

ASSESSMENT OF TRANSPORT EFFECTS

NZ Transport Agency Waka Kotahi
Mill Road Stage 1

AUGUST 2026

NZ TRANSPORT AGENCY
WAKA KOTAHI

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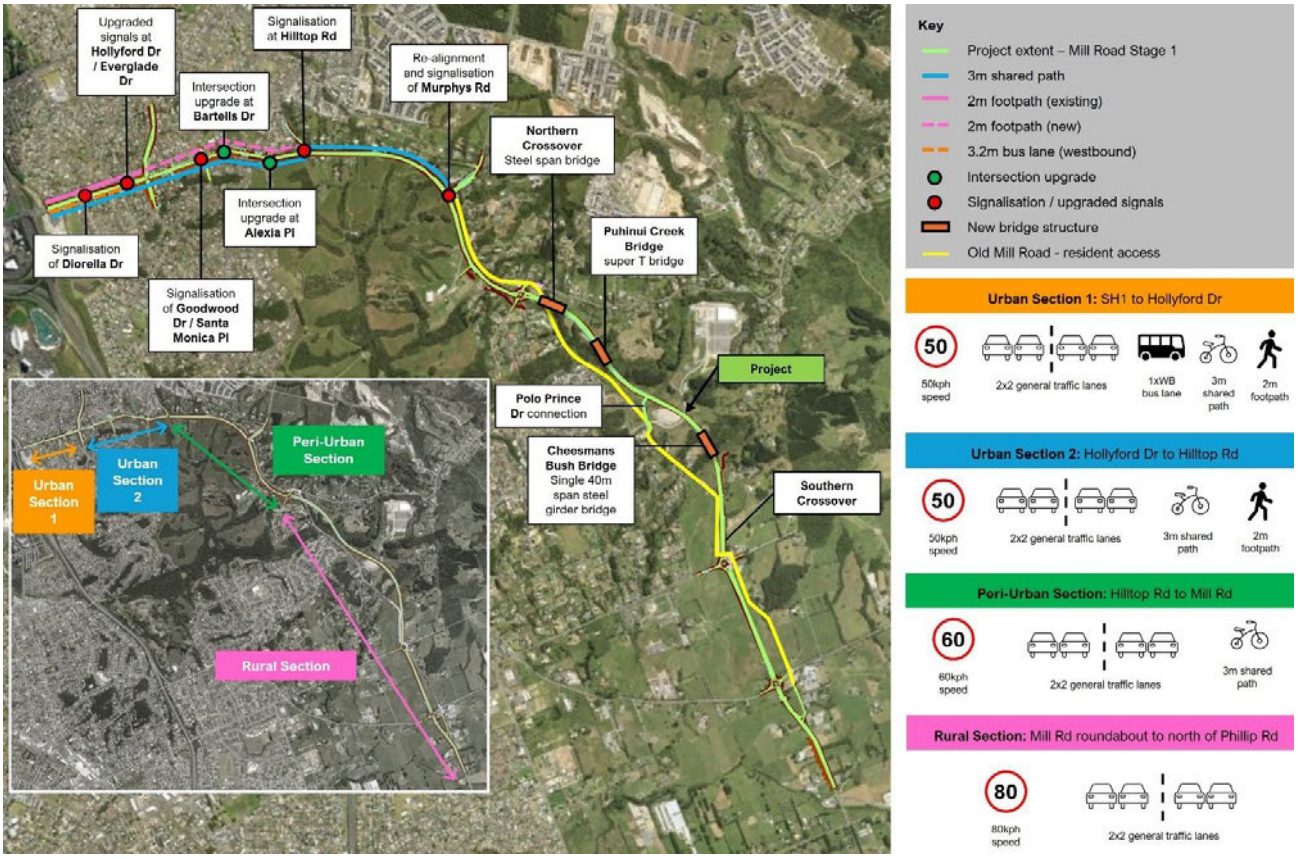
QUALITY REVIEW AND APPROVAL RECORD

Item	Name	Date
Prepared by:	Maf Cipriano, Beca Limited	August 2026
Reviewed by:	Joe Phillips, Beca Limited	August 2026
Approved for lodgement by:	Nicola Bishop, NZTA	August 2026

EXECUTIVE SUMMARY

The Mill Road corridor is identified as one of the Roads of National Significance **(RoNS)** in the Government Policy Statement on Land Transport 2024-34 **(GPS)**. It will ultimately comprise a new four-lane 21.5km road corridor in three stages, running parallel to State Highway 1 **(SH1)**.

Stage 1 of the Mill Road Corridor (**the Project)** spans from Manukau to Takaanini (Redoubt Road Interchange with SH1 to north of Phillip Road) and has been prioritised by the Government and the NZ Transport Agency Waka Kotahi **(NZTA)** due to significant congestion arising from ongoing urban development and high traffic demand. The components of the Project are shown below.



This assessment compares the current design of the Project **(Consenting Design)** with the previous design **(2014 Design)** which informed the current designations. The current designations were confirmed for the Project in 2016 and recently transferred from Auckland Transport to NZTA, under reference Designation 6786. We have assessed the actual and potential transport effects associated with the operation and construction of the Project as it relates to the proposed changes in the corridor design, designation footprint and to the designation conditions. We have also assessed the transportation benefits associated with the Project.

The benefits of the Project are:

- **Improved traffic efficiency on Mill Road between Redoubt Road Interchange and Phillip Road.** When compared to without the Project scenario in 2031 and 2051, journeys along the project corridor are predicted to be over 20% faster in the peak direction during peak hours. The percentage of vehicle kilometres travelled **(VKT)** that experience congestion in 2051 reduces from 39% to 22% in the AM peak, but there is a slight increase from 1% to 7% in the PM peak. The provision of a westbound bus lane in the western end of the corridor improves bus travel time by two minutes during peak periods.
- **Enhanced transport network resilience.** Resilience testing with assumptions on lane closures on SH1 indicate that the additional capacity on Mill Road will attract and accommodate more vehicles, when compared to without the Project in 2051. In terms of delays on the Project corridor, the

percentage of freight VKT experiencing congestion in the interpeak reduces from 9% to 7%, indicating that freight vehicles are able to avoid congested links, improving movement reliability of goods.

In addition to the above, the Project co-benefits are:

- **Improved safety on the Project corridor**, with an anticipated reduction of death and serious injury **(DSI)** crashes by more than 50%. The introduction of shared path facilities and crossing facilities at intersections on the urban section of the corridor will improve safety for active mode users.
- **Good integration with the existing transport network** with the introduction of the westbound bus lane and improvement of bus travel times from Hollyford Drive to Redoubt Road interchange. In addition, the productivity on Mill Road increases up to 60% on the Project corridor.
- **Supports housing development and economic growth**. Even with traffic growth due to population increase, reduced congestion levels and reliable levels of service on the corridor are anticipated with the Project in place.

In terms of the changes to the 2014 Design:

- The changes in the corridor design and designation footprint have not resulted in any additional adverse effects to general traffic, in corridor performance and adjacent corridor performance, when compared to what was anticipated by the original designation.
- The proposed shared path on the urban and peri-urban section of the Project corridor, i.e., from Redoubt Road to Murphys Road, provides appropriate separation between vehicles and active mode users. It does not provide segregation between cyclists and pedestrians but is appropriate given the anticipated usage and the provision of a footpath (pedestrian-only) on the north side of the corridor from Redoubt Road interchange to Hilltop Road.
- Appropriate crossing facilities have been provided on the rural section of the Project corridor, i.e., from Murphys Road to Phillip Road. The changes have provided similar outcomes, when compared to the 2014 Design.
- The proposed walking and cycling facility on the rural section, i.e., from Murphys Road to Phillip Road, including the Old Mill Road corridor, will not result in the same level of benefit for cyclists and pedestrians. This will likely lead to reduced mode shift, as the pedestrian and cycle facilities are less attractive. Given the anticipated traffic volumes on the corridors, the safety outcomes will remain acceptable.
- Changes to property access are proposed. In some cases, these changes provide better outcomes when compared to the 2014 Design, while in other cases these result in reduced access. Details of specific changes are provided in Table 5-6.

In terms of the wider network impacts on parallel corridors upstream and downstream of the Mill Road Stage 1 corridor, these corridors remain congested or have some worsening in performance as a result of the Project. The Project corridor is somewhat limited by its connection into the existing corridor at Alfriston Road. Traffic trying to access the corridor from further south will be constrained due to the upstream network constraints. These effects are consistent with those anticipated under the 2014 Design.

Overall, the Project delivers clear positive benefits, and any adverse transport effects during the operational period will be localised and at a low level. This outcome remains broadly consistent with what was anticipated by the existing designations.

During construction, the Construction Traffic Management Plan **(CTMP)** will be implemented and will enable the temporary adverse transport effects to be appropriately managed. As a result, the likely transport effects during the construction period will be low.

We recommend that the existing designation conditions relating to transport and access should be deleted. The Consenting Design and CTMP fully satisfy the intent and requirements of the designation conditions.

1 INTRODUCTION

1.1 Project overview

The Project is described in detail in the substantive application, in summary the Mill Road Corridor in its entirety has been identified as one of the Roads of National Significance **(RoNS)** in the Government Policy Statement on Land Transport 2024-34 **(GPS)** for priority delivery to improve transport efficiency on the corridor and provide a more resilient roading network.

The Mill Road Corridor will ultimately comprise a new four-lane 21.5km road corridor in three stages, running parallel to State Highway 1 **(SH1)**.

Stage 1 of the Mill Road Corridor project **(the Project)** extends from Manukau to Takaanini, specifically from the Redoubt Road interchange with SH1 to just north of Phillip Road.

1.2 Purpose of the report

There are currently three designations in place for the Project all referenced as Designation 6786, as described in the substantive application. With changes proposed to the 2014 Design, alterations are being sought to Designation 6786 and associated approvals are being sought as part of a substantive application under the Fast-track Approvals Act 2024 **(FTAA)** to enable the Project.

This report outlines the transportation benefits associated with the Project. It also considers the actual and potential transport effects associated with the operation and construction of the Project on the existing and likely future environment as it relates to the proposed alterations. The report recommends measures to be implemented to avoid, remedy and/or mitigate any potential adverse effects. The assessment builds upon findings from the previous *Integrated Transport Assessment*[1] **(2014 ITA)** and confirms whether the designation conditions are still appropriate for managing the effects and identifies whether amendments to these conditions are justified. Additional mitigation measures are also proposed where necessary.

To address transport effects during the construction phase, the designations include conditions requiring the preparation of a Transport, Access and Parking Delivery Work Plan **(DWP)**. A Construction Traffic Management Plan **(CTMP)** has been prepared and is included in **Appendix C11** of the substantive application. The CTMP addresses the recommended construction traffic management measures set out in the DWP and forms part of the request for an Outline Plan to be waived.

This report has been prepared by Joe Phillips, Principal – Transportation. Mr Phillip's experience and qualification are set out in **Appendix B** to this report.

1.3 Report structure

The report is structured as follows:

- Section 2 – Identification and description of the existing and likely future transport environment;
- Section 3 – Brief overview of the Project in relation to transport matters;
- Section 4 – Transport benefits of the Project;
- Section 5 – Assessment of the actual and potential adverse transport effects arising from the construction and operation of the Project; and
- Section 6 – Review of existing Designation Conditions and Outline Plan Requirements.

This report should be read alongside the substantive application, which contains further details on the history and context of the Project. The relevant qualifications of the report author and acknowledgement of the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2023 is included in **Appendix B**. The methodology for the transport assessment is included in **Appendix C**.

[1] *Mill Road Corridor Upgrade Integrated Transport Assessment*, AECOM, 30 September 2014.

2 EXISTING AND FUTURE ENVIRONMENT

2.1 Location and surrounding land use

The Project can be divided into distinct land use areas:

- Urban section: The western end of the Project corridor, from Redoubt Road interchange to Murphys Road is surrounded by residential areas.
- Peri-urban section: The middle section of Redoubt Road, from Murphys Road to the existing Mill Road, is surrounded by more rural uses, such as lower density lifestyle blocks, and the nearby Tōtara Park and Equestrian Centre.
- Rural section: The eastern end from Mill Road/Redoubt Road intersection to just north of Phillip Road, includes rural areas (north of Mill Road) and developed residential areas (south of Mill Road). The major land uses are shown in Figure 2-1 below.

It is noted that the 2014 ITA which informed the existing designations identified similar land uses. The main difference is that Flat Bush is now a more developed residential area, compared to the 2014 ITA.

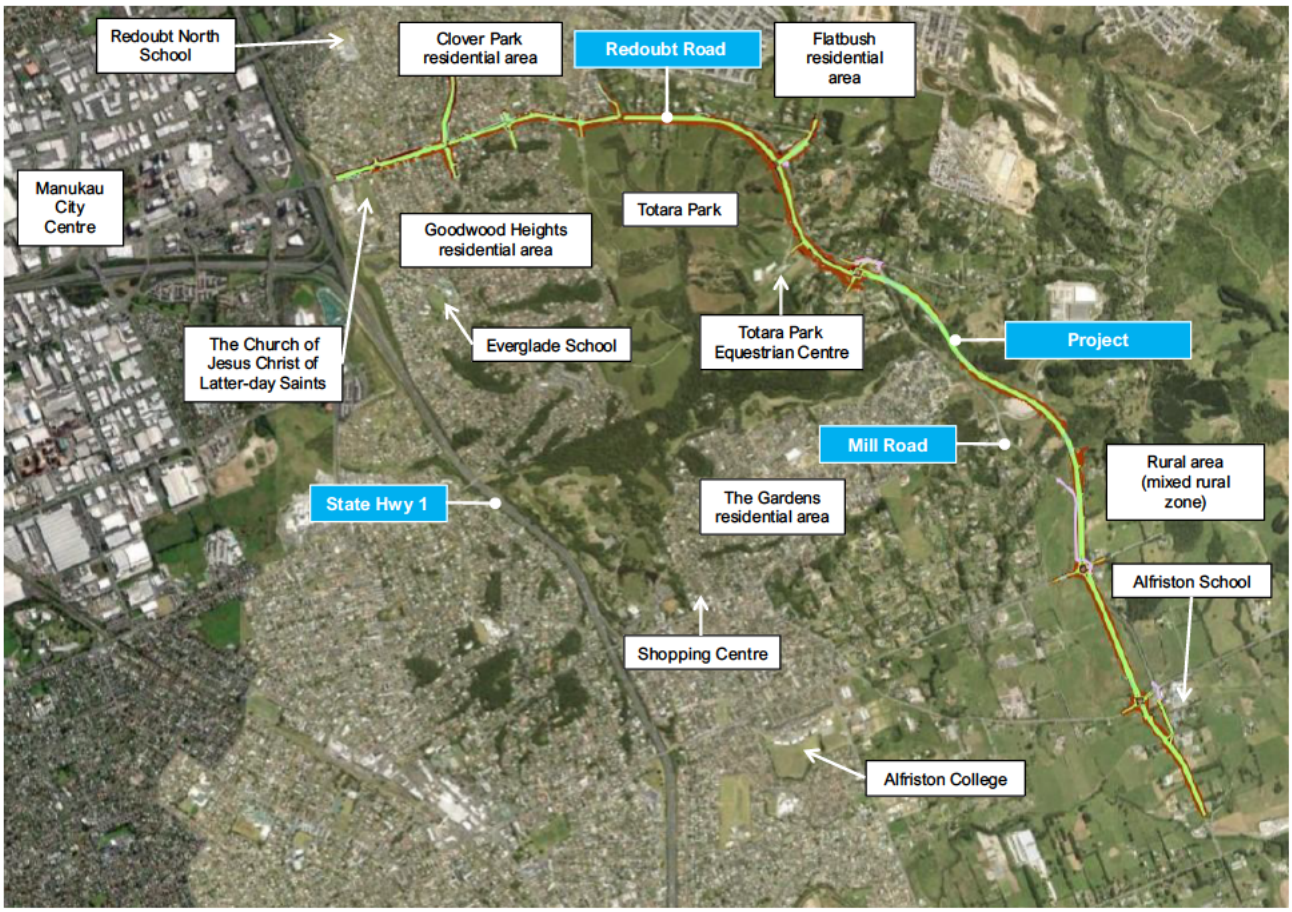


Figure 2-1 Surrounding Land Use

2.2 Transport context

2.2.1 Description of network

Stage 1 of the Mill Road Corridor provides a north-south connection, from the Redoubt Road interchange with SH1 to just north of Phillip Road. The full extent of the 21.5km Mill Road will connect further south to Papakura and Drury, as shown in Figure 2-2. In addition, the corridor provides connectivity to Auckland Airport via State Highway 20 **(SH20)**. In the context of the broader strategic transport network in South Auckland, the corridor is situated to the east of key parallel routes, namely SH1, Great South Road and the rapid transit rail network. The section of the Mill Road Corridor south of the Project also runs parallel to Porchester Road.

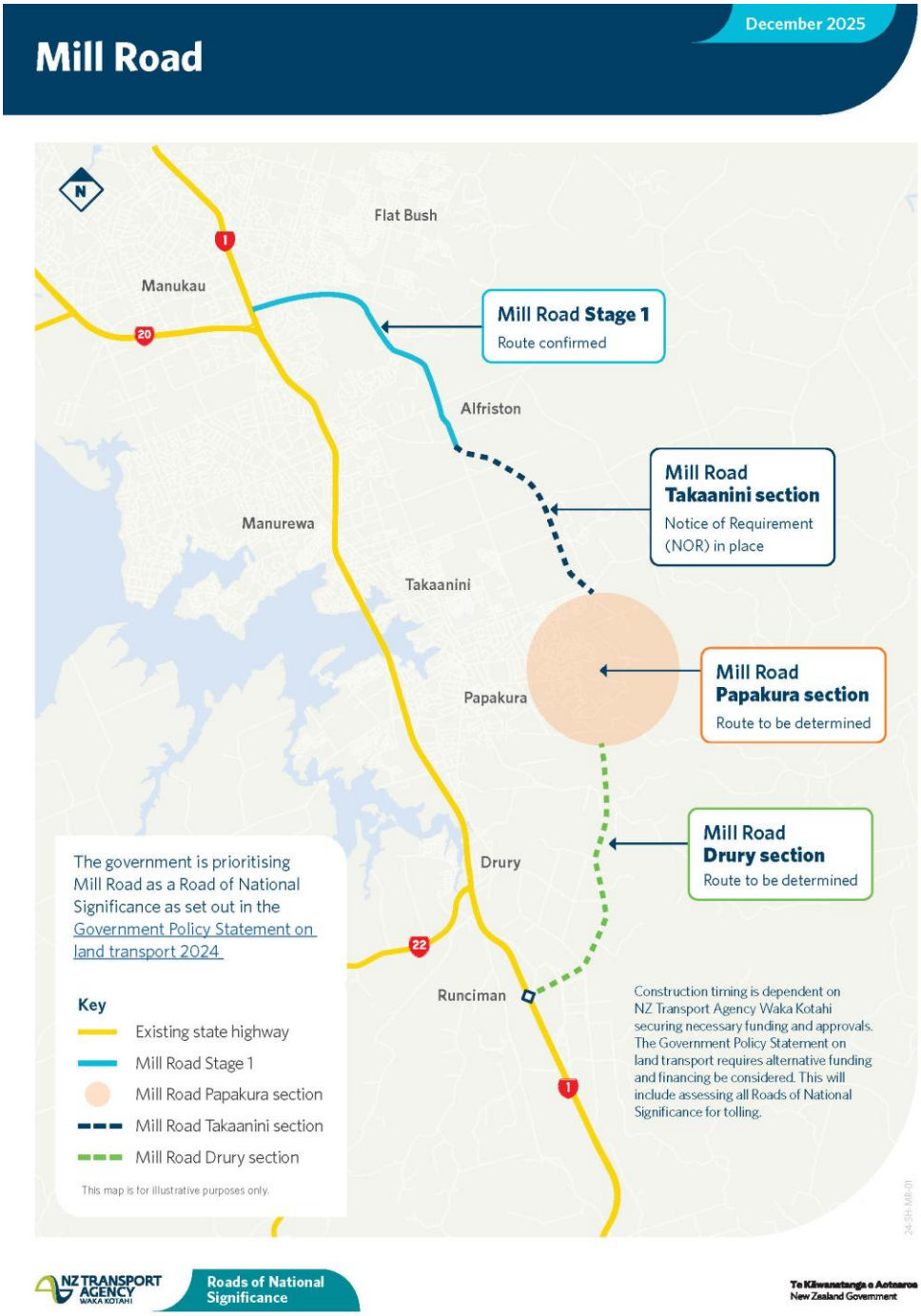


Figure 2-2 Mill Road Strategic Network Context[2]

[2] https://nzta.govt.nz/projects/south-auckland-projects/mill-road

According to the Auckland Roads and Streets Framework **(RASF)**[3], the majority of Redoubt Road, from the interchange with SH1 to the Mill Road intersection, and Mill Road section up to Phillip Road, are classified as P1/M3. This means that the corridor has a predominantly low place function (i.e. not strongly focused on public place-making) and has a strategic movement significance with higher volume of users. The corridor facilitates essential access to residential zones, employment centres, educational institutions and community facilities.

2.2.2 Existing corridor

The existing corridor form and function is illustrated in Figure 2-3 and the cross sections are shown in Figure 2-4 below. It is noted that the section of Redoubt Road between SH1 and Ancona Lane (within Urban Section 1) operates with dynamic lanes, i.e. two lanes are provided in the peak direction during peak hours.

2.2.3 Traffic volumes

Table 2-1 below shows the existing all day traffic volumes, in vehicles per day, along the Project corridor, divided into several sections shown in Figure 2-3. For comparison, the Annual Average Daily Traffic **(AADT)** in the 2014 ITA is included.

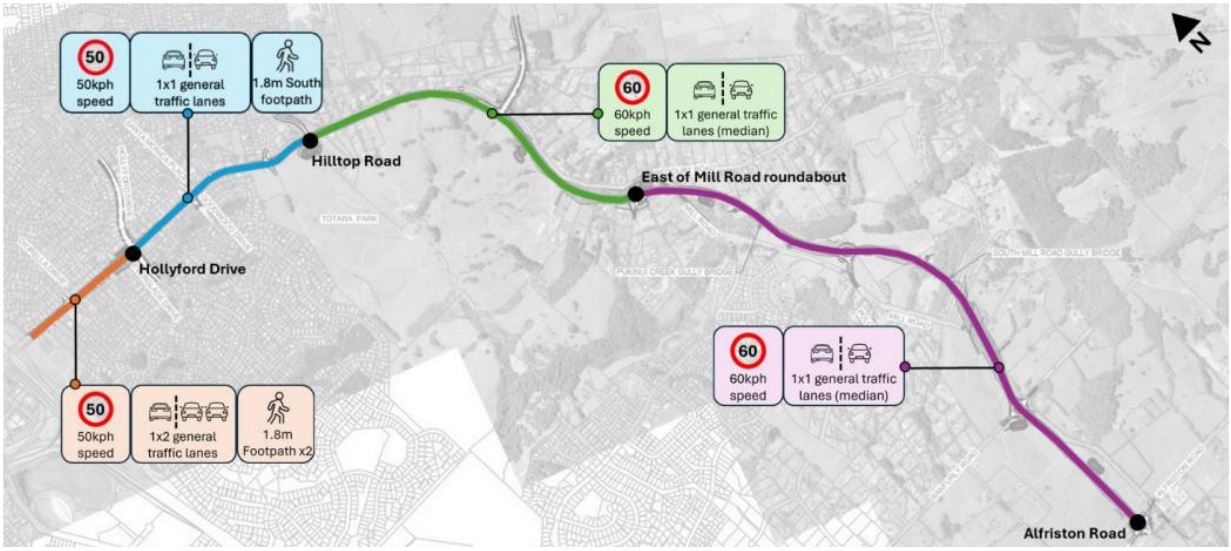


Figure 2-3 Existing Corridor Form and Function[4]

[3] https://at.govt.nz/about-us/transport-plans-strategies/roads-and-streets-framework
[4] Image from *Mill Road RoNS Stage 1 Economic Case*.

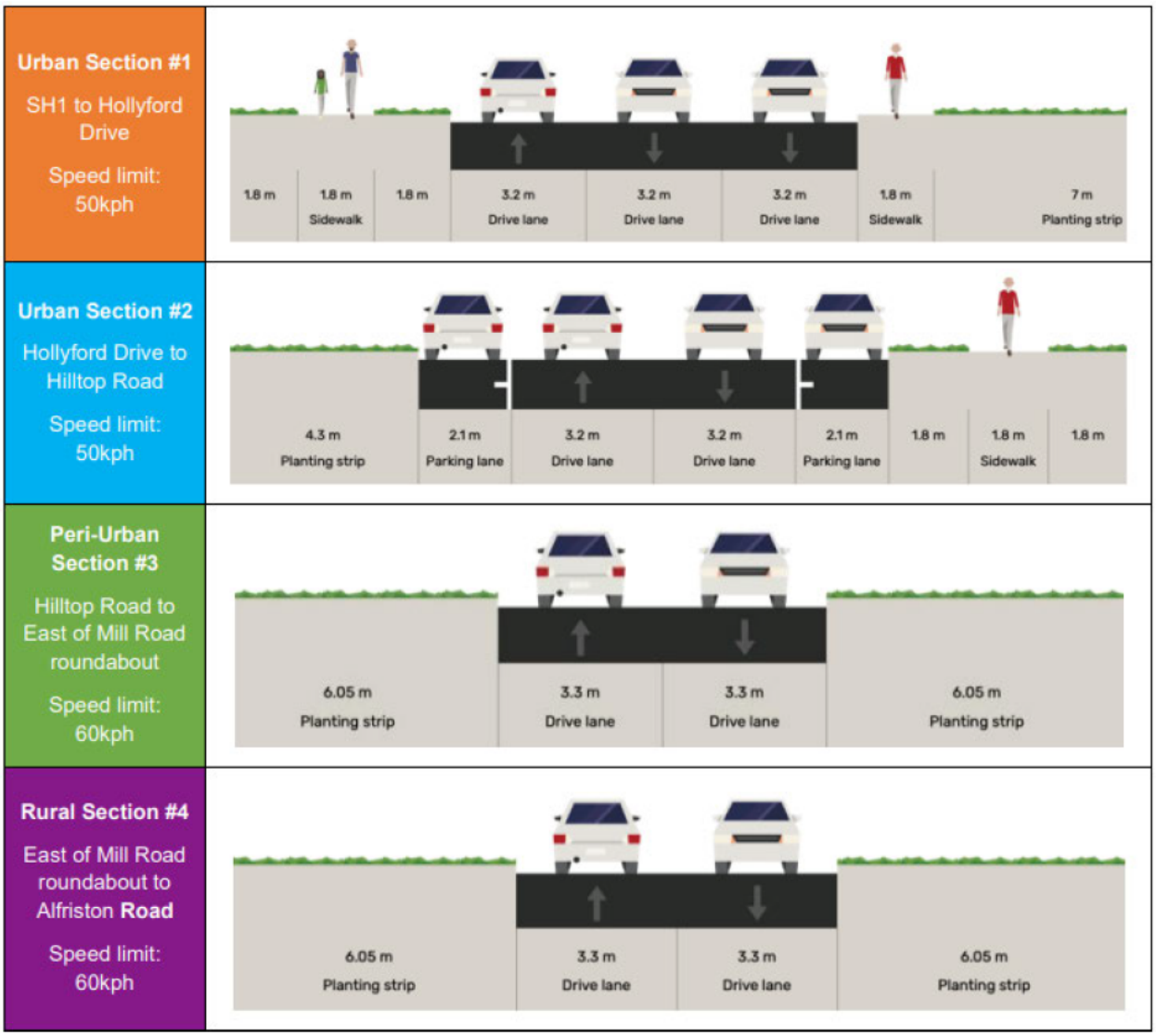


Figure 2-4 Existing Cross Sections[5]

Table 2-1 Road Characteristics[6]

Road	Section	Posted Speed Limit (km/h)	Mean Operating Speeds (km/h)	AADT (2024)	AADT (2014)
Redoubt Road	SH1 to Hollyford Drive (Urban Section #1)	50	33 to 44	32,400 to 33,400	20,000
Redoubt Road	Hollyford Drive to Hilltop Road (Urban Section #2)	50	48	17,000 to 17,600	20,000
Redoubt Road	Hilltop Road to East of Mill Road Roundabout (Peri-Urban Section #3)	60	54	16,500 to 16,800	12,000
Mill Road	East of Mill Road Roundabout to north of Phillip Road (Rural Section #4)	60	57 to 59	11,700 to 16,400	11,000 to 14,000

[5] Image from *Mill Road RoNS Stage 1 Economic Case*.
[6] Latest traffic volumes from Mobile Road and speed data from NZTA Megamaps

2.2.4 Existing capacity constraints and delays

The following are existing problems along the corridor:[7]

- Traffic volumes along SH1, between Bombay and East Tamaki Road, have grown over time, with the exception of 2020-2021 due to COVID-19 lockdowns. The growth was approximately 3% per annum, highlighting the demand for this corridor.
- Traffic volumes on the existing Mill Road, between Redoubt Road and Polo Prince Drive, have increased from 15,600 vehicles per day **(vph)** in 2015 to 19,200vph in 2024, which is approximately 2.6% traffic growth per annum.
- Speed data on the existing Mill Road and parallel roads, i.e., SH1 and Great South Road are well below posted limits, especially during peak hours, as shown in Table 2-2.
- Within the past 5 years (2019-2023), 284 crashes were recorded along the Project corridor, 80 of which are injury crashes. The occurrences of these crashes have disrupted the traffic operations and further exacerbated the existing constraints and delays on the corridor.

Table 2-2 Speed Data from Google Maps

Road	Section	NB Travel Time (AM Peak)	SB Travel Time (PM Peak)
Mill Road	Alfriston Road to Redoubt Road interchange	21km/h	27km/h
SH1	Alfriston Road to Redoubt Road interchange	56km/h	28km/h
Great South Road	Alfriston Road to Manukau Station Road	15km/h	13km/h
Porchester Road	Papakura to Ranfurly Road	26km/h	23km/h

The information above indicates that the existing infrastructure within the corridor lacks sufficient capacity to accommodate existing traffic volumes and experiences severe pressure during peak periods, resulting in pronounced congestion and delays, as well as reduced travel time reliability. By 2031, we anticipate that there will be significant increases in travel time during all periods without the Project.

2.2.5 Public transport

The bus routes traversing the western end of Redoubt Road are shown in Table 2-3, west of Hollyford Drive. The Project serves approximately 22 buses per hour during peak hours along this section. The section to the east has no existing or planned future bus services.

Table 2-3 Bus Services on the Corridor[8]

Route		Service Description
35	Botany, Chapel Road, Ormiston, Manukau	Frequent Services: At least 15 minutes, 7am-7pm, 7 days a week. Lower frequencies early morning and evenings.
325	Māngere Town Centre, Otahuhu Station, Otahuhu Town Centre, Bairds Rd, Otara, Manukau Station	Connector Service: At least every 30 minutes, 7am-7pm, 7 days a week. Lower frequencies early morning and evenings.
355	Botany, Kilkenny Dr, Middlefield Dr, Mission Heights, Ormiston, Manukau	Connector Service: At least every 30 minutes, 7am-7pm, 7 days a week. Lower frequencies early morning and evenings.
366	Manurewa, The Gardens, Everglade Dr, Manukau Station	Connector Service: At least every 30 minutes, 7am-7pm, 7 days a week. Lower frequencies early morning and evenings.

[7] Mill Road RoNS Stage 1 Investment Case (the Investment Case)
[8] https://at.govt.nz/media/e2epyf14/auckland-transport-southern-guide-map.pdf

Figure 2-5 shows the public transport routes within the area. Currently, there are three bus stops within the corridor; these are located on Redoubt Road, near the intersections of Diorella Drive and Hollyford Drive/Everglade Drive.

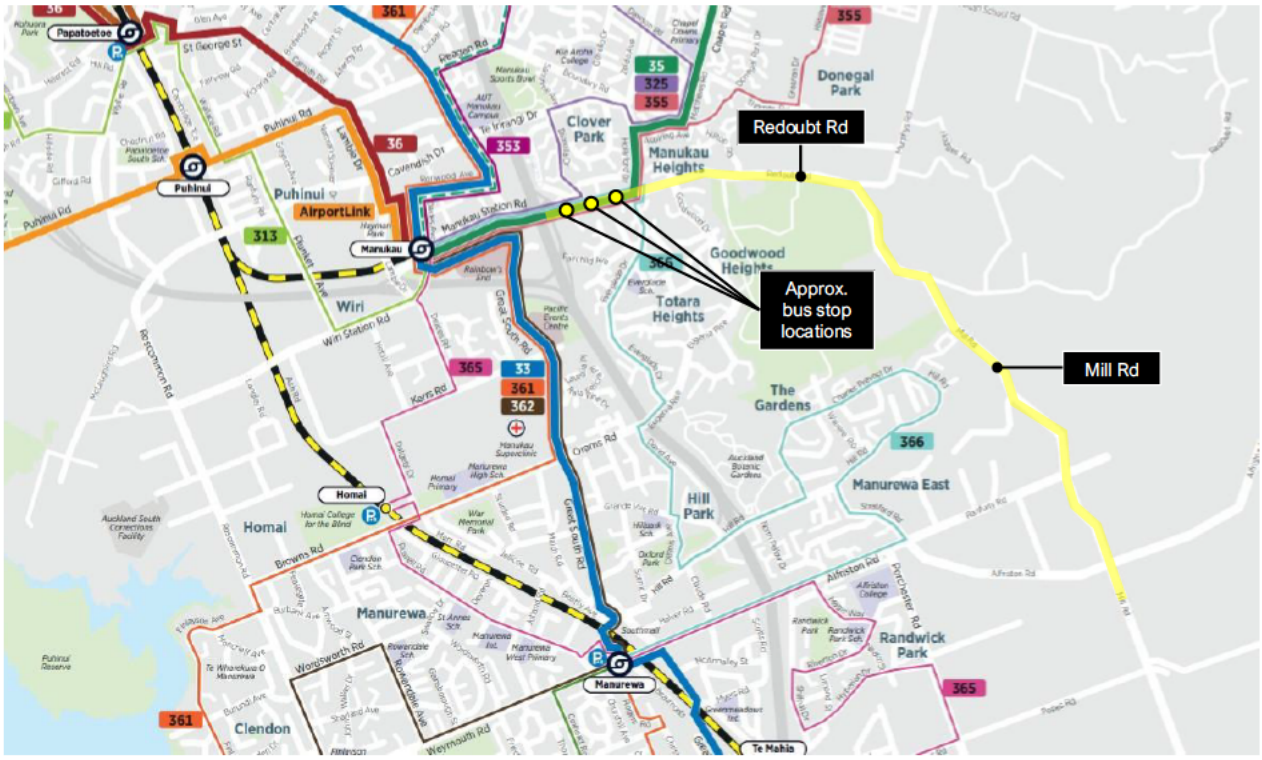


Figure 2-5 Existing Public Transport Options (Source: Basemap from AT[9])

Capacity constraints and congestion, as discussed in Section 2.2.4, impact public transport **(PT)** operations, resulting in unreliable travel times for both general traffic and bus passengers. In particular, intersections within the corridor are operating over capacity, resulting in congestion and queuing. At the Redoubt Road/Hollyford Drive intersection and further north at Hollyford Drive/Aspiring Avenue intersection this impacts PT operations.

Without the Project, PT operations will further degrade by 2031, given increased traffic volumes brought about by population growth. From the regional transport model (the macro strategic model **(MSM)**), we have compared the 2031 and 2051 travel time along the PT route on Redoubt Road, from Hollyford Drive to SH1. This is shown in Table 2-4. For context, the 2025 (current) travel time of vehicles on the same route is also shown.

The delays at the Hollyford Drive/Redoubt Road intersection due to this intersection operating beyond its capacity are identified as the major contributing factor to the travel time increase.

Table 2-4 PT Travel Time on Redoubt Rd

Period	PT Travel Time (WB buses, Hollyford Dr to SH1)				
	2025[10]	2031	2051	Increase (2031 vs 2051)	Increase (%)
AM Peak	3min	5.5min	6.5min	1.0min (or 64sec)	+19%
Interpeak	3min	3.6min	4.4min	0.8min (or 44sec)	+20%
PM Peak	4.8min	6min	6.6min	0.6min (or 35sec)	+10%

As there are no dedicated bus facilities, buses experience the same delays in travel time as general traffic. We consider that this will impact the attractiveness and resulting use of bus services, as they will not provide more competitive travel time than general traffic.

[9] https://at.govt.nz/media/l5vpxayy/auckland-transport-map-of-all-bus-train-and-ferry-routes.pdf
[10] Approximated from Google Maps

2.2.6 Walking and cycling

The existing roads within the Project (Redoubt Road and Mill Road) do not have formal cycling facilities or shared paths.

Footpaths are present on some sections, particularly on the western side of the corridor, from the Redoubt Road interchange to Tōtara Park entrance and Alexia Place. To the east of Alexia Place, footpaths are not present on Redoubt Road and Mill Road.

No formal pedestrian crossing facilities exist on the corridor with the exception of a signalised pedestrian crossing near Redoubt Road/Diorella Drive intersection and at the Redoubt Road/Hollyford Drive intersection.

2.2.7 Transport resilience

The Project provides an alternative north-south route to SH1 and Great South Road. Incidents on SH1 lead to unplanned full or partial closures, which cause minimal (up to 5 mins) to severe disruptions (up to 1 hr) to the transport network. In the event of SH1 closures, traffic is diverted to the surrounding network, with the existing Mill Road being one of the alternative routes. However, the existing congestion and capacity constraints limits the ability of Mill Road to handle the increased volumes resulting from these events.

Resilience testing using MSM model scenarios[11] has been undertaken for the year 2051, to understand the effects of lane closure on SH1 to the network. Figure 2-6 below shows the morning peak flow differences for a test where two northbound lanes and one southbound lane are closed on SH1. The red lines indicate an increase in vehicle volumes while the green lines indicate a decrease in volumes.

The results indicate that in general, lane closures on SH1 are expected to shift traffic onto parallel routes such as Great South Road, Porchester Road, Alfriston-Ardmore Road, and Mill Road, as drivers are likely to seek alternative corridors to avoid congestion and delays on SH1. Southbound increases on Mill Road of around (450-500 vph) equate to around half the typical capacity of an urban traffic lane.



Figure 2-6 2051 AM 2-hour Traffic Flow Difference (vehicles) – With Resilience Test and Without Resilience Test

[11] *Mill Road Stage 1 Investment Case: Modelling Interpretive Report* (NZTA, February 2025)

3 OVERVIEW OF PROPOSAL

3.1 Proposed project

The Project comprises the realignment, widening and improvement of approximately seven kilometres of the existing Redoubt Road and Mill Road, as well as a new offline Mill Road corridor **(New Mill Road)**. The Project involves:

- Realignment, widening, improvement of Redoubt Road and Mill Road to a generally four lane transport corridor and associated local road connections.
- A westbound bus lane on Redoubt Road between Hollyford Drive and SH1.
- A new shared path active mode facility along Mill Road from the SH1/ Mill Road Interchange to the intersection of Murphys Road.
- Signalisation or signal upgrades at five existing intersections at Diorella Drive, Hollyford Drive/Everglade Drive, Goodwood Road, Hilltop Road and Murphys Road.
- A proposed speed limit of 80km/h at the rural section of the corridor, i.e. east of Redoubt Road/Mill Road roundabout, and 50km/h in the urban section.
- Two intersection upgrades at Bartells Drive and Alexia Place.
- Three new bridges where the road alignment crosses the northern end of the existing extent of Mill Road, Puhinui Gully and Cheesman's Bush.

An overview of the proposed corridor is provided in Figure 3-1 below. The typical cross sections of the different segments are in Figure 3-2 below. Refer to the substantive application for the details of the cross sections.

As part of the Project, potential configurations for a low volume low speed rural corridor where people can walk and cycle were assessed for the Old Mill Road corridor (shown as a yellow line in Figure 3-1). For clarity, the Old Mill Road corridor referred to in this report is the existing section of Mill Road, where the Project starts to deviate from the existing road corridor and becomes "offline". This is the section south of Murphys Road to the rural section of Mill Road approximately 260m south of the Alfriston Road roundabout. It is proposed that once the Project is in place, Old Mill Road will be a low volume local road providing access to vehicles to its adjacent properties, including properties on Polo Prince Drive. It is not proposed as a cycle route but could be suitable for more confident cyclists.

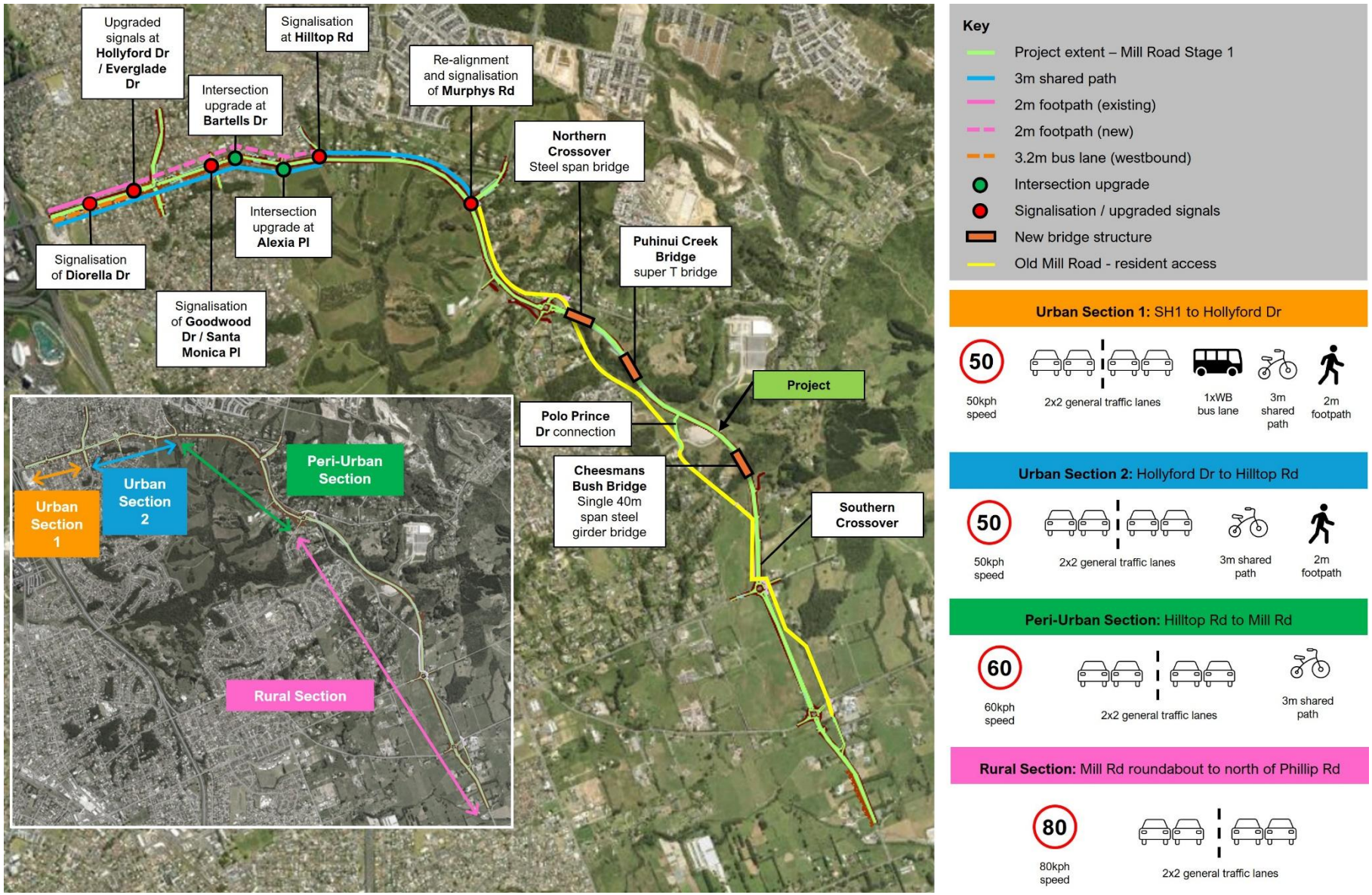


Figure 3-1 Proposed Project Components

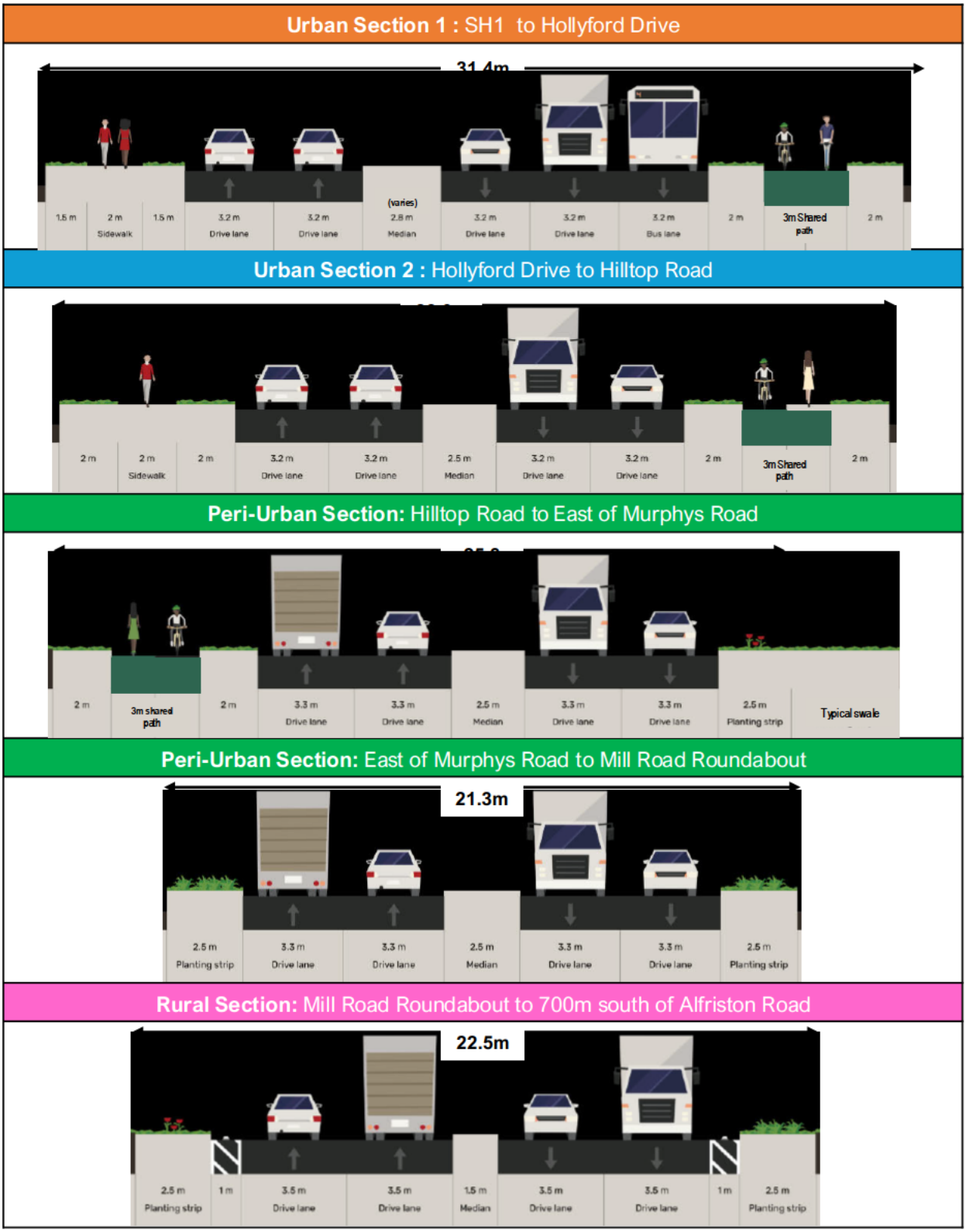


Figure 3-2 Proposed Project Cross Sections (Illustrations from Streetmix[12])

[12] http://streetmix.net/

3.2 Design changes since the confirmation of the Designation 6786

For clarity, the Project design supporting the substantive application will be referred to as the Consenting Design. As part of this assessment, in order to assess any change in transport effects, the Consenting Design has been compared with the previous design **(2014 Design)** which informed the current designations (Designation 6786). The relevant design changes relating to transport matters are summarised in Figure 3-3 and described in Table 3-1 below.

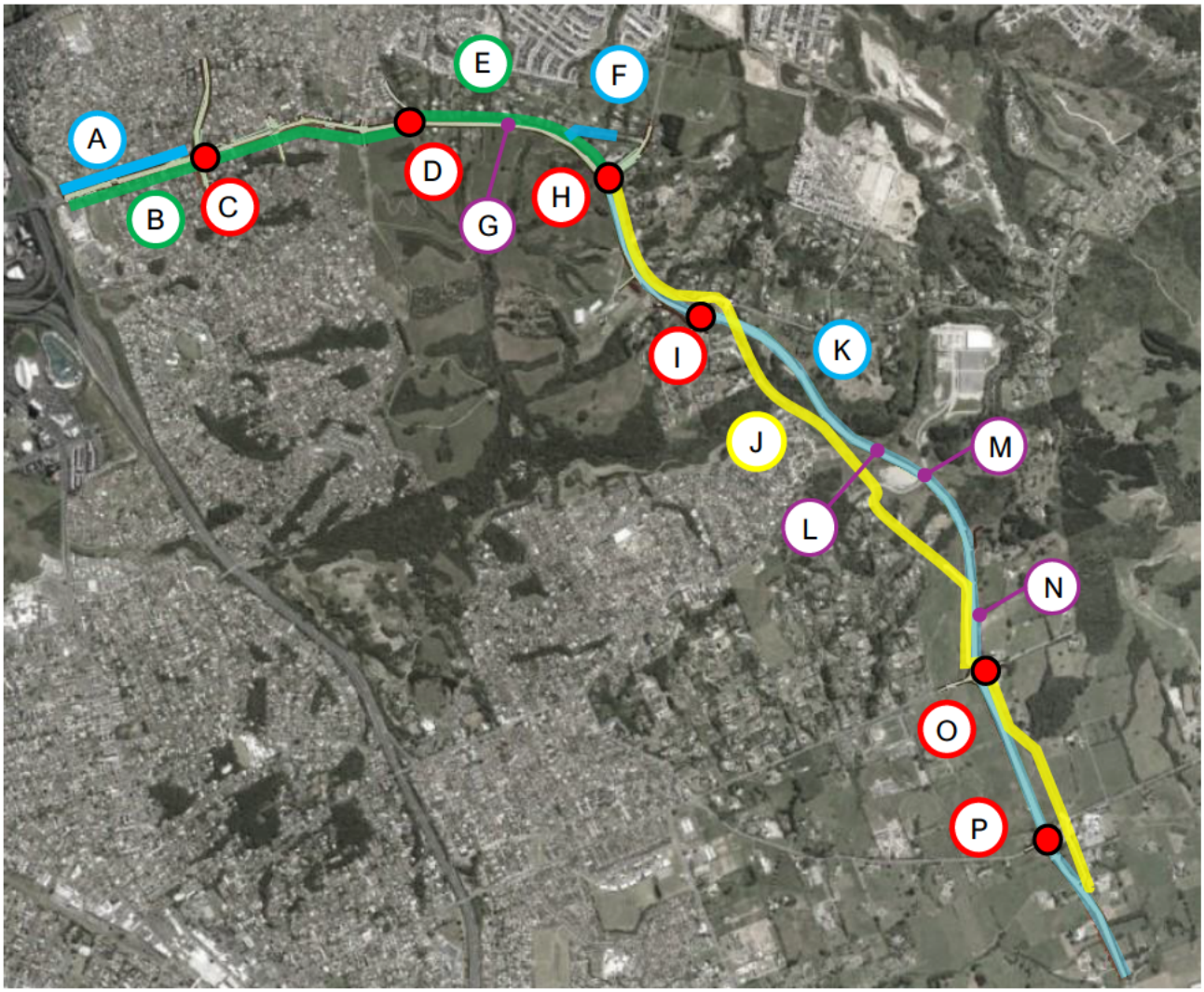


Figure 3-3 Changes from 2014 Design

Table 3-1 Description of Changes from the 2014 Design

	2014 Design	Consenting Design	Assessment of Effects
A	Flushed median from Redoubt Road Interchange to Hollyford Drive	Raised median barrier from Redoubt Road Interchange to Hollyford Drive	Refer to Section 5.2.7(a)
B	1.5m to 1.6m on-road cycle lanes on both sides	3m shared path on westbound side	Refer to Section 5.2.5(a)
C	Left turn slip lane from Redoubt Road to Hollyford Drive	No left turn slip lane from Redoubt Road to Hollyford Dr	Refer to Section 5.2.2
D	Unsignalised seagull intersection	Signalised Hilltop Rd intersection	Refer to Section 5.2.2
E	1.5m to 1.6m on-road cycle lanes on both sides	3m shared path on eastbound side	Refer to Section 5.2.5(a)
F	Provide direct access from existing Murphys Road to the Project corridor	Connect existing Murphys Road to new Murphys Road alignment	Refer to Section 5.2.7(b)
G	No specific design for access	Two new accessway entrances to Tōtara Park	Refer to Section 5.2.7(e)
H	Left turn slip lane from Redoubt Road to Murphys Road	No left turn slip lane from Redoubt Road to Murphys Road	Refer to Section 5.2.2
I	Two adjacent unsignalised intersections at Redoubt Road/Mill Road and Kinnard Lane/Redoubt Road/Mill Road	Roundabout at Redoubt Road/Mill Road	Refer to Section 5.2.2
J	Sections of Old Mill Road will be closed or to be cul-de-sac, some sections to connect to the New Mill Road. Old Mill Road will not be continuous.	Old Mill Road connected to Redoubt Road with connection to the New Mill Road corridor at the Redoubt Road roundabout. Potential for cycle use of Old Mill Road by more confident cyclists, given low volumes (i.e. local access / residents only).	Refer to Section 5.2.5(c)
K	On-road cycle lanes and a shared path on New Mill Road corridor.	No walking or cycling facilities on rural section of the New Mill Road corridor.	Refer to Section 5.2.5(c)
L	T intersection access to New Mill Road near Polo Prince Drive	T intersection access to New Mill Road near Polo Prince Drive to include full right turn bay and a gap in the median barrier	Refer to Section 5.2.7(d)
M	No access provision	Provide left in left out (LILO) access to Watercare site	Refer to Section 5.2.7(f)
N	Flushed median with two right turn bay pockets to turn right into properties, i.e., two existing driveways.	T-intersection between Mill Road and a combined access with full right turn bay.	Refer to Section 5.2.7(c)
O	Two lane on Ranfurly Road/Mill Road roundabout south approach.	One lane on Ranfurly Road/Mill Road roundabout south approach.	Refer to Section 5.2.2
P	Two lane on Alfriston Road/Mill Road roundabout south approach	One lane on Alfriston Road/Mill Road roundabout south approach	Refer to Section 5.2.2

3.3 Construction and staging

Construction of the Project is anticipated to commence in 2027, subject to obtaining all required statutory approvals and securing funding. The construction work is expected to take place over a 7-year period, with completion anticipated by the end of 2034.

At this stage, the Project is proposed to be procured as 3 construction packages reflecting the delineation between Alfriston roundabout section (Package 0), the urban section (Package 1), and the peri-urban and rural sections (Package 2) with timings to be confirmed after obtaining all required statutory approvals and securing funding.

An indicative construction methodology is summarised as part of the substantive application and has been developed to describe the anticipated works over this period.

It is noted that the construction works at the urban and peri-urban sections will be on the existing corridor adjacent to or with 'live' traffic. Most of the works on the rural section will be offline, i.e., not along the existing corridor. This has been considered in the assessment of construction effects in Section 5.1.

4 BENEFITS OF THE PROJECT

4.1 Benefits of the project

4.1.1 Improved traffic efficiency on Mill Road between Redoubt Road Interchange and Phillip Road

This benefit relates to reduction in travel times, reduction in congestion levels and journey time reliability.

Increasing the capacity of Mill Road, in addition to the provision of a westbound bus lane on Redoubt Road, between the interchange with SH1 and Hollyford Drive, will enable faster and more efficient north-south travel movements of both general traffic and PT, providing more reliable journey times for corridor users.

Figure 4-1 below shows that journeys along the Project corridor are predicted to be over 20% faster when compared to the Do Minimum (no Project) scenario in 2031 and 2051 in the peak directions during peak hours.

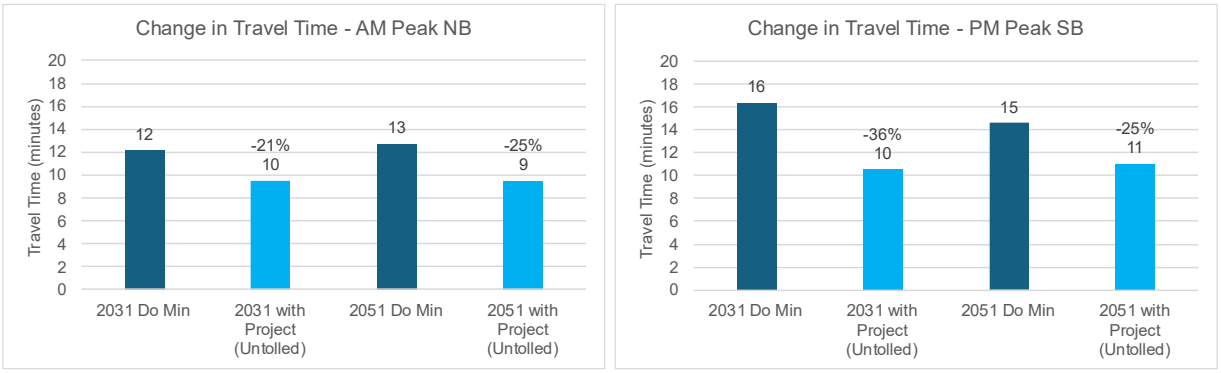


Figure 4-1 Travel Time Savings (Do Min vs with Project)

With the Project in place, the average travel time for journeys on the Project corridor become more consistent throughout the day. Figure 4-2 below shows the reduction in the proportion of vehicle kilometres travelled **(VKT)** that experience congestion[13]. In the AM peak, where there is greater congestion without the Project, there is predicted to be a 21% and 17% reduction in 2031 and 2051 respectively. It is noted that in 2051, the proportion increases from 1% to 7% for PM peak southbound, although this figure is still relatively low.

[13] In this case, congestion is experienced when the volume-to-capacity (v/c) ratio reaches 0.9.

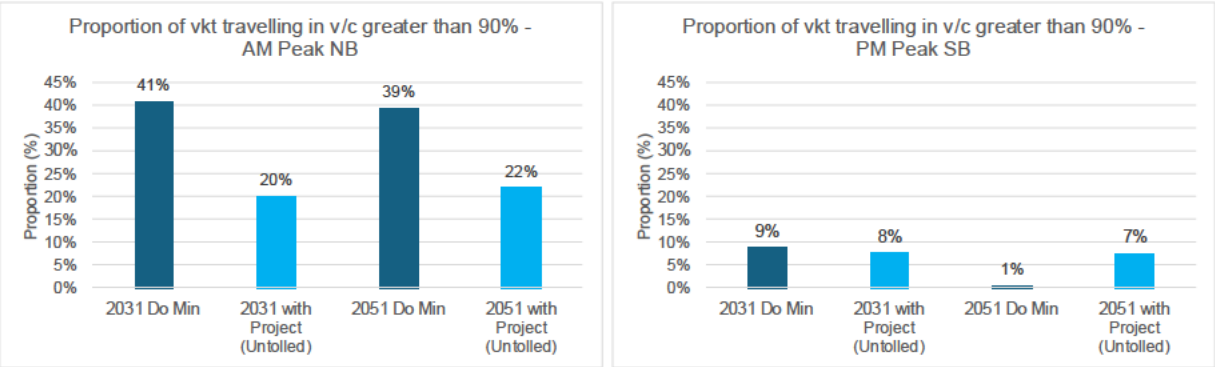


Figure 4-2 Proportion of Travel Experiencing Congestion (Do Min vs with Project)

Figure 4-3 shows that, with the implementation of the westbound bus lane, as part of the Project, the PT travel time is reduced along the Project corridor. The travel time improves from around six minutes to four minutes, a two minute travel time saving in both peak periods.

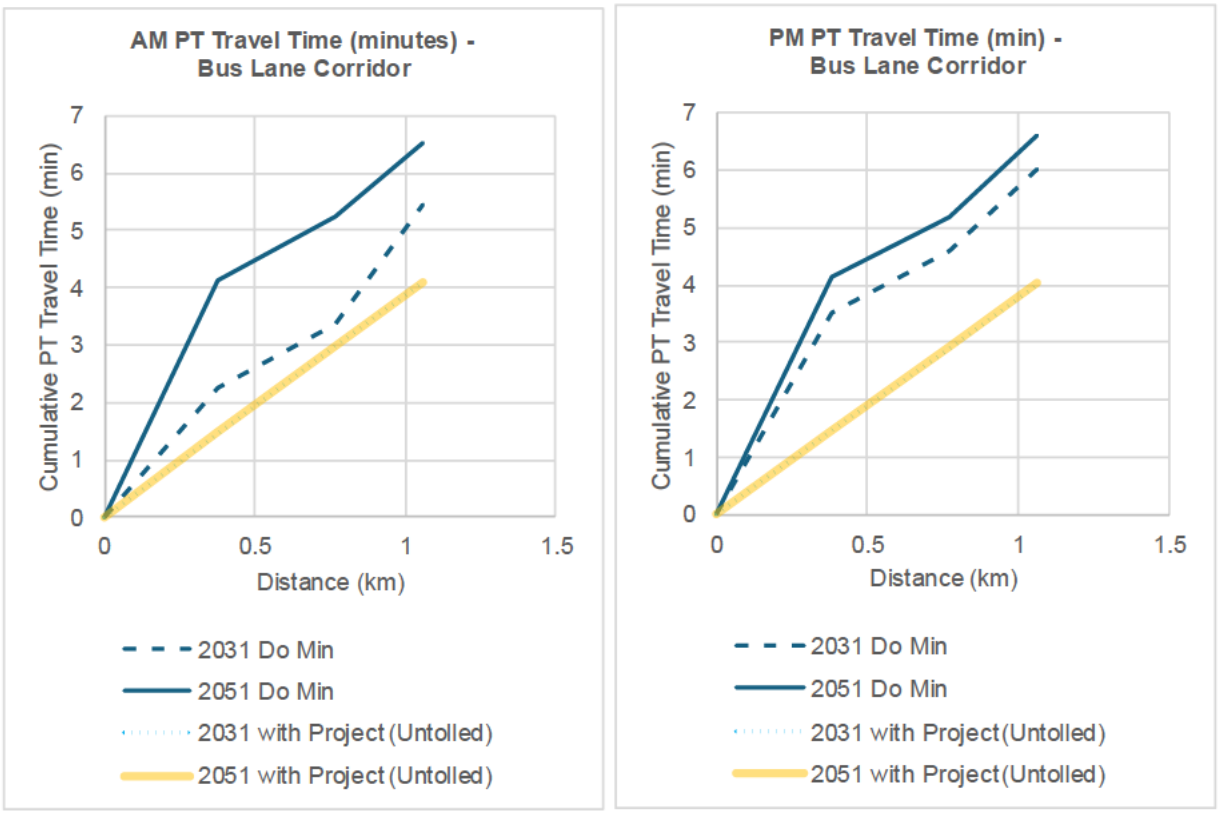


Figure 4-3 PT Travel Time Savings (Do Min vs with Project)

Other corridor characteristics related to this benefit are reduced congestion levels during the morning and afternoon peak hours and improved Project corridor productivity[14].

4.1.2 Enhanced transport network resilience

This benefit relates to the availability of alternative north-south routes, performance of critical connections and reduction in incident related delays.

A measure of this benefit is the percentage of VKT travelled in peak congestion. This has been discussed in Section 4.1.1. A high percentage of VKT travelled in peak congestion indicates that a large portion of travel occurs when the network is most strained, and that the transport network will be more likely affected

[14] Defined as the total number of people travelling in the corridor multiplied by the average speed along the corridor

with severe delays in the event of disruptions. Figure 4-2 above shows that the proportion of VKT travelling in congested roads (i.e., v/c greater than 90%) decrease with the Project in place.

In addition, the percentage of freight VKT in the interpeak is another measure. A lower percentage indicate that freight vehicles are able to avoid congested links. Figure 4-4 below shows the reduction of in the proportion of freight traffic, in VKT, that experience congestion. This illustrates a transport network that can offer sufficient flexibility and redundancy to accommodate freight movement. Less freight congestion means fewer delays and improved reliability on the movement of goods, leading to a higher transport network productivity and utilisation.

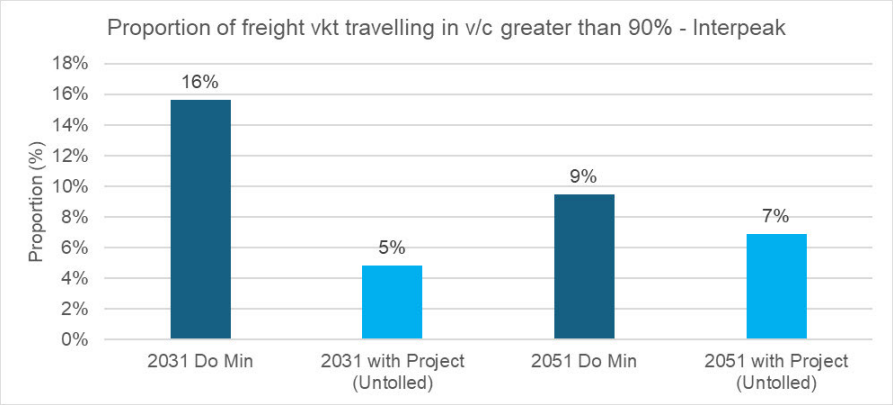


Figure 4-4 Proportion of Freight Congestion (Do Min vs with Project)

The Mill Road corridor provides an alternative north-south route from Manukau to Drury. With the Project in place, Mill Road will be an appropriate alternative to Great South Road in the event of SH1 road closures or incidents. The increase in capacity on Mill Road is predicted to attract and accommodate higher volumes of diverted traffic, when incidents occur.

Resilience testing[15] was undertaken with assumed lane-closure scenarios on SH1:

- Resilience Test A – closure of two northbound lanes and one southbound lane on SH1, from Hill Road and Takaanini interchanges.
- Resilience Test B – closure of one northbound lane and two southbound lanes on SH1, from Hill Road and Takaanini interchanges.

The results are shown in Figure 4-5 (Resilience Test A) and Figure 4-6 (Resilience Test B) below. The maps illustrate the flow difference between the with and without Project (Do Minimum) options. The red lines indicate an increase in vehicle volumes (i.e., more vehicles during the with Project option compared to without the Project) while the green lines indicate a decrease in volumes (i.e., less vehicles during the with Project option compared without the Project).

[15] *Mill Road Stage 1 Investment Case: Modelling Interpretive Report* (NZTA, February 2025)

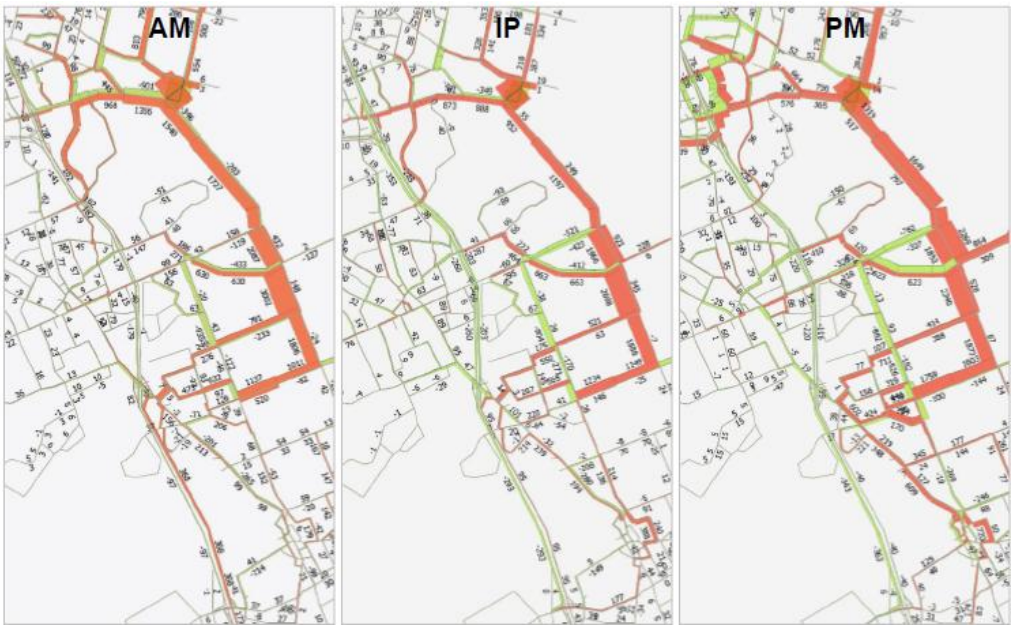


Figure 4-5 2051 2-hour Traffic Flow Difference (vehicles), with Project vs Do Min. Resilience Test A

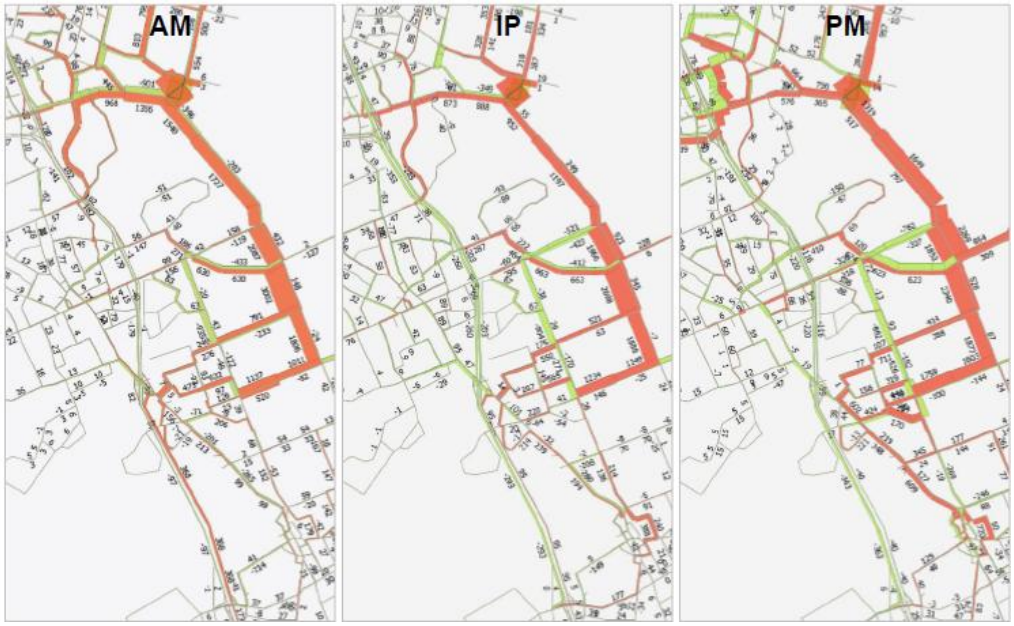


Figure 4-6 2051 2-hour Traffic Flow Difference (vehicles), with Project vs Do Min. Resilience Test B

As shown in the figures above, the resilience tests indicate that the additional capacity due to the Project will attract and accommodate more vehicles to use Project corridor in the event of lane closures on SH1 when compared to without the Project.

It should be noted that while lane closures on SH1 are predicted to divert traffic onto Mill Road, its impact on the performance on the Project corridor is dependent on the levels of traffic diversion. The results of the resilience tests suggest that the capacity of the corridor is limited in its ability to accommodate additional northbound traffic during incidents on SH1.

With lane closures on SH1, Figure 4-7 illustrates that the travel time along the Project corridor increased by 3% in the Resilience Test A during the AM peak. This increase is an additional 40 seconds, which is insignificant compared to the overall travel time of 24 minutes. In the PM peak, the travel time decreased by 30% for Resilience Test B.

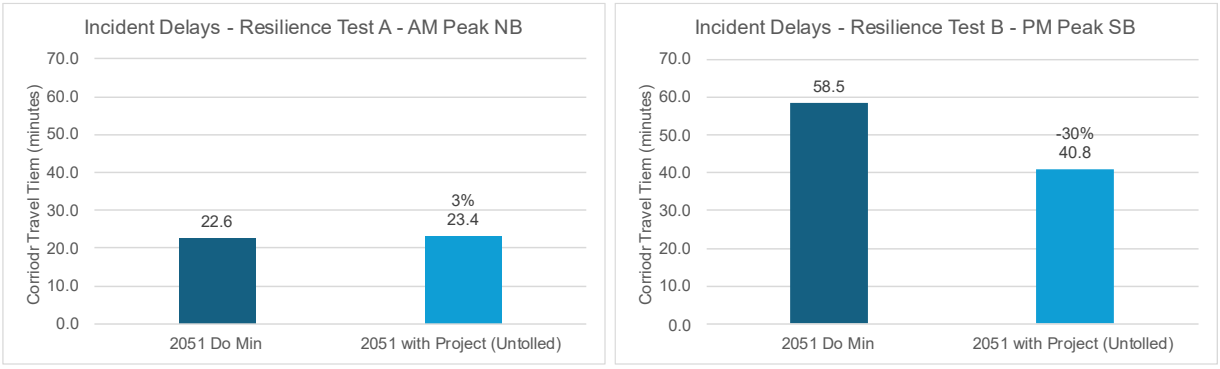


Figure 4-7 Travel Time Differences due to Incidents

4.1.3 Benefits in the context of Stages 2 and 3

In a broader context, Mill Road Stage 1 lays out the groundwork for the later delivery of Mill Road Project, Stages 2 and 3 up to Drury. The delivery of Stage 1 allows for immediate capacity and efficiency improvements as well as enhanced transport resilience. It is anticipated that these benefits will be enhanced when Stages 2 and 3 are operational, extending the route southwards to Takaanini and Drury, enabling improved capacities and better transport integration across South Auckland.

4.2 Project co-benefits

4.2.1 Improved safety on Mill Road corridor between Redoubt Road Interchange and Phillip Road

The Project is anticipated to reduce death and serious injury (DSI) crashes by more than 50%. In addition, the shared use paths and crossing facilities at intersections on the urban section of the corridor will improve safety for active mode users.

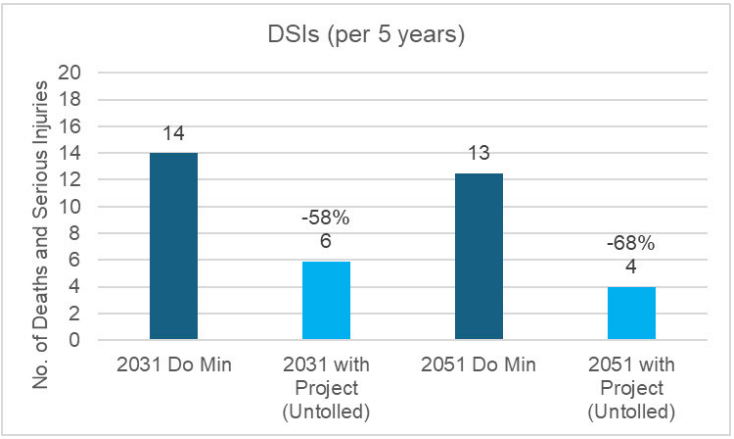


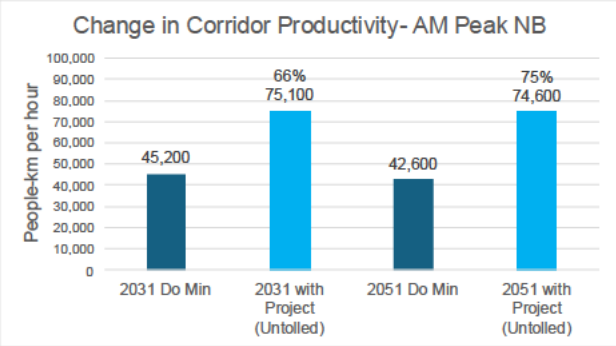
Figure 4-8 DSI Crashes (Do Min vs with Project)

4.2.2 Integrating Mill Road corridor with the existing transport network

This benefit mainly relates to integration of the Project to the existing PT network and improved productivity of the Project corridor.

The Project includes the provision of the westbound bus lane from Hollyford Drive to the western end of the Project corridor, i.e., Redoubt Road interchange. As discussed in Section 4.1.1, the Project improves bus travel time by 2 minutes on the Project corridor during peak periods. As the Project supports PT improvements, this can contribute to more sustainable urban mobility.

In addition, the improved travel times and average travel speeds will also lead to improved corridor productivity, defined as the total number of people travelling in the corridor multiplied by the average speed along the corridor. With the Project in place, productivity is predicted to grow over time during peak hours, driven by the greater traffic volumes attracted on the Project corridor.



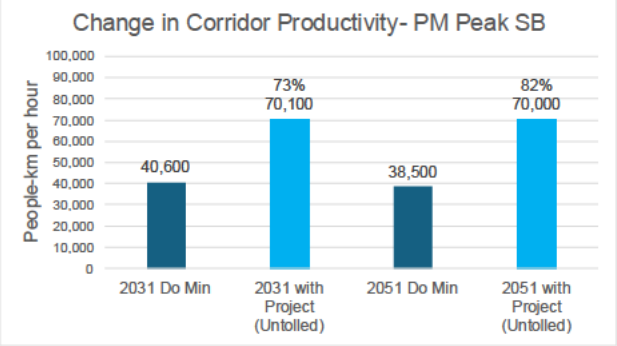


Figure 4-9 Corridor Productivity (Do Min vs with Project)

4.2.3 Supporting housing development and economic growth

The Project is designed to support both planned and emerging land uses, enabling housing development and economic growth. With the Project in place, reduced congestion levels on the corridor are anticipated, while retaining or improving reliable levels of service even with increased traffic growths due to population increases. This enables the Project corridor to remain productive and resilient even as population and traffic volumes increase.

5 ASSESSMENT OF POTENTIAL ADVERSE EFFECTS

5.1 Construction effects

A summary of the construction effects is shown in Table 5-1. A CTMP (refer to **Appendix C11** of the substantive application) has been drafted to document the measures to be put in place to manage the potential adverse effects identified in this report.

Table 5-1 Construction Effects Description

Potential Effect	Description of Effect	Proposed Mitigation	CTMP Reference(s)
(1) Lane Closure Effects	It is anticipated that the current traffic lane arrangements (including the dynamic lane between Redoubt Road Interchange and Hollyford Drive) will remain operational for the majority of the construction works. However, between Hollyford Drive and SH1, it is possible some reduction in existing traffic lanes may be necessary during the phase of works to 'tie in' the new traffic lanes to the existing traffic lanes. It should be noted that this is considered a worst case scenario affecting only the more constrained urban section of the corridor. Construction scenario testing using a SATURN network model was undertaken, assuming that one lane needs to be closed, i.e. the corridor operates with only one lane in each direction between SH1 and Hollyford Drive without the dynamic lane. The effects, considering the section between Hollyford Drive and Redoubt Road interchange, are: • Flow Difference • AM Peak northbound: 300-400 vehicles are predicted to divert to other parts of the network. Around 100 vehicles turn right to Hollyford Drive and divert to enter SH1 at the Te Irirangi Drive Interchange. • PM peak southbound: 140-250 vehicles are predicted to divert to other parts of the network. These vehicles are reasonably evenly distributed to other corridors. • Delay Difference	The effects of temporary lane reductions (if required) during the short phase of tie-in works on the more constrained urban section are localised and can be adequately accommodated by the existing transport network. Notwithstanding the above, the CTMP requires the contractor to consider where works can be undertaken outside the weekday peak periods to minimise adverse effects.	Section 4.2

Potential Effect	Description of Effect	Proposed Mitigation	CTMP Reference(s)
	• AM Peak northbound in the corridor: Increased from 11 seconds to 135 seconds (+124 seconds) • PM Peak southbound in the corridor: Increased from 4 seconds to 141 seconds (+137 seconds) • Effects are localised to the section of Redoubt Road, where the temporary lane restrictions occur, without any significant delays on parallel corridors or impacts on the Redoubt Road interchange • Travel Speed • AM Peak northbound: decreased from 40km/h to 25km/h (15km/h lower) • PM Peak southbound: decreased from 44 km/h to 27km/h (17km/h lower) • Other parts of the Project corridor and adjacent roads, including SH1, where traffic is diverting to are observed to have negligible differences of ±1 to 2 km/h.		
(2) Speed Limit Effects	To help maintain the safety of all road users, a suitable temporary speed limit be implemented during the construction period. This is part of the temporary traffic management (TTM) measures that will be in place during construction via the Site Specific Traffic Management Plans (SSTMPs). This will apply within the construction work areas. The temporary speed limit will be in accordance with the New Zealand Guide to Temporary Traffic Management (NZGTTM), with speed reductions selected to be appropriate and acceptable for both road users and site safety.	None.	Section 4.3.1
(3) Effects to Pedestrians and Cyclists	The potential effects to pedestrians and cyclists include safety risks due to an increase in interactions with construction (heavy) vehicles and narrowed lanes, and surface hazards due to debris or uneven ground.	Where appropriate, the contractor will provide barriers for physical separation between general traffic (including active modes) and construction areas. Access to key cyclist destinations, such as Tōtara Park, and bus stops will be maintained. Visible signage is to be maintained to show where pedestrians can safely walk or cross the road. Residents and stakeholders will be kept informed of construction times and progress, and general observations of pedestrian and cyclist activity be used to inform the mitigation measures in	SSTMPs are discussed in Section 3.2.2. Pedestrians and cyclists are discussed in Section 4.3.3

Potential Effect	Description of Effect	Proposed Mitigation	CTMP Reference(s)
		SSTMPs in order to appropriately manage the transport effects during construction. These potential mitigation measures are included in the CTMP. Appropriate communication will also be undertaken by NZTA.	
(4) Property Access	Construction activities may temporarily impact property access by changing or limiting entry points, causing delays due to increased vehicle movements or requiring short-term closures for specific works.	The contractor will conduct a detailed assessment of affected driveways and, if necessary, establish temporary access arrangements. TTM measures in place during construction may include temporary concrete and steel barriers, among others. These requirements are included in the CTMP. Appropriate engagement and communication with affected owners will be undertaken by NZTA.	Section 4.6
(5) Heavy Vehicle Movements and Routing	During the construction phase, additional movements of heavy vehicles will occur in terms of the delivery of materials, equipment, and other construction-related activities. These movements are expected to utilise the regional arterial road network and approved overweight and over-dimensioned transport routes, which are designed to accommodate such vehicle types (refer to Figure 5-1 below).	In the event that the roads identified in Figure 5-1 cannot be used by during construction, the CTMP sets out key considerations in determining the appropriate routes. Where heavy vehicles need to use routes that directly pass sensitive receptors (such as schools, childcare facilities, and/or community facilities), access restrictions will be implemented based on the considerations set out in the CTMP, which should also be determined in consultation with the relevant stakeholders.	Heavy vehicle access routes are discussed in Section 4.1. Access times restrictions are discussed in Section 4.2.
(6) Traffic Congestion and Delays	The construction works and associated TTM measures can affect traffic flows that may lead to congestion. This can occur in areas where restrictions are in place, such as stop/go operations and temporary speed limits. As discussed previously, while lane restrictions are not generally anticipated, tie-in works and upgrades to intersections will impact the corridor. It is considered that the additional heavy truck movements will be acceptable, provided they generally remain under approximately 2.5% of the daily traffic volumes or peak hour volumes on the affected roads shown in Figure 5-1 below.	The CTMP sets out the thresholds on the heavy vehicle routes and potential mitigation measures for heavy vehicles to remain under these thresholds. To further understand the effects of the construction, a proactive and efficient traffic monitoring programme will be implemented using digital monitoring tools. Utilising digital monitoring offers real-time information on where congestion and travel delays are observed. This will enable the construction team to make timely adjustments to TTM setups and minimise traffic disruptions where practicable. The contractor will liaise with NZTA and AT to agree expectations in terms of congestion and disruptions.	Acceptable traffic flows are discussed in Section 2.2. Access times restrictions are discussed in Section 4.2. Monitoring of transport congestion and contractor liaison with NZTA and AT are discussed in Section 4.9.

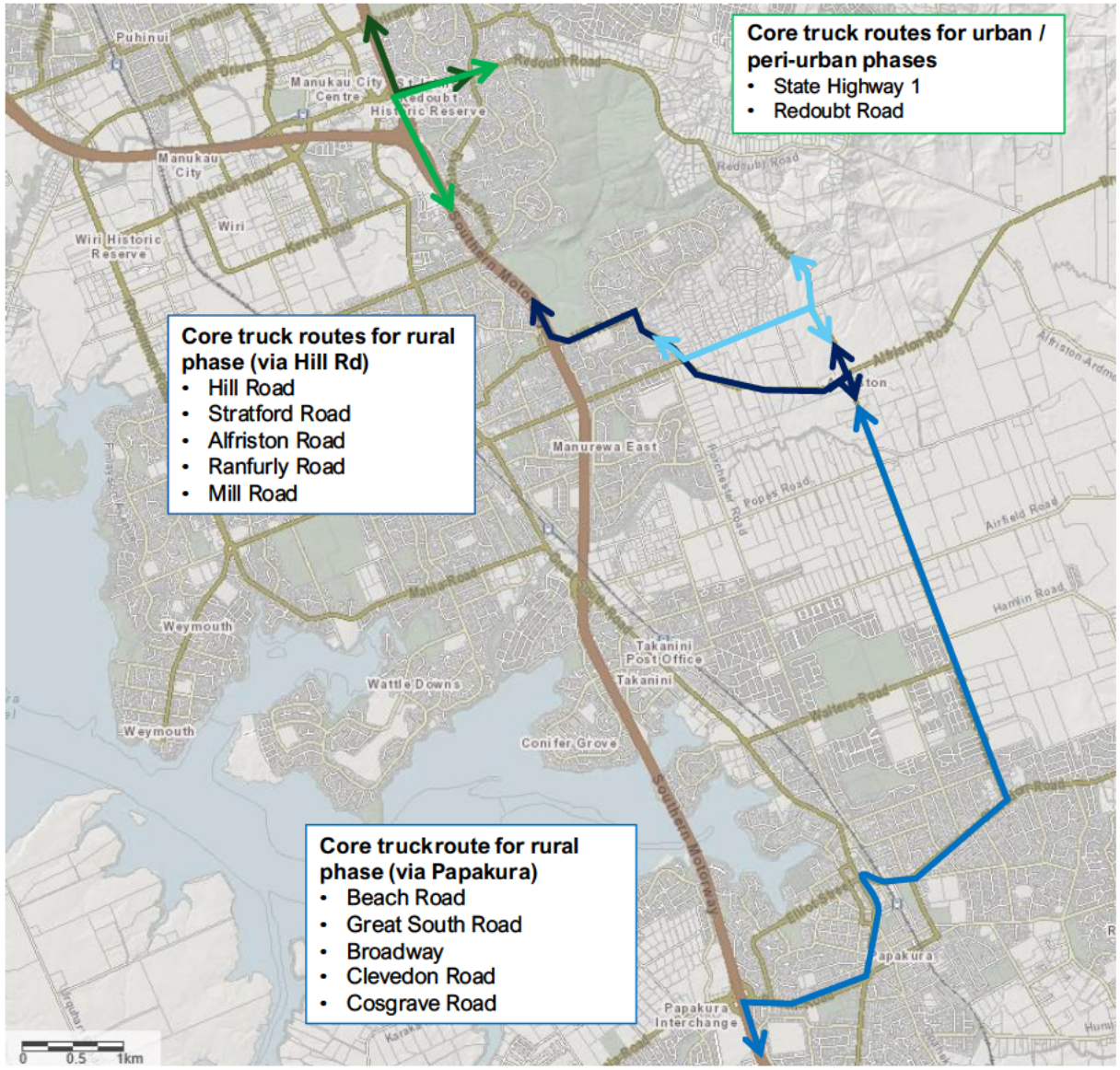


Figure 5-1 Indicative Heavy Truck Access Routes During Construction (Basemap: Auckland Council Geomaps)

It is therefore considered that the objectives and broad mitigation measures identified in Table 5-1 and the CTMP will enable the adverse transport effects to be appropriately managed, resulting in transport effects that are considered low and similar to what was anticipated by the original designation.

5.2 Operational effects

5.2.1 General traffic

The transport modelling[16] predicts that increase in traffic demand will generally occur in both directions on the Project corridor, and that majority of the additional traffic is induced demand. Induced demand relates to traffic attracted to the corridor by the improved capacity or performance of the corridor. Comparisons of the peak hour flows in the peak direction are shown in Figure 5-2 and Figure 5-3 below, with changes in volumes between with the Project (Do Minimum) and with the Project labelled in the graphs.

Figure 5-2 shows that with the Project in 2051, the corridor will experience an increase of 400vph to 600vph on the Mill Road section in the AM Peak northbound peak direction, when compared to without the Project. Figure 5-3 shows that with the Project in 2051, the corridor will experience an increase of 300vph to 900vph in the PM Peak southbound peak direction, when compared to without the Project.

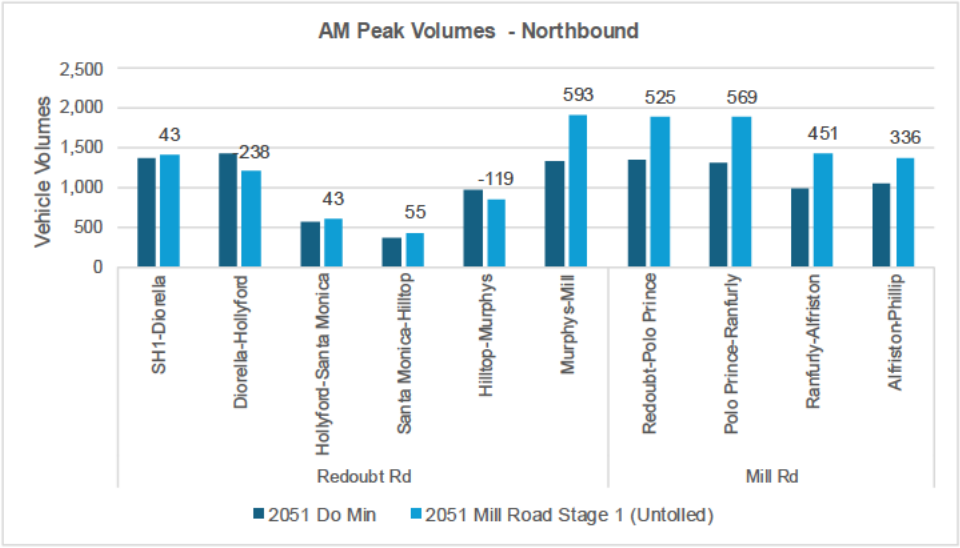


Figure 5-2 AM Peak Volumes, Do Min vs with Project, Northbound

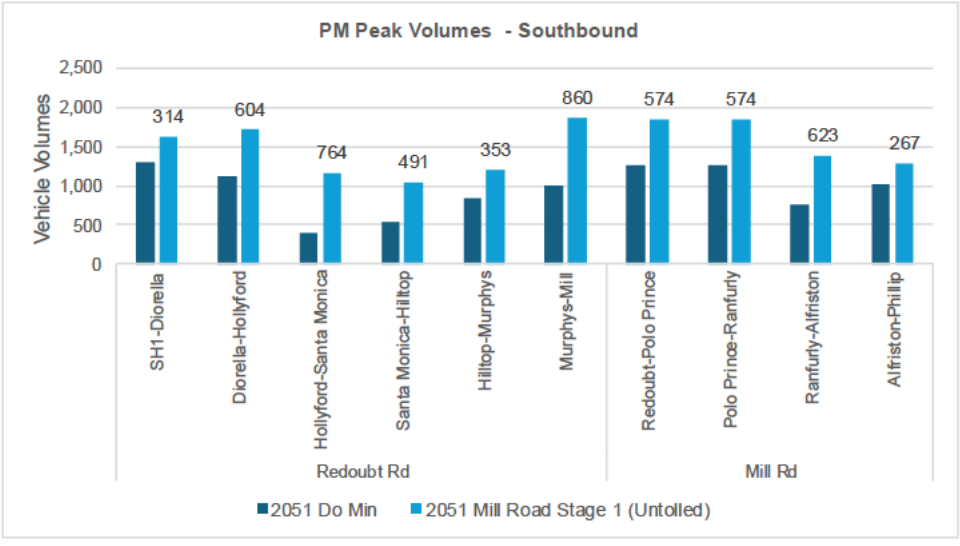


Figure 5-3 PM Peak Volumes, Do Min vs with Project, Southbound

[16] *Mill Road Stage 1 Investment Case: Modelling Interpretive Report* (NZTA, February 2025)

The table below compares the daily traffic volumes for the 2014 design and the Consenting Design. The volumes have changed as a result of the change in growth assumptions since 2014, differences in modelling years, and as a result of the proposed alterations to the designations[17]. It should be noted that the 2014 ITA assumes the Project is fully operational by 2026, making the 2041 scenario 15 years post-completion. In comparison, the recent Project modelling are traffic volumes for the year 2051, which represents around 20 years after the Project is fully operational.

The anticipated volumes on the Project corridor are similar to the volumes from the 2014 ITA. As such, the outcomes are comparable to what was anticipated and authorised by the original designation, and no additional adverse effects are identified. In addition, the Project still delivers the objective of improving efficiency in the corridor, as discussed in Section 4.1.1.

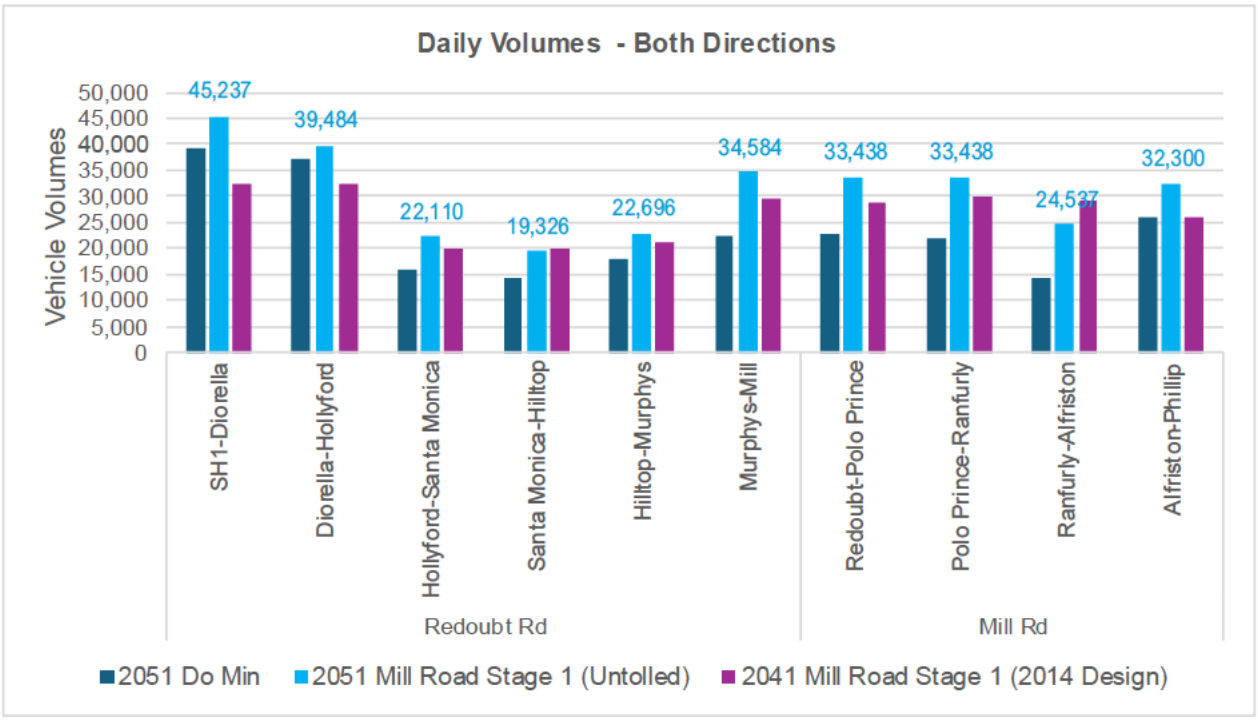


Figure 5-4 Daily Volumes, Do Min vs with Project, Both Directions

5.2.2 In corridor performance

The key change is the form of various intersections. The intersection form changes are summarised in Figure 5-5 below.

The Project is forecast to result in the corridor operating at or near its design capacity in the peak direction during peak travel periods in 2051. Intersections in the rural portion of the corridor are expected to perform with a good level of service, other than some queuing at peak times at the Mill Road/Alfriston Road roundabout. Intersections in the urban and peri-urban portion are expected to be very busy throughout the day with expected levels of service of C to E travelling through the corridor, and typically E to F on the side roads accessing the corridor.

[17] Data from *2014 ITA - Appendix A Traffic Management Supporting Analysis*.

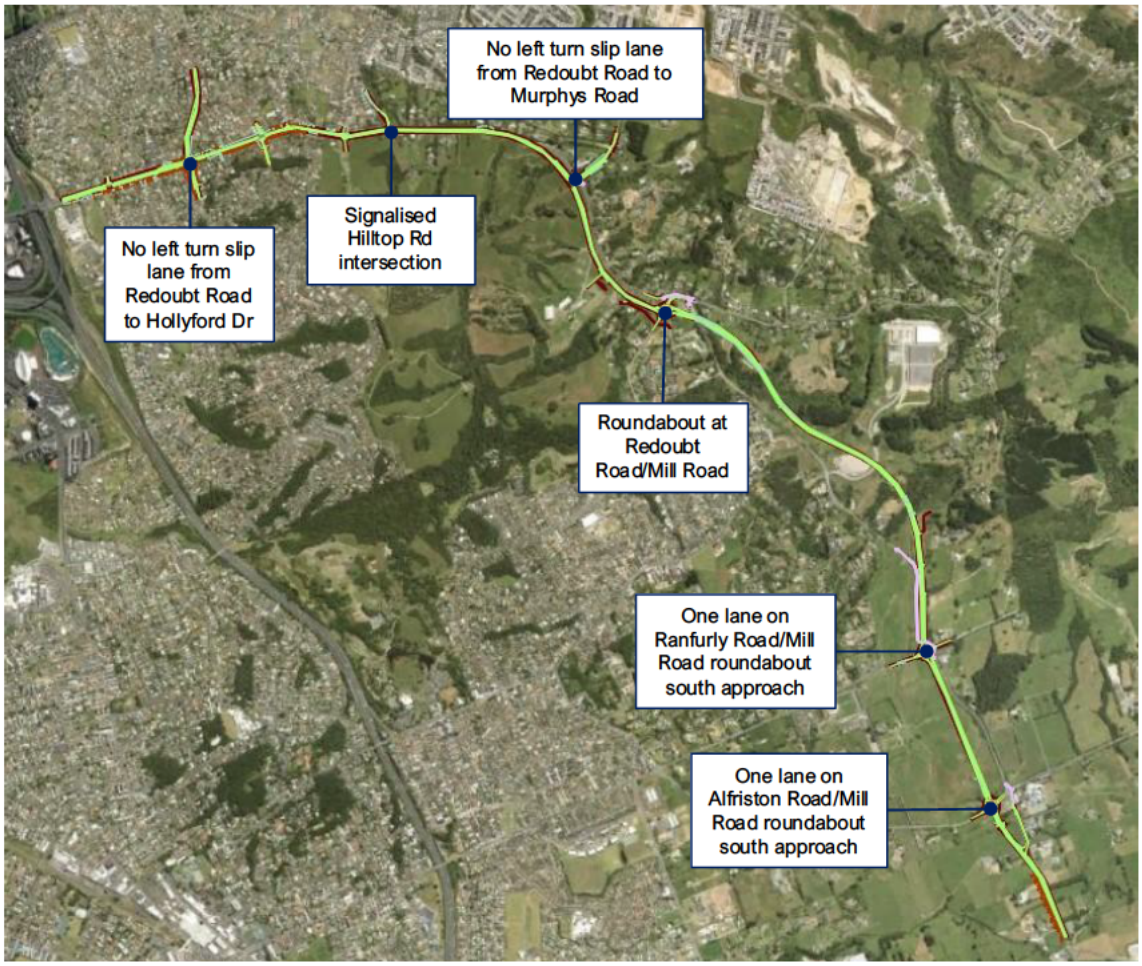


Figure 5-5 Summary of Intersection Form Changes

Similarly, the 2014 ITA indicated that the 2014 Design resulted in sections the Project corridor operating at or near its design capacity. To illustrate this, the performance of four sections of the project corridor (taken from the 2014 ITA) are shown in the Table 5-2. These are compared with the equivalent performance, volume-to-capacity **(v/c)** ratios in the peak period in the peak direction, for the proposed Consenting Design.

Table 5-2 Volume to Capacity (v/c) Ratio Comparison

Section	Road / Section	2014 ITA Report (2014 Design)	Consenting Design[18]
		2041 V/C Ratio with Project[19]	2051 V/C Ratio with Project
1	Redoubt Road – between Interchange with SH1 and Hollyford Dr	• AM Peak NB: 0.94 to 1.04 • PM Peak SB: 1.04 to 1.24	• AM Peak NB: less than 0.70 • PM Peak SB: 0.70 to 0.85
2	Redoubt Road – between Hilltop Rd and Murphys Rd	• AM Peak NB: 0.58 to 0.78 • PM Peak SB: 0.33 to 0.53	• AM Peak NB: less than 0.70 • PM Peak SB: less than 0.70
4	Mill Road – south of Redoubt Rd intersection	• AM Peak NB: 0.66 to 0.93 • PM Peak SB: 0.56 to 0.82	• AM Peak NB: less than 0.70 • PM Peak SB: less than 0.70
5	Mill Road – north of Ranfurly Rd intersection	• AM Peak NB: 0.70 to 0.96 • PM Peak SB: 0.53 to 0.83	• AM Peak NB: less than 0.70 • PM Peak SB: 0.70 to 0.85

[18] *Mill Road Stage 1 Investment Case: Modelling Interpretive Report*
[19] The v/c ratios are shown in ranges as the 2014 ITA has considered two different land use assumptions as well as another scenario where mitigation is introduced in the form of PT and walking/cycling improvements.

Table 5-2 shows that for the identified sections, the resulting v/c ratios are comparable between the Consenting design and 2014 Design. As such, the changes in the design and intersection forms, have not adversely impacted the corridor performance and the Project benefits are achieved. Furthermore, the outcomes are comparable to what was anticipated and authorised by the original designation, and no additional adverse effects are identified.

5.2.3 Adjacent corridor performance

In terms of downstream impacts, the Project is expected to increase the demand on Mill Road and is anticipated to increase traffic flows downstream of the Project extents. As illustrated in Figure 5-6, this has the potential to result in congestion on downstream corridors at peak times. Traffic accessing the corridor from further south will be constrained on the existing Mill Road corridor or at its intersections with other roads to the south. Consequently, some side roads leading to the Project corridor will experience constraints and delays at these times.



Figure 5-6 Resulting VCR in the AM and PM Peak periods

The effects downstream of the corridor are considered acceptable. While the 2014 ITA did not specifically assess adjacent and downstream corridor performance, the current design closely reflects the 2014 corridor layout, which was previously assessed and authorised under the original designation. The traffic volumes and operational performance on the corridor are also similar with those anticipated in the 2014 ITA (refer to Figure 5-4 and Table 5-2).

Given the similarity in design, traffic demand and performance, it is reasonable to expect comparable operational outcomes on the adjacent and downstream corridor with both the Consenting Design and the 2014 Design. Therefore, the downstream transport effects align with what was originally authorised and are not expected to result in additional adverse impacts.

5.2.4 Special vehicle lanes

The provision of a special vehicle lane, i.e., a westbound bus lane on Redoubt Road, has been carefully considered by NZTA during design development for the Consenting Design. This lane is intended to support network efficiency and prioritise key transport modes. The proposed lane arrangements consider the balance between corridor capacity and multi-modal integration.

It is anticipated that NZTA and AT will continue to monitor the operational performance of this lane (and the overall corridor) and identify any necessary adjustments to enable the corridor to function effectively within the wider network. This ongoing performance monitoring is part of NZTA's wider network

monitoring and optimisation programme. This enables detailed review of the intersection and corridor forms to assess performance and identify opportunities for refinement as part of a regional optimisation programme.

5.2.5 Pedestrians and cyclists

The following sections consider the active mode provision along the corridor. The proposed shared paths and crossing facilities on the urban sections up to Murphys Road is discussed in Sections 5.2.5(a) and (b). The sections from Murphys Road to the rural section (including the Old Mill Road) are discussed in Section 5.2.5(c) and 5.2.5(d). The existing and proposed walking and cycling facilities are shown in Figure 5-7.

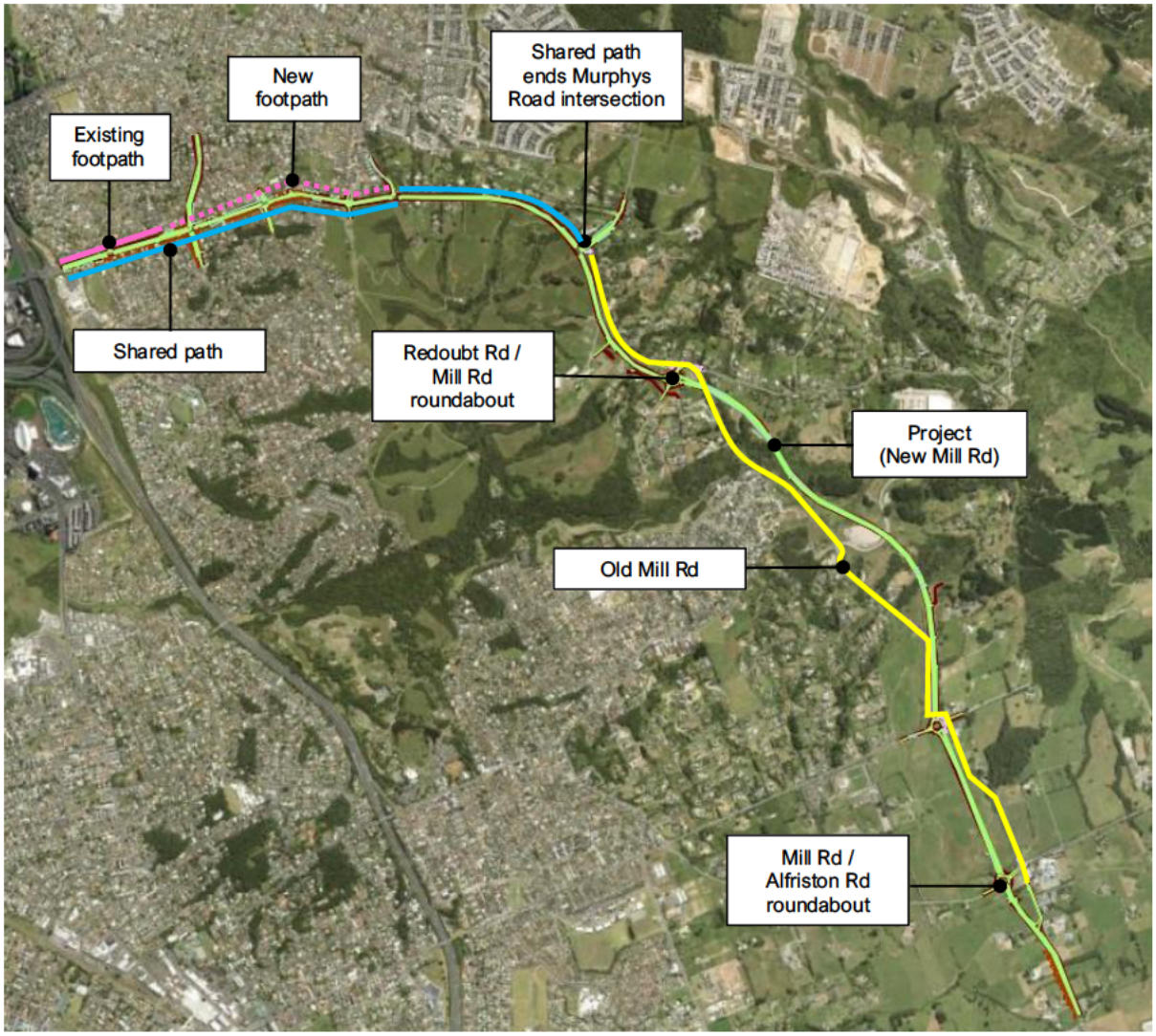


Figure 5-7 Existing and Proposed Walking and Cycling Facilities

(a) Shared Paths – Redoubt Road interchange to Murphys Road

The Consenting Design proposes shared paths on the western end section of the Project corridor, from the Redoubt Road interchange to Murphys Road intersection (refer to Figure 5-7). This is a change from the 2014 Design where on-road cycle lanes were proposed on both sides of the Project corridor.

The proposed 3m shared paths are designed to be off-road along the urban and peri-urban sections of the Project corridor. The provision of the shared paths enables active modes access to residential properties and key local destinations. The proposed shared path is an appropriate facility in terms of providing separation of cyclists on a high-volume traffic corridor, as shown in Figure 5-8 below, from *AT Transport Design Manual (TDM) – Cycling Infrastructure v1*[20].

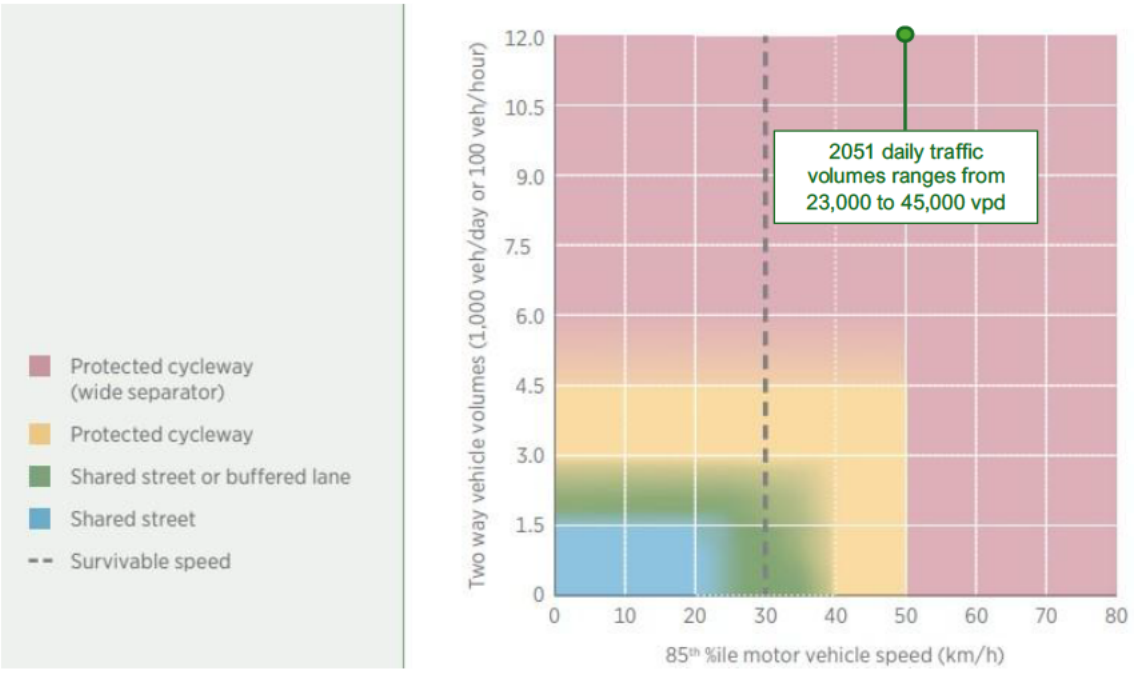


Figure 5-8 Guide to Choosing Cycling Facilities (Source: AT TDM)

However, it is acknowledged that a shared path will not provide segregation between cyclists and pedestrians, as discussed in the AT TDM. It is likely that there will be a notable volume of pedestrians in this area given the urban nature and the density of residential housing in this section. It is still considered that the shared path is appropriate because there is a new footpath to be constructed on the northern side of the Project corridor, from Redoubt Road interchange to Hilltop Road (refer Figure 5-7 above). It is noted that the *NZTA pedestrian planning and design guide*[21] also states that a shared path may be appropriate, if there is a pedestrian-only alternative nearby. Between Hilltop Road and Murphys Road, the number of pedestrians is likely lower, as the project moves into peri-urban section, and therefore a shared path only is considered appropriate.

The proposed shared path width is compliant with the desirable minimum width of 3m identified in *Austroads Guide to Road Design (AGRD) Part 6A: Paths for Walking and Cycling*[22]. The AT TDM[23] preferred width is 4m and the minimum width is 3m. While the 4m preferred width is not achieved, this is still considered appropriate given that there is a pedestrian-only alternative from Redoubt Road interchange to Hilltop Road, and anticipated low pedestrian volumes from Hilltop Road and Murphys Road, as discussed above.

A 2m berm separates the shared path from the bus lane or the adjacent traffic lane, which is wider than the required 0.5m berm width in the AT TDM.

This existing section of the Project corridor currently lacks any formal cycling infrastructure. The proposed Consenting Design therefore enhances the active transport environment by improving conditions and providing infrastructure for both walking and cycling. The proposed Consenting Design provides less positive outcomes than the 2014 Design, but does not result in adverse effects. As such, the proposed changes are appropriate, when compared to the 2014 Design.

[20] https://at.govt.nz/media/1985455/5794-tdm-engineering-design-code-cycling-infrastructure-version-1.pdf
[21] https://www.nzta.govt.nz/assets/Walking-Cycling-and-Public-Transport/docs/pedestrian-network-guidance/docs/3.3-paths-feb-2025.pdf
[22] Cited as reference by the *NZTA pedestrian planning and design guide*
[23] Table 8 of the document, https://at.govt.nz/media/1985455/5794-tdm-engineering-design-code-cycling-infrastructure-version-1.pdf

(b) Crossing Facilities for Pedestrians and Cyclists – Redoubt Road Interchange to Murphys Road

Walking and cycling crossing facilities are provided for at the key intersections along the urban and peri-urban sections of the Project corridor. Cyclists are able to cross at the same time as pedestrians, as shown in Figure 5-9 and Figure 5-10 below. Signalised crossings for pedestrians and cyclists are integrated at signalised intersections, similar to what was provided in the 2014 Design.

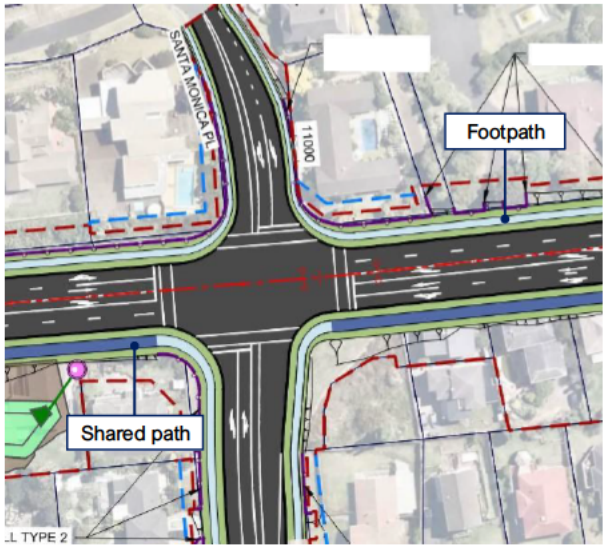


Figure 5-9 Typical Configuration at Signalised Crossings – Urban and Peri-urban Sections

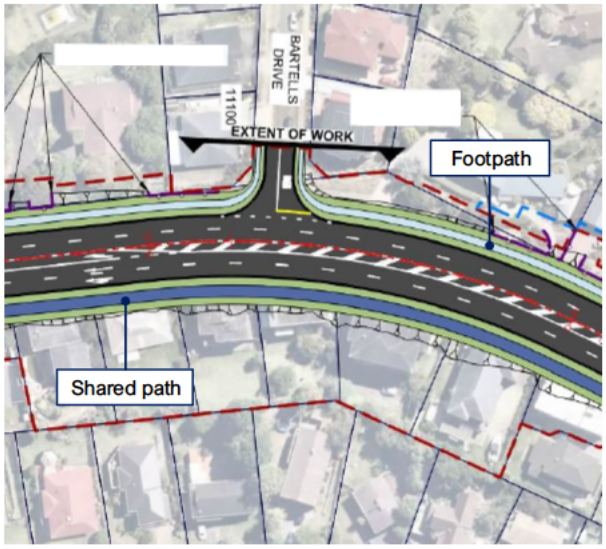


Figure 5-10 Typical Configuration at Unsignalised Crossings – Urban and Peri-urban Sections

Figure 5-11 below shows that that the proposed shared path going into Tōtara Park. Pedestrians and cyclists from the northern side of Mill Road can cross at the Hilltop Road signalised intersection. Figure 5-12 below shows that the proposed footpath connects to the existing footpath on Hilltop Road. The details can be further found in the Consenting Design drawings (refer to the substantive application for further details).

As such, the proposed crossing facilities for pedestrians and cyclists are not considered to result in any additional adverse effects from what was considered as part of the 2014 assessments for the Project.

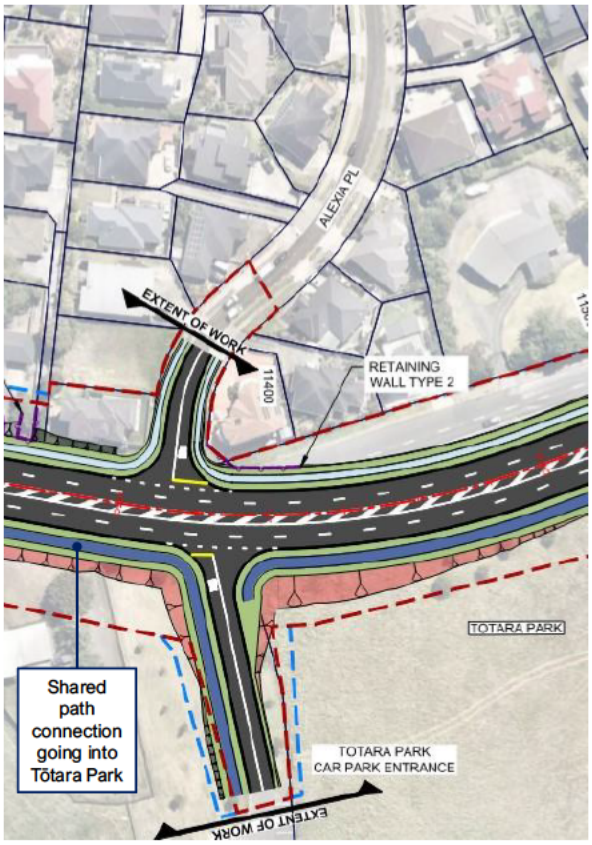


Figure 5-11 Footpath and Shared Path Configuration at Tōtara Park

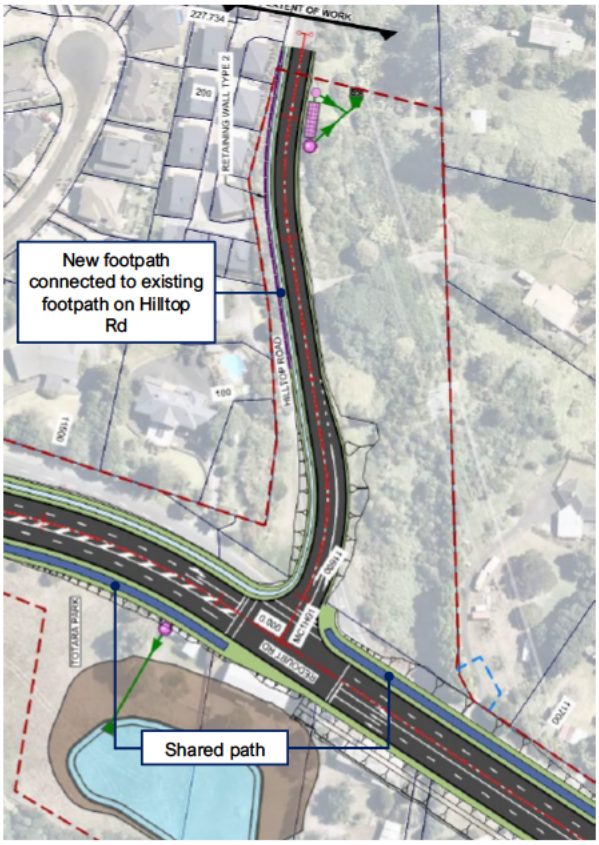


Figure 5-12 Footpath and Shared Path Configuration at Hilltop Road Intersection

(c) Walking and Cycling – Murphys Road to Phillip Road

The Project has been divided into different sub-sections in order to assess walking and cycling facilities as shown in Figure 5-13.

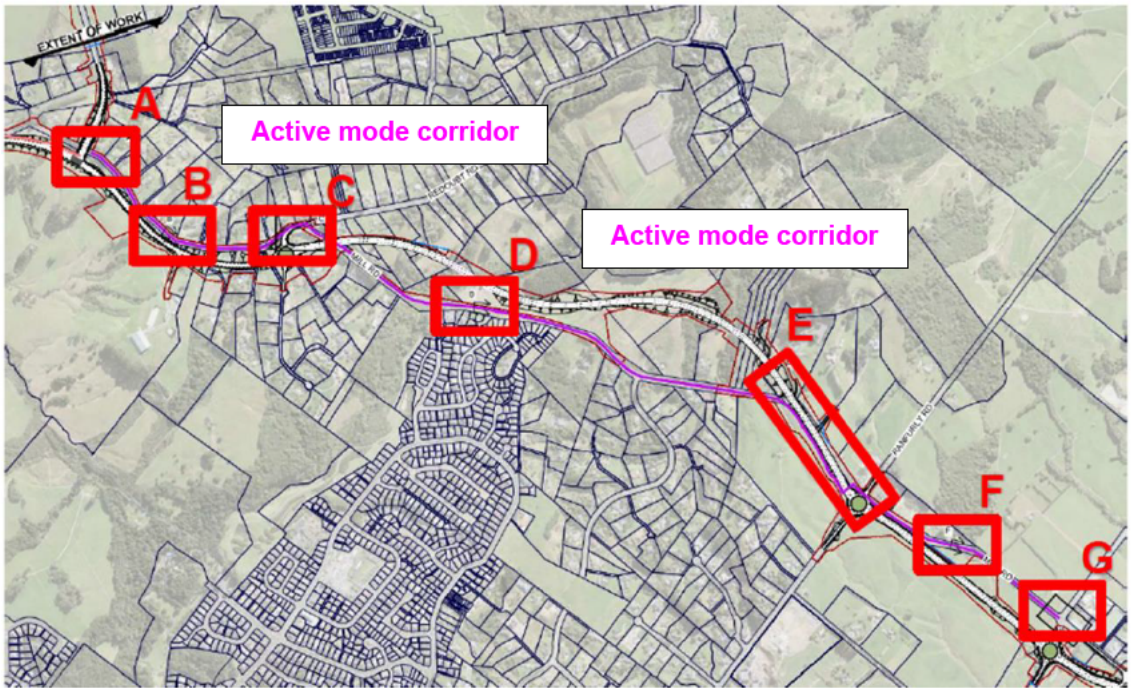


Figure 5-13 Peri-urban and Rural Sections of Project Corridor

Generally, as the Project corridor moves further east into the rural area the likely demand and therefore provision for active modes will reduce. The cross sections B, D and F shown below illustrate the approach adopted in the Consenting Design. It is noted that the traffic lane widths meet the minimum required 2.7m per AT EDC Urban and Rural Roadway Designs[24].

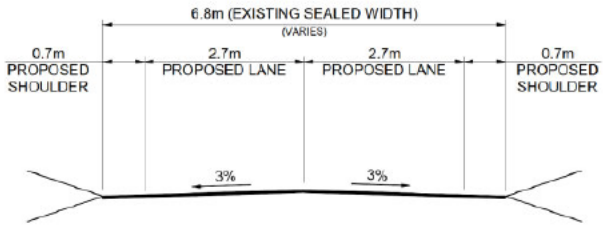


Figure 5-14 Section B Typical Cross Section (Redoubt Road) [25]

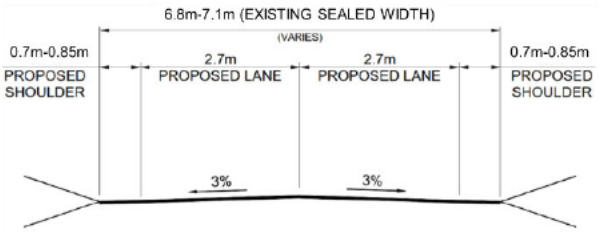


Figure 5-15 Sections D and F Typical Cross Section (Mill Road) [26]

It should be noted that a single-lane contraflow road was considered as an option, but was not progressed due to safety reasons. These sections on Old Mill Road have varying topography and therefore, limited visibility. The contraflow configuration was identified as having the potential to confuse drivers and lead to head on crashes. Therefore, the narrow two-lane road configuration, as shown in the figures above, was taken forward for the Consenting Design. In order to assess the effects of this change, a comparison of the 2014 Design and Consenting Design is summarised in Table 5-3.

Table 5-3 Comparison of Walking/Cycling Facilities

	2014 Design	Consenting Design
Description / Configuration	• 2m on-road cycling facilities with 0.6m wide buffers on both sides of the New Mill Road corridor. • 3m shared path was proposed on the northern side, from Redoubt Road roundabout to Alfriston Road.	• No cycling facilities on the Project corridor, south of Murphys Road. • It is assumed that more confident cyclists would be able to use the Old Mill Road[27] corridor.
Road Environment	New Mill Road • Proposed 80km/h speed limit. • Traffic volumes exceed 20,000vpd.	Old Mill Road • Existing 60 km/h speed limit; the narrow lane configuration encourages slower speeds, i.e., up to 50km/h. • Majority of this corridor has negligible traffic, noting that Polo Prince Drive is connected to the Project corridor. A short section will have 300-400 vpd. The remaining traffic will be vehicles accessing properties.
Comparison of effects	The on-road cycling facility will cater to more confident cyclists and the shared path will cater to all cyclist user groups.	While the 0.7m to 0.85m shoulder width is not wide enough to be a formal cycling lane, it is considered that the provision is adequate to provide for any more confident cyclists using the corridor. However, the facility does not include provision for less confident cyclists or pedestrians with the removal of shared path.

On the basis of the table above, it is considered that the Consenting Design will not provide the same level of benefit for cyclists and pedestrians as the 2014 Design. This will likely lead to reduced mode shift, due to the reduced attractiveness of the facilities on these peri-urban and rural sections. Notwithstanding this, anticipated traffic volumes indicate that the safety outcomes will remain acceptable. On this basis, the adverse transport effects are considered to be low.

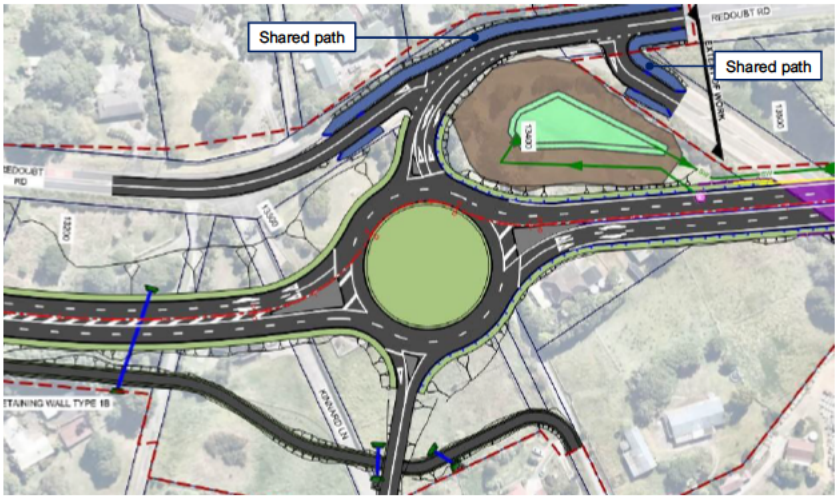
[24] https://at.govt.nz/media/1982231/engineering-design-code-urban-and-rural-roadway-design_compressed.pdf
[25] *Mill Road FTA – Active Mode Corridor* (AECOM, September 2025)
[26] *Mill Road FTA – Active Mode Corridor* (AECOM, September 2025)
[27] Existing section of Redoubt Road, south of Murphys Road to the rural section of Mill Road.

With the negligible traffic demand on the Old Mill Road, to the north and south of Polo Prince Drive connection, there are opportunities for Auckland Transport to consider how Old Mill Road could provide improved cycling connections.

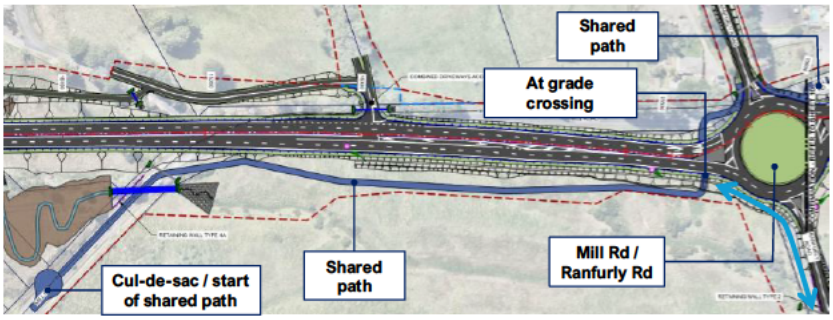
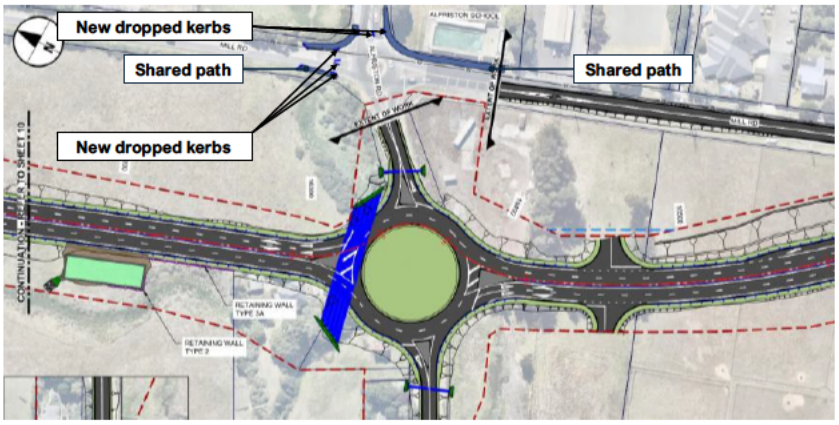
(d) Crossing Facilities for Pedestrians and Cyclists – Murphys Road to Phillip Road

The crossing facilities between Murphys Road to Phillip Road are assessed in Table 5-4 below.

Table 5-4 Shared Path Crossings on Mill Road

Section / Description	Assessment
A – Shared path connection from Murphys Road to Old Mill Road / Redoubt Road.	The proposed connection from the signalised crossing at the Murphys Road / Redoubt Road signal intersection to old Redoubt Road is shown on Figure 5-16. The proposed shared path width meets the preferred 4m requirements per *AT Engineering Design Code (EDC) Cycling Infrastructure*[28]. Line markings and signages will indicate that shared path users need to give way to traffic before entering old Redoubt Road, where they can share the road with traffic. Traffic volumes are expected to be less than 200 vehicles per day and speeds below the 50km/h speed limit.  *Figure 5-16 Section A Configuration* A similar crossing facility is provided in the 2014 Design. Therefore, the effects would be the same as what was provided by the original designation.
C – Crossing Redoubt Road and Mill Road roundabout. A shared path is proposed from the Redoubt Road portion, connecting to Old Mill Road via a drop kerb/cycle ramp leading to an underpass.	The configuration allows for the safe crossing of cyclists away from the busy Mill Road/Redoubt Road roundabout. The proposed shared path width meets the preferred 4m requirements per *AT EDC Cycling Infrastructure*. Line markings and signages will indicate that shared path users need to give way to traffic before entering / exiting old Redoubt Road or Old Mill Road, where they can share the road with traffic. Traffic volumes are expected to be low and vehicle speeds below the 50km/h speed limit around these intersections.  *Figure 5-17 Section C Configuration*

[28] https://at.govt.nz/media/1982222/engineering-design-code-cycling-infrastructure_compressed.pdf

Section / Description	Assessment
	In comparison, the 2014 Design provides a crossing facility on the busy Mill Road / Redoubt Road unsignalised intersection. It is considered that the Consenting Design provides better safety outcomes for pedestrians and cyclists, and therefore the effects are positive.
E – Old Mill Road will terminate at a cul-de sac approximately 300m from the Ranfurly Road roundabout. A shared path will connect the cul-de-sac, via an at grade crossing at the Ranfurly Road (Figure 5-18), to the Old Mill Road corridor on the east side of the roundabout.	The proposed crossing at the Ranfurly Road roundabout is consistent with the standards for a multi-lane roundabout in Austroads Guide to Road Design: Part 4B (AGRD 4B). Line markings and signages will indicate that shared path users need to give way to traffic before entering / exiting old Redoubt Road, where they can share the road with traffic.  *Figure 5-18 NZTA Proposed At-Grade Crossing – Consenting Design* The at-grade crossing configuration is similar to the 2014 Design where there is an at grade crossing between on-road cycling lanes and shared path on this section of the Project corridor. Therefore, the effects will be similar to the 2014 Design. There is the opportunity for Auckland Transport to consider connection from the existing footpath on the north side of Ranfurly Road to the proposed path (blue arrow on Figure 5-18). This could be facilitated through the urbanisation / development of the adjacent future urban zoned land.
G – Crossing the existing Alfriston Road/Old Mill Road roundabout. The eastern end of Old Mill Road will have a 4m shared path and refuge islands / dropped kerbs to cross Alfriston School. The existing footpath in front of Alfriston School will be upgraded to a 4m shared path.	The proposed shared paths have widths that meet the requirements per *AT EDC Cycling Infrastructure*. Line markings and signages will indicate that shared path users need to give way to traffic before entering / exiting old Redoubt Road, where they can share the road with traffic.  *Figure 5-19 Crossing at Alfriston Road* In comparison to the 2014 Design where there are multiple at-grade crossings on the proposed roundabout on the Project corridor with high traffic volumes, the effects are improved with the Consenting Design. The crossing will be placed on the low volume Old Mill Road with only one crossing of Alfriston Road near the existing roundabout.

5.2.6 Public transport

The Project includes a westbound bus lane on Redoubt Road extending from the Hollyford Drive intersection to just before Redoubt Road interchange. This bus lane was included in the approved 2014 Design and therefore does not represent a change in the Consenting Design.

5.2.7 Property access

(a) Raised median on Redoubt Road (Redoubt Road/SH1 Interchange to Hollyford Drive)

A raised median is proposed on the western end of the Project corridor, from Redoubt Road interchange to Hollyford Drive. The raised median barrier enables safer movements along this section of the Project corridor. Without the right turning movements to and from the properties, conflicts with vehicles will be reduced and the anticipated high volume traffic can flow more efficiently. In addition, there will be less conflicts with the high frequency buses that will utilise the proposed bus lane on the westbound side of Redoubt Road.

This change results in potential adverse effects that were not previously considered in the previous 2014 assessments. Approximately 124 properties will be partially affected, as vehicles will not be allowed to turn right into and right out of the properties, but can still turn left in and out.

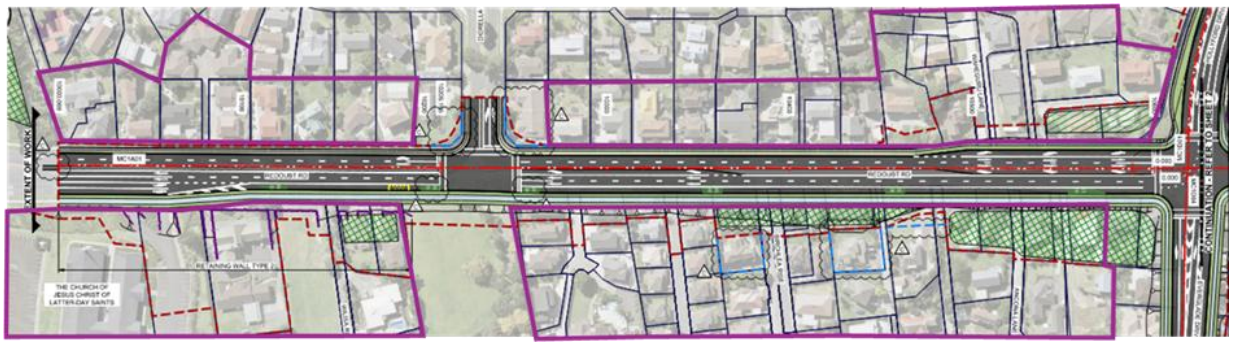


Figure 5-20 Extent of the Raised Median Barrier and Affected Properties

We have considered the delays in travel times, based on feasible turning locations at the nearby intersections (e.g., Diorella Drive, Hollyford Drive), including any delays at the intersections[29].

In all periods, additional travel times for each of the re-routing options generally range from one to six minutes, with the slightly higher times (four to six minutes) mainly in the weekday afternoon peak period. It is considered that the additional travel times are not significant in the context of the overall average journey times, which range from 33 to 44 minutes[30].

Vehicle tracking analysis shows that cars and smaller vans, which will be the majority of movements to and from the potentially affected properties, can be accommodated at intersections in relatively close proximity with little additional delay. Very occasional movements of medium or larger trucks, not typically associated with residential properties, will need to travel further west (i.e., Manukau Station Rd/Putney Way) to u-turn and experience greater additional journey time. However, at peak times, this would still not be any more than the typical variability in peak period journey time variability (typically peak period travel times can vary by around ±10%).

Detailed intersection modelling (using the SIDRA modelling software) shows that the effects of allowing u-turns at the detour routes will only likely affect Diorella Drive and Hollyford Drive intersections, where there would be additional movements and changes in signal phasing. Overall, the changes in the intersection performance are still considered acceptable and further optimisation of intersection performance[31] can be appropriately undertaken during design refinements and implementation.

Overall, it is considered that the potential adverse impacts of the raised median on the Project corridor between Redoubt Road interchange and Hollyford Drive are localised and acceptable in the context of expected journey times along this section of Redoubt Road.

(b) Access to Properties on Murphys Road

In the 2014 Design, approximately 15 properties on Murphys Road were proposed to have direct connection on the Project corridor, as shown in Figure 5-21. The Consenting Design, also shown in Figure 5-21, proposes that these properties connect to the re-aligned Murphys Road. The estimated

[29] Phasing has been adjusted to allow for u-turns without conflicts with other movements
[30] Based on SATURN transport model outputs
[31] Tailored signal phasing that responds to varying traffic demands across different peak periods

differences in travel distance from a common point on the local access road to the new Murphys Road intersection with the Project is 400m. We consider that this detour is not significant.

Murphys Road is considered to be better suited for residential access, as it is classified as a connector road, while the Mill Road is an arterial road that is designed for higher volumes. Direct access from residential lots to arterials is not consistent with the network hierarchy and function (where alternatives are available, as in this case), as this may lead to inefficiencies and potential safety issues.

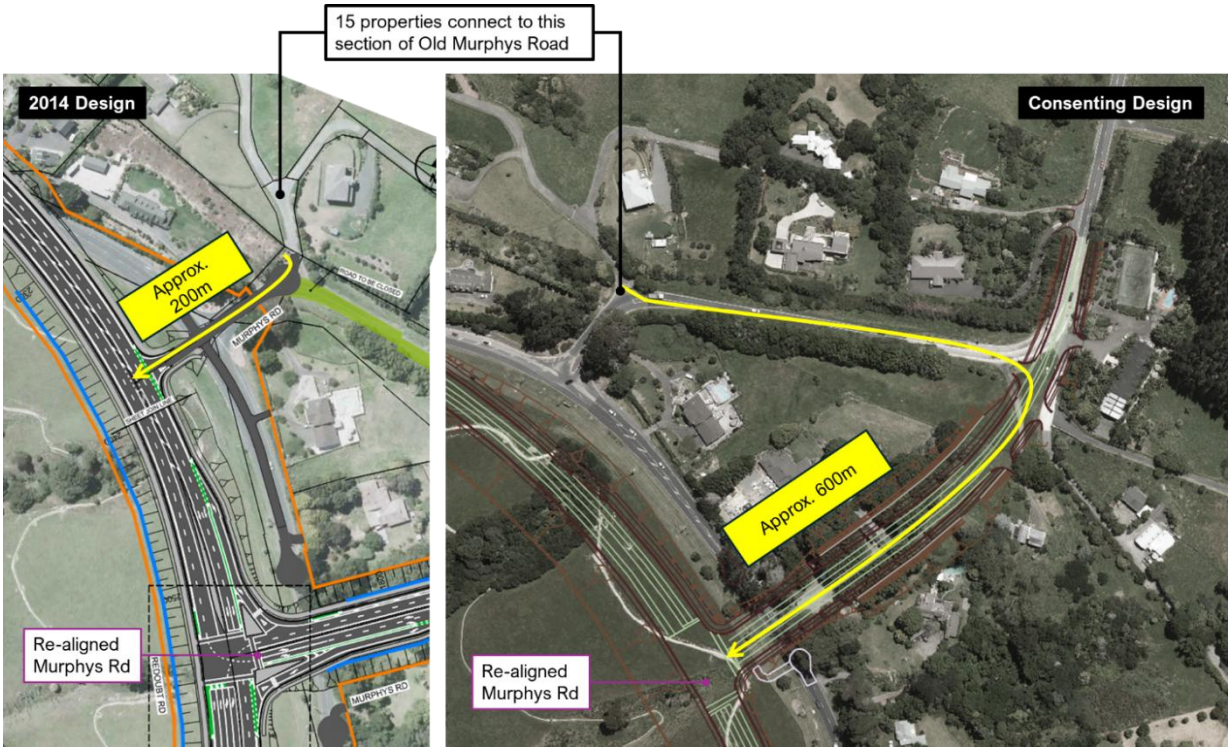


Figure 5-21 Affected Properties and Estimated Detour at Murphys Road

(c) Access to Properties North of Ranfurly Road Roundabout

The section of Mill Road from Redoubt Road intersection and Ranfurly Road is proposed to have a wire rope median barrier, with one full right turn bay and a combined vehicle access, as shown on the Consenting Design. The provision of the wire rope barrier and a combined vehicle access enable safer movements along this section, by reducing the conflicting movements brought about by right turning vehicles on a high speed and high volume corridor. The design of the access will follow the NZTA standard form, i.e., *NZTA Planning Policy Manual (PPM)* Diagram E[32].

This is a change from the 2014 Design that affects three existing driveways providing access to approximately seven properties, as shown in Figure 5-22 below. Driveway 1 serves up to four rural properties and a Buddhist temple. Driveway 2 serves a church, the Manurewa Assembly of God. Driveway 3 serves two residential properties. It is noted that the 2014 Design proposed two right turn bays that allowed right turn in and out of the driveways.

[32] https://nzta.govt.nz/assets/resources/planning-policy-manual/docs/PPM-access-onto-the-state-highway-guide-from-private-property.pdf

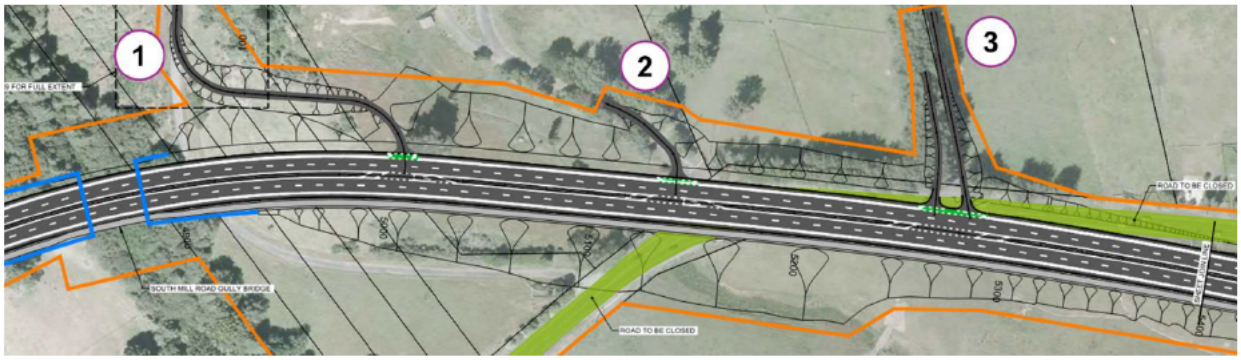


Figure 5-22 Driveways to Properties North of Ranfurly Road Roundabout – 2014 Design

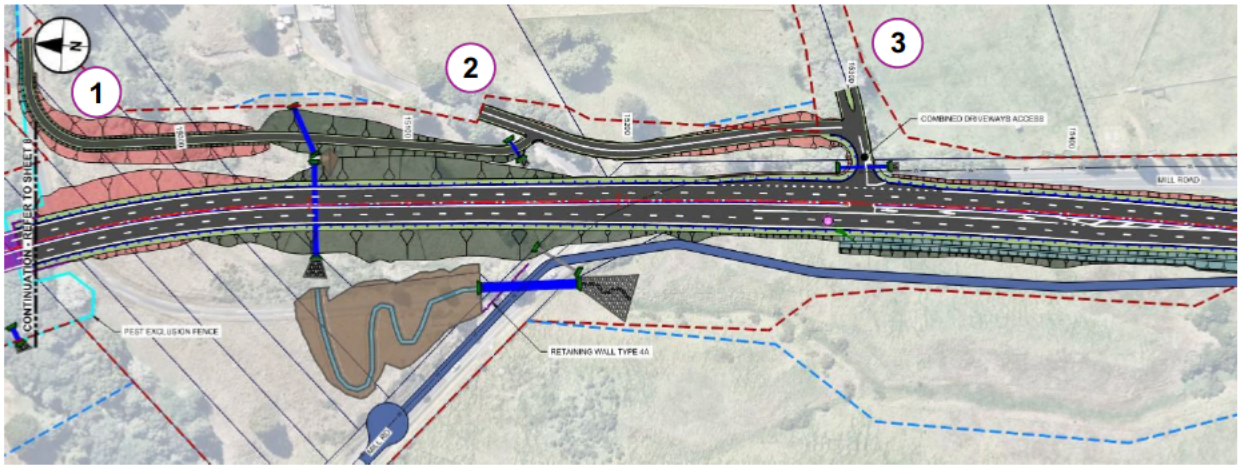


Figure 5-23 Proposed Driveway Configuration to Properties North of Ranfurly Road Roundabout – Consenting Design

Given that right turns are still allowed into and out of these driveways, it is considered that the outcomes are comparable to what was anticipated by the original designation and no additional adverse effects are identified.

(d) Polo Prince Drive Access

In the 2014 Design, a connection to Polo Prince Drive was proposed as a give-way controlled intersection, as shown in Figure 5-24. The Consenting Design proposed that the give-way intersection form is retained but no longer includes an on-road cycle lane on Mill Road that will cross the intersection, as shown in Figure 5-25. This change retains the intersection layout without introducing additional safety or operational concerns for on-road cyclists.

Given the overall similarity in design intent and function, it is considered that the outcomes have slightly improved in terms of vehicle and cyclist safety at this intersection, when compared to what was anticipated by the original designation. Therefore the transport effects are positive.

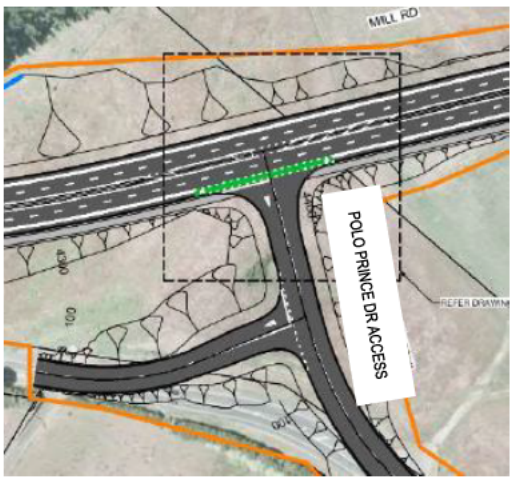


Figure 5-24 Polo Prince Drive intersection – 2014 Design

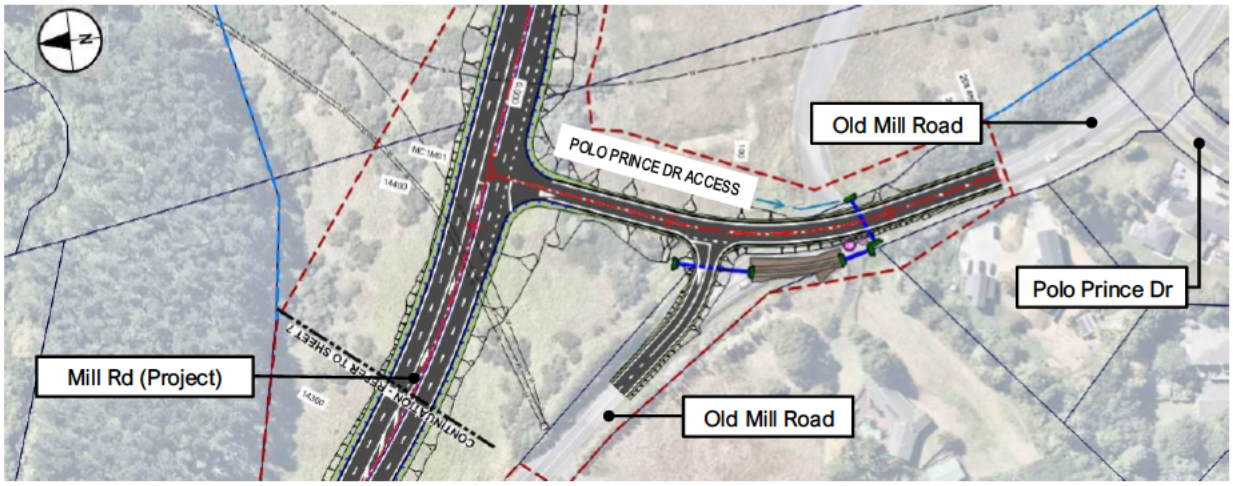


Figure 5-25 Polo Prince Drive intersection – Consenting Design

(e) Tōtara Park Access

Tōtara Park has two existing accesses on Redoubt Road, in front of 182 Redoubt Road (Access A) and 208 Redoubt Road (Access B). The integration of these accesses had not been considered during the 2014 Design. As the Consenting Design has progressed, it was decided that these two accesses be included.

The design of Access A will follow the standard NZTA PPM Diagram A, and Access B will follow the standard NZTA PPM Diagram E. The accesses will retain their current use, which is mainly for contractor / maintenance access, and their current widths of 4m. Access B will be designed according to NZTA PPM Diagram E to retain its current use as a NZ Police layby zone.

As the design for these accesses will be in accordance with the appropriate standard and the retention of these access enables access to be maintained, no adverse effects are identified.

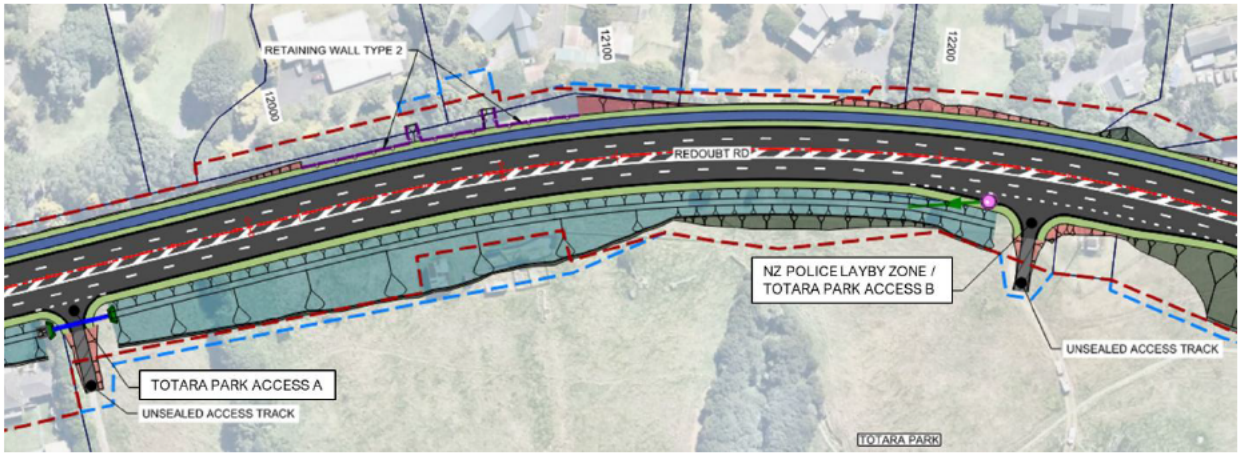


Figure 5-26 Tōtara Park Accesses

(f) Watercare Reservoir LILO Access

Watercare currently has an existing access at 38 Mill Road which was not in place at the time of the 2014 Design. As part of the Consenting Design, a left-in/left-out **(LILO)** access is proposed to serve the reservoir, designed in accordance with NZTA PPM Diagram A standards.

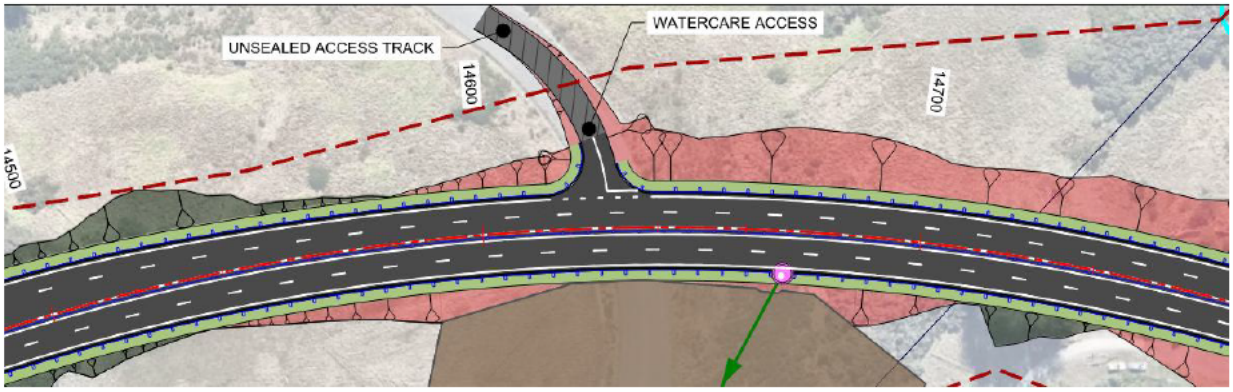


Figure 5-27 Watercare Access

This configuration does not introduce a gap in the median barrier nor introduce any additional right-turn movements on this section of the Project corridor, maintaining consistency with the 2014 Design. The anticipated movements are low and the access will be gated, only allowing access to authorised vehicles.

Given these factors, the proposed access is not expected to generate any new adverse transport effects.

(g) Changes to Property Access

The Project's overarching design approach has been to retain driveway access wherever practicable, and to minimise land acquisition for access-related purposes, except where necessary to reinstate driveways. Due to design changes and refinement, some properties need to be acquired as their accesses cannot be maintained or reconfigured, while others no longer need to be included in the designation (or acquired). Table 5-5 below summarises the affected properties due to changes in the design and designation, between the 2014 Design and the Consenting Design.

Table 5-5 Change in Properties Impacted by the Project

Property Address	Full / Partial Acquisition	Why Property is Affected	Impact of change in design/ designation
2 Diorella Drive	None	Reduced road footprint.	Positive impact – property was previously impacted, but no longer impacted
1/22 Diorella Drive	None	Reduced road footprint.	Positive impact – property was previously impacted but no longer impacted.
2/49 Redoubt Road	Partial	Driveway regrading required.	Change in designation results in access being impacted, so property is partially designated. No access effect, access to be maintained.
57A Redoubt Road	Partial	Driveway regrading required.	Change in designation results in access being impacted, so property is partially designated. No access effect, access to be maintained.
61 Redoubt Road	Partial	Driveway regrading required.	Change in designation results in access being impacted, so property is partially designated. No access effect, access to be maintained.
63V Redoubt Road	Partial	Driveway regrading required.	Change in designation results in access being impacted, so property is partially designated. No access effect, access to be maintained.
2 Everglade Drive	Full	The batter slope is extended into the property, and thus access cannot be provided. In comparison,	Change in designation results in access no longer being able to be provided. As property is fully designated, there is no impact on property access.

Property Address	Full / Partial Acquisition	Why Property is Affected	Impact of change in design/ designation
		the 2014 design only had a retaining wall.	
14 Flamingo Court	Full	Shared cross-lease with adjacent property (87 Redoubt Road) that needs to be acquired.	Change in designation results in access no longer being able to be provided. As property is fully designated, there is no impact on property access.
93V Redoubt Road	Partial	The batter slope is extended into the property, and thus access cannot be provided. In comparison, the 2014 design only had a retaining wall. This is to provide an appropriate gradient to the existing driveways.	Change in designation results in access being impacted, so property is partially designated. No access effect, access to be maintained.
99 Redoubt Road	Full	Adjacent property (99A Redoubt Road) that needs to be acquired and shares a cross-lease with this property, so this will also be acquired.	Change in designation results in access no longer being able to be provided. As property is fully designated, there is no impact on property access.
160 Redoubt Road	Partial	Driveway regrading required.	Change in designation results in access being impacted, so property is partially designated. No access effect, access to be maintained.
190 Redoubt Road	Partial	Driveway regrading required.	Change in designation results in access being impacted, so property is partially designated. No access effect, access to be maintained.
200 Redoubt Road	Partial	Driveway regrading required.	Change in designation results in access being impacted, so property is partially designated. No access effect, access to be maintained.
371 Redoubt Road	Partial	The batter slope is extended into the property, and thus access cannot be provided. In comparison, the 2014 design only had a retaining wall.	Change in designation results in access being impacted, so property is partially designated. No access effect, access to be maintained.
375 Redoubt Road	Partial	The batter slope is extended into the property, and thus access cannot be provided. In comparison, the 2014 design only had a retaining wall.	Change in designation results in access being impacted, so property is partially designated. No access effect, access to be maintained.
182 Mill Road	Temporary occupation and partial (to be confirmed)	Designation footprint has been reduced so only temporary or partial acquisition required.	Positive impact – property was previously impacted, but no longer impacted
196 Mill Road	Temporary occupation and partial (to be confirmed)	Designation footprint has been reduced so only temporary or partial acquisition required.	Positive impact – property was previously impacted, but no longer impacted
2 Wastney Road	Partial	New road is located southwest of Mill Road rather than north-east in the 2014 design.	Change in designation results in access being impacted, so property is partially designated. No access effect, access to be maintained.

Property Address	Full / Partial Acquisition	Why Property is Affected	Impact of change in design/ designation
		Therefore, this property needs to have batter slope.	
1345 Mill Road	Full	Batter slope has been extended further into the property.	Change in designation results in access no longer being able to be provided. As property is fully designated, there is no impact on property access.
295 Mill Road	Partial	Batter slope has been extended further into the property.	Adverse impact – change in designation results in access being impacted, so property is partially designated to enable access to be maintained.
323 Mill Road	Partial	Batter slope has been extended further into the property.	Change in designation results in access being impacted, so property is partially designated. No access effect, access to be maintained.
327 Mill Road	Partial	Batter slope has been extended further into the property.	Change in designation results in access being impacted, so property is partially designated. No access effect, access to be maintained.
333 Mill Road	Partial	Batter slope has been extended further into the property.	Change in designation results in access being impacted, so property is partially designated. No access effect, access to be maintained.
334 Mill Road	Partial	Batter slope has been extended further into the property.	Change in designation results in access being impacted, so property is partially designated. No access effect, access to be maintained.

As shown in the above table, where possible, access to properties have been maintained, altered or new access has been provided. Where access for properties can no longer be provided, these properties are included in the designation and have been or will be acquired.

Therefore, the effects on property access are considered acceptable, as access is to be retained, where properties are not proposed to be acquired.

5.2.8 Recommended measures to avoid, remedy or mitigate operational effects

A summary of the operational effects and comparisons between the 2014 Design and Consenting Design are shown in Table 5-6. Significant effort has been dedicated throughout this phase of the design process to proactively identify, avoid and mitigate any potential adverse transport effects.

Table 5-6 Operational Effects Summary

Effects	Design/ Designation Changes	Description and Assessment of Effects	Mitigation Measures (if any)
(1) General Traffic	Changes in corridor and intersection forms.	The daily traffic flows increased on the Project corridor compared to without the Project. The anticipated volumes on the Project corridor are similar to the volumes from the 2014 ITA. The outcomes are comparable to what was anticipated by the original designation and no additional adverse effects are identified, therefore the effects are acceptable.	None.
(2) In Corridor Performance	Changes in corridor and intersection forms.	The Project is forecast to result in the corridor operating at or near its design capacity in the peak direction during peak travel periods in 2051. The resulting V/C ratios are comparable between to that reported in the 2014 ITA.	None.

Effects	Design/ Designation Changes	Description and Assessment of Effects	Mitigation Measures (if any)
		The outcomes are comparable to what was anticipated by the original designation and no additional adverse effects are identified, therefore the effects are acceptable.	
(3) Adjacent Corridor Performance	Changes in corridor and intersection forms.	The Project is anticipated to increase traffic flows downstream of the Project extents, potentially causing temporary congestion on downstream corridors at peak times. Some side roads leading to the corridor are experiencing delays in these peak periods. The 2014 ITA has not specifically reported on this, however, it is expected that the effects previously assessed would be the same, as the design, traffic volumes and operational performances are similar. Therefore, the downstream transport effects align are considered to be similar and acceptable.	None.
(4) Special Vehicle Lanes	No change in the provision of a westbound bus lane from Hollyford Drive to Redoubt Road Interchange.	Not applicable.	Not applicable.
(5) Walking and Cycling	Shared paths – Redoubt Road interchange to Murphys Road	The shared path configuration has changed from the 2014 Design, i.e., on-road cycle lanes. The Consenting Design allows for separation from high-volume traffic. However, the shared path does not provide segregation between pedestrians and cyclists. It is still considered appropriate given the pedestrian-only alternative footpath from Redoubt Road interchange to Hilltop Road and anticipated low pedestrian volumes from Hilltop Road to Murphys Road. The shared path width and separation are appropriate. The shared path connects to a proposed footpath to Tōtara Park. The new footpath on the northern side of the corridor connects to the existing footpath on Hilltop Road. The proposed changes are appropriate when compared to the 2014 Design and not considered to result in any additional adverse effects from what was considered as part of the 2014 assessments for the Project.	None.
	Crossing facilities – Redoubt Road interchange to Murphys Road	Appropriate walking and cycling facilities are provided at the intersections. The outcomes are comparable to what was anticipated by the 2014 Design, therefore the effects are acceptable.	None.
	Walking and cycling – Murphys Road to Phillip Road	The Consenting Design will not provide the same level of benefit for cyclists and pedestrians as the 2014 Design. This will likely lead to reduced mode shift, as facilities are less attractive. However, the anticipated traffic volumes are low and the safety outcomes will remain acceptable. Therefore the adverse transport effects are low.	None.
	Crossing facilities – Murphys Road to Phillip Road	Appropriate crossing facilities are provided based on design standards. • Murphys Road crossing – similar facility provided in the 2014 Design. The effects would be the	None.

Effects	Design/ Designation Changes	Description and Assessment of Effects	Mitigation Measures (if any)
		same as what was considered in the 2014 Design. • Redoubt Road / Mill Road crossing – Consenting Design provides better safety outcomes. Ranfurly Road crossing – similar facility provided in the 2014 Design. The effects would be the same as what was considered in the 2014 Design. • Old Alfriston Road roundabout – Consenting Design provides better safety outcomes. Overall, the effects are the same with the 2014 design or better.	
(6) Public Transport	No change in the provision of a westbound bus lane from Hollyford Drive to Redoubt Road interchange.	Not applicable.	Not applicable.
(7) Property Access	Raised median on Redoubt Road (Redoubt Road interchange to Hollyford Drive).	The raised median will restrict vehicles turning right in and right out of approximately 124 properties. The additional travel times with this change are not considered significant in the context of the overall average journey times on this road section. The potential adverse effects are considered to be localised and acceptable.	None.
	Changes to access on properties on Murphys Road.	Instead of providing direct access to the Project corridor, the residential properties will have to access the existing Murphys Road to get to Mill Road. The estimated differences in travel distance is not considered significant. Connecting to Murphys Road is preferable from a network hierarchy perspective. Therefore, the potential adverse effects are not significant and acceptable.	None.
	Changes to access on properties North of Ranfurly Road Roundabout	Three existing driveways providing access to approximately eight properties will be combined as one access connected to the Project corridor. One full right turn bay and a gap on the wire rope barrier on Mill Road will be provided. Given that right turns are still allowed into and out of these driveways, as per the 2014 Design, it is considered that the outcomes are comparable to what was anticipated. No additional adverse effects are identified.	None.
	Polo Prince Drive Access	An unsignalised give-way T-intersection is proposed, similar to the 2014 Design. The Consenting Design will not include an on-road cycle lane on Mill Road. The outcomes have slightly improved in terms of vehicle and cyclist safety at this intersection compared to what was anticipated by the 2014 Design.	None.
	New Tōtara Park Accesses	Two new accessways from Tōtara Park are proposed to connect on Mill Road. These will adhere to the standard NZTA PPM Diagram E design. As accesses are now maintained in accordance with appropriate design standards, the effects are considered similar and acceptable in comparison to the 2014 Design.	None.

Effects	Design/ Designation Changes	Description and Assessment of Effects	Mitigation Measures (if any)
	New Watercare Reservoir LILO Access	The Consenting Design proposes a LILO access to the Project corridor, with the access to follow the standard NZTA PPM Diagram E design. This configuration does not introduce a gap in the median barrier nor introduce any additional right-turn movements on this section of the Project corridor. This achieves a similar outcome as the 2014 Design. Therefore, the potential adverse effects are similar and acceptable.	None.
	Changes to access for 24 properties.	Where access for these properties can be been maintained, altered or new access has been provided, so the effects are considered acceptable. Where access for properties can no longer be provided, these properties are included in the designation and have been or will be acquired.	None.

Overall, the Project delivers clear positive benefits, even accounting for some adverse operational transport effects which are localised and therefore low. This remains broadly consistent with what was anticipated by the original designation and is considered acceptable.

6 DESIGNATION CONDITIONS AND OUTLINE PLAN REQUIREMENTS

6.1 Designation Conditions

The existing Designation 6786 includes several conditions relevant to the implementation of the Project and transport matters. Table 6-1 provides an assessment of how these conditions have been addressed by the Project (i.e., through the assessment, design and/or management plans) and where not addressed, the reasons why.

Table 6-1 Transport Conditions

No.	Condition	Recommendation and Rationale
	Social Impact and Business Disruptions	
17.	**Designation 1, 2 and 3** **Condition 17: "One Network" Consultation** 17.1 The Requiring Authority and its contractor shall work collaboratively with the New Zealand Transport Agency (NZTA) during the preparation of the Transport, Access and Parking Management Plan DWP (Condition 21) in relation to confirming the management of adverse transport effects on the road network. A record of this consultation and outcomes shall be included in the Traffic, Access and Parking DWP. The Requiring Authority shall consult with the NZTA throughout the duration of construction on any changes or updates to the Traffic, Access and Parking DWP which relate to the management of the road network.	**Remove condition 17.** The designation has been transferred from Auckland Transport to NZTA, so this consultation is not required. Auckland Transport will be appropriately involved in the Corridor Access Request (**CAR**) and associated SSTMP process. As identified in the CTMP (refer to Section 4.9), the contractor will liaise with NZTA and AT to agree expectations in terms of congestion and disruptions.
	Transport, Access and Parking	
21.	**Designation 1, 2 and 3** **Condition 21: General Transport, Access and Parking** 21.1 A Transport, Access and Parking DWP shall be prepared by an appropriately qualified and experienced specialist to manage the adverse effects of construction of the Redoubt Road - Mill Road Corridor Project, or any part of it, on the transport network.	**Remove condition 21.1**. The CTMP provided as part of the application manages the construction effects. The CTMP supplied as **Appendix C11** to the substantive application has been prepared by an appropriately qualified and experienced specialist (refer to qualifications and experience set out in **Appendix B**).
	21.2 The objective of the Transport, Access and Parking DWP is to so far as is reasonably practicable, avoid, remedy or mitigate the adverse effects of construction on transport, parking and property access. This is to be achieved by: (a) Managing the road transport network for the duration of construction by adopting the best practicable option to manage congestion;	**Remove condition 21.2**. The CTMP set out its objective and measures to achieve this objective (refer to Section 1.1) which reflects the matters listed in Condition 21.2(a) to (c).

No.	Condition	Recommendation and Rationale
	(b) Maintaining pedestrian access to private property at all times; and (c) Providing on-going vehicle access to private property to the greatest extent possible.	
	21.3 To achieve the above objective, the following shall be included in the Transport, Access and Parking DWP: (a) The road routes which are to be used by construction related vehicles, particularly trucks to transport construction related materials, equipment, spoil, including how the use of these routes by these vehicles will be managed to mitigate congestion, and to the greatest extent possible, avoid adverse effects on residential zoned land and education facilities; (b) Transport route options for the movement of construction vehicles carrying spoil, bulk construction materials or machinery shall be identified and details provided as to why these routes are considered appropriate routes. In determining appropriate routes, construction vehicles carrying spoil, bulk construction materials or machinery shall as far as practicably possible only use roads that: (i) Form part of the regional arterial network; (ii) Are overweight / over dimensioned routes. (c) Where other routes are necessary (other than those roads identified in b above), the Transport, Access and Parking DWP shall identify any residential zoned land and education facilities and shall provide details on how adverse effects from these vehicle movements are to be mitigated through such measures as: (i) Stakeholder Engagement (in accordance with Condition 15 of this designation) with these properties in advance of the vehicle movements occurring; (ii) Restricting vehicle movements on Monday to Friday to between 9.30am and 3.30pm, and on Saturday to between 9am and 2pm. (d) Proposed temporary road lane reductions and / or closures, alternative routes and temporary detours, including how these have been selected and will be managed to mitigate congestion as far as practicably possible and how advance notice will be provided; (e) How disruption to the use of private property will be mitigated through: (i) Ensuring pedestrian and cycle access to private property is retained at all times; (ii) Providing vehicle access to private property as far as practicably possible at all times, except for temporary closures where landowners and occupiers have been communicated and consulted with in reasonable advance of the closure; and (iii) How the loss of any private car parking will be mitigated through alternative car parking arrangements. (f) Where an affected party unexpectedly finds their vehicle blocked in as a result of a temporary closure, the Requiring Authority shall (within reasonable limits) offer alternative transport such as a taxi, rental car, or other alternative. For the purposes of these Designation Conditions "temporary closure" is defined as the following:	**Remove condition 21.3.** The CTMP discusses the measures to address the matters in condition 21.3: (a) & (b) Construction routes – refer to Section 4.1 of the CTMP. (c) The anticipated construction routes are either part of the regional arterial network and/or are overweight/over dimensioned routes. Where heavy vehicles need to use other roads, the CTMP has set parameters that are to be considered in choosing the appropriate routes. In the event that construction vehicles directly pass sensitive receptors (such as schools, childcare facilities, and/or community facilities), the CTMP sets out potential measures such as access restrictions. These are discussed in Sections 4.1 and 4.2 of the CTMP. (d) It is anticipated that the current lane provisions will likely be maintained during construction. This is discussed in this Section 5.1 of this assessment. The effects, where lanes may need to be temporarily restricted have been assessed. The effects are considered acceptable in the context of the proposed measures identified in the CTMP to monitor corridor congestion during construction. (e) Access and parking –The CTMP seeks to manage effects on access and the transport network as far as practicable possible (refer to Sections 1.2 and 4.6 of the CTMP). (f) As discussed in Section 4.6 of the CTMP and Section 5.1 of this assessment, it is anticipated that access will be maintained as far as practicable. Works will be managed through the CTMP and engagement undertaken by NZTA so that such type of event referenced in (f) does not arise. Potential affected parties will be mapped by NZTA and appropriate engagement undertaken.

No.	Condition	Recommendation and Rationale
	(i) In place for less than six hours, the Requiring Authority shall communicate and consult on the closure at least 24 hours in advance, but is not required to offer or provide alternative parking arrangements, though it may choose to offer this on a case by case basis in consultation with the affected party; and (ii) in place for between six and 72 hours, the Requiring Authority shall communicate and consult on the closure at least 72 hours in advance, and (iii) will offer and provide where agreed with the affected party alternative parking arrangements. The alternative parking arrangement should be as close to the site affected as is reasonably practicable. (g) How disruption to use of the road network will be mitigated for emergency services, public transport, bus users, taxi operators, freight and other related vehicles, pedestrians and cyclists through: (i) Prioritising, as far as practicably possible, pedestrian and public transport at intersections where construction works are occurring; (ii) Relocating bus stops to locations which, as far as practicably possible, minimise disruption; and (iii) Identifying alternate heavy haul routes where these are affected by construction works. (h) Cross references to the specific sections in the Stakeholder Engagement Plan that detail how emergency services, landowners, occupiers, public transport users, bus and taxi operators, and the general public are to be consulted with in relation to the management of the adverse effects on the transport network.	(g) Measures are discussed in the CTMP: o Emergency access – refer to Section 4.7. o Public transport and pedestrian/cyclists – refer to Section 4.3. o Construction routes for heavy vehicles – refer to Section 4.1. (h) Section 5 of the CTMP identifies how engagement will be undertaken as it relates to these transport matters.
22.	**Designation 1, 2 and 3** **Condition 22: Monitoring of Transport Network Congestion** 22.1 To achieve the objective of Condition 21.2(a), the Requiring Authority will undertake monitoring of the transport network through traffic surveys and implement additional mitigation measures as required to manage congestion to achieve the best practicable option. 22.2 The purpose of the traffic survey is to monitor congestion on the transport network by measuring average delays for traffic travelling along specified routes. The surveyed times are to be measured as: (a) The average times over the two hour morning or evening peak period; and (b) Inter-peak. 22.3 The Requiring Authority shall carry out a traffic survey exercise within six months of the start of construction and once every six months (or following any significant change in the road layout) at the following times: (a) The two-hour morning or evening peak period; and	**Remove condition 22.** The CTMP requires the use of a digital monitoring tool that will more proactively and efficiently provide for a traffic monitoring strategy. This is discussed in Section 4.8 of the CTMP and Section 5.1 of this assessment.

No.	Condition	Recommendation and Rationale
	(b) Inter-peak for the duration that construction of the Redoubt Road -Mill Road Corridor Project is occurring. 22.4 Surveys shall be carried out over a two-week period, and generally on one "neutral" working day (i.e. Tuesday, Wednesday or Thursday) along each route specified in the Transport, Access and Parking DWP. If a congestion incident occurs (such as an accident) during the survey period the surveys shall be retaken as they will be considered unrepresentative. 22.5 Traffic surveys for comparison purposes shall also be conducted six months prior to construction of the Mill Road corridor to establish a baseline of existing transport congestion.	
23.	**Designation 1, 2 and 3** **Condition 23: Road Design/Layout** 23.1 All lane widths, including cycle lanes, shall have regard to the Auckland Transport Code of Practice (or any successive/renamed publication) for the proposed speed environment.	**Remove condition 23.1.** The design drawings demonstrate compliance to relevant standards AT TDM[33] and relevant NZTA guidelines. Compliance with to cycle lane standards is discussed in Section 5.2.5 of this assessment.
	23.2 When the section on Hilltop Road is constructed as part of the project, a footpath is to be constructed between the Redoubt Road footpath and the existing footpath on Hilltop Road.	**Remove condition 23.2.** Figure 5-12 shows that the proposed footpath on Redoubt Road connects to the existing footpath on Hilltop Road.
	23.4 Where feasible and safe, pedestrian and cycle connections are to be installed from newly formed cul-de-sac heads to the new road network.	**Remove condition 23.5.** Figure 5-16 and Figure 5-18 show that safe pedestrian and cycle connections are installed from newly formed cul-de-sac heads on Old Mill Road.
	23.5 Where road gradients are less than 0.5%, provision is to be made to ensure ponding does not occur, as per the Auckland Transport Code of Practice.	**Remove condition 23.5.** Designs have been developed in compliance with AT's Transport Design Manual and relevant NZTA guidelines.
	23.6 Following the completion of the Redoubt Road – Mill Road corridor project, Auckland Transport is to undertake regular assessments of whether the installation of a priority lane is required against the criteria of the Code of Practice, or subsequent documents. These assessments are to be undertaken at two-year intervals until such time as a priority lane is installed. Unless there is an operational or design requirement the priority measures (transit lanes and/or bus lanes) shall be implemented within the kerbside traffic lane	**Remove condition 23.6.** As discussed in Section 5.2.2 of this assessment, the intersection and corridor forms in the Consenting Design have not adversely impacted the corridor performance and the Project benefits are achieved. The resulting outcomes are

[33] The AT Transport Design Manual supersedes AT Code of Practice.

No.	Condition	Recommendation and Rationale
		comparable to what was anticipated by the original designation and no additional adverse effects are identified. Furthermore, NZTA has an Optimisation team that monitors the regional network and identifies locations where optimisation (such as priority lanes) is required. These projects are assessed on a consistent basis and prioritised for regional funding, where necessary.
	23.7 At the time NoR 2 is constructed the Requiring Authority shall consider providing traffic signals at the intersections of Thomas Road, Hodges Road and Murphys Road; and Murphys Bush Scenic and Murphys Road. In making its decision the Requiring Authority shall consider: (a) The extent of existing and likely further demand for signals as a result of urban development in the immediate and wider area; (b) The impact of traffic flows along Murphys Road; (c) The safety and efficiency of the intersections including the safety of pedestrians and cyclists; and (d) The interests of stakeholders.	These intersections are not within the scope of the Project / Stage 1. This condition will remain for the Murphy's Road designation.
	23.8 At the time NoR 3 is constructed the Requiring Authority shall consider providing traffic signals rather than roundabouts at the intersections of Alfriston Road and Mill Road and Ranfurly Road and Mill Road. In making its decision the Requiring Authority shall consider: (a) The extent of existing and likely further demand for signals as a result of urban development in the immediate and wider area; (b) The impact of traffic flows along Mill Road; (c) The safety and efficiency of the intersections including the safety of pedestrians and cyclists; and (d) The interests of stakeholders and affected landowners, including Alfriston School.	**Remove condition 23.8.** An assessment process has been undertaken to determine the proposed forms of the intersections. Parameters such as future traffic demand and safety of all road user types have been considered. Sections 5.2.2 and 5.2.3 considers the performance of the Project corridor, considering the proposed intersection forms, and adjacent network and have concluded that the outcomes are comparable to what was anticipated by the original designation. With the current forms presented in the Consenting Design, the benefits are achieved and therefore, items (a) and (b) can be removed as these have been completed. The safety of pedestrians and cyclists on the Old Mill Road have been assessed in Section 5.2.5(c) of this report and therefore item (c) can be removed as this requirement has been met.

No.	Condition	Recommendation and Rationale
		Engagement and consultation have also been undertaken to inform the current Project design as set out in Part B of the Substantive Application. This has included Alfriston School.
	Specific Design Requirements	
40.	**Designation 1, 2 and 3** **Condition 40** 40.2 Provision shall be made where it is safe and practicable for an effective means of separation between the carriageway and cyclists along the entire length of the corridor. Options to consider may include the use of planted or raised medians and the reconfiguration of the road cross section such that the lighting column/street tree planting berm is located between the carriageway and cycleway.	**Remove condition 40.2.** Appropriate cycle facilities are provided, as discussed in Section 5.2.5. This includes a shared use path on the urban section of the corridor that is separate from general traffic and buses. The peri-urban and rural facility on the Old Mill corridor (i.e., cycling on the road shoulder) allows for confident cyclists to use the low volume road, albeit this is not the cater to all cyclist types as provided in the 2014 Design. It is not considered practicable for an effective means of separation to be achieved along the Old Mill Road. As identified in Section 5.2.5(c) of this assessment, this results in slight adverse impacts, in relation to reduced potential for mode shift to active modes.
	40.3 Provision shall be made for pedestrian-friendly crossing points at appropriate, safe and practicable locations where the corridor is bounded on both sides by Urban / Future Urban land and adjacent to Tōtara Park. Options to consider are to include the introduction of pedestrian refuges, contrasting carriageway paving materials to reinforce pedestrian priority, and footbridges (where pedestrian crossovers cannot be integrated into signalised intersections). Where pedestrian crossing points are at-grade with the cycle lane it should be ensured that safety for pedestrians and cyclists and the operation of the cycle lane are not compromised.	**Remove condition 40.3.** Appropriate and safe pedestrian crossing points have been provided throughout the corridor, particularly at the urban and peri-urban sections, as discussed in Section 5.2.5(b) of this assessment. Figure 5-11 and Figure 5-12 illustrate how the shared path on Redoubt Road leads to the Tōtara Park car park, and that the nearby Hilltop Road signalised crossing can be used by pedestrians and cyclists to get to the park.
	40.7 At the time NoR 3 is constructed, the Requiring Authority shall consider providing a slip lane along the existing part of Mill Road south of Alfriston Road, with direct access to the new road alignment. In making its decision the Requiring Authority shall consider: (a) The extent of existing and likely further demand for a slip lane as a result of urban development in the immediate and wider area;	**Remove condition 40.9.** The slip lane is provided on Old Mill Road/Alfriston Road connecting to the Project corridor. Sections 5.2.2 and 5.2.3 of this assessment considers the performance of the Project corridor and adjacent network, considering the proposed intersection

No.	Condition	Recommendation and Rationale
	(b) The impact of traffic flows along Mill Road; (c) Alternative intersection types including a roundabout or the use of traffic signals and the safety and efficiency of the intersections; and (d) The benefits of a slip lane for individual properties (including 310 Mill Road) as well as the interests of other stakeholders, including Alfriston School.	forms, including this slip lane, and have concluded that the outcomes are comparable to what was anticipated by the original designation and are therefore acceptable. Therefore, this condition can be removed as this has been completed.
	40.9 The final design of the carriage way shall enable future access from 1345 Alfriston Road, Alfriston (being Part Lot 2 DP 12981 comprised in NA7D/12) to the Mill Road corridor, Alfriston Road, and the existing Mill Road generally in accordance with Plan 60317081-SKE-30-0000-C- 0093 revision C dated 4 July 2016, which includes: (a) In the case of the land to the east of the Mill Road corridor ("the Eastern Block"): (i) One left out left in access onto the Mill Road corridor to and from the Eastern Block. (ii) One full access from the Eastern Block to the existing Mill Road. (b) In the case of the land to the west of the Mill Road corridor ("the Western Block"): (i) One left out left in access between the Western Block and the Mill Road corridor. (ii) One full access onto Alfriston Road from the Western Block set back a minimum distance of 70 metres from the western approach limit line of the Alfriston Road Mill Road intersection. (c) The existing Mill Road reconnecting to the Mill Road corridor with a left out left in connection heading in a southern direction. Advice note: *The owner of the land at 1345 Alfriston Road has sought that provision be made for access to that site as part of the designation confirmation process. Any such access and site development will require resource consent. The Requiring Authority considers that access can be achieved to 1345 Alfriston Road without compromising the safe and efficient operation of the new road, although it cannot provide a conclusive assurance or assessment until such time as a resource consent is sought for the access and site development and sufficient details are available to enable a final assessment.*	**Remove condition 40.9.** The access points referenced in Condition 40.9(a)(i), (b)(i) and the road connection described in (c) are provided in the Consenting Design, as shown in Figure 6-1. The accesses referenced in Condition 40.9(a)(ii) and (b)(ii) are already outside the scope of the Project's proposed designation and are part of the local AT road network. It is noted that the Consenting Design enables these future property accesses and does not restrict landowners from implementing them in coordination with AT. For the access point referenced in 40.9(b)(ii): • There is enough space to provide sufficient setback distance of 70m from the western approach limit line of the Alfriston Road Mill Road intersection, as shown in Figure 6-1. • There is enough space so that the access can comply with the required 2m distance (per AUP) to the adjacent access on 1327 Alfriston Road. • There are no have no road safety concerns, such as issues in sight distances or visibility that will restrict the provision of these accesses. Therefore, there are no adverse transport effects identified. Therefore, this condition can be removed.

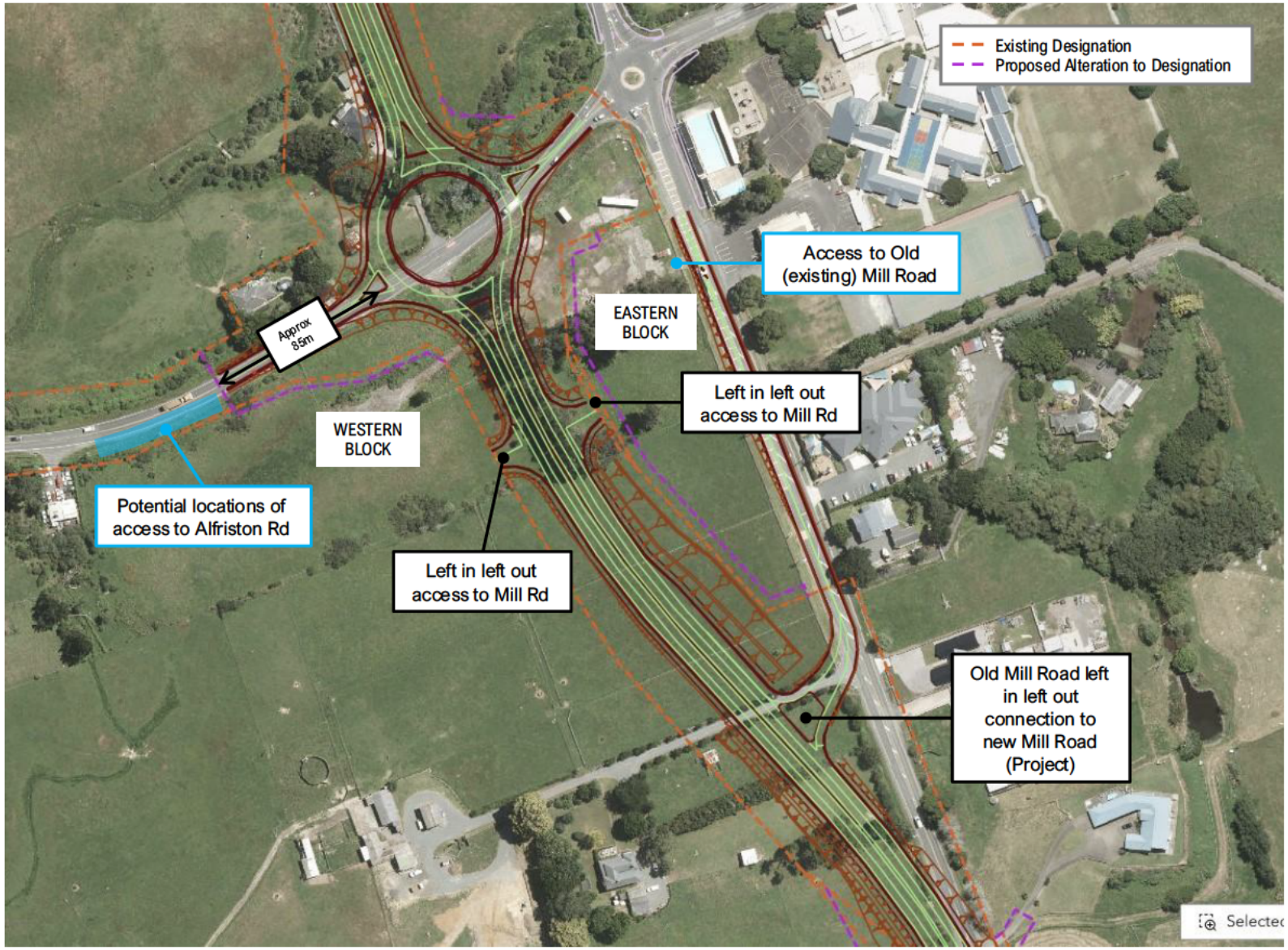


Figure 6-1 Accesses to 1345 Alfriston Road Eastern and Western Blocks

6.2 Outline Plan requirements

We consider that the Consenting Design and the CTMP fully satisfy the intent and requirements of the designation conditions related to construction traffic matters. In addition, this assessment satisfies the intent and requirements of the designation conditions related to transport and access. Where we have recommended a different approach to that contained in the conditions, these are discussed in Table 6-1 above.

7 CONCLUSION

We have assessed the benefits and the actual and potential transport effects associated with the operation and construction of the Project as it relates to the proposed changes in the corridor design, designation footprint and to the designation conditions. We have also identified whether there is a need to provide appropriate mitigation measures.

In relation to the operational effects, it is considered that the Project achieves the benefits of improved traffic efficiency on the Project corridor and enhanced transport network resilience, as discussed in Section 4.

In terms of the changes to the 2014 Design:

- The changes in the corridor design and designation footprint have not resulted in any additional adverse effects to general traffic, in corridor performance and adjacent corridor performance, when compared to what was anticipated and authorised by the original designation.
- The proposed shared path on the urban and peri-urban section of the Project corridor, i.e., from Redoubt Road to Murphys Road, provides appropriate separation between vehicles and active mode users. It does not provide segregation between cyclists and pedestrians but is appropriate given the anticipated usage and the provision of a footpath (pedestrian-only) on the north side of the corridor from Redoubt Road interchange to Hilltop Road.
- Appropriate crossing facilities have been provided on the rural section of the Project corridor, i.e., from Murphys Road to Phillip Road. The changes have provided similar or better outcomes when compared to the 2014 Design.
- The proposed walking and cycling facility on the rural section, i.e., from Murphys Road to Phillip Road, including the Old Mill Road corridor, will not result in the same level of benefit for cyclists and pedestrians. This will likely lead to reduced mode shift, as the pedestrian and cycle facilities are less attractive. Given the anticipated traffic volumes on the corridors, the safety outcomes will remain acceptable.
- Changes to property access are proposed. In some cases, these changes provide better outcomes when compared to the 2014 Design, while in other cases these result reduced access. Details of specific changes are enumerated in Table 5-6.

In terms of the wider network impacts, such as on parallel corridors or upstream and downstream of the Mill Road Stage 1 corridor, we have identified these corridors remain congested or have some worsening in performance. The Mill Road Stage 1 corridor is somewhat limited in its extent due to its connection into the existing corridor at Alfriston Road. This suggests that traffic trying to access the corridor from further south will be constrained due to the upstream network constraints. These effects are the same as would have occurred with the 2014 Design.

Overall, the Project delivers clear positive benefits, even accounting for some adverse operational transport effects which are localised and therefore low. This remains broadly consistent with what was anticipated by the original designation and is considered acceptable

For the construction effects, it is considered that the objective and broad mitigation measures identified in the CTMP will enable the adverse transport effects to be appropriately managed, resulting in transport effects that are considered low and similar to what was anticipated by the original designation.

As the Consenting Design and the appended CTMP address operational and construction effects, we have recommended that the conditions relating to transport and access (as discussed in Section 6.1) have been appropriately addressed and therefore can be removed. We consider that the Consenting Design and CTMP fully satisfy the intent and requirements of the designation conditions.

It is therefore considered from a transport perspective that, with the recommendations in this report, the alterations being sought to the designations and associated approvals for the Project are acceptable and the Outline Plan can be waived.

APPENDIX A GLOSSARY OF DEFINED TERMS AND ACRONYMS

Acronym / Term	Description
AADT	Annual Average Daily Traffic
AEE	Assessment of Effects on the Environment
AFC	Auckland Forecasting Centre
AGRD	Austroads Guide to Road Design
AT	Auckland Transport
ATAP	Auckland Transport Alignment Project
AUP	Auckland Unitary Plan
CTMP	Construction Traffic Management Plan
DSI	Death and Serious Injuries
DWP	Delivery Work Plan
EDC	Engineering Design Code
FDS	Future Development Strategy
FTAA	Fast Track Approvals Act 2024
GPS	Government Policy Statement on land transport 2024-34
ITA	Integrated Transport Assessment
MSM	Macro Strategic Model
NoR	Notice of Requirement
NZTA	NZ Transport Agency Waka Kotahi
PT	Public Transport
RASF	Roads and Streets Framework
RoNS	Roads of National Significance
RSA	Road Safety Audit
SAMM	Strategic Active Mode Model
SATURN	Simulation and Assignment of Traffic to Urban Road Networks
SH1	State Highway 1
SH20	State Highway 20
SIDRA	Signalised Intersection Design and Research Aid
SSA	Safe System Audit
TDM	Transport Design Manual
TTM	Temporary Traffic Management
V/C Ratio	Volume-to-Capacity Ratio
VKT	Vehicle Kilometres Travelled
VPH	Vehicles Per Hour

APPENDIX B STATEMENT OF QUALIFICATIONS AND EXPERIENCE AND CODE OF CONDUCT

Qualifications and Experience

My full name is Joseph Adam Phillips. I have a Bachelor of Engineering (Hons) Civil Engineering from Nottingham Trent University (1998) and I am a Member of Engineering New Zealand and the Resource Management Law Association.

I currently hold the position of Principal at Beca Limited and have over 20 years' experience in traffic and transportation with core experience in transport planning and traffic engineering. I have prepared and reviewed Integrated Transport Assessments and transport assessments for a wide range of transport, other infrastructure and land development projects across New Zealand. I have also provided expert evidence on numerous occasions for Council hearings.

My relevant project experience includes:

a) Transport planning reporting and expert evidence relating to construction and operational transport effects to support the Notice of Requirements (NoRs) for both the North Strategic Package and the North West Strategic Package on behalf of the NZTA and Auckland Transport (AT), as part of the Te Tupu Ngātahi Alliance;

b) Transport planning advice and expert evidence to support the resource consents for the 36th Americas Cup base infrastructure and events, including the transport effects associated with the construction and operation of the base infrastructure;

c) Transport planning advice and reporting for the infrastructure assessment undertaken by Beca Limited for Kāinga Ora's Mt Roskill and Māngere Precincts in the Auckland Housing Programme; and

d) Various transport planning reviews and expert evidence on behalf of AT for proposed plan changes in the Auckland region.

Code of Conduct

Although this matter is not before the Environment Court, I confirm that I have read the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2023 and that I agree to comply with it, including as part of his preparation of this report.

I confirm that I have considered all material facts that I am aware of that might alter or detract from the opinions that I have expressed and that this transport assessment is within my area of expertise.

s9(2)(a)

Joseph Adam Phillips

August 2026

APPENDIX C METHODOLOGY OVERVIEW

C.1.1 Key Inputs and Focus of Assessment

The assessment has relied on the information, technical analysis, and transport modelling from the Mill Road Stage 1 Investment Case, including the Strategic Case and Economic Case. This has informed both the positive effects (benefits) of the Project, as well as potential adverse effects associated with the operational phase within the corridor and on the transport wider network.

The focus of the assessment of transport effects is mainly on the changes between the design that informed the current designations and the proposed design and associated designation boundaries.

The assessment of the operational and construction effects considers both positive and adverse effects:

- In the Project corridor
- Downstream of the Project corridor
- In the wider network.

Consideration has been given the scenarios without and with tolling of the Project corridor, based on the assessments undertaken during the Investment Case.

C.1.2 Estimating Future Environments

The Transport Assessment has considered the likely future environment with planned urbanisation of this area. This has required use of inputs and assumptions on the future urban development and the use of various models to estimate the likely travel movements and how they would likely change with the addition of the Project.

Throughout the transport network analysis process, a range of different transport modelling tools have also been used to undertake quantitative assessments of the transport system. These then inform decisions about the planning transport network, corridors, and intersections.

The transport modelling in the Investment Case remains relevant. The strategic modelling in the Investment Case, used the regional transport model, the Macro Strategic Model (MSM) that is based on Auckland Council's 'AGS' land use scenario. This remains Council's latest forecast for land use in the Auckland region and is considered to be reflective of the Council's Future Development Strategy (FDS).

The impacts of the Projects on the future transport environment were assessed using forecasting transport models, owned by the Auckland Forecasting Centre (AFC). The models include:

- The regional multi-modal model (MSM) – creates estimates of car, truck and public transport (PT) movements at a regional level based on land use, network and policy inputs. This model is the primary tool to estimate future PT usage. Generally, this model is run using regional assumptions as per recent Auckland Transport Alignment Project (ATAP) planning, but with scenario-specific inputs in the growth areas. The MSM was used to inform assessment of the PT network components.
- A local traffic model (SATURN). This uses the traffic demands from MSM on a more detailed representation of the road network.
- A strategic active mode (walk/cycling) model (SAMM). This tool gives strategic level estimates of walking and cycling demands.

In addition to the SATURN modelling, Signalised Intersection Design and Research Aid (SIDRA) modelling has been undertaken to assess the operational outputs of key intersections along the project corridors. The SIDRA modelling takes the traffic movements identified in the SATURN model and provides a more detailed operational assessment of intersection performance.

C.1.3 Approach to assessment of operational transport effects

Potential operational effects were assessed using:

- Transport planning assessment of expected outcomes and effects;
- Transport modelling to inform future demands and network performance; and

- Alignment with various transport design standards and guidance documents.

As part of the assessment of operational effects, we consider:

- How the Projects will affect user safety for all modes and alignment with NZTA's Road to Zero outcomes and design compliance with the AT's Transport Design Manual and NZTA's Geometric Design Manual and standards;
- Effects on the walking and cycling network, including:
  - Safety and attractiveness;
  - The network's alignment with NZTA's and AT's walking and cycling strategic documents; and
  - Design compliance with AT's Transport Design Manual and NZTA guidelines for designing a cycling facility for rural roads.
- How the Project will affect the public transport system, including assessment of alignment with AT's strategic public transport documents, design compliance with AT's Transport Design Manual as appropriate for application of the agreed generic cross-sections, and assessment of future transport demands using traffic modelling tools;
- How the Projects will affect general traffic, including the surrounding network connectivity, corridor midblock performance and intersection performance utilising traffic modelling tools;
- How the Projects will affect property access and on-street parking; and
- How the Projects will affect the wider transport network including interaction with the surrounding road network.

C.1.4 Approach to Assessment of Construction Effects

To assess the potential construction traffic effects, an indicative construction methodology has been developed. This can be found in the substantive application.

The focus of the assessment of the temporary construction effects relating to transport is:

- Change in adverse effects resulting from the change in the corridor design, designation footprint, and to the designation conditions
- Review construction methodology:
  - Identify key traffic management scenarios and undertake traffic modelling to assess the effects of these key scenarios.
  - Consider potential effects for pedestrians and cyclists, as well as in relation to on-street parking and property access.

A Construction Traffic Management Plan **(CTMP)** has been prepared, refer to **Appendix C11** to the substantive application, which identifies the purpose and objective of the CTMP, together with the methods to manage the identified temporary adverse transport effects during construction.

This will be further refined, as the project design is developed prior to construction commencing, as more certainty regarding specific effects is confirmed. There will also be ongoing monitoring and updates to the CTMP throughout the construction phase.