and seat

Comment: The memorial seat in this dark area requires cleaning.

Recommendation: Clean seat.



Photo 13: Sewer pipe cover

Comment: The track needs building up to be flush with the sewer pipe cover to avoid a tripping hazard.

Recommendation: Build up track level.



Photo 14: Sewer pipe cover

Comment: The track needs building up to be flush with the cover and provide a walking space that will be safer and easier for wheelchairs and baby buggies to negotiate.

Recommendation: Build up the track level. Retain on the edge of the track to stop it collapsing into the stream.



Photo 15: Sewer pipe cover

Comment: The track needs building up to be flush with the cover.

Recommendation: Build up the track level.



Photo 16: 15-metre-long narrow bridge – 0.78 m with wire sides

Comment: This bridge is too narrow for wheelchairs and some baby buggies. Clothes can catch easily on the wire netting.

Recommendation: Modify the handrails to improve accessibility.



Photo 17: Narrow bridge – 0.78 metres with wire sides

Comment: Clothes and arms can catch easily on the ends of the wire netting. There is a record of people getting cut on these wires.

Recommendation: Modify the handrails to improve safety and accessibility.



Photo 18: Sewer pipe cover

Comment: The track needs building up to be flush with the cover.

Recommendation: Build up the track level.



Photo 19: 16-metre-long narrow bridge – 0.78 metres wide

Comment: This bridge is too narrow for wheelchairs and baby buggies.

Recommendation: Modify the handrails to improve accessibility.



Photo 20: Wayfinding bollard

Comment: Karori Sanctuary has been renamed Zealandia.

Recommendation: Update destinations on the signs. The signs also need cleaning.



Photo 21: Signpost at major intersection between the Kaiharawhara Track and the track to the cemetery

Comment: This is a clear and concise sign.

Recommendation: Add sign cleaning into the maintenance schedule.



Photo 22: Wayfinding bollard

Comment: Most users would think they are already in Otari Wilton's Bush, and Trelissick Park is very seldom a destination from this track.

It would be better to list the 'Troup Picnic Area' and 'Churchill Drive' on this bollard.

Recommendation: Change the bottom sign to have Troup Picnic Area and Churchill Drive as destinations.



Photo 23: Side track up to Wilton Road (Surrey Street bus stop)

Comment: None.

Recommendation: None.



Photo 24: Typical section of Kaiwharawhara Track

Comment: Popular because of generous width, easy gradient and sheltered aspect.

Recommendation: None.



Photo 25: Post with no signs

Comment: From this post, there are two tracks up to Ian Galloway Park. The track shown here is easier. However, the more obvious track continues straight ahead and up the old tip face.

Recommendation: Add signs on this post to direct people to Ian Galloway Park.

Also upgrade this track so that it clearly becomes the main route to Ian Galloway Park (the other track is too steep).



Photo 26: An old sign by Grant Preston-Thomas pointing up the track to Ian Galloway Park

Comment: A bygone era.

Recommendation: Remove this sign.



Photo 27: Two switchbacks in the first 20 metres

Comment: This section looks like a minor track, so people walk past it if they are going up valley.

Recommendation: Upgrade this short section of track to Short Walk standard.



Photo 28: Typical section climbing to Ian Galloway Park

Comment: The gradient is good, but the track could be widened to 1.5 metres.

Recommendation: Widen the track to fit with the rest of Kaiwharawhara Track.



Photo 29: Track fork where two options meet

Comment: The track to the left is steep (23 degrees) and slippery.

Recommendation: Stop maintaining the steep track and allow it to grow over.



Photo 30: Water runnel across the track

Comment: This water runnel will develop further over time.

Recommendation: Create a swale to direct water quickly over and away from the track and surface with compacted base-course.



Photo 31: Track across the old tip face

Comment: The 'face track' has developed over the years and is now in good condition.

Recommendation: Schedule regular maintenance.



Photo 32: Exit to Ian Galloway Park gym

Comment: Would be helpful to have a sign stating this is Ian Galloway Park with an arrow pointing left.

Recommendation: Install a place-marking sign.



Photo 33: Major entrance to Otari-Wilton's Bush at Ian Galloway Park carpark.

Comment: User numbers show this is a major entrance to the reserve. The actual boundary may be some distance away, but to the public, the reserve starts when they leave the carpark.

Recommendation: Install standard Otari-Wilton's Bush entrance signs and signs pointing to the Kaiwharawhara Track and Troup Picnic Area.



Photo 34: Wayfinding bollard at Ian Galloway Park entrance

Comment: More information would be helpful at this entrance to Otari-Wilton's Bush.

Recommendation: Replace with larger entrance signs.

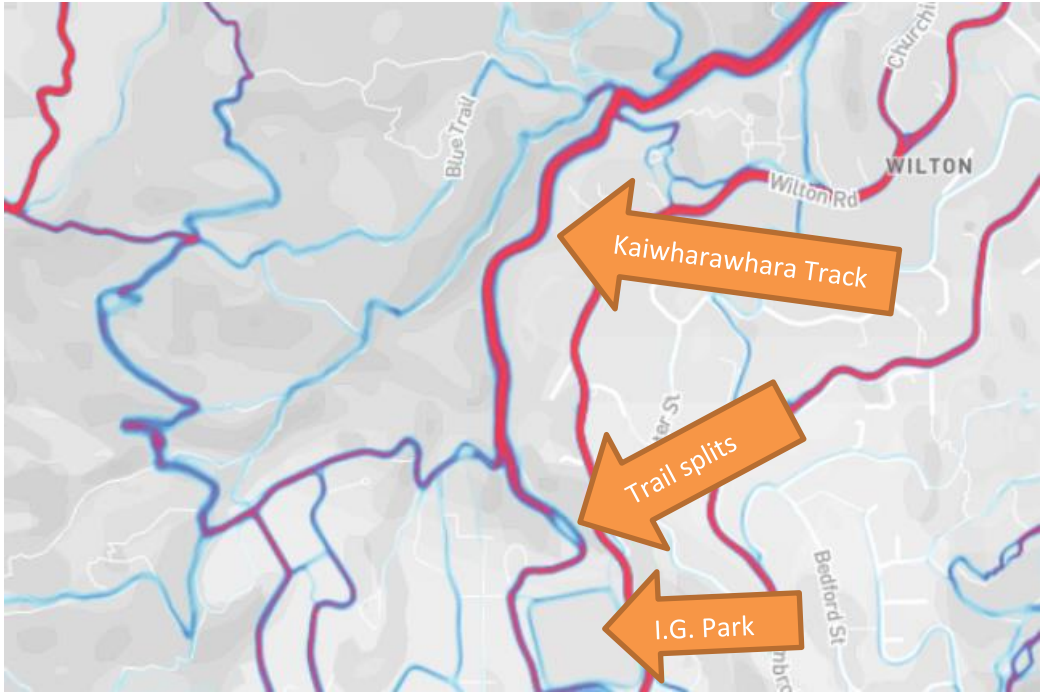


Image 1: The heatmap indicates user patterns at Otari-Wilton's Bush. The most popular track appears to be along the Kaiwharawhara valley, with far less use on side tracks.

You can see use splitting where the track up to Ian Galloway Park splits in two. This report recommends upgrading the eastern option.

Programme of works: Kaiwharawhara Track

CATEGORY	WORKS	COST ESTIMATES
1. DEFERRED MAINTENANCE AND URGENT REPAIRS	1. Build up level of track at all utility covers 2. Tuck bridge wire netting under the top rail	\$1,500 \$300
2. RENEWALS AND FUNDED UPGRADES	1. Upgrade final 200 metres to Ian Galloway Park 2. Install OWB entrance signs at Ian Galloway Park 3. Widen narrow bridges	\$5,000 \$1,500 \$3,000
3. FUTURE CONCEPT	Extend trail name to northern car park	\$500

KAIWHARAWHARA TRACK REVIEW ENDS

Track Audit 3: Blue Trail



WCC classification	Offers inconsistent level of service, ranging from Short Walk standard on the lower section to Tramping Track standard for the rest.
Length	2,130 metres
Average width	0.5–1 metre. Rooty sections are being walked around and vegetation trampled, creating a 2- to 2.5-metre-wide track in places.
Gradient (degrees)	From valley to 800-year-old rimu and around the top = 20, 23, 30, 21, 25, 16, 21, 18, 21. Along the bottom section = 5, 6, 8, 5, 5, 6, 5, 5, 6, 10, 8
Surface	Mostly a dirt track, except for recently gravelled sections to the rimu. Rocky and rooty south of the rimu.
Wayfinding signs	At every intersection, but the first intersection from the valley only has arrows (no track names).
Mapboards	None beyond the Troup Picnic Area.
Interpretation signs	None. A rimu and kahikatea are labelled but more information about these significant trees could be enlightening, and there are other impressive trees that could be acknowledged as well.

Structures	<ul style="list-style-type: none"> • Many flights of steep steps = 64, 30, 12, 10, 6, 20, 6, 40, 8, 9, 20, 8. Steps are average 200mm high but up to 350mm high due to soil compaction/erosion. • Boardwalks – 4.5m, 6m, 3m long • Bridges – 5.5 metres long • Viewing platform at 800-year-old rimu
Threats (weeds, erosion, etc)	Erosion on poorly maintained track with steep gradients. People walk around steps and roots, and the track is becoming 2–2.5 metres wide in places where vegetation has been trampled.
User number estimates	Moderate to the 800-year-old rimu, and low use for the rest of the trail.
Public safety record	Steep and slippery sections at the southern end of the trail. Narrow section with steep drop to the side on the bottom section.
Network significance	Moderate
Strategic alignment with Open Spaces Plan	Moderate
Potential/Notes	
<p>The main attraction on the Blue Trail is the 800-year-old rimu, although other trees are also significant. Many visitors only go as far as the rimu. They could be encouraged to go further if the track were upgraded; a mapboard were installed at the rimu and other main intersections (with a 'You Are Here' location pointer); and other significant trees were highlighted – both on the mapboards and at their physical location.</p> <p>However, the Blue Trail comprises four quite different sections ranging from Short Walk standard to rough and eroding Tramping Track standard.</p> <ol style="list-style-type: none"> 1. Troup Picnic Area up to the rimu is in good condition but has many steps and slopes up to 20 degrees. 2. From the rimu along the top of the Blue Trail, the surface is suffering significant erosion as people walk to the sides of the rough and rooty main track. It has become a 2- to 3-metre-wide mess in places. This section could be upgraded by reshaping the surface, placing aggregate over roots and filling ruts. Or it could be rerouted to follow a more sustainable alignment, which might include parts of the 1958 upper Blue Trail. 3. The southern end, from the top track fork down to the track that branches off to the Karori Cemetery is very steep with rocks and roots. It could be completely rerouted to remove steps and make the track safer and easier to walk. 4. The lower section comprises more than 90% at Short Walk standard, with easier gradients and far fewer steps. It would not take much effort to be upgraded to be 100% Short Walk standard. 	

Photos



Photo 1: Signs at start of the Blue Trail (Troup Picnic Area) and bridge

Comment: The mix of blue, green and yellow arrows is confusing.

Recommendation: Consider reconfiguring the trail network and signage.



Photo 2: Blue Trail bridge, 4.7m by 1.5m over Kaiwharawhara Stream

Comment: Beams are corroded. Needs replacement by 2024 (raised in 2019 Frame Group report).

Recommendation: Proceed to preliminary design and programme bridge replacement.



Photo 3: Blue Trail steps, just above Troup Picnic Area.

Comment: There are 64 steps at 20 degrees gradient from the picnic area to the first intersection. This limits accessibility. Also, the bottom several steps are rotting.

Recommendation: Stage 1: Replace rotting steps.

Stage 2: Consider realigning this section to utilise the lower Yellow Trail, which has no steps.



Photo 4: Signs on the Blue Trail

Comment: Confusing to have so many arrows and different colours.

Recommendation: Reconfigure trail network and simplify signs.



Photo 5: Steep steps

Comment: Several section of the upper Blue Trail have big steps.

Recommendation: Install smaller steps (maximum 150mm risers and 420mm treads to be consistent with other new steps).



Photo 6: Arrows on bollard and tree, but no track names

Comment: Lack of labels leaves some visitors confused.

Recommendation: Install a sign 'Blue Trail Loop 2km' and 'to Yellow Trail 100m'. Also cover exposed roots.



Photo 7: Roots and steps

Comment: Several sections of the Blue Trail have roots and steps like this. Track erosion is happening as users walk to the sides.

Recommendation: Install steps (140mm risers, 420mm treads to be consistent with other new steps).



Photo 8: Barrier to block off historic track leading up to Kohekohe and Skyline Tracks

Comment: See later review on this historic track up 'Rimu Spur' to assess its potential.

Recommendation: Consider reopening the historic track as it is perhaps the best link to the Skyline.



Photo 9: Barrier beside 800-year-old rimu

Comment: Rails are on the wrong side of the posts.

Recommendation: Move rails over to the other side of the posts and stain the whole structure 'forest green' so that it blends in with the forest environment.



Photo 10: Rimu lookout

Comment: Beautifully designed.

Recommendation: Research and install interpretation panels to add to the experience.



Photo 11: Branding facing visitors

Comment: This branding has no place here.

Recommendation: Sand off the brand.



Photo 12: Blue Trail arrows at bottom of Poppelwell Path (see Minor Tracks for review)

Comment: Poppelwell Path is not officially open, but people are obviously using it.

Recommendation: Consider reopening this path if it has network value. Otherwise, remove the hand painted triangle at the top of the bollard.



Photo 13: Roots

Comment: Several section of the upper Blue Trail have roots like this. They are very slippery when wet.

Recommendation: Install steps (140mm risers, 420mm treads to be consistent with other new steps). Or reroute this section.



Photo 14: Kahikatea roots

Comment: Trip hazard.

Recommendation: Cover these roots.



Photo 15: Kahikatea sign

Comment: How old is this tree (cf the 800-year-old rimu)?

Recommendation: This tree could also be marked on maps.



Photo 16: Kahikatea

Comment: How tall is this tree?

Recommendation: Add age and height and other information to an interpretation sign at this tree.



Photo 17: Roots

Comment: Several steep sections of the upper Blue Trail have roots exposed by erosion. People are walking around the bigger roots to find an easier/safer route.

Recommendation: Install steps (140mm risers, 420mm treads to be consistent with other new steps) or realign on gentler terrain, which would be easier to maintain.



Photo 18: Roots

Comment: The track has become an eyesore as vegetation is trampled by people avoiding the roots. Much of it is over 2 metres wide.

Recommendation: Install steps (140mm risers, 420mm treads to be consistent with other new steps).



Photo 19: Another amazing tree

Comment: What is it (hinau I think), how old is it and what is special about it?

Recommendation: Install information sign to enrich user experience.



Photo 20: A flatter section of the Blue Trail

Comment: Although people mostly remember the steep and rough sections of the Blue Trail, there are sections that are quite gentle – like this.

Recommendation: Upgrade the tough sections of the Blue Trail to improve the overall experience of this track and reduce erosion.



Photo 21: Submerged 1.5m long boardwalk

Comment: Was raised in the 2019 Frame Group audit as needing replacement.

Recommendation: Construct a 3-metre-long boardwalk over the bog (est cost \$3000).

Alternatively, consider realigning the trail around this flat ground, climbing at 10 degrees to avoid the next steep and eroded section (see below).



Photo 22: Steep (22 degrees) and difficult to walk. See comments below



Photo 23: Rooty sections

Comment: Multiple roots and steepness are challenging and hazardous.

Recommendation: Reroute and install steps (140 risers, 420 depth) if needed.



Photo 24: New boardwalk

Comment: 800mm by 6 metres. Fall of 850mm to downstream side.

Recommendation: None.



Photo 25: Steep rooty climb from boardwalk

Comment: This is 25 degrees.

Recommendation: Reroute and/or upgrade with steps.



Photo 26: Lots of slippery roots

Comment: People will continue avoiding the slippery sections, widening the track more and more.

Recommendation: Install steps (140mm risers, 420mm treads to be consistent with other new steps), or realign the track.



Photo 27: Roots

Comment: Several section of the upper Blue Trail have roots like this.

Recommendation: Install more steps (200mm risers, 400mm treads to be consistent with other new steps). Alternatively, consider rerouting the worst sections of the upper Blue Trail.



Photo 28: Bollard with seven signs

Comment: Confusing.

Recommendation: Simplify by replacing with two bollards, or an additional wooden routed sign.



Photo 29: Blue arrow pointing up to Skyline

Comment: It is confusing to have a blue arrow pointing away from Blue Trail.

Recommendation: Replace blue arrow with black arrow.



Photo 30: Narrow vegetation for 30 metres

Comment: This is a pleasant section, but after rain, the drooping vegetation makes the track too narrow for easy use.

Recommendation: Schedule more regular maintenance.



Photo 31: Old seat

Comment: Top board has done its time.

Recommendation: Replace top plank.



Photo 32: Lovely section of track

Comment: This is the kind of track that all users appreciate. Easy gradient, 1 metre wide and lined with ferns and seedlings.

Recommendation: Look to upgrade other sections of track to match this level of service and better realise the potential of the Blue Trail.



Photo 33: Kohuhu (*Pit. tenuifolium*) branch in track corridor

Comment: Hazard.

Recommendation: Remove the branch.



Photo 34: Root

Comment: Trip hazard.

Recommendation: Cut out the small roots and cover the larger ones.



Photo 35: Steep section

Comment: Gradients leading up to first set of steps are 20 degrees for 20 metres, then 23 degrees for 10 metres.

Recommendation: Install steps (140mm risers, 420mm treads to be consistent with other new steps), or realign this steep section to provide a more enjoyable experience.



Photo 36: Steep steps (44 at 26 degrees).

Comment: This section is treacherous when wet and never much fun.

Recommendation: Consider realigning to avoid steep steps. There is moderate terrain available.



Photo 37: More steps (29 at 15-22 degrees)

Comment: Reasonable terrain available for realignment through low kohekohe and mahoe forest.

Recommendation: Install steps (200mm risers, 400mm treads to be consistent with other new steps).



Photo 38: Finally, a flight of 42 steps at 21-23 degrees

Comment: From here, the lower Blue Trail section leads back to the Troup Picnic Area and is much easier.

Recommendation: Refurbish signs (see below).



Photo 39: Signs at bottom of steep section

Comment: From here, the lower Blue Trail section leads back to the Troup Picnic Area and is much easier.

Recommendation: Refurbish signs.



Photo 40: Gentle terrain

Comment: Most of the lower section of the Blue Trail is like this.

Recommendation: Upgrade the lower Blue Trail to meet the Short Walk standard.



Photo 41: Bridge

Comment: 1m by 5m with handrail.

Recommendation: None.



Photo 42: Narrow section of track.

Comment: The trail has gradually narrowed.

Recommendation: Reshape this short section back to 1 metre wide by cutting into the upper benchside.



Photo 43: 8 steps

Comment: Bottom step is too big.

Recommendation: Add another step or reroute altogether.

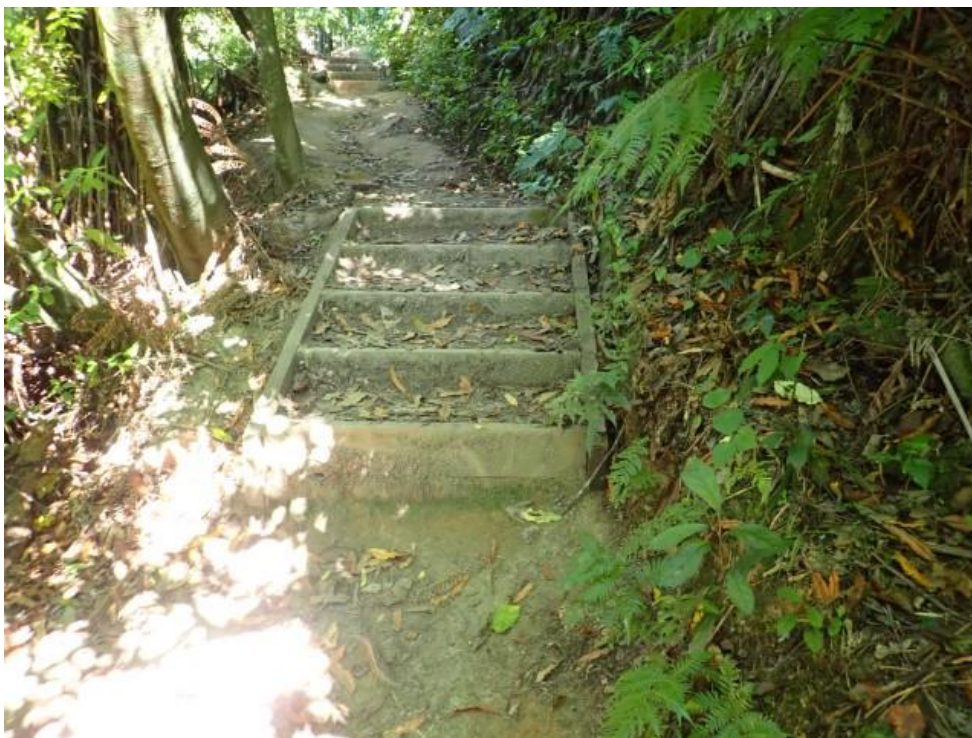


Photo 44: 9 steps

Comment: As is often the case, due to soil compaction/erosion, the bottom step riser has become too big.

Recommendation: Add another two steps.



Photo 45: Mahoe creating a pinch point

Comment: This short section is narrow with a drop off to the side.

Recommendation: Install an 8-metre long low retaining wall to widen the track to 1 metre.



Photo 46: Mahoe roots

Comment: Trip hazard.

Recommendation: Either dig out the roots and/or install a nib wall and cover them.



Photo 47: 3m by 1m boardwalk and 20 steps

Comment: Steep section in and out of this side stream.

Recommendation: Clear vegetation so that the edge of the boardwalk is obvious or consider replacing (see below).



Photo 48: 3m by 1m boardwalk and 20 steps

Comment: Steep section in and out of this side stream.

Recommendation: Consider replacing with an 11-metre-long glue-lam bridge to meet easier track standard.



Photo 49: 6 old steps

Comment: Terrain is not steep here so could easily reroute and remove steps.

Recommendation: Mark out alternative track alignment and assess the cost-benefit.



Photo 50: Blue arrows with unofficial painted arrow on top of bollard

Comment: Not sure where the painting arrow is pointing. It's confusing.

Recommendation: Remove unofficial marking.



Photo 51: Sign at the start/end of the Blue Trail loop

Comment: Confusing to have a green arrow on the Blue Trail.

Recommendation: Maintain the sign and change the green arrow.



Photo 52: Sign at the start/end of the Blue Trail loop

Comment: From here, there is a steep walk down to the Troup Picnic Area.

Recommendation: Consider rerouting this section around the lower Yellow Trail.



Photo 53: Some of the 60-plus steps back to the Troup Picnic Area
Comment: Just too hard for many users to attempt, or want to repeat.
Recommendation: Reroute this section via the Lower Yellow Trail.

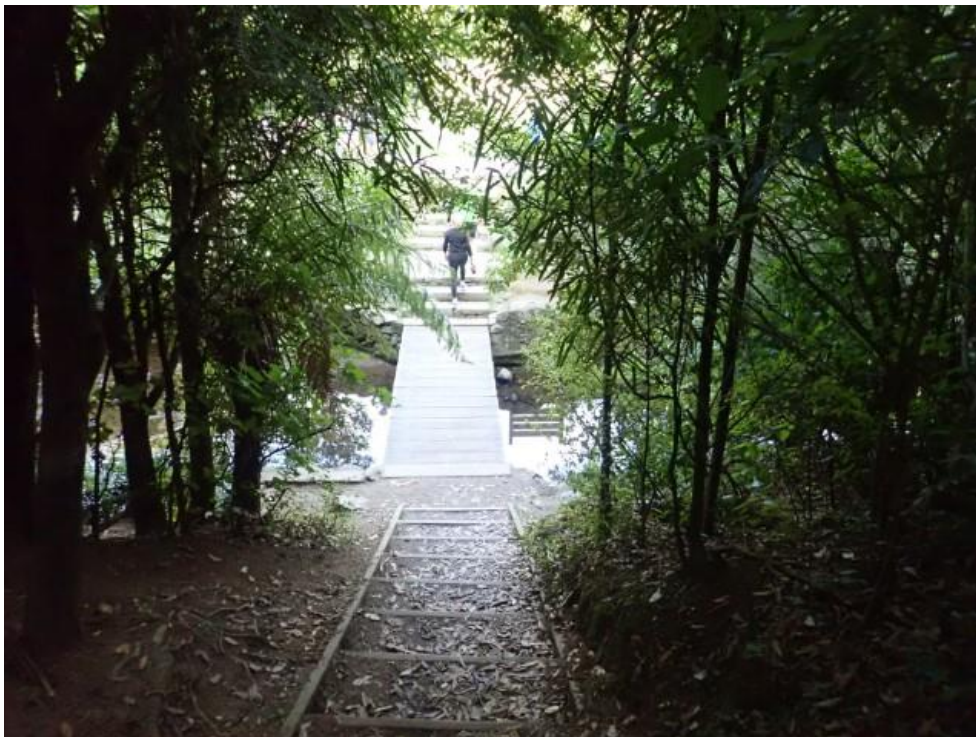


Photo 54: End/start of the Blue Trail (and Yellow Trail)
Comment: Too steep for many users.
Recommendation: Consider rerouting this section and replacing the bridge (See Yellow Trail review for bridge replacement discussion).

Programme of works: Blue Trail

CATEGORY	WORKS	COST ESTIMATES
1. DEFERRED MAINTENANCE AND URGENT REPAIRS	<ol style="list-style-type: none"> 1. Refurbish 4 wooden signs 2. Replace rotten steps 3. Cut back vegetation and branch at far end 4. Remove graffiti markings on signs 	\$400
2. RENEWALS AND FUNDED UPGRADES	<ol style="list-style-type: none"> 1. Replace 4.7m bridge at Troup Picnic Area 2. Move rails at Rimu and sand off branding 3. Install new steps on steep rooty sections (if not realigning steep trail). 4. Reshape sections of trail. 4. Rebuild and extend sunken boardwalk (if not realigning). 5. Low retaining wall around large mahoe root 	\$9,000
3. FUTURE CONCEPT	<ol style="list-style-type: none"> 1. Realign degraded sections of upper trail 2. Realign to use lower Yellow Loop 3. New bridge on lower Blue Trail 	

BLUE TRAIL REVIEW ENDS

Track Audit 4: Yellow Trail

Three distinct sections: 1. lower loop, 2. upper loop and 3. link track to Flax Clearing.



WCC classification	<ul style="list-style-type: none"> • Lower loop = Walking Track • Upper loop and connecting track to Flax Clearing = Tramping Track.
Length	788 metres (not counting overlap with the Blue Trail)
Average width	0.3–1 metre
Gradient (degrees)	Lower loop all under 15 degrees, upper loop: 20, 18, 20, 20, 30, connecting track to Flax Clearing: 42 degrees (steps).
Surface	Dirt, leaves, roots.
Wayfinding signs	At every intersection, but the intersection between the Blue Trail and the Yellow Trail only uses arrows (no track names). This causes confusion. Arrows are useful for confirmation but can be difficult to understand when not accompanied by names at track intersections
Mapboards	None.
Interpretation signs	None.
Structures	<ul style="list-style-type: none"> • Lower loop, no steps • Upper loop, flights of 10, 3, 2, 10, 12 steps • Connecting track to Flax Clearing, 38, 10 steps.

Threats (weeds, erosion, etc)	Erosion on steeper sections with roots and rocks coming to the surface. African clubmoss near Flax Clearing.
User number estimates	<ul style="list-style-type: none"> • Lower loop = moderate • Upper loop = low • Connecting track to Flax Clearing = low.
Public safety record	None available, but the steep steps are a hazard when wet.
Network significance	Important connection between the Red Trail and the Blue Trail, although it does not perform this function well as it is a Tramping Track standard. Overall of low network significance.
Strategic alignment with Open Spaces Plan	Low
Potential/Notes	
<p>The Yellow Trail is not a cohesive whole. It comprises three sections:</p> <ol style="list-style-type: none"> 1. The lower loop 2. The upper loop 3. The connecting track to the Flax Clearing. <p>The lower loop is relatively easy and could be upgraded to provide access to the lower part of the Blue Trail. Both the lower loop of the Yellow Trail and the lower part of the Blue Trail could be upgraded to have no steps.</p> <p>The upper loop of the Yellow Trail is a separate experience – an isolated and remote gorge experience. It is unhelpful to name these different experiences as the same trail.</p>	

Photos

Yellow-Blue Trail overlap



Photo 1: Sign at start/end of the Yellow and Blue Trails

Comment: Having the same trail given two names is confusing.

Recommendation: Rebrand the overlapping section under one or other of the trails and have the alternative trail branch off the first trail.



Photo 2: Yellow Trail sign

Comment: It is not clear if it takes 40 mins to do the upper loop or the lower loop. The text could be bigger on these plastic signs.

Recommendation: Rename the three different sections of the Yellow Trail.



Photo 3: Steps on the Blue/Yellow Trail

Comment: The 64 steps up to the first track fork limit accessibility.

Recommendation: Use the lower loop of the Yellow Trail to provide a 'step-free' connection.



Photo 4: Sign where the lower Yellow Trail branches off the Blue Trail

Comment: Signs need refurbishing by sanding/planing down front surface.

Recommendation: Refurbish signs.



Photo 5: Sign with advisory time for lower Yellow Trail loop

Comment: Was this sign meant to be on the upper loop? The lower loop is only 400 metres long. In comparison, the next advisory sign says 'Karori Cemetery 30 min', and the cemetery is over 1 km away with lots of steps.

Recommendation: Change time to 'Yellow Trail lower loop 10 min'.



Photo 6: Signpost where the upper and lower loops split

Comment: This is confusing, partly because of the blue/yellow overlap but also because there are no words clarifying the difference between the upper and lower loops.

Recommendation: Use signs with words.

Yellow Trail lower loop



Photo 7: Sign at the start of the Yellow Trail

Comment: This set of signs is mouldy and graffitied. The graffiti is clearly trying to warn users of the difficulty ahead, but this fact has already been made clear at the lower sign.

Recommendation: Refurbish the signs.



Photo 8: Bollard

Comment: Yellow arrow has mould on it.

Recommendation: Clean all arrows once a year.



Photo 9: Pinch point between two large trees

Comment: Gap is 66cm at chest height.

Recommendation: Raising the track would improve this pinch point. Longer term, a bridge could be built directly from the Troup Picnic Area to the Yellow Trail above this point.



Photo 10: Track only 0.6 metres wide

Comment: Over the years, material has fallen onto the track from above. The flat part of the track is now only 0.6 metres in places. The original bench was 1.0–1.5 metres wide.

Recommendation: Remove built-up material to reinstate full track width.



Photo 11: The Yellow Trail lower loop

Comment: There are no steps on the lower loop. It is considerably easier than the upper loop.

Recommendation: Upgrade this track, and clearly communicate that the upper and lower loops offer different levels of difficulty.



Photo 12: Kaiwharawhara Stream

Comment: Could build a bridge here to provide a more direct connection from the Troup Picnic Area to the lower Yellow Trail.

Recommendation: Commission preliminary design for a 15-metre glue-laminate bridge.



Photo 13: Kaiwharawhara Stream from the Troup Picnic Area.

Comment: Could build a 15-metre-long bridge here to provide direct access from the Troup Picnic Area to the easy, flat section of the Yellow Trail.

Recommendation: Commission preliminary design for a bridge.



Photo 14: Wider view of Kaiwharawhara Stream from the Troup Picnic Area

Comment: A bridge here would make the Yellow Trail more visible and reinforce the Troup Picnic Area as a major trail hub from where five trails branch out.

Recommendation: Commission preliminary design for a 15-metre-long bridge.



Photo 15: Retaining wall – 2 metres long and 1.5 metres high

Comment: Looks in good condition.

Recommendation: Schedule an inspection of all retaining walls.



Photo 16: Narrow section of track with steep drop to side

Comment: If the track were upgraded, then the higher level of use would require additional track width to allow for passing beside this steep bank.

Recommendation: Reinstate original full bench width.

Consider a nib wall and handrail for three sections where the fall beside the track is steep (6m, 14m and 5m lengths respectively).



Photo 17: Minor retaining board – 3 metres long

Comment: Looks in reasonable condition.

Recommendation: Schedule an inspection of all retaining walls.



Photo 18: Nib wall

Comment: Looks in reasonable condition.

Recommendation: Schedule an inspection of all retaining walls.



Photo 19: Junction of lower and upper Yellow Trail loops

Comment: This is confusing, especially as both loops join the Blue Trail at different places.

Recommendation: Consider reconfiguring the track network.



Photo 20: Junction sign

Comment: This old sign is hard to read.

Recommendation: Maintenance is required. Clean and sand/plane the front face of the sign.



Photo 21: Narrow point just before ford

Comment: If the Yellow Trail is upgraded to provide easier access to the lower Blue Trail, then this would be a logical bridge site.

Recommendation: Commission preliminary design for a bridge at this site.



Photo 22: Ford across Fergusson's Creek

Comment: There are steep gradients in and out of this creek.

Recommendation: Consider building a 10-metre-long bridge to remove the steep gradients and enhance the user experience.



Photo 23: Measuring tape across potential bridge site

Comment: A 10-metre bridge here would remove the ford section, which is steep both in and out.

Recommendation Consider preliminary design for a bridge at this site.



Photo 24: Narrow section of trail after ford – steep drop to the stream

Comment: It is difficult to pass people on this narrow section (10 metres long).

Recommendation: Consider a nib wall and handrail.



Photo 25: The lower Yellow Trail meets the Blue Trail

Comment: The many steps up from the Troup Picnic Area would be bypassed by the lower Yellow Trail.

Recommendation: None.

Yellow Trail upper loop



Photo 26: Junction sign

Comment: Old sign is hard to read.

Recommendation: Maintenance required.

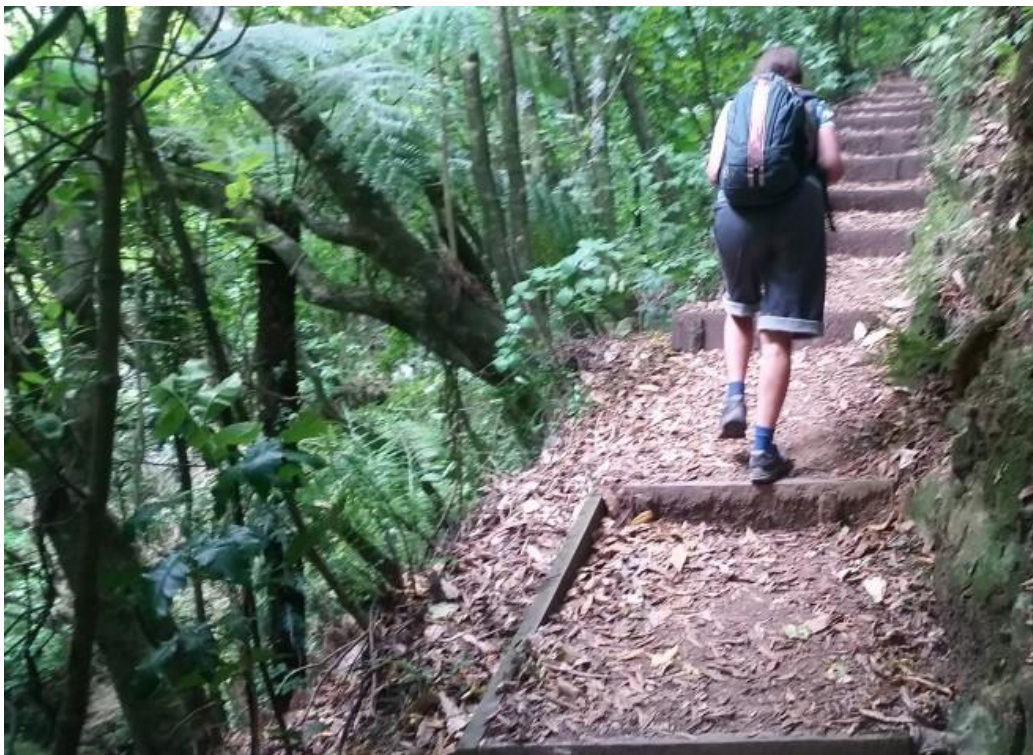


Photo 27: Steep flight of steps

Comment: There are 48 steps, with some up to 360mm high, from the lower loop fork to the Flax Clearing fork. These steps are unavoidable in this steep terrain.

Recommendation: None.



Photo 28: 18 of the 48 steps. Some are now up to 400mm high because the soil at the bottom of the boards has compacted/eroded.



Photo 29: Sign where the track to the Flax Clearing branches off

Comment: This sign needs refurbishing, and reconsidering – what does the green colour relate to?

Recommendation: Refurbish signs.



Photo 30: Vegetation encroaching on the Yellow Trail

Comment: Hard to see where to put your feet.

Recommendation: More regular vegetation maintenance required.



Photo 31: The Yellow Trail

Comment: The trail consists of easy sections like this, interrupted by difficult sections as shown below. The usable tread averages 500mm wide, with some roots.

Recommendation: None.



Photo 32: Roots on a slope up to 20 degrees

Comment: Slippery when wet.

Recommendation: Remove smaller roots and reshape the trail tread.



Photo 33: Large root hazard across track

Comment: Slippery when wet.

Recommendation: Cover with aggregate or build steps over it.



Photo 34: Retaining wall

Comment: Waratahs used.

Recommendation: Programme for replacing within 10 years.



Photo 35: 18 degree downhill followed by 10 steps

Comment: These steps have deteriorated. They need renewing. Also, the bottom step is too large.

Recommendation: Fill behind steps with aggregate and install one more step at the bottom.



Photo 36: Confirmation arrows in Bledisloe Gorge

Comment: Dirty signs.

Recommendation: Clean.



Photo 37: 3 steps and bridge (6 metres by 0.9 metres, with 20 years remaining life)

Comment: Wonderful forest, but the trail feels like it was abandoned 20 years ago.

Recommendation: Consider reinstating the name 'Bledisloe Gorge' as the name of the track to give users a greater sense of place.



Photo 38: Bridge and step

Comment: Two generations of trail markers.

Recommendation: Extend handrail to cover drop to the side of the steps. Remove the old yellow disc and clean the arrow. Also, move the arrow to inside the bridge (where it would be easier to see and would lead users onto the bridge rather than to the outside of the bridge).



Photo 39: Steep and rocky

Comment: This section is 20 degrees steep.

Recommendation: Install steps.



Photo 40: 0.3-metre narrow section with encroaching vegetation

Comment: Difficult to see where this narrow track is, especially when wet and leaves droop over the track more.

Recommendation: Schedule more regular maintenance.



Photo 41: 7-metre-long retaining wall, up to 0.8 metres high; five waratahs
Comment: The waratahs look in OK condition but should be replaced within 10 years.
Recommendation: Schedule replacement of waratahs.



Photo 42: Rotting stump
Comment: This old mahoe stump encroaches on the track corridor, pushing users towards the outside edge.
Recommendation: Cut flush to the track bank.



Photo 43: Old tree trunk hidden behind vegetation
Comment: This old trunk encroaches on the track corridor.
Recommendation: Cut back by 500mm.



Photo 44: A lovely section of trail
Comment: As mentioned before, there are sections along this trail that provide an excellent experience for all users.
Recommendation: Upgrade the trail to offer a consistently more enjoyable experience for users.



Photo 45: 10 steps

Comment: Currently in good condition.

Recommendation: Replace with box steps when soil compaction makes these steps too big.



Photo 46: 12 steps

Comment: We assume this was a reroute up and over a slip.

Recommendation: Investigate the potential to reroute around this hump, but the options seem unlikely given it appears to be an old slip face.



Photo 47: Arrows where the upper Yellow Trail meets the Blue Trail

Comment: This is a major intersection.

Recommendation: Install routed signs that point to, and name, the Blue Trail (up and down) and the Yellow Trail branching off.



Photo 48: Same site as photo above

Comment: This is a major intersection.

Recommendation: Install routed signs that point to, and name, the Blue Trail (up and down) and the Yellow trail branching off.

The Flax Clearing to the Yellow Trail upper loop



Photo 49: One of four signpost bollards at the Flax Clearing

Comment: Some signs are fading – possibly simply a bad batch of signs.

Recommendation: Replace faded signs.



Photo 50: Yellow Trail marker in distance

Comment: Need to ensure vegetation doesn't block sight line to the trail marker.

Recommendation: Regular inspections and maintenance.



Photo 51: Sign bollard on the edge of the Flax Clearing

Comment: This is either the start of the Yellow Trail or a connector to the Yellow Trail. More than just a yellow arrow is required here to clarify what the user is entering.

Recommendation: Replace with a sign that says 'to the Yellow Trail'.



Photo 52: The Yellow Trail

Comment: This top section of track is very easy and pleasant.

Recommendation: None.



Photo 53: Yellow disc

Comment: This is an older generation sign.

Recommendation: Consider removing or replacing with the more contemporary yellow arrows.



Photo 54: First set of steps.

Comment: Trail could sidle across the hill to avoid steps.

Recommendation: Reroute this section.



Photo 55: Set of 33 steps

Comment: Could avoid by following the contour.

Recommendation: Consider rerouting this section of track or retiring it.



Photo 56: Slippery rocks

Comment: This would be treacherous when wet as the smooth rocks are on a slope.

Recommendation: Remove the rocks and cut back encroaching vegetation.



Photo 57: 11 steps where the Yellow Trail link meets the upper loop

Comment: These steps are 40 degrees steep and up to 300mm deep.

Also, it is confusing to have this link signposted as the Yellow Trail.

Recommendation: Upgrade the steps and install a handrail for safety. Or completely reroute this section.

Also consider renaming this trail as a 'Link to the Flax Clearing' to reflect its function.

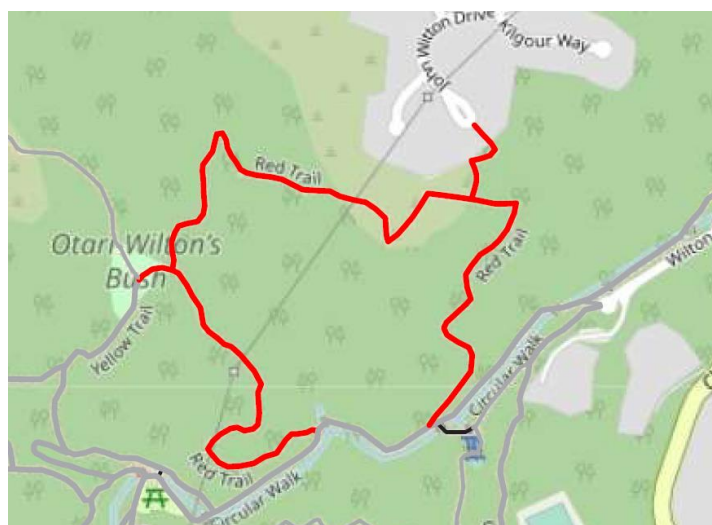
Programme of works: Yellow Trail

CATEGORY	WORKS	COST ESTIMATES
1. DEFERRED MAINTENANCE AND URGENT REPAIRS	Refurbish wooden routed signs (5)	\$500
	Update plastic arrow signs (6)	\$300
	Clean mouldy plastic signs and move the bridge ones.	\$200
	Control African clubmoss at Flax Clearing, 3 yrs	\$300
	Cut back mahoe stump and other vegetation	\$300
2. RENEWALS AND FUNDED UPGRADES	Reshape the bench for 390 metres	\$4,000
	Replace 4m retaining wall	\$2,000
	Replace 7m retaining wall	\$3,500
	Upgrade steps where they are too large (20)	\$2,000
	Install steps on steep section (10)	\$1,000
	Extend bridge handrail.	\$500
	Install routed sign at Yellow/Blue intersection.	\$600
3. FUTURE CONCEPT	10m bridge at current ford	\$30,000

15m bridge from Troup Picnic Area	\$45,000
Nib walls, 6m, 14m and 5m on lower Yellow	\$2,500
Add place names to streams, gorges, etc.	\$500
Reroute 100m of steep sections if not being retired.	\$7,000
Install 10m handrail on steep link track steps if not being retired.	\$1,000
Retire upper Yellow Trail and replace with new trail from Flax Clearing to Blue Trail (775 m)	\$42,000

YELLOW TRAIL REVIEW ENDS

Track Audit 5: Red Trail



WCC classification	Walking Track (valley to the Flax Clearing) and Tramping Track (the rest of the Red Trail)
Length	1,226 metres
Average width	0.3–1.5 metres
Gradient (degrees)	<ul style="list-style-type: none"> From valley to the Flax Clearing = 5–12 degrees For the rest = 5, 10, 8, 22, 20, 24, 12, 14, 5, 18, 21, 9, 12.
Surface	Gravel up to the Flax Clearing. The rest of the Red Trail is dirt, roots, rocks and steps. One stream ford.
Wayfinding signs	At every intersection.
Mapboards	None.
Interpretation signs	None.
Structures	<ul style="list-style-type: none"> 190 steps 2 boardwalks (4m and 1.5m).
Threats (weeds, erosion, etc)	Erosion on steep sections of track.
User number estimates	Low.
Public safety record	No reported incidents.
Network significance	Important commuter link from John Witton Dr to Wilton. And important connection to the Flax Clearing and Skyline.
Strategic alignment with Open Spaces Plan	High due to connection to Skyline Track.
Potential/Notes	<ul style="list-style-type: none"> There are no recommendations for the 'southern' section from the valley directly to the Flax Clearing. It is a good design and is in good condition. The top section could be used as part of a longer intermediate, loop track from the Red Trail to the Blue Trail that sidles around the hillside rather than climbing up and down.

Photos



Photo 1: Sign post beside valley track at the northern end of the Red Trail

Comment: This sign should give an indication of difficulty. Green arrows should not be used on the Red Trail.

Recommendation: Refurbish signs and indicate difficulty (ie, 'Steep track with many steps').



Photo 2: First of 190 steps

Comment: The sign at the bottom should warn of the difficulty of this track. It is considerably harder than the valley track or the Red Trail to the Flax Clearing.

Recommendation: Clearly communicate the difficulty of the trails to the public.



Photo 3: A long steep fall beside this section of trail

Comment: Vegetation on the uphill side pushes users closer to the dangerous edge.

Recommendation: Schedule regular maintenance.



Photo 4: Section with 36 large steps.

Comment: Wooden risers are 200mm, but compaction/erosion has created steps from 300–450mm high.

Recommendation: Replace with box steps (140mm risers) and ensure the bottom step always anticipates soil compaction/erosion (ie, make it have a riser of 50mm).



Photo 5: Confirmation arrow at bend in track
Comment: Old track goes up behind this post.
Recommendation: None.



Photo 6: Painted arrow on top of bollard
Comment: This points to an old retired track. Also, there is a missing red arrow.
Recommendation: Refurbish bollards.



Photo 7: Barrier blocking off old trail

Comment: Begs the question why was this trail closed?

Recommendation: Consider reopening this closed trail.



Photo 8: Roots and worn trail

Comment: Trail has not been maintained to retain its full formation.

Recommendation: Reshape trail to full width.



Photo 9: Second section of steps

Comment: There are 33 steps, and some risers are now over 400mm high.

Recommendation: Replace with 150mm riser box steps.



Photo 10: 420mm riser (200mm wood and then soil compaction over 15 years)

Comment: The soil compacts in front of the steps, and the riser grows from year to year. These steps are possibly 15 years old.

Recommendation: Replace with 150mm riser box steps.



Photo 11: Corner with steps

Comment: This section has stood the test of time well, and the steps have not grown in size.

Recommendation: None.



Photo 12: Narrow section of trail

Comment: A lack of trail maintenance has let the trail width narrow over the years to less than 500mm wide.

Recommendation: Reinstate the full bench width.



Photo 13: Small roots

Comment: Slippery and uneven.

Recommendation: Reshape the trail surface.



Photo 14: Desire line to the right, where walkers are

Comment: The best alignment for the track is the desire line as it avoids steps going down, then up again.

Recommendation: Properly form the desire line into a 1-metre-wide track.



Photo 15: A pleasant section of track

Comment: The terrain from here up is gentle, and the trail could be realigned to remove all steps.

Recommendation: Realign steep sections to remove steps.



Photo 16: 10 steps up to signpost

Comment: Could eliminate the need for these steps by sidling.

Recommendation: Realign to remove steps.



Photo 17: Sign 40 metres in from John Witton Dr

Comment: Needs a spruce up.

Recommendation: Sand/plane the surfaces and clean plastic arrows.



Photo 18: Graffiti

Comment: Someone has been trying to help with wayfinding, possibly because 'Red Trail' and 'to Circular Walk' do not clarify where this trail goes.

Recommendation: Add label confirming users are entering Otari-Wilton's Bush at this point. Consider including a map board.



Photo 19: John Witton Dr entrance

Comment: A local's entrance. This sign could do with being refurbished.

Recommendation: Refurbish the sign by sanding/planing the front.



Photo 20: Following the closed trail behind the sign

Comment: This trail is still in good condition and looks like it's still being used.

Recommendation: Reopen this trail as it is enjoyable, flatter and is the shortest way to the Flax Clearing from here.



Photo 21: The old 'closed' trail

Comment: Clearly still being used and in good condition apart from vegetation growth.

Recommendation: Reopen.



Photo 22: Where the old trail meets the Red Trail

Comment: The old trail is easy to follow.

Recommendation: Reopen.



Photo 23: Red Trail sign at old track fork

Comment: Signs need refurbishing.

Recommendation: Sand/plane front of signs, and replace faded red arrows.



Photo 24: Graffiti on sign

Comment: This graffiti reflects how the local trail network (and users) have changed.

Recommendation: Consider this as an implicit submission for required signage in future sign plans.

Jumping back to second intersection before John Witton Dr



Photo 25: Track fork near John Witton Drive

Comment: These steps are not needed. A demand path has formed between the top of both flights.

Recommendation: Realign tracks to remove steps.



Photo 26: Old sign

Comment: Needs refurbishing or changing altogether. 'To Kaiwharawhara Valley' would be more helpful than 'to circular walk,' and these place names should have capitals as per all other signs.

Recommendation: Replace this sign and move it up to the new track fork if the tracks here are realigned to avoid steps.



Photo 27: Old sign

Comment: This exit to Chartwell doesn't feel like part of the Red Trail. It feels like just an exit to John Witton Dr.

Recommendation: Clean and move to where desire-line track branches up to John Witton Dr.



Photo 28: 12 steps

Comment: Within 40 metres, there are 22 steps going down, then 17 steps going up. This makes no sense. The trail could sidle to avoid the steep slopes.

Recommendation: Realign the trail and remove the steps.



Photo 29: Passing the sign by the old 'closed' trail

Comment: As above – repair the sign and move it to reopen the old trail.

Recommendation: As above.



Photo 30: Flat section of the Red Trail

Comment: Easy walking along the top of the Red Trail.

Recommendation: Consider how the Red Trail could be upgraded/realigned to provide an easier walking standard.



Photo 31: 17 steps

Comment: Could easily be avoided.

Recommendation: Consider rerouting the track and removing these steps.



Photo 32: Mahoe roots

Comment: Slippery when wet.

Recommendation: Remove one small root and build up aggregate ramp to cover the big roots.



Photo 33: Narrow track

Comment: Should be at least 0.75 metres wide.

Recommendation: Reshape the trail surface to 1 metre width.



Photo 34: Old, narrow section of track with roots

Comment: Almost all of the Red Trail needs basic surface renewal.

Recommendation: Reshape the trail to original width – ‘1 yard’.



Photo 35: Roots on trails

Comment: Slippery when wet and always requiring attention, which distracts from the beautiful forest.

Recommendation: Cover to smooth the trail as per previous recommendations.



Photo 36: Diagonal root

Comment: Trip hazard.

Recommendation: Cover with soil/aggregate.



Photo 37: Confirmation arrows

Comment: Well positioned as this section of trail feels remote and some users need assurance.

Recommendation: None.



Photo 38: 15 steep steps with barrier to fall at bottom

Comment: Could easily realign the trail in this terrain.

Recommendation: Consider realigning and removing steps.



Photo 39: A few of many roots

Comment: These have just slowly come to the surface over the last few decades.

Recommendation: Reshape the trail and use any good soil to cover roots.



Photo 40: First of five flights of steps

Comment: There are a lot of difficult steps down to McKenzie Burn.

Recommendation: Reroute the trail.



Photo 41: Slippery rocks just above steep steps

Comment: The unevenness and slipperiness make this an easy section of track to fall on, with potentially serious consequences.

Recommendation: Investigate realigning this section.



Photo 42: McKenzie Burn ford at bottom of 5 flights of steps

Comment: A bridge would be helpful here. The ford is 6 metres across. This would require a 10-metre bridge.

Recommendation: Build a bridge here or higher up McKenzie Burn if the track is realigned to avoid the steps.



Photo 43: Confirmation arrows on bollard

Comment: These arrows are needed.

Recommendation: None.



Photo 44: 4-metre boardwalk

Comment: Could improve the access to this boardwalk.

Recommendation: Install ramps at each end of the boardwalk.



Photo 45: Roots

Comment: Slippery when wet.

Recommendation: Cover with soil and aggregate.



Photo 46: 1.5-metre boardwalk

Comment: Low spec but very effective.

Recommendation: None.



Photo 47: Start of 24 steps steeply uphill out of gully
Comment: Could be avoided as terrain is not difficult.
Recommendation: Investigate a reroute.



Photo 48: Mahoe roots
Comment: Slippery when wet. A trip hazard.
Recommendation: Reroute or install steps.



Photo 49: Good section of the Red Trail

Comment: Pleasant walking.

Recommendation: None.



Photo 50: More roots as track drops down into side stream.

Comment: Small mahoe roots. Mahoe can withstand having small roots cut out.

Recommendation: Selective removal of small mahoe roots.

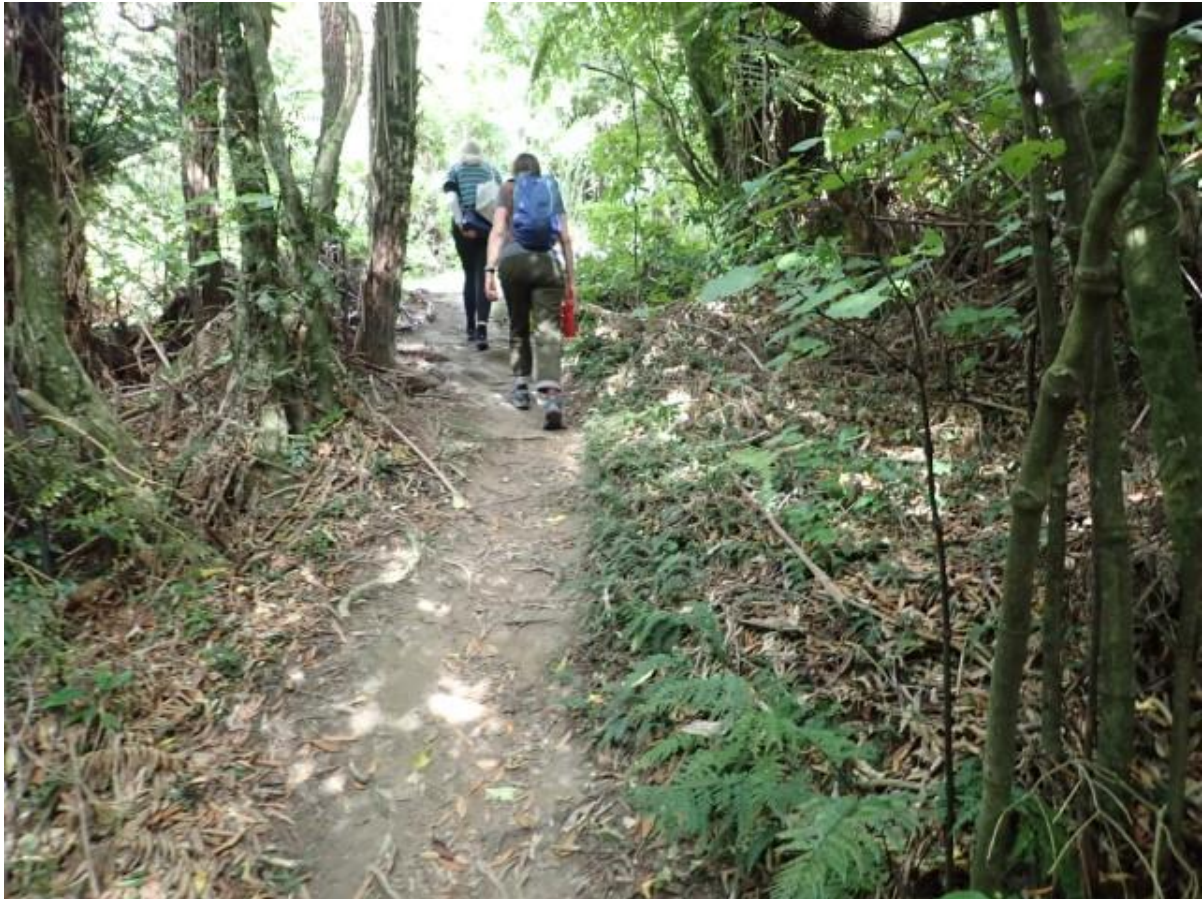


Photo 51: Steep and rooty as the track climbs up from the side stream

Comment: Could sidle around the dip into and out of side stream.

Recommendation: Investigate rerouting and exiting right at the Flax Clearing.



Photo 52: Meeting old road just below the Flax Clearing

Comment: Would be better aligned if the track entrance/exit was 10 metres higher – right at the Flax Clearing.

Recommendation: Realign.



Photo 53: African clubmoss at this track fork

Comment: It is disappointing to see this invasive plant within Otari-Wilton's Bush, possibly being spread around on people shoes.

Recommendation: Develop a pest control plan for the forest tracks.



Photo 54: Signs at the track fork

Comment: Faded red arrow.

Recommendation: Replace this red arrow.



Photo 55: View from the Flax Clearing

Comment: Not much flax around. Some interpretation might help explain what has happened at this historic site.

Recommendation: Install an interpretation panel and a couple of picnic tables.



Photo 56: 1.8-metre-wide trail leading back down to valley

Comment: This was originally built to provide access to Heighton House beside the Flax Clearing. It is a much better standard than the rest of the Red Trail.

Recommendation: Provide interpretation to enrich the user experience.



Photo 57: Sign at bottom of Red Trail, at intersection with Kaiwharawhara Track

Comment: Refurbish tired signs.

Recommendation: Sand/plane front of wood and clean plastic arrows.



Photo 58: Bollard at bottom of Red Trail

Comment: By far the easiest access to the Flax Clearing.

Recommendation: Promote as easier than other trail options, so people will consider exploring further into Otari-Wilton's Bush.

Programme of works: Red Trail

CATEGORY	WORKS	COST ESTIMATES
1. DEFERRED MAINTENANCE AND URGENT REPAIRS	Refurbish wooden signs (7)	\$700
	Remove graffiti wayfinding marks (2)	\$100
	Replace faced plastic arrow (1)	\$100
2. RENEWALS AND FUNDED UPGRADES	Replace large wooden steps to John Witton Drive (90 old steps with 120 new steps)	\$1,200
	Reshape rough sections of track to John Witton (100m)	\$1,000
	Replace 39 steps on top section with 60 metres of new track	\$2,100
3. FUTURE CONCEPT	Choose between option a and b	
	a) upgrade existing gorge section (350m) with 180 new steps and 10m bridge, etc, or b) realign existing gorge section (790m)	\$32,500 \$37,650

RED TRAIL REVIEW ENDS

Track Audit 6: Jock's Track (Flax Clearing to Skyline 4WD Track)



WCC classification	Walking Track
Length	654 metres
Average width	0.7–1 metre
Gradient (degrees)	5–10 degrees for 95% of the track, and 10–16 degrees for some of the higher sections.
Surface	Well formed within the forest (lower half), some ruts and slippery clay surfaces in the top half.
Wayfinding signs	<ul style="list-style-type: none"> • Two bollards at the Flax Clearing end • A wooden routed sign at the 4WD end.
Mapboards	None.
Interpretation signs	None.
Structures	None.
Threats (weeds, users, erosion, etc)	Erosion from lack of maintenance in the top half.
User number estimates	Moderate
Public safety record	No known issues
Network significance	High. Provides connection from Otari-Wilton's Bush to skyline.
Strategic alignment with Open Spaces Plan	High.
Potential/Notes	
<ul style="list-style-type: none"> • Requires maintenance on top half to reach full potential. • The top, scrubby half could be realigned by sidling from the stile at an easier gradient to the skyline, rather than climbing to the 4WD access track, which then descends before finally climbing steeply to the skyline. The realigned section would be 905 metres long. 	

Photos



Photo 1: Wayfinding bollard in middle of Flax Clearing

Comment: Well placed.

Recommendation: Renewal required (see below).



Photo 2: Faded arrow pointing to 'Jock's Track'

Comment: Must have been a bad batch of arrows. Would be better to be a black arrow, as blue arrows indicate the Blue Trail.

Recommendation: Replace faded sign.



Photo 3: Bollard at entrance to Jock's Track

Comment: See below.

Recommendation: See below.



Photo 4: Signs at start of Jock's Track

Comment: Becoming hard to read.

Recommendation: Clean top sign and replace bottom sign.



Photo 5: Stile at old Otari-Wilton's Bush boundary

Comment: Is this boundary fence now redundant?

Recommendation: If the old fence is no longer needed, then remove the stile and create a gap in the fence.



Photo 6: Section of track above the bush

Comment: Vegetation has been sprayed. Surface rutting.

Recommendation: Reshape trail surface and ensure there is a 3 degree outslope for drainage.



Photo 7: Narrow track

Comment: Water is starting to run down the centre.

Recommendation: Reshape the track to reinstate full width and provide outslope.



Photo 8: Sign a few hundred metres from the top

Comment: Most signs on this bollard are no longer readable.

Recommendation: Replace faded signs or remove signpost altogether.



Photo 9: Narrow track

Comment: Water is starting to run down the centre.

Recommendation: Reshape the track to reinstate full width and provide outslope.



Photo 10: Narrow track

Comment: Water is starting to run down the centre.

Recommendation: Reshape the track to reinstate full width and provide outslope.



Photo 11: Narrow track

Comment: Water is starting to run down the centre.

Recommendation: Reshape the track to reinstate full width and provide outslope.



Photo 12: Entrance signs

Comment: It would be useful to know that this entrance takes you to the Flax Clearing.

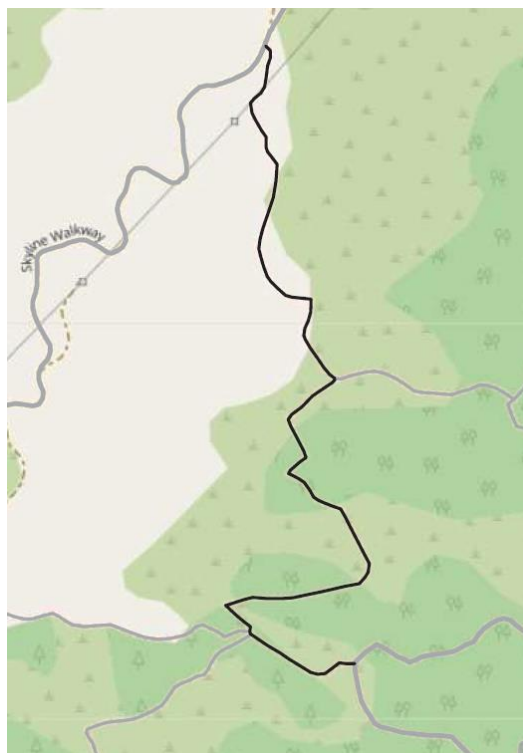
Recommendation: Refurbish front of signs and add a green arrow with words 'to Flax Clearing'.

Programme of works: Jock's Track (Flax Clearing to Skyline 4WD Track)

CATEGORY	WORKS	COST ESTIMATES
1. DEFERRED MAINTENANCE AND URGENT REPAIRS	Replace plastic signs (7)	\$350
	Clean plastic signs (1)	\$100
	Add plastic sign (1)	\$100
	Refurbish wooden sign (1)	\$100
2. RENEWALS AND FUNDED UPGRADES	Remove stile and create gap in old fence.	\$250
	Reshape top half of the track (300 m)	\$3,000
3. FUTURE CONCEPT	Replace top half of this track with new sidle track (905m and 1 boardwalk)	\$36,700

JOCK'S TRACK REVIEW ENDS

Track Audit 7: Kohekohe Track and down to Blue Trail



WCC classification	Short Walk from the Skyline Track to the pine plantation, then Tramping Track down to the Blue Trail.
Length	Approximately 1 km
Average width	0.75 metres
Gradient (degrees)	0–5 degrees from the Skyline Track stile to the pines with the following short exceptions: 7 for 10m, 6 for 8m, 10 for 20m, 10 for 10m and 12 for 6m. Section down to the Blue Trail has 80 steps at 20 degrees.
Surface	Dirt, clay, grass and pine needles. Narrow in places due to deferred maintenance.
Wayfinding signs	Bollard posts and regulatory signs only. Lacking entrance signs.
Mapboards	None.
Interpretation signs	None.
Structures	<ul style="list-style-type: none"> • 3 stiles (only 2 in use) • 80 steps from the pines to the Blue Trail.
Threats (weeds, users, erosion, etc)	Gorse and barberry encroaching on the trail.
User number estimates	Moderate (includes a small level of mountain bike use).
Public safety record	No know accidents or risk.

Network significance	Provides important access for people seeking a moderate length walk/run in a sheltered part of Wellington.
Strategic alignment with Open Spaces Plan	Moderate. Would align better if mountain bikers were allowed access.
Potential/Notes	
<ul style="list-style-type: none"> • Could be renewed to original standard and possibly widened to 1 metre. • The Otari-Wilton’s Bush Management Plan does not allow mountain bike access, however, we recommend an exemption be given in the case of this track as far as the pine spur. The case for an exemption stands as follows: <ul style="list-style-type: none"> ○ The Kohekohe Track starts and ends outside Otari Wilton’s Bush. Most users do not consider they are in Otari Wilton’s Bush. ○ The Kohekohe Track has been built to a sustainable standard for shared use. ○ The track provides a valuable link from the Skyline Track (shared use) to the dual-use track that leads down to Karori Cemetery. It therefore has a high network value for people wishing to cycle between Karori and the skyline. 	

Photos



Photo 1: Stile and entrance to Otari-Wilton’s Bush from the Skyline Track

Comment: Should have wooden routed signs as per other entrances and a mapboard.

Recommendation: Install standard entrance signs and mapboard.

We recommended that, if a link track is built from Jock’s Track to the Kohekohe Track, it meets on the Otari-Wilton’s Bush side of this boundary fence, within sight (10 metres) of this stile.



Photo 2: Views from Kohekohe Track

Comment: Grand views complement the forest scenery of the rest of Otari-Wilton's Bush.

Recommendation: Renew trail to 0.75–1 metre wide.



Photo 3: A short section of track that is 350mm wide

Comment: Too narrow, and the gorse needs to be controlled.

Recommendation: Renew the trail surface and schedule regular maintenance.



Photo 4: Narrow trail with great views

Comment: Needs surface maintenance.

Recommendation: Renew the trail surface and schedule regular maintenance.



Photo 5: Kohekohe Trail in pasture

Comment: This trail is sheltered from the predominant winds.

Recommendation: Renewals as above to meet WCC Walking Track classification.



Photo 6: Stile

Comment: Is this boundary fence still required?

Recommendation: Replace stile with a small pedestrian gate or a semi-permanent gap in the fence.



Photo 7: Typical sections of the Kohekohe Trail in the lowland forest.

Comment: Much less maintenance is required in the forested section.

Recommendation: A quick pass once a year for maintenance.



Photo 8: Narrow section of the Kohekohe Trail

Comment: Much less maintenance is required in the forested section.

Recommendation: Widen to minimum 0.75 metres wide (to meet Walking Track standard).



Photo 9: Typical section of trail through regenerating forest

Comment: Has narrowed by 100–200mm since it was built (15–20 years ago).

Recommendation: Reshape to minimum 0.75 metres wide. Won't take much work.



Photo 10: Pinch point at tree root

Comment: Only 0.4m wide.

Recommendation: Install a nib wall for 6 metres to widen the trail to 0.75 metres.



Photo 11: Natural watercourse after heavy rain

Comment: A novaflow pipe was installed, but it doesn't have the capacity to take the maximum water flow.

Recommendation: As this section is normally dry, just build a swale to move the occasional water quickly across the track and away. And surface that section with rocky material (ie, an open culvert).



Photo 12: Where the Kohekohe Trail exits to the pines

Comment: This is the steepest section of the Kohekohe Trail – 12 degrees for 6 metres.

Recommendation: None.



Photo 13: Four tracks meeting at the central bollard and an uprooted sign.

Comment: This is a confusing and poorly defined hub, with just one bollard at its centre.

Recommendation: Replace the existing central bollard with 3–4 separate routed signs or 4 bollards. Reinstall the uprooted sign.



Photo 14: Same site as above. Different sides of the same bollard.

Comment: It too much for a single bollard to explain this four-way track fork to new visitors.

Recommendation: Replace with 3–4 bollards/routed signs, an Otari-Wilton’s Bush entrance sign and a mapboard.



Photo 15: Heading down into the pines.

Comment: There is little to guide users through this section.

Recommendation: Install wayfinding and entrance signs and a mapboard.



Photo 16: Trail through the pines.

Comment: Numerous roots and poor formation. Not sure if this trail was ever actually built or is just a demand path.

Recommendation: Upgrade to Walking Track standard.



Photo 17: Stile and sign at the entrance to Otari-Wilton's Bush.

Comment: This is not a very inviting entrance.

Recommendation: Remove the stile and at least one of the signs.



Photo 18: Entrance signs

Comment: These are the only signs at the southern end of the reserve, indicating you are entering Otari-Wilton's Bush.

Recommendation: Replace these with a proper routed entrance sign, to be placed 200 metres back up at the major track hub.



Photo 19: Redundant stile

Comment: We assume this fence is no longer needed.

Recommendation: Remove the stile.



Photo 20: Start of 80 steps down to the Blue Trail

Comment: These have been well built and provide easy walking.

Recommendation: Replicate these measurements (140mm riser, 420mm depth) when replacing steps on other sections of track in Otari-Wilton's Bush.



Photo 21: Good steps

Comment: 420mm tread depth and 140mm risers are ideal. The tread needs topping up.

Recommendation: Compacted tread needs topping up with AP20.



Photo 22: Near bottom of 80 steps

Comment: The terrain here is such that it would be possible to realign the trail to avoid steps.

Recommendation: Consider realigning the trial to avoid steps.



Photo 23: Sign bollard where the track meets the upper Blue Trail

Comment: A bit too much information for a single bollard. A mapboard would be useful here.

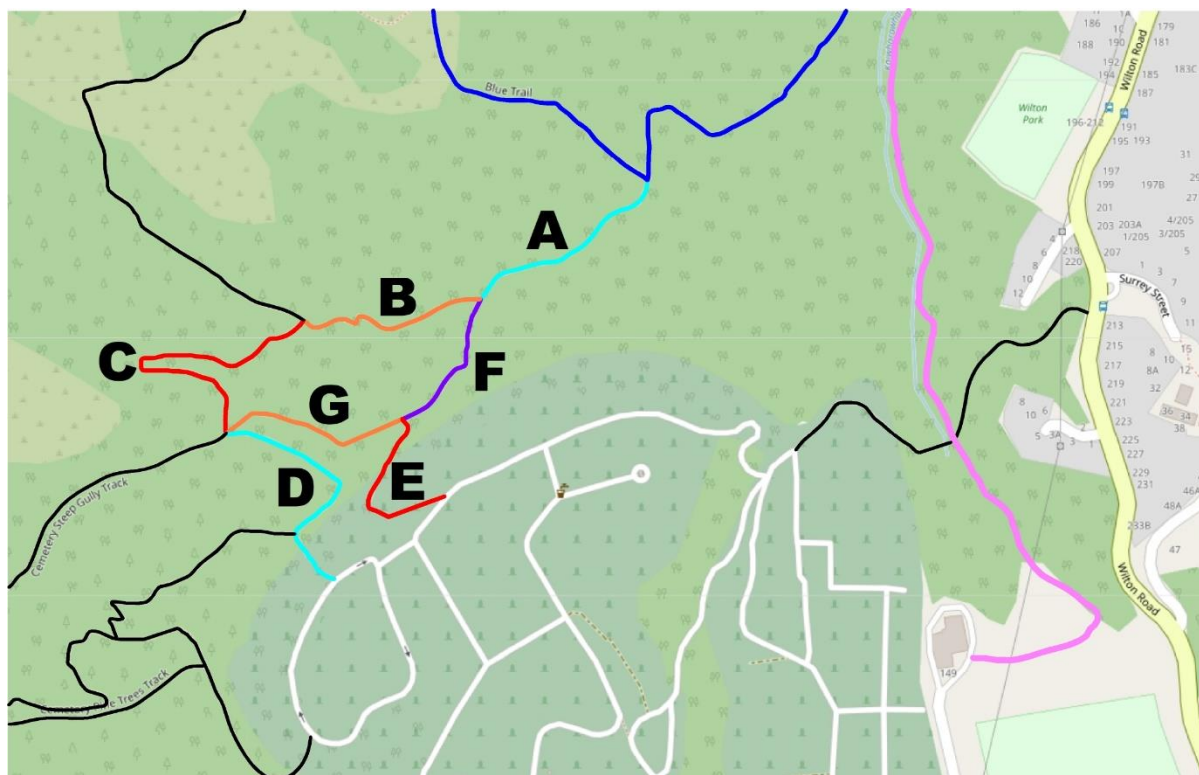
Recommendation: Consider new signs and a mapboard. At the very least, change the blue arrow that points away from the Blue Trail to a black arrow.

Programme of works: Kohekohe Track

CATEGORY	WORKS	COST ESTIMATES
1. DEFERRED MAINTENANCE AND URGENT REPAIRS	Reshape Track to 0.75m width (900m)	\$9,000
	6m by 0.25m nib wall around large tree root.	\$300
	Replace damaged plastic bollard signs (6).	\$300
	Remove one of the no MTB signs.	\$50
2. RENEWALS AND FUNDED UPGRADES	Wooden routed entrance signs each end	\$3,000
	Mapboards each end	\$2,000
	Replace internal boundary fence with 1m wide gate.	\$400
	Remove novaflow pipe and built rock	\$200
	Remove redundant stile above Blue Trail	\$300
	Top up 80 box steps with AP20	\$2,000
3. FUTURE CONCEPT	Realign the track around the 80 steps.	\$5,000

KOHEKOHE TRACK REVIEW ENDS

Track Audit 8: Blue Trail to Karori Cemetery



WCC classification	Tramping Track
Length	A = 260m, B = 365m, C = 365m, D = 215m, E = 185m, F = 170 m, G = 230m
Average width	0.5–1.5 metre. Very inconsistent.
Gradient (degrees)	Sections A, B, C and G: 0–15 degrees Sections E and F: 0–28 degrees
Surface	Variable, including off camber and very steep steps.
Wayfinding signs	All track forks are signposted, but some signs are in poor condition and not effective.
Mapboards	None. As this is confusing, a mapboard at the main entrance is recommended.
Interpretation signs	None
Structures	<ul style="list-style-type: none"> • 130 steps on A, F and E. No steps on B, C, D and G. • 4 boardwalks • 1 bridge • several small retaining walls.

Threats (weeds, erosion, etc)	Reputational risk to WCC due to such a confusing and variable network between Otari-Wilton's Bush and Karori Cemetery.
User number estimates	Low to moderate
Public safety record	n/a
Network significance	Important link from the suburb of Karori to Otari-Wilton's Bush.
Strategic alignment with Open Spaces Plan	High.
Potential/Notes	
<ul style="list-style-type: none"> • Tracks B, C and G have been built by Grant Preston-Thomas to avoid steep steps. • This area has become a confusing riddle of tracks due to demand paths combined with inconsistent wayfinding signs and no maps. • Carefully consider the information below to inform a rationalisation of the tracks in the best interests of the public. This is not an easy problem to solve. • The map above shows what exists on the ground. Maps at the main entrances would be hugely helpful. 	

Section A: Blue Trail to first track fork



Photo 1: Sign at southern end of lower Blue Trail

Comment: Clearly signposted to Karori Cemetery.

Recommendation: Refurbish the sign (as per Blue Trail review).



Photo 2: Sign to Karori Cemetery

Comment: Sign needs cleaning.

Recommendation: Clean plastic signs throughout the reserve.



Photo 3: Sign on the Otari-Wilton's Bush boundary

Comment: The public has no appreciation for or need to know about the legal boundary to Otari-Wilton's Bush – because this is native bush, they will presume they are in Otari-Wilton's Bush. So this sign, only 100 metres from the Blue Trail, just seems out of place.

Recommendation: Move to Blue Trail fork (photo 1).



Photo 4: The first 200 metres at a gradient of 0–10 degrees

Comment: A great start to this trail.

Recommendation: None.



Photo 5: 22 steps at a 28 degree gradient

Comment: This is very steep.

Recommendation: None.



Photo 6: Bridge, 6m by 1.0m with handrails

Comment: None.

Recommendation: None.



Photo 7: Climb after bridge

Comment: After crossing bridge, there is a 17 degree climb for 20 metres. It has a high and low track level.

Recommendation: Reform the track to 1 metre width.



Photo 8: Track splits at this bollard (To the left is a steep ‘demand path’ and to the right is the official path.)

Comment: The problem is that, from the top of the demand path, you can see this bollard at the bottom, and so you are drawn straight to it, whereas the official track zigzags and is not at all obvious from the top.

Recommendation: Move the bollard 0.5 metre along the official track, so that from the top, it is hidden behind the tree. Then open up the official track a bit more at the top, and cover the demand path with branches and transplanted seedlings.



Photo 9: The view from the top of the demand path

Comment: With my left arm, I am pointing to the official track, and with my right arm, I am pointing to the demand path, which is a more direct line but much steeper with roots coming to the surface.

Recommendation: Open up the top of the official track to make it more obvious and cover the demand path with branches and plantings.



Photo 10: Facing uphill at the second bollard from the bridge, where the track splits again!

Comment: The WCC arrows point right to 'Skyline Walkway' and straight up to 'Karori Cemetery'. But there is also a Grant Preston-Thomas sign (see photo 11 below).

Recommendation: Add a WCC sign pointing right and reading 'Step-free walk to Karori Cemetery'.



Photo 11: Grant's sign

Comment: To the left is the WCC track (discussed below under section F) and to the right is Grant's step-free track. This sign conveys very useful information. Most runners and walkers want to avoid steps.

Recommendation: Replicate this information on the official WCC signs.

Section B: Grant's 'No Steps' track



Photo 1: Walking along Grant's 'No Steps' track

Comment: This track is only 0.6m wide but also only 5–10 degrees for most of its length and never over 15 degrees. If it were widened to 0.75m it would meet WCC Walking Track classification.

Recommendation: Widen to 0.75m.



Photo 2: A short section at 13 degrees

Comment: Not long enough to be a problem.

Recommendation: None.



Photo 3: Where the 'No Steps' option meets the Cemetery to Skyline Track

Comment: No indication that this track goes to the cemetery (see below).

Recommendation: Add a left pointing arrow with wording 'to Karori Cemetery'.



Photo 4: Sign bollard at the track fork with the Cemetery to Skyline Track

Comment: No indication that this track goes to the cemetery.

Recommendation: Add a left pointing arrow with wording 'to Karori Cemetery'.

Section C: Cemetery to Skyline Track



Photo 1: Pinch point at pine tree and fence post

Comment: People are starting to ride/walk around the top.

Recommendation: Either improve the route around the top of the pine tree or install a 6-metre-long retaining wall around the bottom to make the track 1 metre wide (0.75m for riding plus 0.25m for clearance).



Photo 2: Steepest section of this track = 13 degrees

Comment: Minor dishing of the trail surface.

Recommendation: Schedule reshaping or surfacing in future.



Photo 3: Pinch point

Comment: Only 0.5 metres wide.

Recommendation: Widen to 0.75 metres.



Photo 4: Top switchback

Comment: This is a shared used track, and the radius is just under 2.0 metres.

Recommendation: Rebuild retaining wall (see below) to achieve 2.5-metre radius.



Photo 5: Failing retaining wall

Comment: Built out of native timber and salvaged pipes. Great value for money, but now needs replacing.

Recommendation: Build 13-metre-long retaining wall, from 0.2–0.8 metres high.



Photo 6: End of 13-metre-long retaining wall

Comment: No real strength to this old retaining wall.

Recommendation: Replace.



Photo 7: Pinch point where a large mahoe has toppled over

Comment: Less than 0.75 metres wide.

Recommendation: Lower the track surface to widen to 0.75 metres.



Photo 8: Pinch point at tree fuchsia

Comment: Not enough clearance around leaning tree.

Recommendation: Built 6-metre-long retaining wall to widen track around this native tree.



Photo 9: Lower switchback

Comment: Similar to last switchback.

Recommendation: Replace 6-metre-long retaining wall. Try to gain as much radius as possible.



Photo 10: Pinch point at mahoe

Comment: Not enough clearance around leaning tree.

Recommendation: Built 6-metre-long retaining wall to widen track around this native tree.



Photo 11: Boardwalk (3m by 0.7m) and old fence hanging over the track

Comment: The fence is a hazard on this old narrow bridge (the bridge was a recycled WCC boardwalk when I installed it 15 years ago).

Recommendation: Remove the fence and replace the old boardwalk with a 4m by 1m curved boardwalk (Frame Group estimation = \$2,000).



Photo 12: Track only 0.45 metres wide

Comment: The track is pinched between the steep bank and small stream.

Recommendation: Install nib wall for 25 metres to widen track to 0.75 metres.



Photo 13: Pinch point at kawakawa sapling

Comment: This pinch point will only get worse as the kawakawa grows.

Recommendation: Remove kawakawa sapling as this is a common sub-canopy native that is quite short-lived naturally.



Photo 14: Bollard signs

Comment: This has a sign pointing to 'Closed Track', which is clearly still being used.

Recommendation: None.



Photo 15: Boardwalk (3m by 0.7m)

Comment: The decking ends are starting to rot. Frame Group recommended replacing by 2021 at estimated cost of \$2,000 (like for like).

Recommendation: Replace the old boardwalk with a 4m by 1m curved boardwalk.



Photo 16: Signs at end of this section

Comment: Signs are looking very green!

Recommendation: Refurbish signs.

Section D: Cemetery end of track to Skyline



Photo 1: Sign bollard at track fork before the cemetery

Comment: Well placed but duplicates the routed signs it is next to.

Recommendation: None.



Photo 2: Large overhanging pine tree at side stream by sign bollard

Comment: Tree team may want to assess this tree.

Recommendation: After the tree has been cut down or has been left to collapse naturally, build a 4-metre-long curved boardwalk over the side stream.



Photo 3: Side stream

Comment: One of the only wet areas on the whole track.

Recommendation: After the tree has been cut down or has been left to collapse naturally, build a 4-metre-long curved boardwalk over the side stream.



Photo 4: Minor bog beside stream and fallen pine tree

Comment: Erosion has begun.

Recommendation: Gravel the surface of the track and ensure there is a 3-degree outslope.



Photo 5: Sign bollard just before the road

Comment: None.

Recommendation: None.



Photo 6: Old sign on the side of the cemetery road heralding the main track entrance

Comment: It is illogical to point to the Circular Walk, when users will reach the Blue Trail first.

Recommendation: Refurbish the signs and consider changing the bottom sign to just 'Otari-Wilton's Bush' or 'Blue Trail, Otari-Wilton's Bush'.

Section E: WCC Track to Blue Trail, Otari-Wilton's Bush



Photo 1: Faded sign

Comment: No longer clear what this sign was for. Perhaps David Halliday can find the sign plan?

Recommendation: Remove the old sign and add on signs to 'Skyline Walkway' and 'Otari-Wilton's Bush'.



Photo 2: The secret locals-only entrance to the track

Comment: Need to decide if this is a promoted entrance or not. There is a bollard (see below) but it has no arrow pointing to the right). Perhaps this entrance is not worth promoting anymore?

Recommendation: Decision for WCC to consider.



Photo 3: Sign bollard beside cemetery road near this track entrance

Comment: It doesn't have an arrow pointing to this track, but someone has scribed Otari with a black sharpie. Note that plastic signs nearby spell it "Johnson Hill" without a "t".

Recommendation: Consider the future of this track entrance and signpost with destination if this track is retained.



Photo 4: Track through the graves

Comment: Quite hard to spot the signposts through here.

Recommendation: Provide more signpost bollards if this track is retained.



Photo 5: Distant sign bollard among graves

Comment: Hard to spot on a good day, and there is no obvious track.

Recommendation: Need more signs.



Photo 6: Green arrow on bollard

Comment: From here, wayfinding is easier as you can see the track.

Recommendation: None.



Photo 7: Top of the track entering forest

Comment: Narrow and rutted for 50 metres.

Recommendation: Reshape this track, or fill the rut with aggregate and compact.



Photo 8: Wayfinding arrow

Comment: None.

Recommendation: None.



Photo 9: 10 old steps leading to 1.3m by 1m boardwalk

Comment: Steps are now a trip hazard as the material has compacted behind them.

Recommendation: Fill behind the steps with aggregate and compact. Frame Group structures report (2019) recommends 'Re-position on new bearer plates to level the deck and install Tensar mesh' at estimated cost of \$450.



Photo 10: Looking back at the steps

Comment: As above.

Recommendation: Fill behind the steps with aggregate and compact.



Photo 11: Low retaining wall at mahoe pinch point

Comment: Leaning tree pushes users toward the drop over the retaining wall.

Recommendation: Consider removing the leaning mahoe as it is a very common sub-canopy native.



Photo 12: Mahoe limbo

Comment: Most of this mahoe is rotten.

Recommendation: Tree team to remove.



Photo 13: Track splits 20 metres above board walk and signs

Comment: This is confusing for visitors because the official trail, where the signposts are, is now overgrown.

Recommendation: Reopen the official trail and close this trail by covering with dead branches and replanted seedlings from the edge of the official trail.



Photo 14: Signs at end of this section (which is also the end of section G)

Comment: Very green.

Recommendation: Refurbish signs.



Photo 15: Sign bollard

Comment: WCC signs seem to indicate that section E (from the cemetery road to here) is informal, but that is the shortest way to the cemetery road.

Recommendation: Consider future network and signpost accordingly.



Photo 16: Sign bollard with hand-written direction pointing to section E

Comment: That is the shortest route.

Recommendation: Consider adding a signpost to the cemetery this way.

Section F: WCC Track to Blue Trail, Otari-Wilton's Bush



Photo 1: 5m by 1m boardwalk. Boardwalk next to signs on previous page

Comment: The drop on the downside is 1.15 metres.

Recommendation: Consider installing a barrier to fall. Frame Group structures review (2019) recommends adding two extra 200 by 50 beams to increase capacity (estimated cost \$1,200).



Photo 2: A few gentle steps

Comment: One of the few easy sections of this track.

Recommendation: None.



Photo 3: Start of 47 steps with handrail

Comment: These are well built.

Recommendation: None. It is steep terrain, and there are no options other than Grants 'No steps' route.



Photo 4: Large step at bottom of the last flight with a handrail

Comment: Becoming a big step up.

Recommendation: Add another couple of steps.



Photo 5: Pinch point beside dead tree

Comment: Tree on the right is long gone.

Recommendation: Widen to 0.75 metres.



Photo 6: Part way up 57 box steps

Comment: These are in good condition and well designed.

Recommendation: None.



Photo 7: Vague track definition

Comment: Way finding is a bit tricky here.

Recommendation: Install a bollard.



Photo 8: Bollard at end of this section

Comment: Navigation is tricky (as per section A comments).

Recommendation: Improve track definition.



Photo 9: Bollard at end of this section

Comment: Navigation is tricky around here (as per section A comments) due to multiple tracks and not all being signposted.

Recommendation: Improve track definition and signs.

Section G: WCC connector



Photo 1: Signposts at track fork

Comment: Old signs – top board is rotten along the top edge.

Recommendation: Refurbish signs.

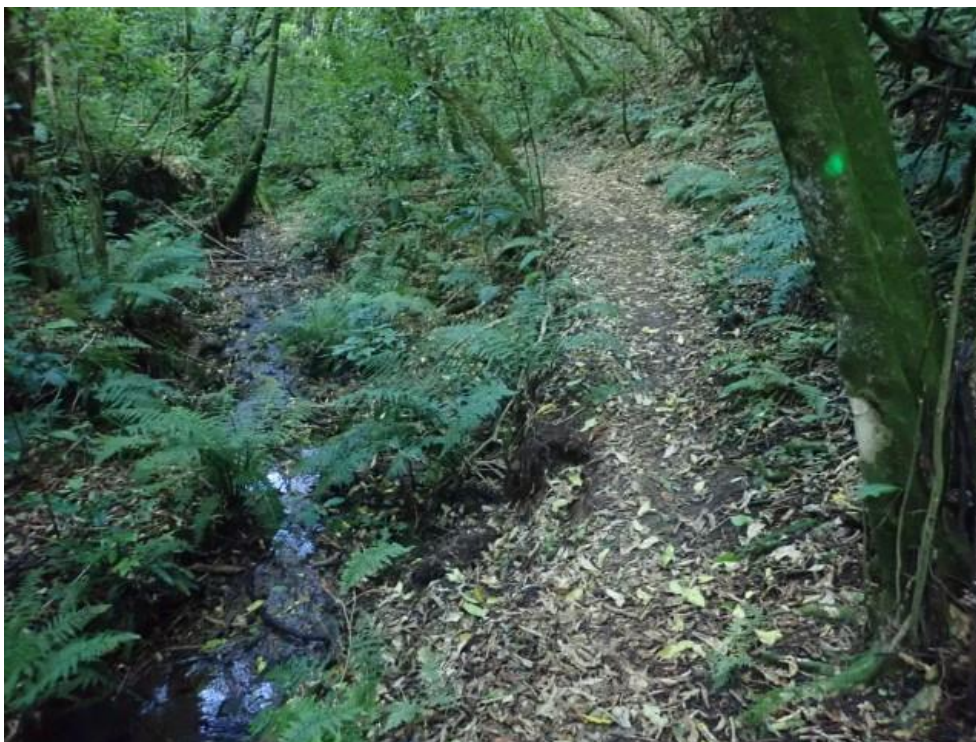


Photo 2: Narrow section where the track is collapsing into the stream

Comment: The track is now only 400mm wide.

Recommendation: Install a retaining wall, minimum 3 metres long and 700mm high.



Mahoe leaning over track (see problem below).



Photo 3: Boggy patch under mahoe

Comment: The tree is 1.5 metres high. Some people have been walking over the top to avoid mud and the low-hanging mahoe.

Recommendation: Consider cutting back the mahoe and fixing drainage issue.



Photo 4: Handrail

Comment: Good condition rails, but the track is falling away at either end.

Recommendation: Need to fill the gaps at either end of retaining or extend the retaining.



Photo 5: Track splits

Comment: Not sure why, but the main track has a log across it with a blue arrow. So people are walking up an informal track to the right, which has a 40 degree slope and is very narrow.

Recommendation: Remove log and cut back vegetation along the main track to make it obvious again.



Photo 6: Close-up of log with arrow

Comment: This short log is effectively closing the official track.

Recommendation: Remove the blue arrow and move the log off the track.



Photo 7: Signpost at end of section G

Comment: Well signposted.

Recommendation: Refurbish signs.

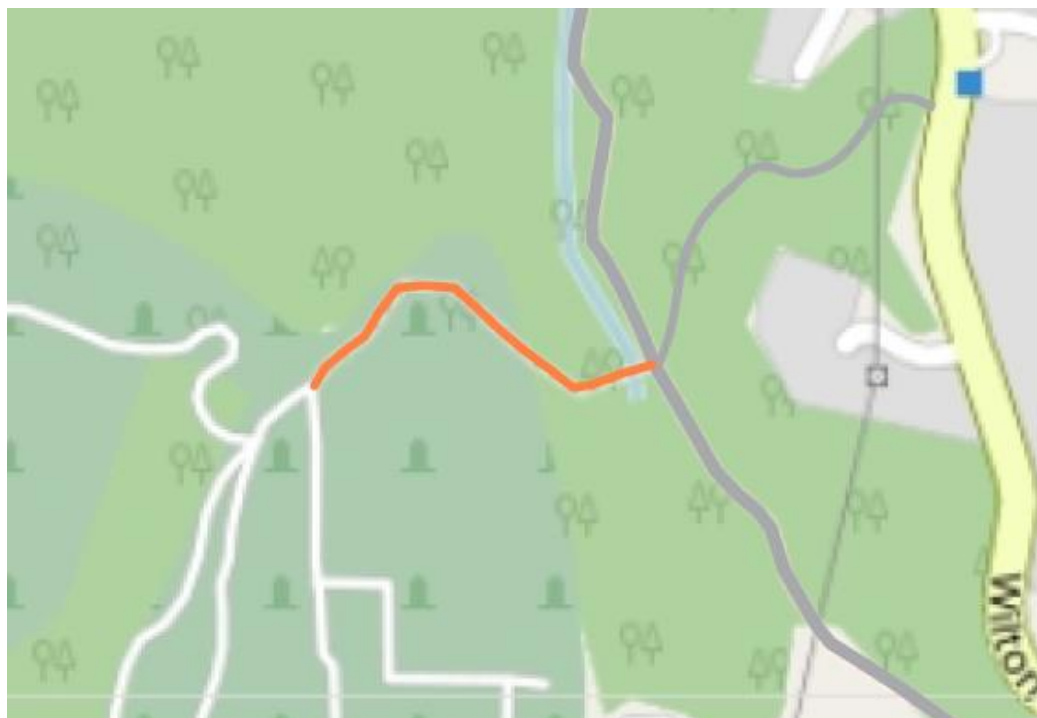
Programme of works: Tracks from Blue Trail to Karori Cemetery

CATEGORY	WORKS	COST ESTIMATES
1. DEFERRED MAINTENANCE AND URGENT REPAIRS	Refurbish wooden signs (5)	\$500
	Replace wooden entrance sign (1)	\$400
	Clean plastic bollard signs (20)	\$100
	Replace plastic signs (3)	\$150
	Add new plastic signs (5)	\$250
	Move bollard (1)	\$100
	New bollard (1)	\$200
	Aggregate top up on steps	\$500
	Remove leaning mahoe (3)	\$350
	Fix alignment of WCC track (100m)	\$1,000
2. RENEWALS AND FUNDED UPGRADES	Widen narrow bits of Grant's track (800m)	\$8,000
	Replace old retaining walls (21m)	\$2,000
	Install nib walls (46 m)	\$2,300
	Install retaining wall (4m)	\$1,500
	Replace two boardwalks (2 x 4m)	\$8,000
	New bearers on short boardwalk (1.5m)	\$450
	New bearers on long boardwalk (5m)	\$1,200
	New steps (10)	\$1,000
3. FUTURE CONCEPT	Retire one section.	

BLUE TRAIL TO KARORI CEMETERY REVIEW ENDS

Track Audit 9: Minor tracks

Cemetery Road to Kaiwharawhara Valley Link Track



WCC classification	90% Walking Track, 10% Tramping Track
Length	190 metres
Average width	0.8–1 metre
Gradient (degrees)	10–25 degrees
Surface	Variable, including off camber and steps.
Wayfinding signs	Well signposted at top and bottom.
Mapboards	None
Interpretation signs	None
Structures	<ul style="list-style-type: none"> 8 steps in dangerous condition
Threats (weeds, erosion, etc)	Reputational risk to WCC
User number estimates	Moderate
Public safety record	Hazard at faulty steps.
Network significance	A valuable link from Karori Cemetery to Otari-Wilton's Bush.
Strategic alignment with Open Spaces Plan	High network value
Potential/Notes	<ul style="list-style-type: none"> Urgent step repairs needed. Track would receive more use if upgraded and added to maps.

Photos



Photo 1: Top of the track from the Karori Cemetery road to the Kaiwharawhara Track

Comment: Well signposted.

Recommendation: None.



Photo 2: Entrance sign

Comment: Looking in need of refurbishment.

Recommendation: Sand/plane front surface.



Photo 3: Sign from 2013

Comment: Is this still needed?

Recommendation: Remove this old sign if it is no longer relevant.



Photo 4: Typical section of the trail

Comment: No issues higher up.

Recommendation: None.



Photo 5: Typical section of the trail
Comment: Looks fine from above.
Recommendation: See below.



Photo 6: Large root with drop below
Comment: It is difficult to tell how big this step down is from above.
Recommendation: Construct 4 box steps down from the root.



Photo 7: Wayfinding bollard

Comment: This is the first indication that users have joined the Sanctuary to Sea path. It is not marked as such but provides a direct route to Ian Galloway Park.

Recommendation: Add signpost to Ian Galloway Park.



Photo 8: Steps with no backfill material

Comment: These steps are a treacherous trip hazard. You have to step up and over them and negotiate roots and a slippery steep trail surface at the same time.

Recommendation: Urgently remove these steps and replace with new steps, or, even better, realign the track to avoid this steep, rooty section.



Photo 9: Roots on track

Comment: These roots aren't too bad.

Recommendation: Fill gaps between roots.



Photo 10: Nearing the bottom of the track

Comment: This lower section of track is fine.

Recommendation: None.



Photo 11: The bridge over Kaiwharawhara Stream

Comment: End of the trail.

Recommendation: None.

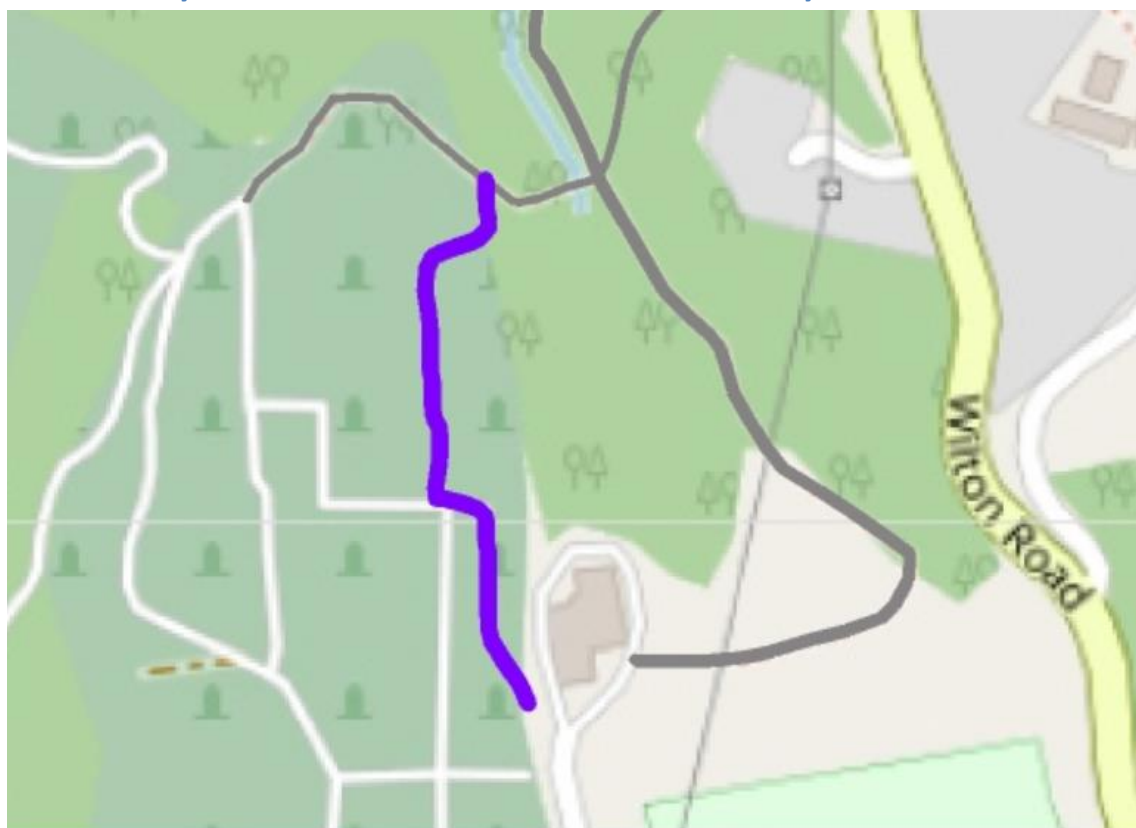


Photo 12: Sign at track fork

Comment: A clear and concise sign.

Recommendation: Refurbish the sign (this is also suggested in the Kaiwharawhara Track review).

Ian Galloway Park to Kaiwharawhara Track via cemetery



WCC classification	95% Walking Track, 5% Tramping Track
Length	380 metres
Average width	0.6–1 metre
Gradient (degrees)	5–20 degrees
Surface	Variable, including sealed path, off camber roots and steps.
Wayfinding signs	No signs at Ian Galloway Park, then way finding through cemetery
Mapboards	None.
Interpretation signs	None.
Structures	<ul style="list-style-type: none"> 14 steps in reasonable condition
Threats (weeds, erosion, etc)	None
User number estimates	Low (it is not signposted well)
Public safety record	None
Network significance	A useful track from Ian Galloway carparking area to Karori Cemetery and Blue Trail
Strategic alignment with Open Spaces Plan	Moderate
Potential/Notes	<ul style="list-style-type: none"> If this trail were signposted and upgraded, then more people would use it.

Photos



Photo 1: Informal trail from Ian Galloway Park carpark to Karori Cemetery – distance 50 metres to Emily Hitchcock’s grave.

Comment: This is a useful link track.

Recommendation: Upgrade and sign post as ‘to Otari-Wilton’s Bush and the skyline’.



Photo 2: Path through the cemetery

Comment: Better marking of the route would make this more accessible to more people.

Recommendation: Install wayfinding signs.



Photo 3: The informal route soon connects with the Sanctuary to Sea Walkway

Comment: Signs need cleaning.

Recommendation: Clean signs.



Photo 4: Wayfinding sign

Comment: The arrow has completely faded.

Recommendation: Replace with a new sign with larger arrow and remove Kaiwharawhara as a destination (it is too far away, and few people know where it is).



Photo 5: The walkway through the cemetery
Comment: There are some interesting graves.
Recommendation: None.



Photo 6: Walkway signs
Comment: The track is well marked.
Recommendation: Clean signs regularly.



Photo 7: Crucial wayfinding bollard with no signs on it.

Comment: Only locals know this is the way to go.

Recommendation: Add signs to the bollard.



Photo 8: Close-up of the bollard shown above

Comment: Signs were never added to the bollard.

Recommendation: Add signs to this bollard.



Photo 9: 5 steps just below unmarked bollard

Comment: Soil below bottom step is eroding, creating a large step down.

Recommendation: Build an extra step at the bottom.

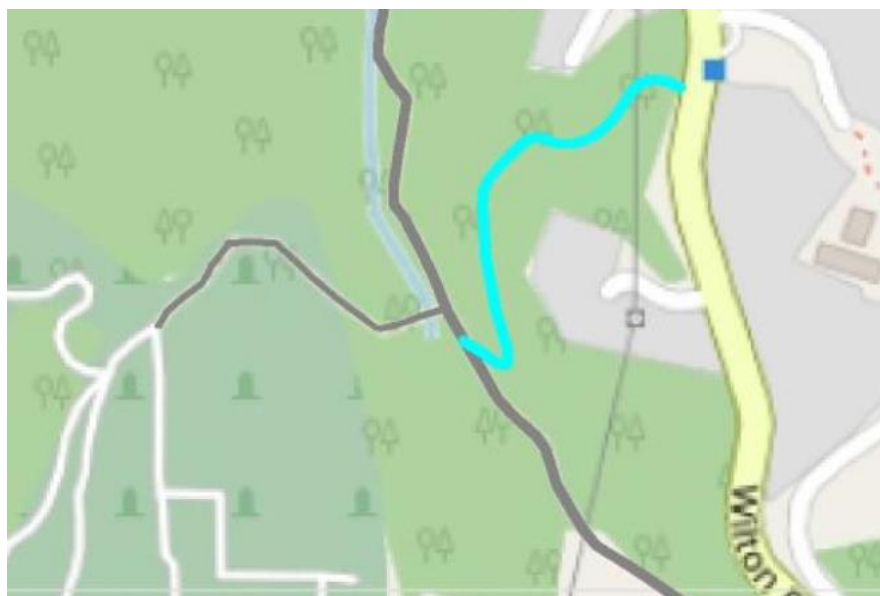


Photo 10: Junction with the track from Karori Cemetery road down to Kaiwharawhara Track

Comment: It would be good to have a clear sign on the bollard pointing up to Karori Cemetery road and down to Otari-Wilton's Bush and the Kaiwharawhara Track.

Recommendation: Add signs to bollard that face users who are coming down these steps.

Track Audit 8: Wilton Road bus stop to Kaiwharawhara Valley



WCC classification	Short Walk
Length	405 metres
Average width	0.75–0.9 metre
Gradient (degrees)	98% is 5–10 degrees, 2% is 10–15 degrees
Surface	Natural dirt.
Wayfinding signs	Hand painted sign at Wilton Road directing to Wilton’s Bush and Karori Cemetery; bollard at Kaiwharawhara Track with arrow and label to Wilton Road.
Mapboards	None.
Interpretation signs	None.
Structures	None.
Threats (weeds, erosion, etc)	None
User number estimates	Low.
Public safety record	No known incidents
Network significance	Low, but nonetheless the track is being used and enjoyed by locals as it provides easy access between the valley and Wilton Road.
Strategic alignment with Open Spaces Plan	Low
Potential/Notes	<ul style="list-style-type: none"> • The track would be better used if it were signposted from Wilton Road and shown on maps. • This track is in surprisingly good condition and is a pleasant track to walk.

Photos



Photo 1: Entrance from Wilton Road

Comment: No indication this is a public access point.

Recommendation: Install standard entrance sign and widen the entrance.



Photo 2: Old sign by Grant Preston-Thomas

Comment: This sign is rotten and about to fall off.

Recommendation: Install official Otari-Wilton's Bush entrance sign.



Photo 3: Typical track section

Comment: Switchback.

Recommendation: None.



Photo 4: Typical track section

Comment: The trail is in surprisingly good condition given little maintenance has been done on it.

Recommendation: None.



Photo 5: Typical track section

Comment: In excellent condition.

Recommendation: None.



Photo 6: Typical track section

Comment: Very good condition.

Recommendation: None.



Photo 7: Typical track section

Comment: Gentle gradient with low use, so in very good condition.

Recommendation: None.



Photo 8: 1m by 1m boggy section

Comment: This is caused by a trickle of water flowing across the track.

Recommendation: Install culvert pipe and cover with compacted aggregate.



Photo 9: A couple of mahoe leaning across the track

Comment: The two leaning trees mean not all the track can be used, and walkers may hit their heads

Recommendation: Assess the leaning mahoe and either cut them back to the edge of the track or realign the track.



Photo 10: End of the link track – 405 metres

Comment: A good little connector track.

Recommendation: Undertake minor works mentioned above to improve the level of service.



Photo 11: Kaiwharawhara Track wayfinding bollard at bottom end of track

Comment: None.

Recommendation: None.



Photo 12: Wayfinding sign

Comment: Could be good to know that the road is only 400 metres away.

Recommendation: In future, consider including distances.



Photo 13: Sign on top of bollard

Comment: This sign is covered in dirt.

Recommendation: Schedule regular maintenance/cleaning of signs.

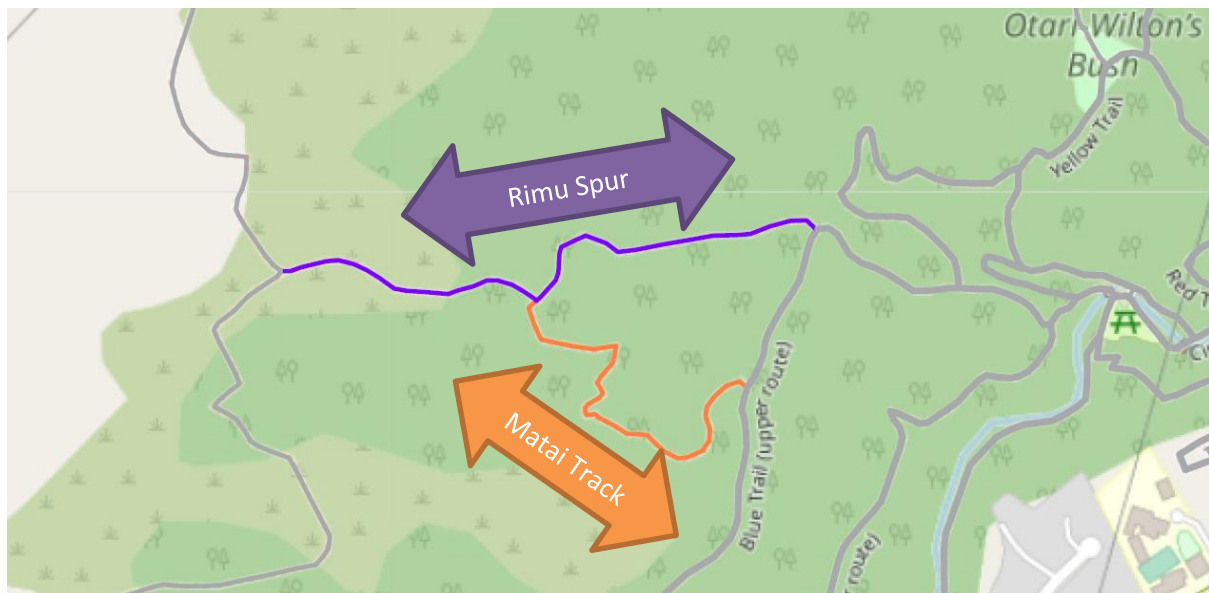


Photo 14: Bottom of track

Comment: While taking photos of these signs, three groups of six people in total walked/ran up/down this track.

Recommendation: Minimal work required to improve this track.

Rimu Spur Track (aka Mauve Track)



WCC classification	80% Walking Track and 20% Tramping Track
Length	450 metres
Average width	0.4–1.0 metre
Gradient (degrees)	Mostly 5–15 degrees, with a few sections up to 50 metres long at 20 degrees.
Surface	Local soil.
Wayfinding signs	None.
Mapboards	None.
Interpretation signs	None.
Structures	<ul style="list-style-type: none"> • A dozen steps.
Threats (weeds, erosion, etc)	None
User number estimates	Low.
Public safety record	n/a
Network significance	Moderate as there are alternatives. Provides the most direct and scenic link to the Skyline Track.
Strategic alignment with Open Spaces Plan	Low. There are alternative tracks that can be used to access the Skyline.
Potential/Notes	
<ul style="list-style-type: none"> • This historic track follows a prominent ridge directly up to the skyline. It is in good condition and provides an interesting and direct link from the Blue Trail to the skyline. It was 'retired' in the 1960s, possibly because the farmer working the skyline area at the time, Kilmister, actively resented the public being on his farm. It is hard to know why it could not be reopened. • This track enables a good 1-hour loop walk, if returning via the Kohekohe Trail and the Flax Clearing. 	

Photos



Photo 1: Barrier across track (near 800-year-old rimu)

Comment: To many users, this would seem an excessive barrier in an odd place: the land is flat and there is no danger of injury – it seems out of place if you have walked from other areas in the reserve where there are drops and difficult terrain without handrails or barriers to fall.

Recommendation: Consider removing barrier and installing wayfinding signs.



Photo 2: There are a dozen steps on the Rimu Spur Track

Comment: They are in good condition.

Recommendation: None.



Photo 3: Typical trail surface

Comment: Surprisingly good for most of the way. There are some short sections that could be reshaped and widened near the top and bottom.

Recommendation: If considering reopening, then complete minor reshaping beforehand.



Photo 4: Informal trail marking

Comment: Curious trail markings, by a regular user perhaps?

Recommendation: None.



Photo 5: About 50 metres of scrub at the top of the track

Comment: Gorse and barberry where the track breaks out to farmland ensures that few people find this track from the top.

Recommendation: Schedule regular maintenance cutback of scrub from track edges.

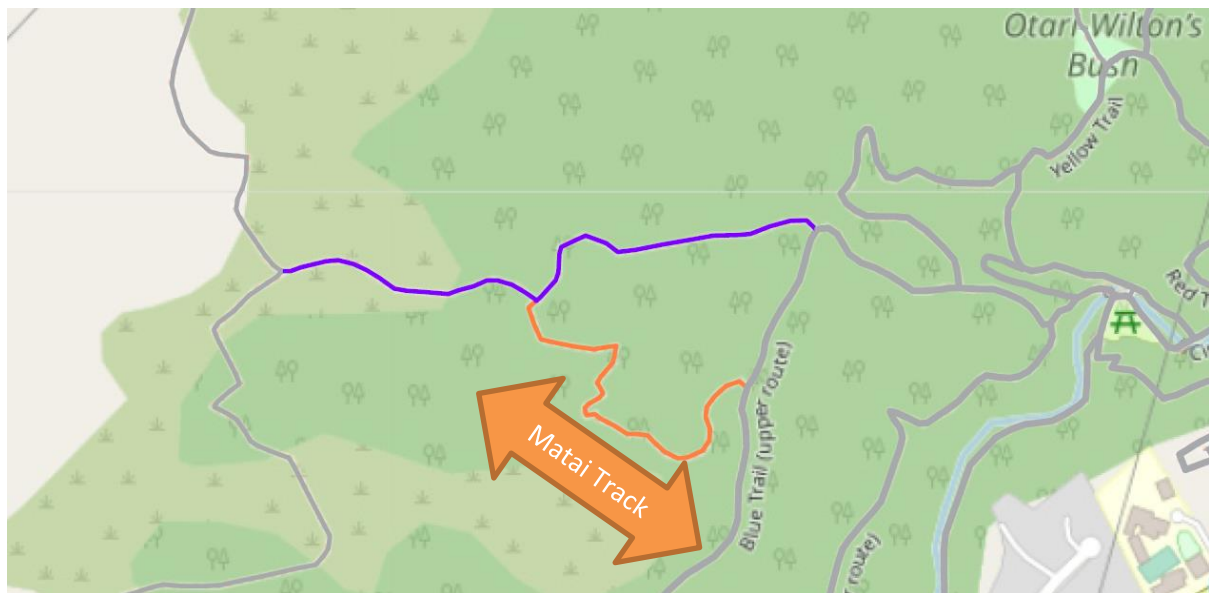


Photo 6: Top of track

Comment: Connects to the Kohekohe Trail and provides a good loop trip returning to Otari-Wilton's Bush via the Flax Clearing.

Recommendation: None.

Matai (aka Poppelwell) Track (to Rimu Spur / Mauve Track)



WCC classification	Tramping Track
Length	320 metres
Average width	0.4–1 metre
Gradient (degrees)	5–25 degrees
Surface	Leaf litter over natural ground
Wayfinding signs	None, except informal painted arrow on bollard at bottom of Matai / Poppelwell Track (where it meets the Blue Trail)
Mapboards	None
Interpretation signs	None
Structures	None
Threats (weeds, erosion, etc)	Visitors getting lost on unmarked tracks
User number estimates	Very low
Public safety record	None
Network significance	Low. This track is an alternative to the bottom half of the Rimu Spur / Mauve Track.
Strategic alignment with Open Spaces Plan	Low
Potential/Notes	
<ul style="list-style-type: none"> • The lower entrance to this track is now quite obvious, and the track itself is more aesthetically pleasing than the upper Blue Trail. • Within 3 minutes of walking up this track, users reach a beautiful matai. • Safe to assume this track was closed in the late 1960s, possibly due to lack of public access onto the Skyline at that time. 	

Photos



Photo 1: From the upper Blue Trail, the Matai / Poppelwell Track starts behind this bollard

Comment: The entrance is becoming quite obvious, and someone has painted an arrow on the bollard. This is also the start of the 1958 Blue Trail alignment.

Recommendation: Further consideration to the future of this track is required.



Photo 2: Typical section of Matai / Poppelwell Track

Comment: It is aesthetically more pleasing than the Blue Trail, which is now badly eroded.

Recommendation: Consider realigning the upper Blue Trail to use the bottom section of this trail as far as the significant matai.



Photo 3: Matai

Comment: This is a striking specimen.

Recommendation: This tree could be a destination.



Photo 4: Track dropping into Hensley Burn

Comment: A bit overgrown here.

Recommendation: None.



Photo 5: A glade at Hensley Burn

Comment: Another lovely section of forest with large tawa, karaka and kohekohe. Navigating this section is not easy.

Recommendation: If the track were to be reopened, wayfinding markers would be needed.



Photo 6: Climbing out of the glade at 20–25 degrees, with several zigzags

Comment: This section is narrow and offers a low level of service.

Recommendation: None.

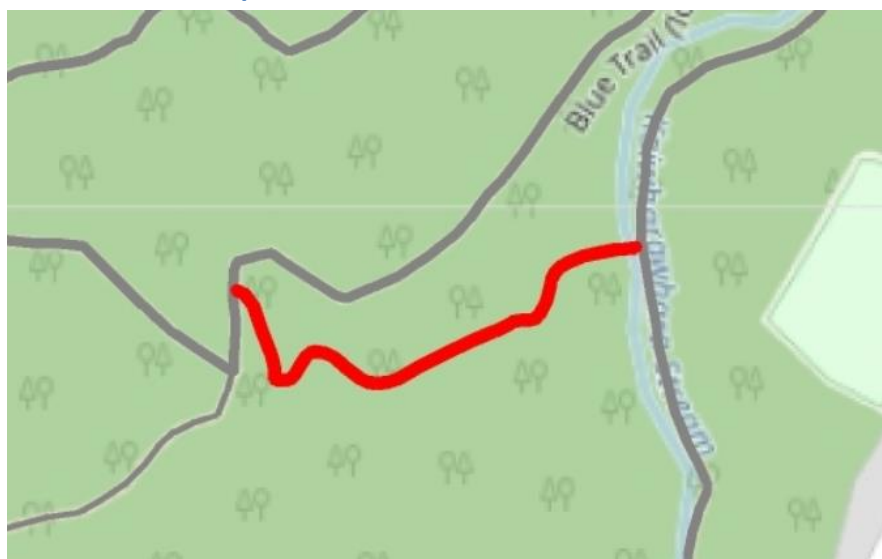


Photo 7: Top of this track, where it meets the Rimu Spur / Mauve Track.

Comment: Report author is pointing down the Rimu Spur / Mauve Track to the Blue Trail.

Recommendation: None.

P.G. Gibbs Path (historic track from lower Blue Trail to Kaiwharawhara Track)



WCC classification	Tramping Track
Length	Estimate 280 metres
Average width	0.8 metre
Gradient (degrees)	10–25 degrees
Surface	Variable, including off camber and steps.
Wayfinding signs	None
Mapboards	None
Interpretation signs	None
Structures	None
Threats (weeds, erosion, etc)	None
User number estimates	None (it looks like no one has walked down this path for years).
Public safety record	n/a
Network significance	An historic link from the far end of the lower Blue Trail to the Kaiwharawhara Track.
Strategic alignment with Open Spaces Plan	Moderate
Potential/Notes	
<ul style="list-style-type: none"> • This is a very scenic track that has high network value. However, it is also unsustainably steep and has three unbridged water crossings. • Our recommendation is to keep this track closed and investigate a new track through regenerating forest to the south, where there is easier topography and a much gentler, more sustainable alignment could be achieved. 	

Photos



Photo 1: Bridge over Christensen Burn, lower Blue Trail

Comment: The P.G. Gibbs Path starts from the west side of this bridge.

Recommendation: None.



Photo 2: View of P.G. Gibbs Path branching off lower Blue Trail

Comment: It would be interesting to know how this obvious track fell into disuse.

Recommendation: Do nothing.



Photo 3: Upper section of P.G. Gibbs Path

Comment: Well overgrown, but still easy to follow.

Recommendation: None.



Photo 4: von Mueller Falls, approximately 6 metres high.

Comment: The path crosses at the base of the falls, but there is no bridge and several metres of the track has been washed away.

Recommendation: None.



Photo 5: P.G. Gibbs Path below von Mueller Falls

Comment: This path is up to 25 degrees steep (as steep as the steepest sections of the Blue Trail) as it runs parallel to Christensen Burn.

Recommendation: None.



Photo 6: Crossing Christensen Burn about 30 metres from the bottom.

Comment: At the end of a dry summer, the burn was carrying very little water.

Recommendation: None.



Photo 7: Bottom of P.G. Gibbs Path

Comment: Passing through low regenerating forest.

Recommendation: None.



Photo 8: Planted rimu at Kaiwharawhara revegetation site 15 (planted in 2003)

Comment: The revegetation is looking fantastic here.

Recommendation: None.



Photo 9: Tradescantia beside Kaiwharawhara Stream

Comment: Need to control the spread of this weed.

Recommendation: Schedule weed control.



Photo 10: Kaiwharawhara Stream at bottom of P.G. Gibbs Path

Comment: 3.3 metres wide at this point. There used to be a bridge here. The Kaiwharawhara Track is just 5 metres to the right.

Recommendation: Keep this steep track closed and investigate a better alignment.

Programme of works: minor tracks

1. Cemetery to Kaiwharawhara Valley Track
2. Ian Galloway Park to Kaiwharawhara Valley Track via cemetery
3. Wilton Road to Kaiwharawhara Valley, and
4. Rimu Spur Track

CATEGORY	WORKS	COST ESTIMATES
1. DEFERRED MAINTENANCE AND URGENT REPAIRS	Refurbish wooden signs (1)	\$100
	Replace plastic signs (1)	\$100
	New plastic signs (6)	\$600
	Clean plastic signs (7)	\$100
	New bollards with plastic signs (3)	\$450
	Upgrade wooden steps (8) or realign track	\$800
2. RENEWALS AND FUNDED UPGRADES	Install steps or realign track (5)	\$500/\$1,000
	New steps at bottom of existing flights (4)	\$400
	Widen track opposite Surry St (30m)	\$300
	New entrance sign opposite Surry St	\$500
	Install 200mm culvert pipe (Surry St)	\$150
	Cut back leaning mahoe (2)	\$200
3. FUTURE CONCEPT	Build 50m track from I.G. Park to Cemetery	\$1,750
	Reopen Rimu Spur Track (minor works and two new signs)	\$1,500

MINOR TRACKS REVIEW ENDS