



Geological History

A Tectonic and Glacial History

Tectonic movements have resulted in the basin and range topography of the Otago area. The Whakatipu region was heavily glaciated over the last 2 million years. As the ice retreated from the Whakatipu basin, Lake Wakatipu began to form, leaving sandy and silty till over the bedrock surfaces. Deposits of the Shotover fan/delta isolated Lake Hayes as levels fell.

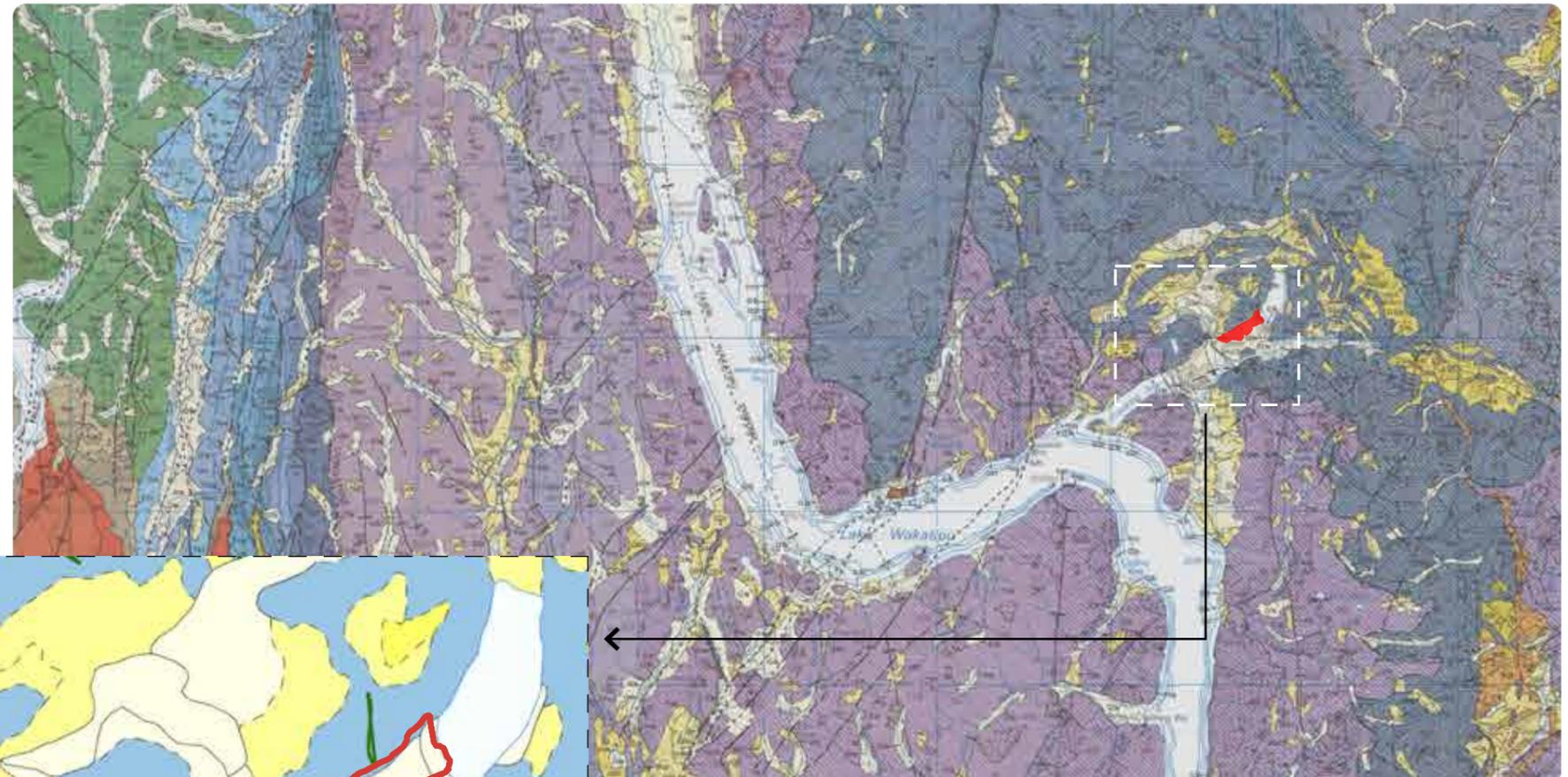
These distinct landforms are strong features of the current landscape character of the area.

Schist

The basement rock type in the basin is Otago Schist formed of sedimentary rocks.

Till & Alluvium

Outwash plains & lake silt form fans and terraces across the basin particularly in the Frankton/Kawarau River area.



KEY

- | | |
|---|---|
|  Schistose |  Unconsolidated Till
Glacial Deposits |
|  Pelitic Schist
variably segregated,
veined & foliated |  Fan Alluvium
Gravel & Sand |
| |  Approximate Focus Area |

Geology of Wakatipu area. Source: Extract from 1:250,000 Geological Map 18 Wakatipu. Institute of Geological and Nuclear Sciences.

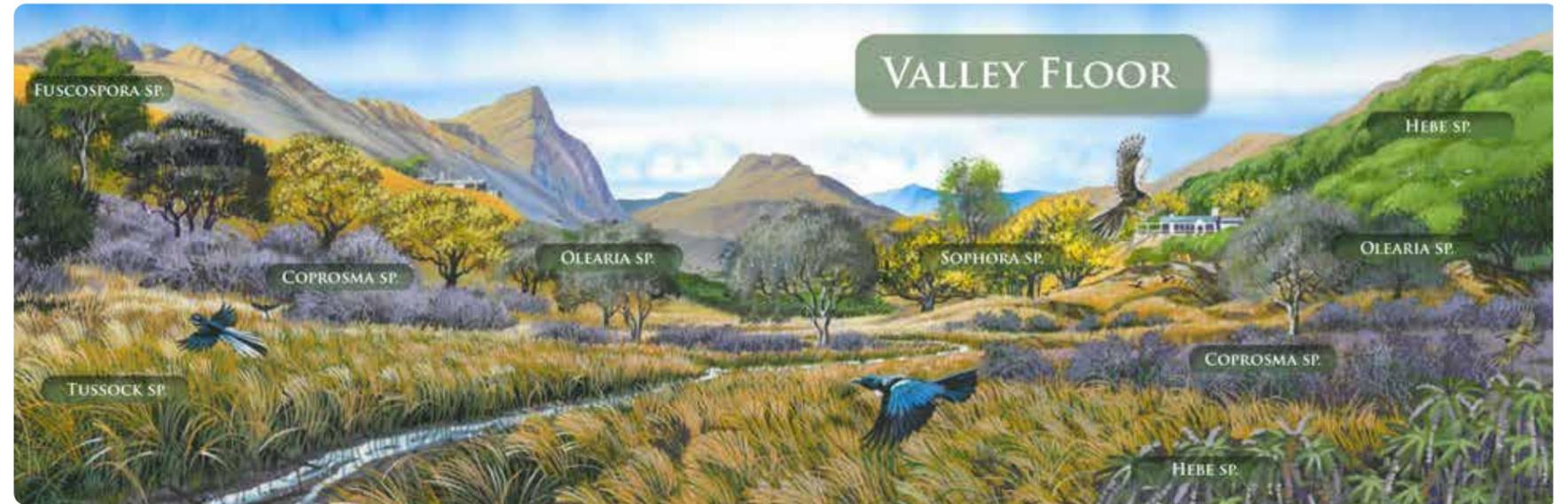
Map showing geology of Ladies Mile and surrounding area.
Source: Geology NZ Webmap: data.gns.cri.nz/geology/

Ecological History

Original Ecologies

The original vegetation of Te Pūtahi Ladies Mile would have likely been scrub, shrubland and tussock-grassland. Native forests in the area were predominantly Beech and broadleaf-podocamp forests. Kowhai would have also been a dominant species.

The Lakeshore of Lake Hayes would have been a wetland comprised of native sedges, flax and toi toi amongst others. This diverse array of plant species would have provided numerous sources of food and habitat for native birds, lizards, bats and insects.



Illustrated visualisation of suggested native planting for the Wakatipu Basin valley floor. Source: The Wakatipu Reforestation Trust: Growing-Native-Plants-In-The-Wakatipu.pdf



Photograph from Pigeon Island, Lake Wakatipu (date not specified). Source: Hocken Collection, University of Otago, c/n E3104/32



Expected original vegetation of the Wakatipu Basin. Source: Statement of Evidence of Glenn Alister Davis on behalf of QLDC: Ecology - Wakatipu Basin Variation Area 28 May 2018. P10. Image retrieved from: Landcare Research Limited 2016



Local Ecology

Existing ecosystems and planting

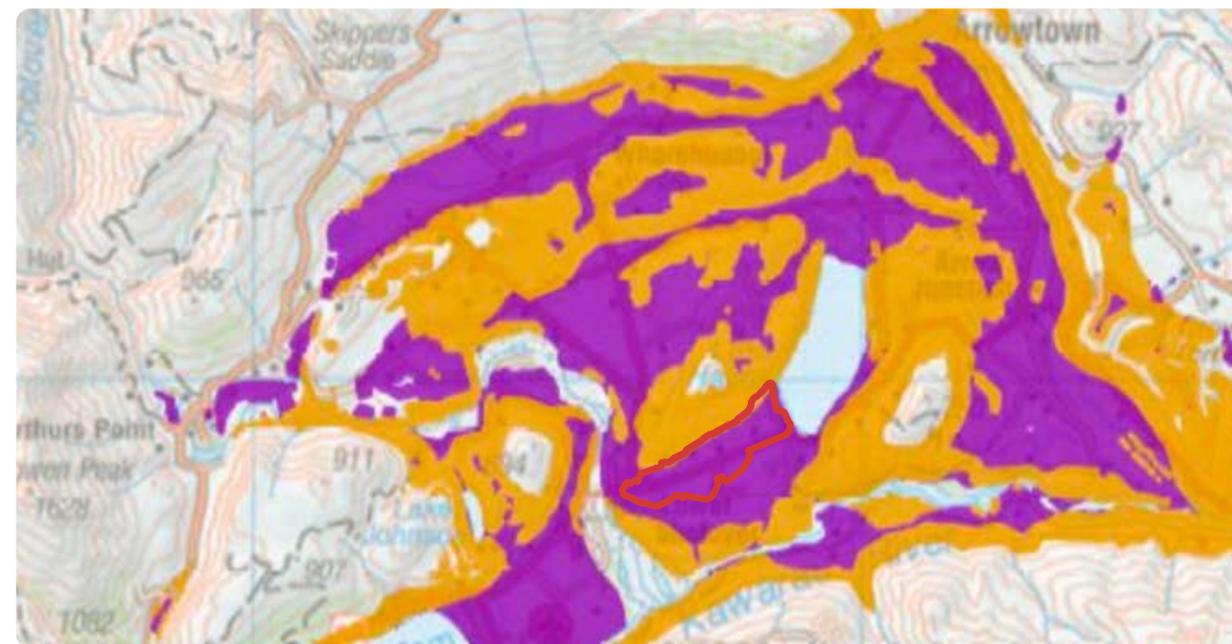
The District contains a high proportion of exotic planting and grasslands that do not support indigenous plants or animals. However, Indigenous biodiversity is an important component of ecosystem services and the District's landscapes. There are a diverse range of habitats that support indigenous plants and animals across the basin. These include forests, shrubland, herbfields, tussock grasslands, wetlands, lake and river margins.

Te Pūtahi Ladies Mile Focus Area has very limited Indigenous planting and habitat. Historical and present-day activities in the area have resulted in a biological environment now dominated by exotic pasture and introduced trees. The remnants of indigenous ecosystems that persist within the Basin are typically small, isolated, and degraded.

This presents an opportunity to improve the presence of indigenous ecosystems at Te Pūtahi Ladies Mile.

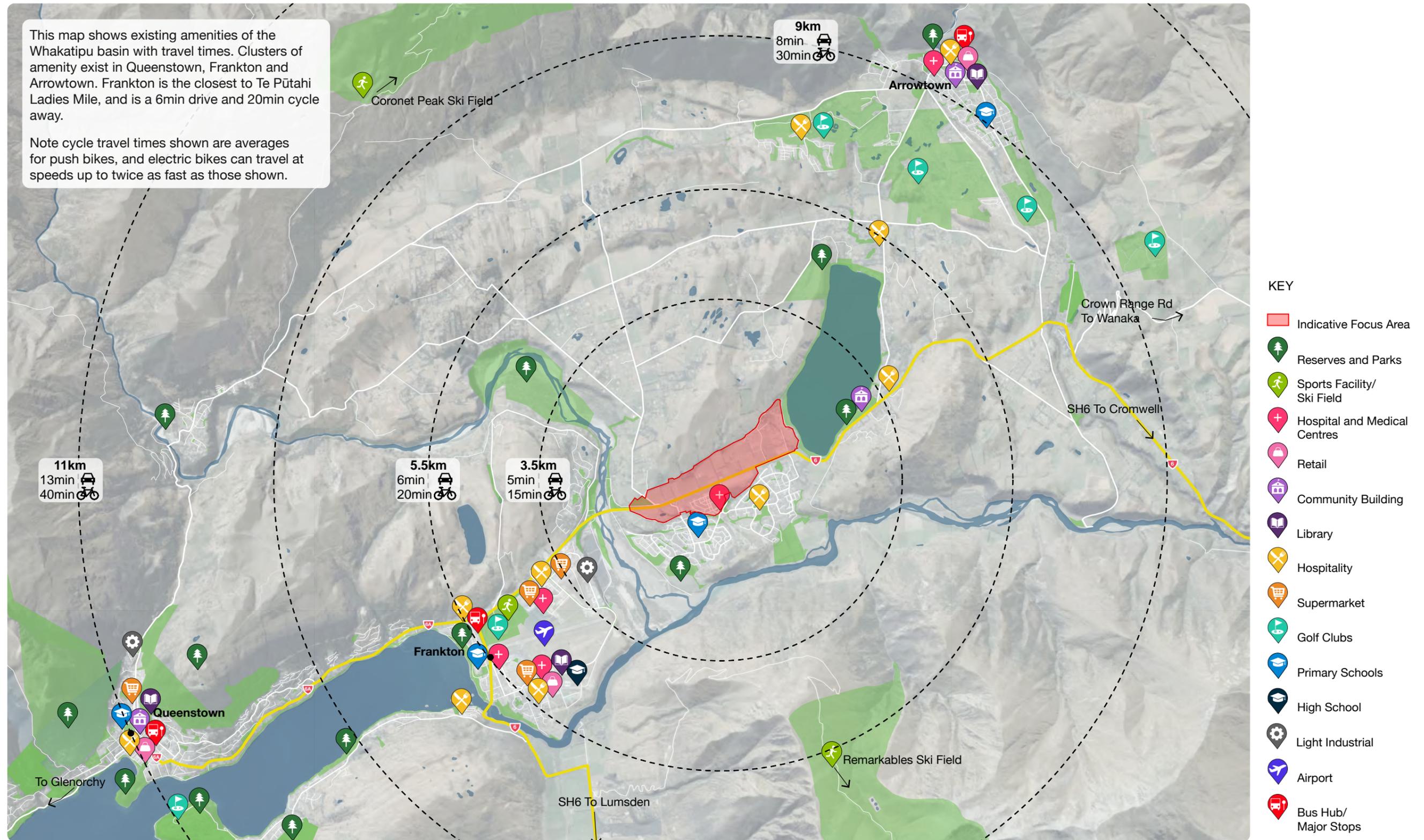


Current vegetation of the Wakatipu Basin. Source: Statement of Evidence of Glenn Alister Davis on behalf of QLDC: Ecology - Wakatipu Basin Variation Area 28 May 2018. P13. Image retrieved from: Landcare Research Limited 2016.



Threatened Indigenous vegetation and biodiversity. Source: Queenstown Lakes District Council - Proposed District Plan Decisions Version (April 2020). P33-23.

Existing Amenities

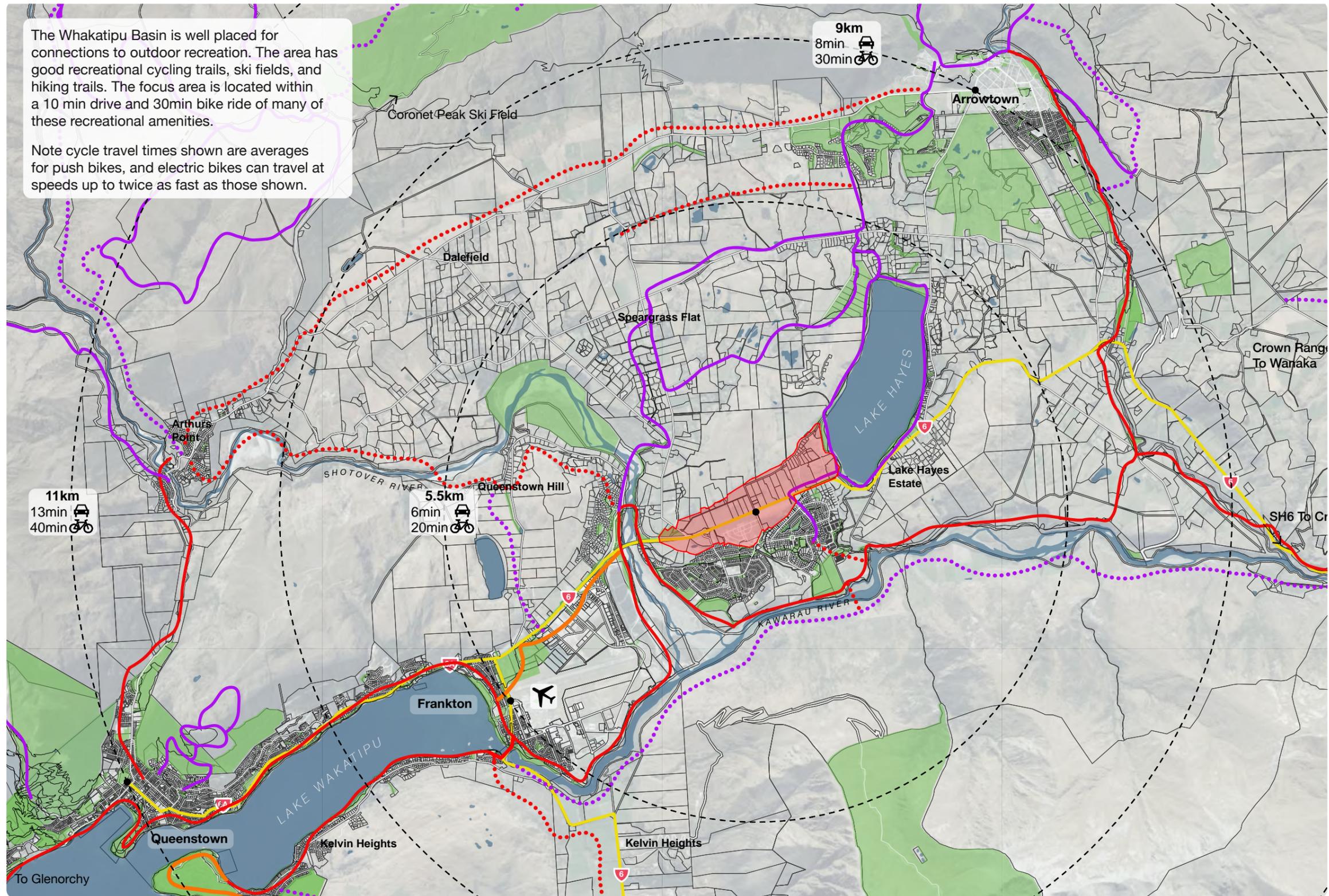




Trails and Recreation

The Whakatipu Basin is well placed for connections to outdoor recreation. The area has good recreational cycling trails, ski fields, and hiking trails. The focus area is located within a 10 min drive and 30min bike ride of many of these recreational amenities.

Note cycle travel times shown are averages for push bikes, and electric bikes can travel at speeds up to twice as fast as those shown.



KEY

- Existing Main Connector Trail
- Proposed Main Connector Trail
- Existing Secondary Connector Commuter Trail
- Existing Recreational Trails
- Proposed Recreational Trails
- Existing Open Space
- State Highway

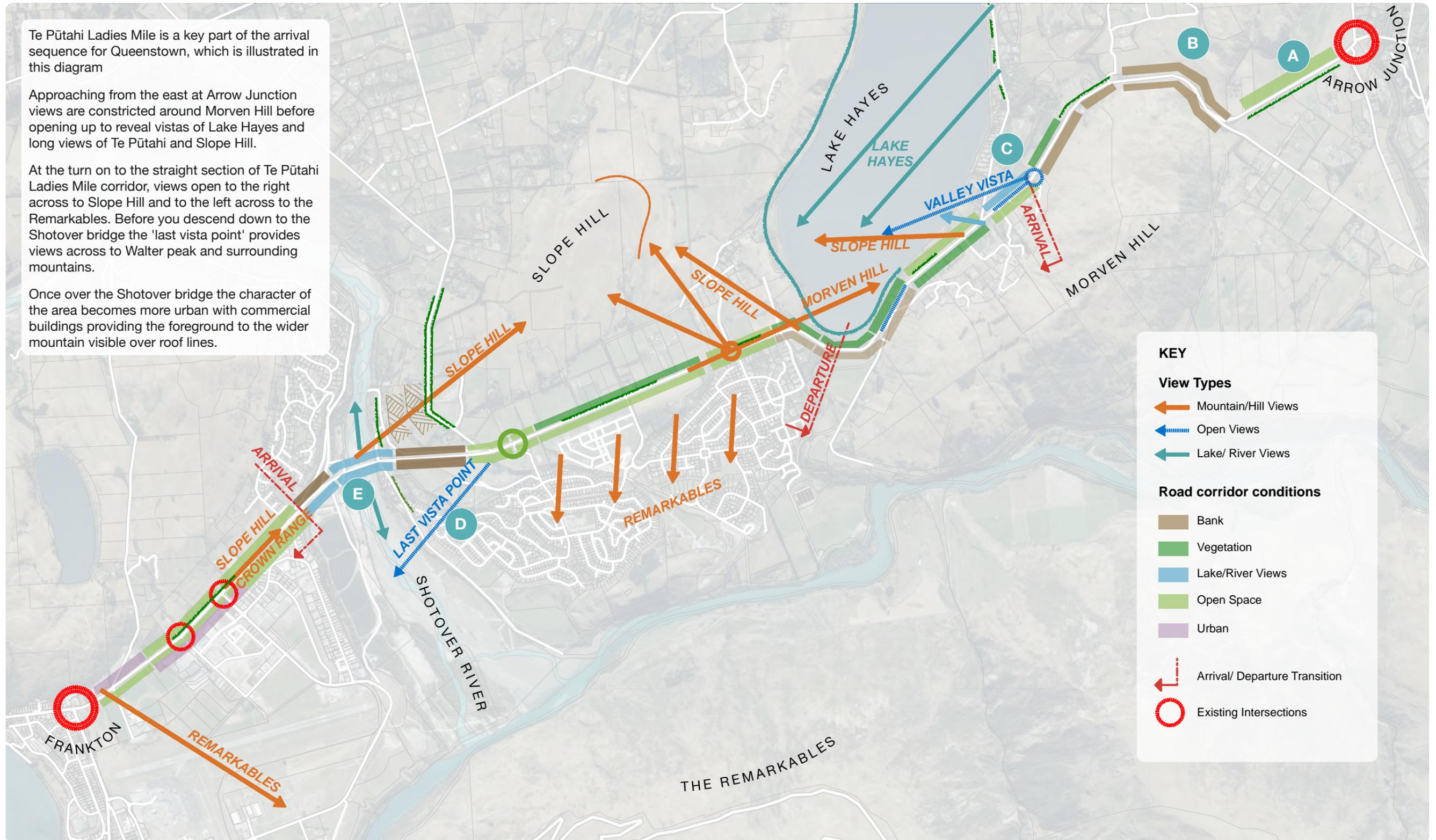
Views and Arrival

Te Pūtahi Ladies Mile is a key part of the arrival sequence for Queenstown, which is illustrated in this diagram

Approaching from the east at Arrow Junction views are constricted around Morven Hill before opening up to reveal vistas of Lake Hayes and long views of Te Pūtahi and Slope Hill.

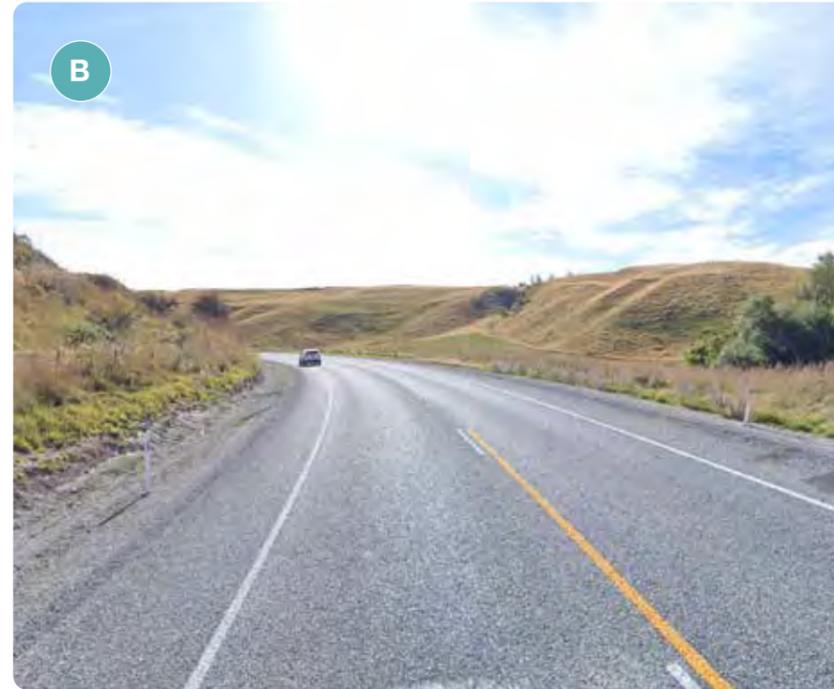
At the turn on to the straight section of Te Pūtahi Ladies Mile corridor, views open to the right across to Slope Hill and to the left across to the Remarkables. Before you descend down to the Shotover bridge the 'last vista point' provides views across to Walter peak and surrounding mountains.

Once over the Shotover bridge the character of the area becomes more urban with commercial buildings providing the foreground to the wider mountain visible over roof lines.



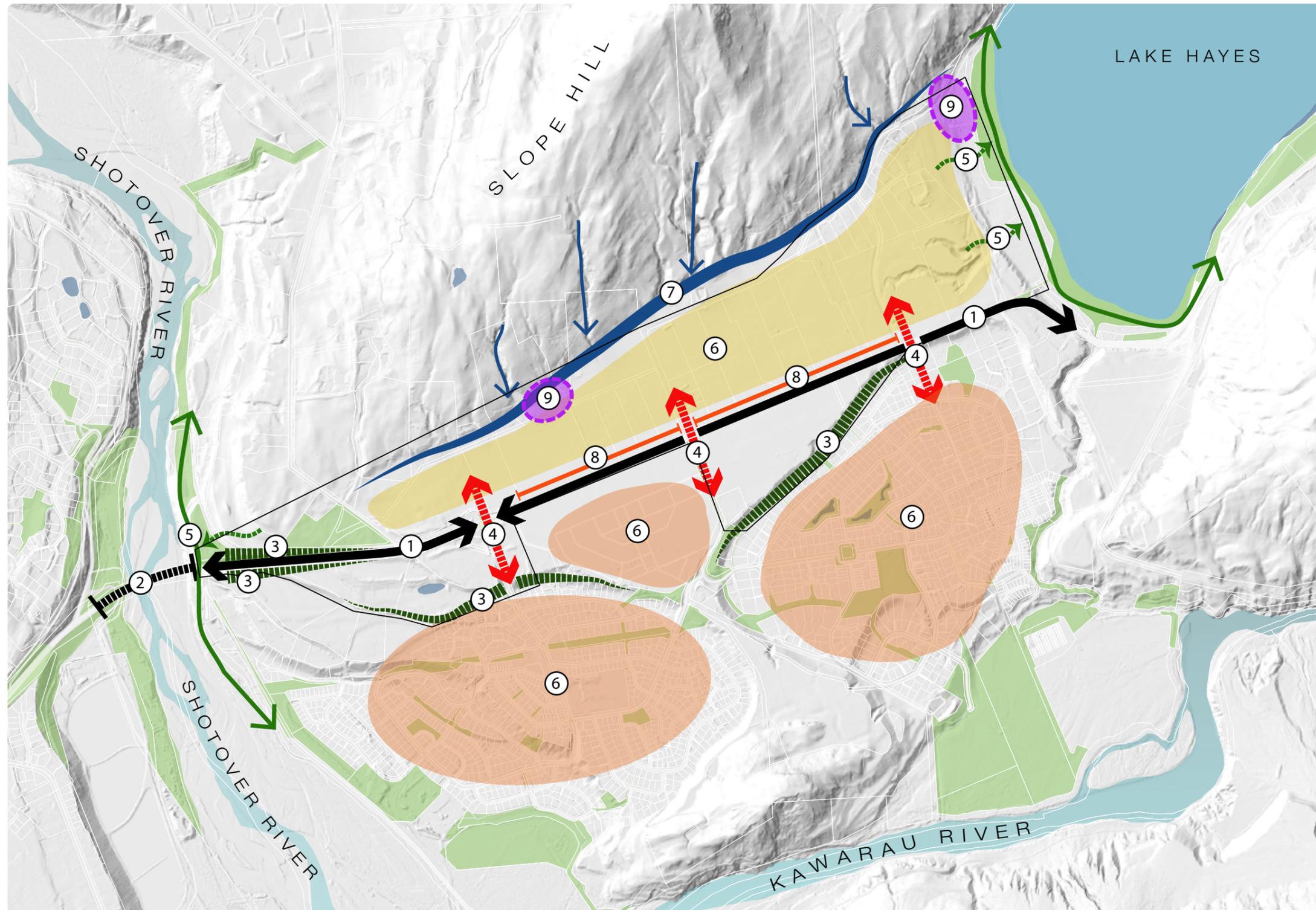


Arrival View Sequence



Source: Google Maps Street View 2020

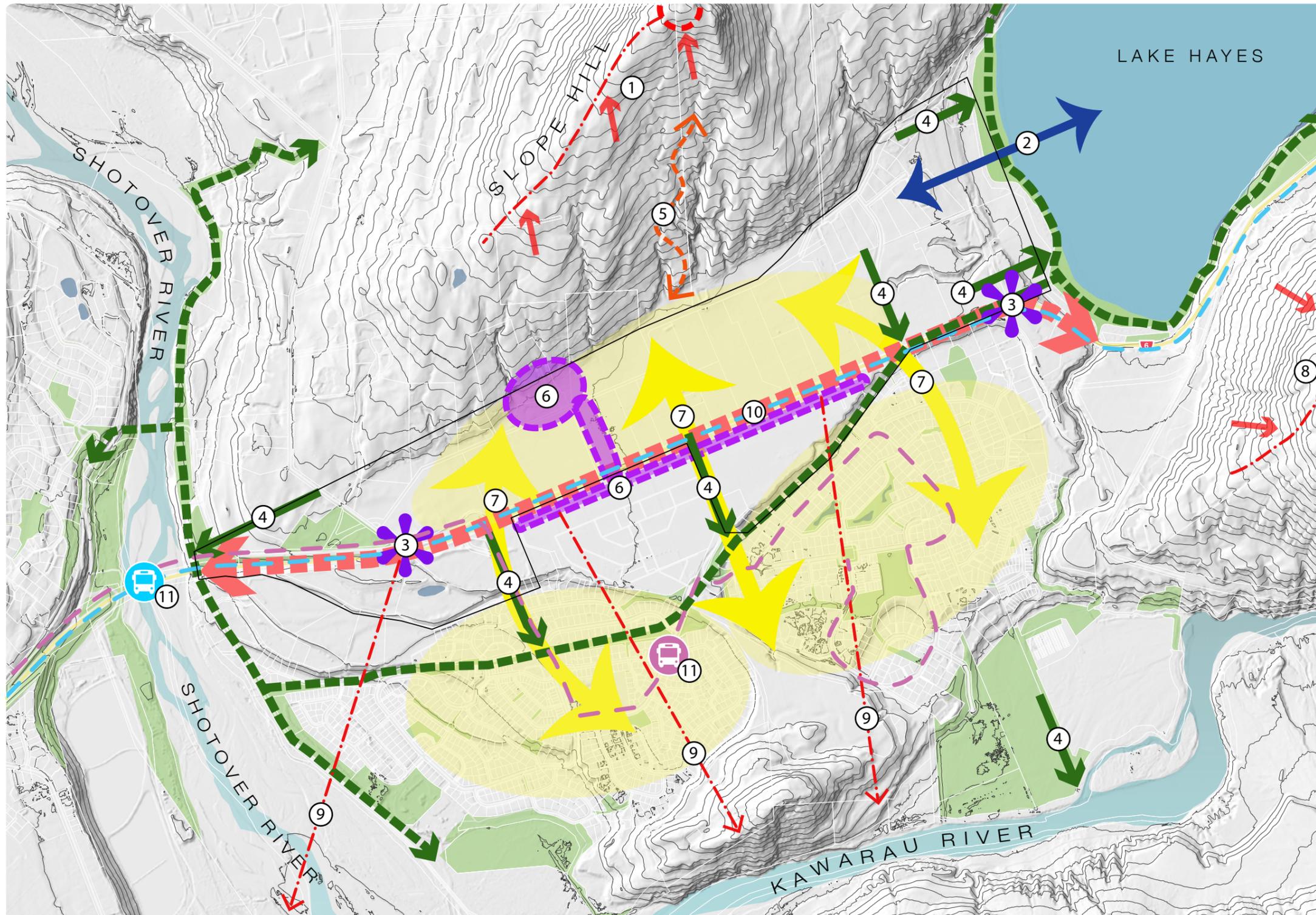
Existing Physical Constraints



KEY

- ① High speeds along SH6 (80-100km/h)
- ② Choke point for traffic at bridge
- ③ Steep embankment
- ④ Poor connectivity across SH6
- ⑤ Poor connectivity to existing trail network
- ⑥ Existing communities with limited social infrastructure
- ⑦ Stormwater-related constraints along base of hill
- ⑧ Shelterbelt trees are a visual barrier
- ⑨ Existing protected features and trees

Existing Opportunities



KEY

- ① Maintain views to Slope Hill (Outstanding Natural Feature)
- ② Enhance connection to Lake Hayes
- ③ Potential Gateway to Ladies Mile
- ④ Create links to existing trails network
- ⑤ Potential new access up Slope Hill
- ⑥ Retain existing homestead and notable trees
- ⑦ Connect existing residential neighbourhoods to new development and amenities
- ⑧ Views to ridgelines
- ⑨ Views to The Remarkables and surrounding mountains
- ⑩ Reduce speed along SH6 and create cycleway and walkway
- ⑪ Connect into existing Bus networks

Masterplan Diagram C

Help us shape the future of the project. Join the team.



Masterplan Diagram B

Help us shape the future of the project. Join the team.



Masterplan Diagram A

Help us shape the future of the project. Join the team.



Concept Diagrams





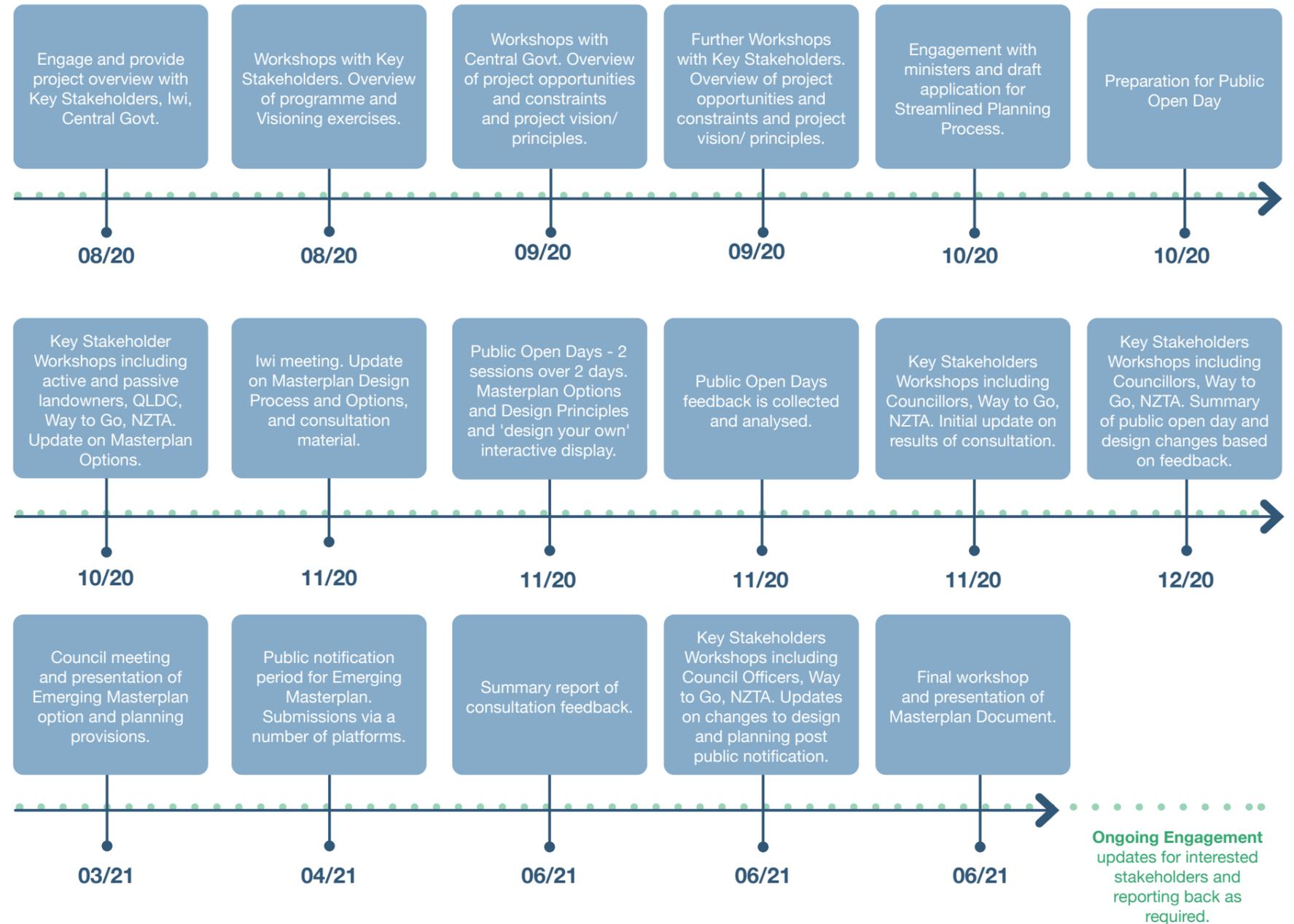
Engagement

Engagement Timeline

Te Pūtahi Ladies Mile is a key location of interest for a number of parties; engagement with stakeholders and the wider community is critical to assist in developing a vision and set of outcomes for the area.

The stakeholder engagement strategy for the project included a mixture of meetings, workshops, phone conversations and online meetings. This consultation was ongoing and regular throughout the process.

Public consultation included involved Public Open Days and online/ social media engagement. Public Open Days were held in November 2020, and a public meeting was held 5th May 2021.





Public Engagement Outcomes

Help shape the future of Te Pūtahi: Ladies Mile

Key themes from the public open days feedback		Outcome
Concerns on traffic impact and need for a second bridge	✓	The transport modelling and subsequent transport strategy developed for the masterplan demonstrates that with a high density and mix of uses, combined with a focus on active/public transport modes with supporting transport demand management measures, the transport impacts are minimised and the need for a 2nd bridge is not required.
Less development and density is preferred	✓	Area of high and medium density were reduced. Over 40Ha to the eastern end of Ladies Miles adjacent to Lake Hayes was removed from the developable area.
Keeping development back from State Highway 6, either through increased building setback or lowering height adjacent to the road	✓	Building setbacks and height restrictions against SH-6 are included in the structure plan. For example; a landscape buffer to the northern side of SH-6 has been added, and building heights adjacent to SH-6 reduced to 3 storeys.
Keeping development away from the western shore of Lake Hayes	✓	The Lake Hayes edge and adjacent land is not rezoned and therefore protected as rural/open space. Development area is set back over 600m from the Lake Hayes edge.
The retention of the Council-owned land on the south side of State Highway 6 for the benefit of the local community (e.g. community facilities and sports fields) rather than activities that would provide for District-wide benefits	✓	Council owned land to the south side of SH-6 zoned for open space and community purposes.
Where there is increased building height and density, locating this to the base of Slope Hill rather than adjacent to State Highway 6	✓	Areas of higher building is located from the mid point of the site back to slope hill, rather than adjacent to SH-6.
Support for creating a community focal point including increasing the size of the commercial / retail centre	✓	The local commercial centre is located centrally to the new community and existing communities south of SH-6, and the zoning allows for future growth as demand increases. The commercial centre has significantly increased in size to allow for future growth in this area.
Removal of the proposed roading link to Sylvan Street in Lake Hayes Estate due to effects on privacy and amenity of adjoining landowners;	—	Sylvan Street road link is required for Public Transport accessibility and resilience for the wider area and will be required once the eastern end of Ladies Mile develops.
Removal of the Marshall Avenue link due to effects on the viability of Threepwood Farm	—	Future cycle and pedestrian link along paper road and Marshall Avenue for access from Te Putahi / Ladies Mile to Lake Hayes
Retention of existing mature trees.	✓	The existing line of oak trees perpendicular to SH-6 are being protected, other than those required to be removed due to the main collector road.

Design Response to Public Engagement

- 1 Less development and density is preferred; ✓
- 2 Keeping development back from State Highway 6 ✓
- 3 Keeping development away from the western shore of Lake Hayes ✓
- 4 The retention of the Council-owned land on the south side of State Highway 6 for the benefit of the local community ✓
- 5 Where there is increased building height and density, locating this to the base of Slope Hill rather than adjacent to State Highway 6 ✓
- 6 Support for creating a community focal point including increasing the size of the commercial / retail centre ✓
- 7 Removal of the Sylvan Street link in Lake Hayes Estate due to effects on privacy and amenity of adjoining landowners - *this to be implemented on demand* —
- 8 Removal of the Marshall Avenue link due to effects on the viability of Threepwood Farm ✓
- 9 Retention of existing mature trees ✓



