



ASSESSMENT OF EFFECTS ON THE ENVIRONMENT

NZ Transport Agency Waka Kotahi
SH1 Rolleston Access Improvements | Package 1

BECA LIMITED

30 OCTOBER 2024

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ACRONYMS, TERMS AND ABBREVIATIONS

Acronym/Term	Description
ADP	Accidental Discovery Protocol
AEE	Assessment of Effects on the Environment
AIA	Archaeological Impact Assessment
CAG	Cultural Advisory Group
CAR	Cultural Advice Report
CARP	Canterbury Air Regional Plan
CCC	Christchurch City Council
CCRA	Climate Change Response Act 2002
CDWPZ	Community Drinking Water Protection Zone
CMA	Coastal Marine Area
Corrections	Department of Corrections
CRC	Canterbury Regional Council
CRETS	Christchurch Rolleston and Environs Transportation Study
CRPS	Canterbury Regional Policy Statement
CSM2	Christchurch Southern Motorway 2
CTMP	Construction Traffic Management Plans
DBC	Detailed Business Case
DOC	Department of Conservation
DMP	Dust Management Plan
DSI	Detailed Site Investigation
ECan	Environment Canterbury
ESC	Erosion and Sediment Control
ESCP	Erosion and Sediment Control Plan
Fast-Track Consenting Act	COVID-19 Recovery (Fast-Track Consenting) Act 2020
GPG Dust	Good Practice Guide for Assessing and Managing Dust (2016)
GPS	Government Policy Statement
GRPA	Government Roding Powers Act 1989
HAIL	Hazardous Activity and Industries List
HIA	Heritage Impact Assessment
HNZPT	Heritage New Zealand Pouhere Taonga
HNZPTA	Heritage New Zealand Pouhere Taonga Act 2014
KiwiRail	KiwiRail Holdings Limited
KPI	Key Performance Indicators
LLRZ	Large Lot Residential Zone
LMP	Landscape Management Plan
LTA	Land Transport Act 1998
LTMA	Land Transport Management Act 2003
LWRP	Canterbury Land and Water Regional Plan
MBIE	Ministry of Business, Innovation & Employment
MCA	Multi Criteria Assessment
MfE	Ministry for the Environment
MKT	Mahaanui Kurataiao Limited
NES-AQ	National Environmental Standards for Air Quality 2004
NES-CS	National Environmental Standard for Contaminated Soils
NES-F	National Environmental Standards for Freshwater 2020
NES-Soil	Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011
NLTP	National Land Transport Programme
NPS	National Policy Statement
NPS-FM	National Policy Statement for Freshwater Management 2020
NPS-UD	National Policy Statement on Urban Development 2020
NZGTTM	New Zealand Guide to Temporary Traffic Management
NZTA	NZ Transport Agency Waka Kotahi

NZUP	New Zealand Upgrade Programme
NoR	Notice of Requirement
OSDP	Operative Selwyn District Plan
Outline Plan	Pursuant to s176a RMA
PAH	Polycyclic Aromatic Hydrocarbons
PBC	Programme Business Case
POSDP	Partially Operative Selwyn District Plan
PPC73	Private Plan Change 73
PPFs	Protected Premises and Facilities
Project	Package 1 of Rolleston Access Improvements
PSI	Preliminary Site Investigation
PUDO	Pick-up and Drop-off
PWA	Public Works Act 1981
RDN	Rolleston Drive North
RIA	Rolleston Industrial Area
RIZ	Rolleston Industrial Zone
RMA	Resource Management Act 1991
RoNS	Roads of National Significance
RoRS	Road of Regional Significance
RPS	Regional Policy Statement
SDC	Selwyn District Council
SH1	State Highway 1
SIMT	South Island Main Trunk
SUP	Shared Use Path
SVOC	Semi-volatile Organic Compounds
TI	Threshold Increment
TPH	Total Petroleum Hydrocarbons
ULDF	Urban and Landscape Design Framework
UOA	Underground Overground Archaeology
UWLR	Upward Waste Light Radio
VPD	Vehicles per day
VPH	Vehicles per hour
WWDG	Waterways Wetlands and Drainage Guide
Wider Project	State Highway 1 Rolleston Access Improvements (inclusive of Package 1 and Package 2)

1 INTRODUCTION

1.1 Report Purpose

NZ Transport Agency Waka Kotahi (**NZTA**) is, pursuant to s181(1) of the Resource Management Act 1991 (**RMA**), serving a Notice of Requirement (**NoR**) to alter a designation for State Highway 1 (**SH1**) in the Partially Operative Selwyn District Plan (**POSDP**) for the purpose of enabling the first stage of the SH1 Rolleston Access Improvements. In summary these comprise road improvements in the Rolleston area for safe and efficient state highway and local network access including for active modes.

For context purposes, the SH1 Rolleston Access Improvements Project has been divided into two packages to enable practical delivery and operational efficiency. These are:

- Package 1 - comprising the construction and operation of a new roundabout and associated improvements at the intersections of SH1 and Dunns Crossing Road/Walker Road and associated works.
- Package 2 – comprising the construction and operation of the balance of the Rolleston Access Improvements including an overpass of SH1 connecting Rolleston Drive North and Jones Road, changes to nearby intersections (including Hoskyns Rd, Tennyson St, and Rolleston Drive South) and associated works.

This Assessment of Effects on the Environment (**AEE**) report has been prepared, in accordance with Schedule 4 of the RMA, in support of the Package 1 NoR and resource consent applications.

1.2 NZ Transport Agency Waka Kotahi

NZTA is a Crown entity with its functions, powers and responsibilities set out in the Land Transport Management Act 2003 (**LTMA**) and the Government Roading Powers Act 1989. The primary objective of NZTA under Section 94 of the LTMA is to contribute to an effective, efficient, and safe land transport system in the public interest.

Its core functions can be summarised as:

- investing in land transport activities;
- managing the state highway network; and
- providing access to and regulation for land transport.

Section 96(1)(a) of the LTMA requires that NZTA exhibits a sense of social and environmental responsibility when undertaking its work. This statutory requirement is reflected in a raft of strategic and policy documents. One of the core position statements is that NZTA will responsibly manage the land transport system's interaction with people, places, and the environment.

NZTA is also a network utility operator approved as a requiring authority under Section 167 of the RMA.

The legal name for NZTA is the New Zealand Transport Agency. The abbreviated name NZTA is used throughout this AEE.

1.3 Project overview

The SH1 Rolleston Access Improvements project (**the Wider Project**) has been identified by the Minister of Transport as a Road of Regional Significance (**RORS**), previously recognised through New Zealand's Upgrade Programme (**NZUP**).

As noted, the Wider Project comprises two packages and sits within a broader strategic context seeking to improve the safety and efficiency of the state highway network. SH1 is high-volume corridor of strategic importance and as such is identified as an inter-regional connector in the One Network Framework¹. These are national state highways that make it safe, reliable, and efficient to move people and goods between and within regions. State highways often run through farmland and natural areas so there are low levels of roadside activity. State highways carry significant levels of motor vehicle traffic, including freight.

¹ As shown in NZTA MegaMaps GIS viewer (Accessed 12 September 2024)

In a strategic context the Wider Project will help deliver the regional and national outcomes sought from the SH1 corridor.

The Wider Project is intended to respond to both existing transport deficiencies in the network, including safety, and to enable easier connections across the state highway corridor. The Package 1 improvements offers a safe and efficient southern entrance to Rolleston, which will provide access to industrial land to the north and residential land to the south and west of Rolleston.

The works for Package 1, which for the purposes of this report is hereon referred to as “the Project”, are described below.

- A new roundabout that will provide vehicle access to/from Dunns Crossing/Walkers Road with SH1.
- Closure of the current intersection of Dunns Crossing Road with SH1 and the formation of a cul-de-sac.
- Realignment of Walkers Road intersection with SH1 to connect at the new roundabout.
- Provision of a new rail crossing for the realigned Walkers Road and shared path.
- Provision of a new shared path for cyclists and pedestrians, including a subway beneath SH1 between Dunns Crossing Road and Walkers Road.

The Project is described further in Section 2 of this AEE.

1.4 NoR submitted and resource consents sought

NZTA is submitting the following NoR and resource consent applications:

- NoR to alter the existing designation (NZTA-1) for SH1 to designate land, under Section 181(1) of the RMA, for State Highway Purposes in the POSDP; the NoR will enable the construction, operation and maintenance of the proposed works including the redesign of Dunns Crossing, Walkers Road and SH1 intersection.
- Regional consents from the Canterbury Regional Council for:
 - s15 Construction-phase stormwater discharge
 - s15 Operational-phase stormwater discharge
 - s15 Construction phase Discharge to air (for dust)

In addition to the above, the proposed designation will cross existing designations administered by the Department of Corrections (**Corrections**) and KiwiRail Holdings Limited (**KiwiRail**) respectively. Section 176 RMA and Section 177 RMA written agreement is being sought from the Minister of Corrections and KiwiRail.

Written Agreement pursuant to s181 of the RMA is being sought from the owners of the following properties:

- 17 Fountain Place, Rolleston
- 19 Fountain Place, Rolleston
- Section 2 SO 480906
- Rolleston Prison (28 Runners Road, Rolleston)
- Railway reserve

Written Agreement has been provided by the owners of the following properties and can be found in Appendix Q:

- 15 Fountain Place

2 DESCRIPTION OF PROJECT / PROPOSED WORK

2.1 Location

The components that make up the Project include a proposed roundabout to replace the SH1/Dunns Crossing Road/Walkers Road intersection (the roundabout) and ancillary works in the vicinity of Walkers Road and Dunns Crossing Road.

The Project site is located on the western edge of Rolleston, a township approximately 22km southwest of Christchurch. SH1 extends approximately 4km through Rolleston in a northeast to southwest orientation. To the north and west of the Project site the land is largely rural, although partially developed for the Rolleston Prison facility. The rail corridor separates SH1 from the land to the north-west. The formed corridors of SH1 and the South Island Main Trunk (**SIMT**) railway run parallel to each other (separated by approximately 30m) with the NZTA and KiwiRail designations overlapping (in the POSDP), with KiwiRail holding the primary designation. The land to the south-east comprises residential housing (generally medium density, single storey and detached), connected to the commercial and town centre land uses further east.

The roundabout is proposed to be located to the southwest of the existing alignment of Dunns Crossing Road on land that is currently rural in character. This land is subject to a private plan change (**PPC73**) to the POSDP seeking to change it from rural lifestyle to residential. If approved, PPC73 would be rezoned to Medium Density zone (**MDZ**). In the vicinity of Dunns Crossing Road the existing residential area of Rolleston is separated from SH1 by a 2 - 3m high earth bund, generally covered in amenity plantings with a closed board and batten fence on its crest. This provides for a physical and visual separation along the northern residential edge of Rolleston.



Figure 2-1: Site and surrounding area (Source: Canterbury Maps)

West Rolleston Primary School is located on the corner of Burnham School Road and Dunns Crossing Road approximately 600m south of SH1. SH1 generally forms the rural / urban interface at the north-west edge of Rolleston, although the area to its northwest contains Department of Corrections land (Rolleston Prison complex). The Prison is bounded by Two Chain Road (north), Walkers Road (east), and Runners Road (south). The SIMT railway runs parallel to Runners Road and separates it from SH1. The Prison complex is surrounded by visually permeable security fencing and is generally screened from SH1 by hedgerows either side of the railway.

The Project includes alterations to the existing SH1 corridor including changes to the layout of the current intersection with Dunns Crossing and Walkers Roads. As noted, the Roundabout will replace this

intersection (south-west of the existing Dunns Crossing Road / SH1 intersection). These changes will provide for safer and more reliable connections across and along SH1.

The SH1 designation and the alteration proposed for the Project is shown below in Figure 2-2, along with existing designations for KiwiRail and Minister of Corrections.

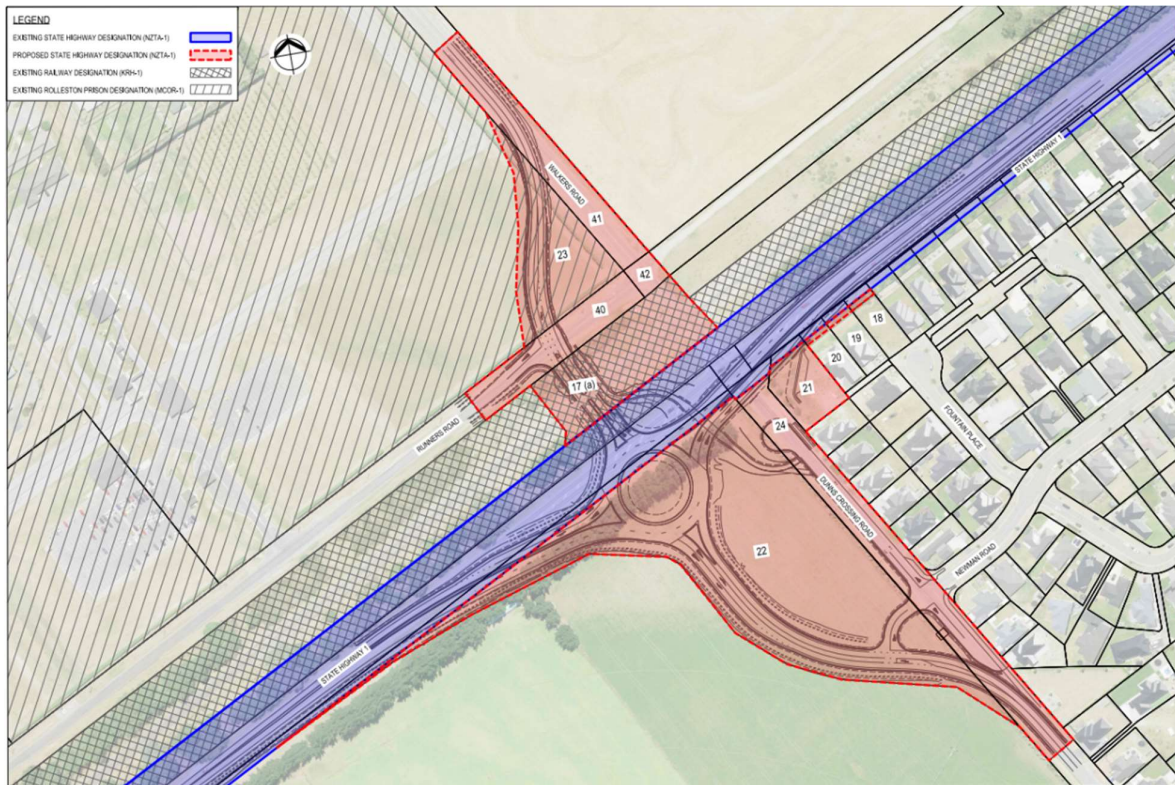


Figure 2-2: Proposed alteration to designation plan.

2.2 Reason for the Project

2.2.1 Project History

The need for transport and traffic safety improvements have been highlighted since early strategic studies in 2000 and the Christchurch Rolleston and Environs Transportation Study (**CRETS**) in 2007. The growth of Rolleston has been exacerbated since the sequence of Canterbury earthquakes (c.2011), primarily due to the relocation of residents from the red-zoned eastern suburbs of Christchurch. These studies identified the necessity to extend the Christchurch Southern Motorway 2 (**CSM2**) and improve connections between the satellite towns of Rolleston, Lincoln, and Prebbleton, as well as between Christchurch and Rolleston via SH1.

These early investigations demonstrated that a roundabout and associated features at Dunns Crossing Road/Walkers Road intersection and a multi-modal overpass at Rolleston Drive North (previously referred to as a flyover) would enhance connections between the residential and industrial sides of Rolleston, improve safety by reducing the number of fatalities and serious injuries in crashes (particularly at SH1 intersections), and provide a more resilient and sustainable transport network. The construction of both the Dunns Crossing Road/Walkers Road intersection improvements and the overpass and associated works would also enhance active modes of transport.

As part of its Long-Term Plan (**LTP**) for 2015-2025, the Selwyn District Council (**SDC**) outlined major transport projects planned as part of CSM2, emphasizing the need to connect Rolleston Township areas across SH1 and the SIMT railway. Public consultation was undertaken on draft proposals.

Building on the adoption of CRETS, in 2015, transport partners (led by NZTA) developed the original Programme Business Case (**PBC**) for Rolleston Transport Improvements. This focused on the changes

required to support the Rolleston Industrial Area (**RIA**) by providing safe, efficient, and effective transport access, including for walking and cycling.

The PBC confirmed the 'case for change', developed a list of alternatives, and identified a recommended programme for investment. This recommendation then informed the scope for the government's NZUP investment and the Detailed Business Case (**DBC**).

2.2.2 Project Objectives

The Project interventions will deliver a safer state highway corridor and improve the connection between the Rolleston Industrial Zone (**RIZ**), Rolleston Town Centre and the residential areas. Doing so also means that NZTA are responding to the land use changes that are occurring in a manner that improves safety and enables travel choices within the integrated network.

The Project objectives are outlined below in Table 2-1.

Table 2-1: Project Objectives

Project Objectives	
1	Improve the safety and efficiency of travel on the state highway and intersections with the state highway through Rolleston.
2	Provide safer connections and access for goods and people travelling between the residential and industrial areas of Rolleston enabling transport choices.
3	Improve the safety and travel time reliability of the regional journey on the state highway between Rolleston and Christchurch.

The Project objectives have been refined having regard to outcomes sought in the Investment Key Performance Indicators (**KPI**) and Objectives from the DBC, as outlined below in Table 2-2:

Table 2-2: Investment KPIs and Objectives from the DBC

KPIs	Investment Objective
Safety	Targeting 40% deaths and serious injury reduction along SH1 from 2032.
	75% reduction in 'near misses' and incidents across all level crossings in Rolleston by 2032.
Connectivity	Increase the number of people walking and cycling between Rolleston Town Centre and the Industrial Area by 100 people per day by 2032.
Sustainability and Resilience	Improve the reliability of the regional journey between Rolleston and Christchurch by delivering a peak journey time within 5 minutes of the off-peak journey time by 2032.
	Reduce train movement time between the Midland Line and Main South Line by 20 minutes by 2032.

2.3 Description of the Project

The Project involves the construction of a roundabout and associated works at the SH1, Dunns Crossing Road and Walkers Road intersection to support safe and efficient access across the highway and to and from Rolleston (from SH1). The associated works include the following:

- Construction of a new cycle/pedestrian subway across the State Highway.
- Provision of a new rail crossing for the realigned Walkers Road and shared path.
- Construction of stormwater infrastructure including conveyance, treatment, attenuation and discharge to ground.

- Road markings associated with the roundabout, railway level crossing and subway.
- Construction of a retaining wall adjacent to the existing noise bund on the southern side of the state highway.
- Realignment and relocation of existing utilities.
- Installation of new lighting infrastructure at the roundabout.
- Installation of new signage at each leg of the roundabout.
- Removal of existing vegetation within the Project area.
- Planting of new vegetation within the Project area.
- Realignment of existing utilities within the Project area.
- Earthworks associated with the construction of the intersection upgrades.
- Fencing adjacent to road boundaries.

The information provided in this section is indicative and is intended to provide sufficient detail to assess the actual and potential effects on the environment and to identify measures to avoid, remedy, or mitigate any adverse effects, where appropriate. The design will be refined through the detailed design phase of the Project and the details may change. This will be undertaken within the scope of the final designation and consent conditions. It is noted that should the designation be confirmed and implemented NZTA may uplift the designation pursuant to s182 RMA where it is appropriate to do so, such as where land will be vested back to SDC as local road corridor.

Details of the Project will be subject to an Outline Plan (pursuant to s176a RMA) that will be submitted prior to construction.

2.4 Indicative construction methodology

Construction of the Project is anticipated to commence in late 2025 and is expected to take approximately 12 - 18 months to complete. This will be dependent on contractors, weather, and availability of materials. Construction is typically expected to take place during day-time hours, although exceptions may be required where night works are needed to enable work in periods of lower levels of traffic and/or operational constraints constrain activity during the day.

Ancillary works will be required for the Project, these works include, but are not limited to:

- Traffic management including a long-term temporary speed restriction.
- Installation of temporary erosion and sediment control measures.
- Relocation of existing utilities including power, telecommunications, and 3-Waters infrastructure.
- Establishment of construction yards and laydown areas on the western side of Dunns Crossing Road and Walkers Road.
- Stockpiling and storage of construction materials and equipment within the construction yards and laydown areas.
- Construction of the stormwater infrastructure including soakage devices.
- Construction of a retaining wall on the northern side of the Fountain Place noise bund.
- Construction of the southern half of the roundabout.
- Construction of the Dunns Crossing Road and Walkers Road realignment.
- Construction of the Walkers Road level Crossing.

The construction information is indicative at this stage and is intended to provide sufficient detail to assess the potential effects of construction on the environment and to identify measures to avoid, remedy or mitigate any adverse effects, where appropriate. Construction effects have been assessed within Section 7 of the AEE. Sequencing works are discussed in Section 7.3 and the ITA, in Appendix H.

It is worth noting that the final construction methodology may be influenced by:

- Final designation and consent conditions;
- Final detailed design;
- Construction duration and target completion date;
- Type of delivery contract; and
- Technological advances and innovation in construction methods.

Once a contractor is appointed, NZTA and the contractor will confirm the final construction methodology. This will be undertaken within the scope of the final designation and consent conditions. Should a contractor wish to undertake construction activities beyond the scope of the proposed designation, or the consents granted, the need for any additional authorisations would be assessed at that time.

3 SECTION 171 OF THE RESOURCE MANAGEMENT ACT 1991

Section 171 of the RMA sets out the matters that a territorial authority must (subject to Part 2 of the Act) have regard to when considering the effects of the environment of allowing a NoR.

Table 3-1 sets out the matters and identifies the relevant sections of the AEE in which the matters are primarily discussed.

Table 3-1: Section 171 of the RMA

Matter to consider: (1) When considering a requirement and any submissions received, a territorial authority must, subject to Part 2, consider the effects on the environment of allowing the requirement, having particular regard to-	Section of the AEE where the matter is primarily addressed
(a) any relevant provisions of— (i) a national policy statement; (ii) a New Zealand coastal policy statement; (iii) a regional policy statement or proposed regional policy statement; (iv) a plan or proposed plan; and	Refer to Section 10.2.
(b) whether adequate consideration has been given to alternative sites, routes, or methods of undertaking the work if— (i) the requiring authority does not have an interest in the land sufficient for undertaking the work; or (ii) it is likely that the work will have a significant adverse effect on the environment; and	Refer to Section 4.
(c) whether the work and designation are reasonably necessary for achieving the objectives of the requiring authority for which the designation is sought; and	Refer to Section 10.7.
(d) any other matter the territorial authority considers reasonably necessary in order to make a recommendation on the requirement.	Refer to Section 10.8.

4 ASSESSMENT OF ALTERNATIVES

4.1 Notice of Requirement

The AEE has been prepared for the NoR altering the designation, pursuant to s181(1) RMA).

4.1.1 Consideration of Alternatives under s171 (1)(b) RMA

Section 171(1)(b) of the RMA requires that when making a recommendation on a NoR, a territorial authority, SDC in this case, shall consider whether adequate regard has been given to alternative sites, routes, or methods of undertaking the work in circumstances where:

c) the requiring authority does not have an interest in the land sufficient for undertaking the work; or

d) it is likely that the work will have significant adverse effect on the environment.

In considering alternatives there are several principles and key considerations for a requiring authority to apply and adhere to when identifying a preferred option. Of note are the following:

- The Requiring Authority must not act in an arbitrary way when considering alternatives;
- The process should be adequately transparent and robust, and clearly recorded so that it can be understood by others;
- An appropriate range of alternatives should be considered;
- If an adequate process has been followed in the assessment of these options, the decision on preferred options is for the Requiring Authority to make; and
- The extent of options considered, and the assessment of these options, should be proportional to the potential effects of the options being considered.

The Project will generally be located within the existing state highway corridor; however, land is required to the north-west and south-east of the corridor for the construction and operation of the proposed roundabout, subway, and associated works.

An assessment of alternatives has been undertaken to determine appropriate locations and design options for the works.

4.1.2 Assessment of Alternatives Methodology

This section provides an overview of the assessment of alternatives methodology used to develop and assess design options for the Project.

The need for the Project was first identified in the PBC in 2020, which was later followed by the SH1 Rolleston Access Improvements DBC in 2022. The DBC outlined preliminary design options and staging for the Wider Project. The findings of which have been used to inform a set of design requirements for this Project. These design options have been further tested through an assessment of alternatives. The methodology used for the assessment of alternatives throughout the DBC and through to Pre-implementation phase involved the following steps:

1. **Technical analysis** - Consideration of problems and system performance, and assessment of the merits of various options. This involved extensive transport modelling and other technical considerations for the option assessments.
2. **Public Engagement** - NZTA presented the NZUP programme and asked the public what they thought – did the Project look about right, or were there things that NZTA needed to further explore?
3. **Assessment of all Options** - Not all the feedback received from the first round of engagement was positive, and subsequent to this, NZTA investigated some alternatives – most notably in relation to the overpass (for Package 2). NZTA therefore took a step back to make sure all options had been explored robustly. The first part of that process was to try and establish the best versions of the interventions that were described by the NZUP – e.g. how could NZTA make the originally proposed ‘skewed flyover’ better?

4. **Long List, Short List, Technically Preferred Options** - This took the form of a multi-criteria analysis (MCA) (Appendix T) that was informed by various technical assessments including traffic modelling and concept design. The outcome was a set of technically preferred options that had buy in from all the project partners – NZTA, SDC and KiwiRail.

5. **Public Engagement** - NZTA asked the public what they thought of the refined programme. The feedback was more positive than the first round of engagement, with general support. There were however some issues that the public raised, particularly regarding improving safety on local roads that would see more traffic.

6. **Refinement of Preferred Options** - NZTA took on board the feedback, undertook technical analysis and made some changes which looked to address the main feedback received. NZTA then completed technical assessments, design, cost estimates, safety audits and the overall business case.

4.1.3 Consideration of Alternative sites and routes /Design Options

The Project and all alternatives were assessed through MCA in the DBC phase to determine the optimal design option.

The emerging preferred design options were progressed to design refinement alongside, the basic design requirements developed from the DBC, to determine the concept and pre-implementation design for the NoR.

The range of options considered for this Project included:

1. Roundabout on top of the current intersection
2. Roundabout offset to the south-west of the current intersection, requiring the realignment of all approach roads
3. Roundabout approximately 200 m south of existing intersection, with a new road through adjoining land, and a left-in/left-out only for Dunns Crossing Road
4. Lozenge-type roundabout incorporating signals
5. Grade separated intersection
6. Signals at the existing intersection, and
7. Left-in/Left out for both Walkers Road and Dunns Crossing Road.

These options went through a long-list assessment against investment objectives and NZUP outcomes, and then through a short-list assessment including a Multi Criteria Assessment (MCA). Various options were discounted due to safety flaws, constructability issues, land constraints and cost, leaving the proposed roundabout as the preferred option.

Additional assessments were undertaken during design refinement to determine appropriate tie-ins to local road network, side of road widening and provision for safe and well-connected pedestrian and cyclist routes. Case law² has directed that the assessment process must be robust, transparent, and repeatable. The consideration of alternatives does not need to be exhaustive. However, the assessment should be proportional to the potential adverse effects of the activities being considered and the sensitivity of the environment being affected.

² Including *Queenstown Airport Corp Ltd v Queenstown Lakes District Council* [2013] NZHC 2347, *NZ Transport Agency v Architectural Centre Inc* [2015] NZHC 1991, and *The Director-General of Conservation v Taranaki Regional Council* [2019] NZEnvC 203



Figure 4-1: Alternatives Process

Importantly, the assessment had a focus on the sustainable management purpose of the RMA, particularly those matters in Part 2 that are relevant to a proposal. Further details of this process are provided within Appendix T of this Report. For completeness purposes, the process following the below pathway:

Phase 1: Pass/Fail vs IO's and NZUP Outcomes

Defined Criteria

The themes of the investment objectives:

1. Work towards zero injuries and deaths by reducing intersection conflicts.
2. Support a more connected community, resulting in liveability benefits.
3. Provide a more sustainable and resilient network.

The NZUP outcomes that the project must deliver are:

1. Improve safety for all road users by reducing the number of deaths and serious injuries (DSIs).
2. More inclusive access to economic and social opportunities in Rolleston by improving mode choice.
3. Enhance Rolleston's competitive advantage and business productivity by improving connectivity between the town centre and the industrial zone.
4. Reduce CO2 emissions associated with land transport.

KPIs

- IO 1: Work towards zero injuries and deaths
- IO 2: Support a more connected community, resulting in liveability benefits
- IO 3: Provide a more resilient and sustainable network

Phase 2: MCA against key risks

Defined Criteria

Theme	Definition
Investment Objectives	<ul style="list-style-type: none"> • Work towards zero injuries and deaths • Support a more connected community, resulting in liveability benefits • Provide a more sustainable and resilient network
Effects	<ul style="list-style-type: none"> • Engineering difficulty (inc. structures and stormwater) • Impact of construction (timeframes and temporary traffic management) • Property. • Consentability <ul style="list-style-type: none"> ➢ Noise and emissions ➢ Visual effects • Wider traffic impact, capturing impact to other road users • Rail impact • Interdependencies
Mitigation	<ul style="list-style-type: none"> • Impacts on Te Ao Maori • Additional works required to mitigate negative environmental and social effects

Specific matters were excluded from the MCA, as per NZTA guidance, including:

- Wider economic benefits (included as a benefit on the Investment Logic Map).
- Safety in Design
- Climate change mitigation and adaptation
- Urban design
- Geotechnical
- Alignment with strategies.

KPIs

The KPIs for Phase Two of the MCA are identified below:

Critical Success Factors

- **Engineering difficulty** – to consider difficulty of ‘high ticket’ items such as structures and potential stormwater treatments.
- **Impact of construction** – considering potential impact of traffic management, covering duration (implicitly cost) and impact to the state highway/local road network. Also considering the impacts on direct neighbours (e.g. noise).
- **Property** – the number of properties that require acquisition, and number of properties where mitigation against negative effects (such as noise) would be required. The primary focus is on the number of different properties that would need to be required, with a secondary focus on the square meterage of land take required.
- **Consentability** – key consenting challenges will be highlighted for each intervention, and these will be used to determine a consentability score. Key considerations are noise, vibration and visual impact.
- **Wider traffic impact** – the modelling will be used to understand the extent to which the improvements deliver on the aspirational road network hierarchy (**NOF**) and contribute to improved conditions for traffic across the wider network.
- **Rail impact** – the extent to which the proposed interventions deliver wider operational benefits to the rail network will be considered.
- **Interdependencies** – the viability of some options may be dependent on other infrastructure or availability of land.

Environmental, Social and Cultural Factors

Each of the environmental, social and cultural factors identified below were assessed using a standalone qualitative KPI that will draw on quantitative analysis where appropriate:

- **Impacts on Te Ao Maori** – this factor acknowledged that this would be assessed through ongoing consultation with mana whenua.
- **Additional works required to mitigate negative effects** – this factor acknowledged that it may be possible to mitigate some of the negative effects of significant construction projects. It therefore considered the extent to which mitigation is possible for the intervention options. The impact of some options, such as banning turns, may also have wider traffic and network efficiency implications.

Following the completion of Phases 1 and 2, an evaluation of each option was undertaken against a defined scoring and weighting criteria. This is outlined in detailed in Appendix T.

4.1.4 Consideration of Alternative Methods

Section 171 RMA requires the adequate consideration of alternative methods for the NoR. A designation was generally identified as the preferred method for approving and providing for the Project.

Alternative methods to authorise the works such as resource consents do not provide for the ability to identify the works in the relevant district plan or would be cumbersome and time consuming without the ability to protect the land from other development in the interim.

The alteration to the existing NZTA-1 designation in the POSDP will provide for the works that improve the safe and efficient operation of the existing network as well as the safety and wellbeing of users and the community. Consequently, an alteration to the designation is the most logical and effective method to protect a corridor and authorise the proposed works in the POSDP for the following reasons:

- a) A designation, once confirmed, is included in a district plan and provides certainty to all parties including the community and affected landowners regarding the intended use and purpose of the land,
- b) A NoR and subsequent designation are well-recognised and understood tools, provided for under the RMA, and are consistently used for major State Highway projects to protect land for public works and support land acquisition or other property mechanisms through the Public Works Act 1981 (**PWA**),
- c) A NoR, for land proposed to be designated, provides interim protection of the land from other uses which may otherwise hinder the intended purpose and provides a mechanism (s176 of the RMA) to manage landowners’ interim use of the land to prevent compromise of the corridor,

- d) Once confirmed in the relevant district plan the designation authorises the works and activities in a comprehensive manner and overrides other provisions of the district plan, negating the need for additional land use consents (s9(3) of the RMA)
- e) A designation confirmed in the relevant district plan will provide for future operations and ongoing maintenance requirements within the designated footprint and;
- f) A designation enables networks, such as the state highway network, to operate safely and efficiently, consistent with and linked into the existing corridor (designations NZTA-1 in the POSDP)

The preferred design option for the Project has been based on a comprehensive optioneering process taking into account specialist assessments, engagement with mana whenua and the community, and feedback from stakeholders and landowners.

As such, it is concluded that adequate consideration has been given to alternative sites, alignments, and methods for undertaking the work, satisfying the requirements of s171(1)(b) of the RMA.

4.2 Resource Consents

Schedule 4 of the RMA requires that an assessment of alternatives is undertaken in specific instances, namely:

- *Where it is likely that an activity will result in any significant adverse effect on the environment, alternative locations or methods for undertaking the activity must be described (Clause 6(1)(a)); and*
- *Where the activity includes the discharge of any contaminant, any possible alternative methods of discharge, including discharge into any other receiving environment must be described (Clause 6(1)(d)(iii)).*

As noted in Section 7 of this AEE, the Project will not result in any significant adverse effects to require a description of alternative locations or methods under clause 6(1)(a).

The latter consideration aligns with the requirement under Section 105, under which the relevant territorial authority in considering an application for a discharge must, in addition to the matters in section 104(1), have regard to any possible alternative methods of discharge, including discharge into any other receiving environment.

5 STATUTORY CONTEXT

5.1 Introduction

The following legislation, National Environmental Standards and Plans (under the RMA) are relevant to the Project:

- Resource Management Act 1991
- National Environmental Standards for Air Quality 2004 (**NES-AQ**)
- National Environmental Standard for Contaminated Soils 2011 (**NES-CS**)
- Wildlife Act 1953
- Heritage New Zealand Pouhere Taonga Act 2014 (**HNZPTA**)
- Canterbury Land and Water Regional Plan (**LWRP**)
- Canterbury Air Regional Plan (**CARP**)
- Partially Operative Selwyn District Plan (**POSDP**)

5.2 Proposed designation

The existing designation NZTA-1 in the POSDP provides for SH1 through the Selwyn District, from the Christchurch City Council boundary in the north-east (at Weedons Ross Road interchange) to the Ashburton District Council boundary to the south-west.

The existing designation varies in width to provide for some future widening of SH1 as outlined below:

- North of Hoskyns Road to south of Elizabeth Street;
- South of Elizabeth Street to the Selwyn River Bridge; and
- North of Rolleston.

Pertaining to the Project area, the existing designation has a width ranging from 40 – 42m.

To the north and west, the existing designation overlaps the rail corridor, designated by KiwiRail and is in close proximity to Rolleston Prison site, designated by the Minister of Corrections. To the south and east, the existing designation is adjacent to privately owned land and Council road reserve.

The alteration to the designation affects privately owned land, Council road reserve, and Crown land (KiwiRail and Corrections). The proposed designation footprint encompasses land sufficient for the operational infrastructure, its ongoing maintenance and the areas required for construction purposes. The designation is likely to be reviewed at the end of construction and may be partially uplifted (under 182(1) of the RMA) from those areas that are no longer required, noting the possible areas for uplift cannot be determined until construction is complete.

The largest area of the proposed alteration to the designation extends across the land to the south-west of the existing Dunns Crossing Road. This land is legally described as Section 2 SO 480906 and is privately owned. Within this allotment, approximately 22,818m² of land is proposed to be designated for the Project, inclusive of construction laydown areas, stormwater basins, and operational infrastructure.

In addition to the above, the proposed designation extends across the land to the west, north and east of the existing intersection. In addition to the above, a further 93,059m² of land is proposed to be designated across 10 allotments inclusive of private properties, SDC road reserve, KiwiRail rail reserve, and Department of Corrections land.

The Designation Plan Schedule (Appendix B) sets out the land required to be designated by legal description and area.

5.3 Resource consents sought

Resource consent is required under several provisions of the Canterbury Regional Plan pursuant to section 12(1), (2) and (3) and 15(2A) of the RMA for the reasons (but not limited to) outlined below. Any district plan consent triggers associated with section 9(3) of the RMA are addressed by this NoR.

Based on the Project scope and indicative construction methodology, the following resource consents are required from Canterbury Regional Council:

- A s15 discretionary resource consent for discharge to air under Rule 7.36 of the CARP.
- A s15 discretionary resource consent discharge of operational stormwater under Rule 5.97 of the LWRP.
- A s15 discretionary resource consent discharge of construction phase stormwater under Rule 5.94B of the LWRP.

The overall activity status of Project under the LWRP is **discretionary** and consents will be sought from Canterbury Regional Council.

5.4 National Environmental Standards

5.4.1 Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011

The Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011) (**NES-CS**) applies to land identified as having had an activity or industry described in the HAIL undertaken in it.

A Preliminary Site Investigation (**PSI**) of the wider development area was undertaken by Stantec in May 2023. This identified a portion of the site (adjacent to the northwest of the Runners and Walkers Road intersection) as possible Hazardous Activity and Industries List (**HAIL**) H (*Any land that has been subject to migration of hazardous substances from adjacent land in sufficient quantities such that it could be a risk to human health and or the environment*), in relation to two former HAIL activities reported for the property:

- Potential waste disposal to land (HAIL G5);
- A potential mortar launching site (HAIL C1);
- Additional potential sources of contamination were identified for the site;
- Historical use of coal tar during roading construction of portions of the site (i.e., SH1 and Walkers, Runners and Dunns Crossing Roads);
- Accumulation of contaminants (i.e., exhaust residues, fuels, oils and tyre compounds) within road verges from prolonged use of the site as a road; and
- Accumulation of contaminants (i.e., fuels, oils and asbestos) within the existing railway corridor from prolonged use of the site as a railway line.

Subsequent to the PSI, a Detailed Site Investigation (**DSI**) was undertaken in mid-2024. Soil sampling from 16 test pits was undertaken between 19 June and 29 July, targeting the HAIL activities and potential sources of contamination identified in the Stantec PSI and information review. Soil samples were analysed for at least one of the following: heavy metals (antimony, arsenic, cadmium, copper, chromium, nickel, mercury, tin and zinc), polycyclic aromatic hydrocarbons (**PAH**), total petroleum hydrocarbons (**TPH**), semi-volatile organic compounds (**SVOC**), and asbestos. Field observations and results indicate:

- No samples exceeded the adopted human health or terrestrial ecology guidelines.
- A blue/black stained layer (with no notable odour) was observed during excavation of TP04 at a depth of approximately 1.2 – 1.3 m bgl. Two samples were subsequently analysed for cyanide, which was not detected above the LOD.

- Analysis of asphalt samples returned concentrations of PAH and benzo(a)pyrene Toxic Equivalence (B(a)P TEQ) that do not indicate the presence of coal tar on site. Note that coal tar distribution can be variable spatially and by depth and could still be encountered during works.

Potentially complete pathways of exposure of human and environmental receptors to sources of contamination on site were reviewed based on the soil sampling results. Given all contaminant concentrations were below human health and environmental criteria, the risk from a human health and environmental perspective is considered low, therefore all source-receptor pathways relevant to the works were considered incomplete.

The following HAIL activities have been identified for a portion of the site, located immediately north-west of Runners Road and Walkers Road intersection (i.e., Department of Corrections Land/Rolleston Prison):

- HAIL C1 - Explosive or ordnance production, maintenance, dismantling, disposal, bulk storage or repackaging.
- HAIL G5 – Waste disposal to land.

Whilst the site is considered a low risk to human health based on soil sampling results, as contaminant concentrations were above published background concentrations, the NESCS applies to the proposed works within this portion of the site.

Based on the scale of the Project, it is likely the permitted soil disturbance and disposal volumes associated will be exceeded thereby requiring resource consent under the NES-CS as a controlled activity.

5.4.2 Resource Management (National Environmental Standards for Freshwater) Regulations 2020

The National Environmental Standards for Freshwater 2020 (**NES-F**) sets requirements and standards for activities that pose risks to freshwater and freshwater ecosystems.

As infrastructure work that delivers a service operated by a life utility (i.e. NZTA) and as a project listed in the Regional Land Transport Plan, the Project qualifies as “specified infrastructure³” in the NPS-FW. Specified infrastructure is provided for throughout the NES-F.

The Project work is not located within or in close proximity to any waterbodies, rivers, lakes, or wetlands. As such, the Project does not breach any regulations within the NES-F that warrant consent.

5.5 Other approvals

Additional approvals relevant to the Project set out in Table 5-1 below:

Table 5-1: Other approvals

Legislation	Approval type	Decision making authority	Activities
Resource Management Act 1992	RMA Approvals	Requiring Authority – KiwiRail Holdings Limited and the Minister of Corrections	Written agreement under Section 176 and s177 of the RMA from another requiring authority.
Wildlife Act 1953	Permit	Department of Conservation	Hunt, kill or <u>have in possession</u> any protected wildlife. Should any indigenous wildlife such as lizards or lizard habitats be found within the Project area during the survey, a Wildlife

³ specified infrastructure has the meaning given by the National Policy Statement for Freshwater Management.

		Permit will be required to handle, store, or release the lizards.
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5.6 Summary

The AEE supports the NoR to alter the NZTA-1 designation in the POSDP, along with all the necessary resource consent applications under the Canterbury Regional Plan.

The proposed designation, if confirmed, and the resource consents, if granted, will authorise the construction, operation, and maintenance of the Project.

6 DESCRIPTION OF THE EXISTING ENVIRONMENT

6.1 Overview

Rolleston is a township with a population of approximately 28,000. It is located 22km southwest of Christchurch and 33km northeast of Rakaia. The settlement area has had a history of being located around Main South Road, as seen in Figure 6-2 and Figure 6-3. In Figure 6-2 the existing residential developments can be seen to be located to the south-east of Main South Road. Figure 6-3 shows the allotment where majority of the proposed roundabout will be located, dominated by rows of pine trees during 1995 to 1999. Historical aerial imagery of the area illustrates the growth Rolleston has experienced since 1940 in terms of both density and urban sprawl.

In more recent years, the expansion of Rolleston has seen the population go from 16,000 residents in 2018 to 28,000 [2024]. The northern side of Rolleston did not start being developed for industrial use until around 2004, this can be seen through the historical aerial imagery of the area in Figure 6-2 and Figure 6-3. The area is anticipated to have significant growth and by 2043 it is expected to reach 39,000 with long-term capacity of up to 50,000⁴, over the next 35 years. The land use change to accommodate growth of Rolleston has put a strain on the demand for north-south connections to Christchurch and east-west connections within Rolleston across SH1.

The zoning in Rolleston under the POSDP is predominantly made up of General Industrial, Port Zone, Large Format Retail zoning (north of Main South Road) and Medium Density Residential, Neighbourhood Centre, General Rural and Town Centre zoning (south of the Main South Road). The land in proximity to the Project is zoned as Corrections, General Industrial, Large Lot Residential and Medium Density Residential.

⁴ Rolleston Structure Plan 2009

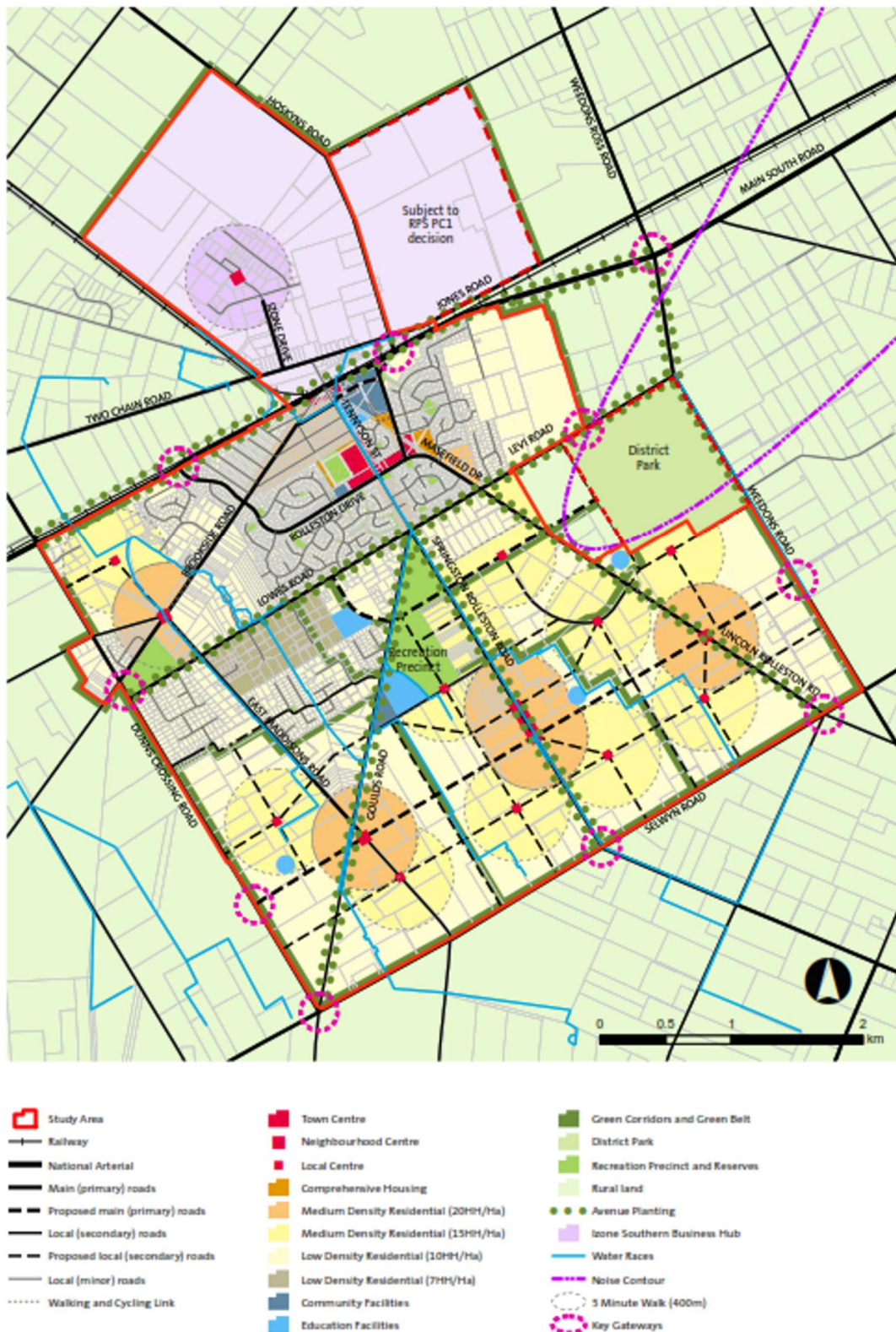


Figure 6-1: Rolleston Structure Plan 2009 (Source: Rolleston Structure Plan, September 2009)

Rolleston has historically grown around Main South Road and the rail network. Figure 6-2 and Figure 6-3 show the extent of Rolleston's growth and development in more recent years, as stated earlier this growth is expected to continue.



Figure 6-2: 2020 to Present Aerial Imagery (Source: Canterbury Maps, Historic Aerial Imagery)







Figure 6-3: 1995 to 1999 from Canterbury Historic Aerial Imagery (Source: Canterbury Maps, Historic Aerial Imagery)

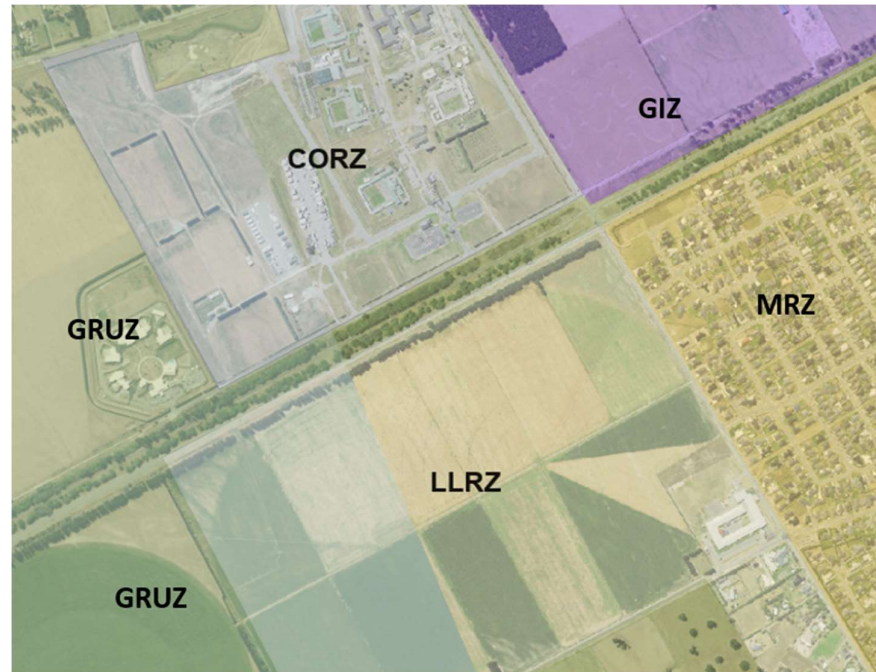
6.2 Project area

The following table (Table 6-1) sets out key features and provides a general description of the Project area including the relevant zones, precincts and overlays under the POSDP:

Table 6-1: Package 1 project area receiving environment

Features	Description
Current land use	<ul style="list-style-type: none"> The land use surrounding the Project area is comprised of residential, rural, rail and correctional activities. The land use of the site to the south, where the roundabout is generally located, is currently rural however the zoning is Large Lot Residential. The land zoning to the south is currently subject to an Appeal pertaining to PPC73.
Community and recreational facilities	<ul style="list-style-type: none"> West Rolleston Primary School (designated by the Minister of Education). Rolleston Mens Prison (designated by the Minister of Corrections). Te Puna Wai ō Tuhinapo (designated by the Minister for Children).
Vegetation	<ul style="list-style-type: none"> Shelterbelt vegetation Roadside amenity vegetation Rank grassland
Watercourses	<ul style="list-style-type: none"> There are no watercourses in close proximity to the Project area. There are no drains in close proximity to the Project area.
Historic heritage and archaeological values	<ul style="list-style-type: none"> There are no identified historic heritage features within the Project area. There are no archaeological values associated with the Project area.
Areas of cultural value	<ul style="list-style-type: none"> There are no wāhi tapu or wāhi taonga sites identified within or adjacent to the Project area. There are no identified NZAA Maori sites or sites of cultural significance in the Project area.
Existing designations	<ul style="list-style-type: none"> KRH-1 Railway lines - Main South Line and Midland Line (KiwiRail Holdings Ltd). NZTA-1 State Highway 1 (New Zealand Transport Agency). MCOR-1 Rolleston Prison (Minister of Corrections). MEDU-18 West Rolleston School (Minister of Education).
Precincts	<ul style="list-style-type: none"> PREC6A West Rolleston Industrial Precinct
Overlays	<p>Hazards and Risks</p> <ul style="list-style-type: none"> Plains Flood Management Overlay Liquefaction Damage Unlikely Overlay <p>Noise Control Overlay</p> <ul style="list-style-type: none"> State Highway Noise Control Overlay Railway Network Noise Control Overlay
Current zoning	<ul style="list-style-type: none">  Medium Density Residential Zone (MRZ)  General Rural Zone (GRZ)  General Industrial Zone (GIZ)  Large Lot Residential Zone (LLRZ)

 Corrections Zone (CORZ)



7 CONSULTATION

This section provides a summary of the consultation and engagement process, related to the Project, that NZTA has undertaken with mana whenua, landowners, network utility operators, community, and other stakeholders. A Consultation and Engagement Report is included in Appendix F, with the Community and Stakeholder Engagement Plan from the DBC in Appendix R and the publicly circulated The Path to a Flyover report included in Appendix S.

As the Project has progressed from PBC through to Pre-Implementation phase, a range of consultation and engagement has been undertaken, as depicted in Figure 7-1 below.

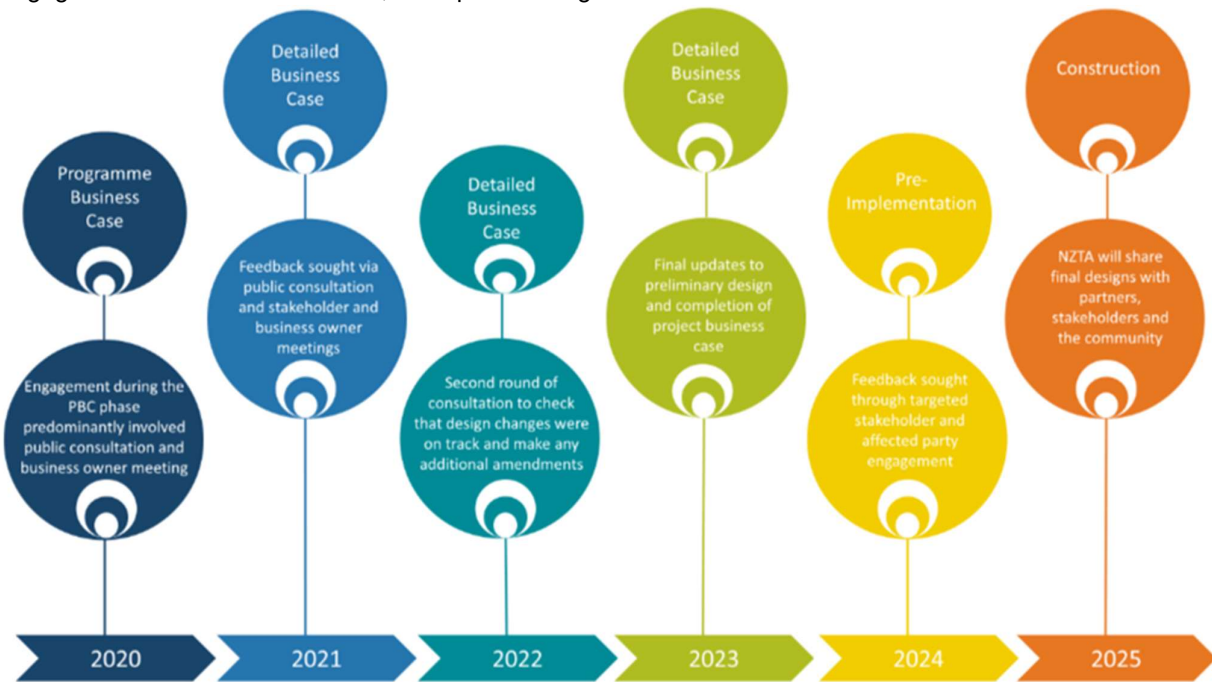


Figure 7-1: Project Phases

Engagement with stakeholders and the community is an essential part of the NZTA transport project planning process. It gives everyone an opportunity to have a say on the Project, identifies people's needs/ concerns and helps inform the Project acknowledging that there are often competing issues.

2021 consultation

Noting that the consultation looked at both packages of the Wider Project the first round of consultation revealed that people acknowledged the need to connect both sides of Rolleston, however, there were key concerns about the draft proposal put forward at the time (the 'skewed' overpass option plus a package of intersection improvements) which prompted further investigation. Concerns related to network effects, including the proposed roundabout at Dunns Crossing Road, and included:

- Reduced highway access – multiple points should remain open.
- The potential for overloading Weedons Interchange.
- Emergency service response times potentially affected.
- Increased traffic on local roads and past schools.

Considering the feedback NZTA was able to undertake robust analysis of the options (25 options, with seven identified for MCA and three options shortlisted) before developing the next set of plans.

2022 consultation

Having listened to community feedback, undertaken further transport analysis and revised the concept design accordingly, the second round of consultation revealed that people were generally more supportive

of the Project. In relation to the Project (Package 1), people were supportive of the new roundabout proposed for the **SH1**, Dunns Crossing and Walkers Roads intersection.

While the main changes to design following the 2022 consultation related to Package 2 (which is only discussed for information purposes in this **NoR**) the following Table 7-1 summarises the changes that have been made to the design of the roundabout in response to community and stakeholder concerns expressed:

Table 7-1: 2022 Consultation

Feedback	Design outcome
Concerns about speed and safety on SH1 through Rolleston	A roundabout has been designed at the SH1, Dunns Crossing and Walkers Road intersection to address crash issues which will get worse as traffic volume increases. The physical form of the roundabout requires people to reduce their vehicle speed and pay attention in order to navigate the intersection. People are much more likely to survive a crash at a lower speed.
Requests for safe walking and cycling highway access to be included in the roundabout design, a cycle connection between Rolleston and Burnham, and that plans should integrate with existing and future local paths, and local destinations	The subway for pedestrians and cyclists beneath SH1 connecting Dunns Crossing Road and Walkers Road will link up with the Burnham to Rolleston Cycleway, which is a future SDC Project. Consultation with cycling groups during detailed design has led to a change in design from a 'kinked' to a 'curved' subway which will prevent people coming across each other around a sharp corner.
Concern about formalising the SH1/Dunns Crossing and Walkers Road roundabout as the main southern entrance into Rolleston and traffic flows along Dunns Crossing Road past West Rolleston Primary School	SDC classifies Dunns Crossing and Walkers Roads as arterial roads. They have welcomed the proposed roundabout as it will make travel along this route safer and more reliable. NZTA has engaged with West Rolleston Primary School and the Council, who are already looking at ways to manage the expected traffic flows along Dunns Crossing Road. NZTA are working collaboratively with the Council so local road improvements can align with plans for the highway.
Concern about drivers missing the southern turnoff to Rolleston at the SH1, Dunns Crossing and Walkers Road roundabout,	The main southern entrances to Rolleston will be clearly signposted to give people plenty of warning. Appropriate highway signage will guide traffic as well as 'wayfinding' signs on surrounding local roads.
Consolidating entry to Rolleston via key access points (Dunns Crossing Road) instead of retaining right-hand turns onto the highway could impact safety and efficiency of these roads	Turning right across the main flow of high-speed traffic is high-risk and increasingly dangerous as traffic volumes increase. The recommended changes remove right turning risks while providing access and connectivity at key locations. NZTA have consulted with emergency services who are satisfied the recommended plan provides an improved level of highway access and connection. Signage will provide clear wayfinding for drivers.
Concern about vehicle speeds on the highway and local roads, that limits should be lower	The proposed new infrastructure will support a safe and appropriate speed of 80km/h through Rolleston. The proposed roundabout will require people to reduce vehicle speed and pay attention in order to navigate the intersection. Dunns Crossing Road is a local arterial road and following a speed review, SDC is proposing a reduction to 60km/h on this local road.

2024 consultation

In this phase of the Project, NZTA is engaging with mana whenua and key stakeholders to inform design developments. Affected party agreements are being gained in relation to property acquisition, and residents and other stakeholders are being engaged about project effects, including changes to their access, once the new roundabout is operational.

For a few identified properties on Dunns Crossing Road and Fountain Place there will be construction effects, with potential for noise, vibration, dust and changed access while the new roundabout is being built. NZTA will continue to engage these residents and property owners to understand their specific requirements, so these can be considered during construction planning. The NOR proposes a Consultation and Engagement Plan be prepared to address information will be shared with the wider community and road users ahead of construction starting, and while it is underway, will provide updates about what to expect, time frames, and detours/access changes.

8 ASSESSMENT OF EFFECTS ON THE ENVIRONMENT

8.1 Overview

An assessment of actual and potential effects of the Project is set out in the following sections of the Report. The assessment considers whether these effects are positive or adverse, as well as the scale, duration, permanency and location of these effects. The assessment has been informed by reports undertaken by the relevant technical specialists.

Key transport outcomes, land use integration and the avoidance of adverse effects on areas or features of high value have informed the extent of the NoR boundaries and Project work. Where avoidance has not been possible, measures to remedy or mitigate adverse effects have been proposed in the NoR.

The assessments contained in the section below pertain to the NoR for the roundabout and associated works (Package 1).

8.2 Positive effects on the Project

This section sets out the positive effects of the Project for the Rolleston township and Selwyn District. Given the interconnected nature of the positive effects associated with the Project, these effects are summarised in this section as opposed to being broken down into the individual effects sections (Section 8.3 onwards).

The Project is key to improving safety and connectivity on the state highway in Rolleston. The Project will improve access into and out of Rolleston, as well as strengthen the north-south connections within the township. Currently, there are significant safety concerns at the SH1, Dunns Crossing Road, and Walkers Road intersection, identified as a high-risk area expected to worsen with future traffic increases. The roundabout and associated works will result in transformative change to the intersection by addressing crash history and enhancing safety. It will also improve capacity, reducing delays for vehicles on local roads and allowing safer, more efficient access to and from Rolleston across the state highway.

At the level crossing, NZTA will work with KiwiRail to upgrade infrastructure, providing additional queuing space for vehicles. This will improve safety at the rail crossing and address existing queuing issues on Walkers Road, reducing near-miss incidents between trains and vehicles.

The Project also introduces a shared path and subway, creating a safe and continuous pedestrian and cycle network connecting Rolleston, Burnham, and the RIZ to the north-east. These works offer more transport choices, addressing the current lack of safe crossing points on SH1 and the rail level crossing, which currently restricts safe crossing for pedestrians and cyclists.

Regarding noise, the majority of the Protected Premises and Facilities (PPFs) near the Project will experience imperceptible changes in traffic noise (less than $\pm 2\text{dB}$), resulting in minimal noise impacts. Six of the PPFs near Dunns Crossing Road will experience a “just noticeable” to “noticeable” reduction in traffic noise, which is a positive outcome.

In terms of visual effects, the combination of planting with the offset from the existing urban edge will visually integrate the Project into its surrounds and effects on perceptual values as a result of the Project will be positive. For the majority of viewing audiences including the residents along Dunns Crossing Road, staff and residents of Rolleston Prison, Rolleston West Primary School, future properties in the Industrial Zone, and road users the proposal will result in positive visual amenity effects.

From an ecological perspective, there are positive effects associated with the landscaping and stormwater plantings. Whilst these aspects are not considered typical ecological mitigation, these components of the Project will increase the extent of vegetation types within the Project corridor and over time, will provide habitat for native avifauna and resulting in an overall positive effect in this regard.

Though the proposed designation affects some private properties, the Project will deliver considerable benefits to the community and road users, including:

- Improved safety for drivers with the conversion of an uncontrolled intersection to a roundabout.
- More reliable travel times along SH1 and Dunns Crossing Road due to the roundabout
- Enhanced travel choices through the subway, resulting in improved protection for vulnerable road users; and consequentially, a reduction in deaths and serious injuries.

- Not precluding future infrastructure that may be needed to support future development

Overall, the Project provides a significant improvement to safety, connectivity, and community well-being in Rolleston and the Selwyn District.

8.3 Traffic and Transport

An Integrated Transport Assessment (**ITA**) has been prepared by Beca and is included in Appendix H. The following sections cover the methodology applied, the potential effects associated with the Project during both construction and operation and discuss the measures to effectively manage these effects.

The ITA addresses both Package 1 and Package 2 of the Wider Project and considers the anticipated effects within the context of the Greater Christchurch Settlement Plan. For the purposes of this AEE, the traffic and transport effects assessed have been limited to Package 1 only. Where reference is given to Package 2, this is only for contextual purposes.

This effects assessment has been based on both a 2028 and 2038 transport model to account for construction effects and operational effects, respectively. This aligns with the available transport models and the likely implementation timeframes for the Project. To consider the effects of the Project, transport networks with and without the Project were assessed in the context of land use scenarios that best represent the likely construction timeframe.

Land use forecasts have inherent uncertainty, particularly given the unprecedented growth the Selwyn District is currently experiencing. Currently, there is additional uncertainty around the likely outcomes and the rate and location of the additional development to be enabled through various proposed plan changes. The subsequent sections provide a summary of the transport effects and proposed management measures.

8.3.1 Assessment Methodology

The ITA has been undertaken both quantitatively and qualitatively, depending upon the transportation mode or element being assessed. The approach to the effects of construction were based on the following considerations:

- There will inevitably be temporary effects on the transport system during construction, such as temporary road closures, diversions, alternative property accesses, construction traffic using the wider network and potential disruption to public transport services and walking/cycling connections.
- Specific details of construction methodologies, material sources, haul routes, times of operation are not confirmed and will be subject to detailed development by NZTA and its contractor.
- To enable innovation and flexibility in construction methodologies it is intended that appropriate conditions are proposed that will manage temporary traffic effects.
- Construction matters and impacts has been considered in the Project design to assist management of potential effects.
- The use of Construction Traffic Management Plans (**CTMP**) is a common and well-understood approach to managing effects of construction traffic.

Approach to assessment of construction transport effects

The construction effects have been assessed on the basis that a CTMP is proposed to manage traffic effects at each stage of construction. The focus of the assessment is therefore on the specific considerations required for such a CTMP.

The Project works are generally aligned with the existing major road corridors, so movement of trucks for earthworks or bulk materials beyond the current routes is not anticipated. While construction traffic will be present, the corridors are generally within existing urban road networks (including SDC arterial routes) with multiple alternative routes.

Given this context and the uncertainty of the future construction methodologies, this assessment has not assessed detailed estimates of construction traffic movements. The impact of any temporary traffic management measures implemented to undertake the Project will be revisited, prior to construction, when

a greater level of detail is available in terms of the specific construction methodology and traffic environment.

It is anticipated that most of the Project works will be undertaken 'online', within or immediately adjacent to operational corridors. Any future assessment will consider network capacity reductions through potential road closures, capacity reductions on key corridors through lane closures, effects on property access through road or lane closures, and any other ancillary effects such as shoulder closures or temporary loss of access to individual properties.

Construction methodologies are indicative to identify the general type of transport effects that are likely to eventuate, and thereby inform the scope of proposed management plans. The main construction effects assessment in this Report considers:

- Community access and the expected travel time under the different construction scenarios;
- Impact of the construction scenarios on the various transport modes including general traffic, freight, pedestrians and cyclists;
- issues including speed, potential impacts to pedestrians and cyclists and property access; and
- any works that should not occur at the same time

Approach to assessment of operational transport effects

The operational effects of the Project on the transport system are assessed by comparison against the 'existing' environment'. However, the current transport environment is likely to change, regardless of whether this Project proceeds. This is due to the combination of potential changes in land use in Rolleston and possible SDC transport network upgrades which are likely to increase traffic over time within the district.

As such, the operational effects of the project are best compared against a future environment that includes those wider changes but excludes this specific Project. For consistency with the DBC terminology, the future environment without the Project is referred to in the ITA as the **Do Minimum** scenario.

8.3.2 Temporary construction effects

There has been no contractor involvement at this stage of the Project, however the indicative methodology set out in this section represents a potential and feasible construction sequence in order to set an envelope of effects.

It is expected that the Contractor will develop their own methodology for the Project which will include more detail both of the construction sequence and effects. However, the procurement process will set the high-level objectives outlined in the ITA methodology as a baseline for Contractors to use in developing their methodology. The Indicative Construction Sequencing for Package 1 is outlined below:

Package 1 indicative construction sequence can be summarised as:

Table 8-1: Package 1 indicative construction sequence

Stage	Construction sequence (indicative)
Stage 1A - All ancillary works (unconstrained).	<ul style="list-style-type: none"> • All traffic on original alignments including all intersections movements. • Shoulder closures and temporary barriers on SH1. • Temporary speed limit – 30kph - 50kph, dependant on lane width • All works outside of road network - excavation, fill, shoulder widening, retaining wall, pavements, footpaths, stormwater, services, lighting, subway construction (part 1), landscaping. • Service relocation enabling works - additional TM as required, possible lane shifts and night works when required.

	<ul style="list-style-type: none"> • Rail Crossing construction - timing TBC with KiwiRail - critical to opening Walkers roundabout leg.
Stage 1B - Tie-in works for Stage 2 construction (transfer alignment to roundabout).	<ul style="list-style-type: none"> • Traffic management as per Stage 1A. • Additional Traffic management including lane shifts, night works, stop/go and possible night closures for pavement works. • Pavement levelling for tie-ins.
Stage 2A - New ancillary works (unconstrained).	<ul style="list-style-type: none"> • Option 1- KiwiRail crossing complete - transfer all traffic movements to roundabout temporary layouts, close old Dunns Crossing Road and old Walkers Road. • Option 2 - KiwiRail crossing not complete - transfer traffic movements to roundabout temporary layouts, close old Dunns Crossing Rd. Old Walkers Road to continue as T intersection until KiwiRail crossing complete. • Traffic management as per Stage 1A. • All works outside of road network - excavation, fill, shoulder widening, pavements, footpaths, stormwater, services, lighting, subway construction (part 2), landscaping.
Stage 2B - Final finishing.	<ul style="list-style-type: none"> • Median barriers, final pavements, signs, line-marking and landscaping. • Traffic management including shoulder closures, lane shifts, night works, stop/go and possible night closures for pavement works.

The Indicative Construction Sequencing for Package 1 can be seen in Figure 8-1 below.

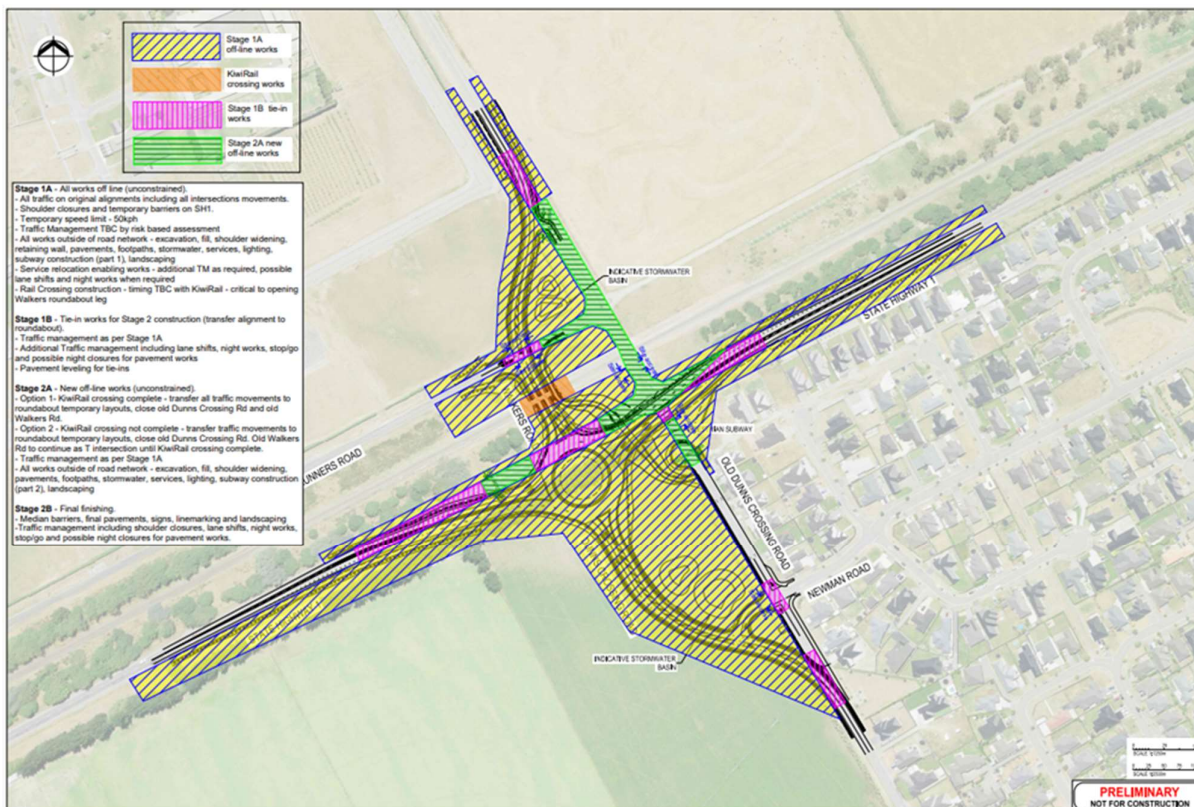


Figure 8-1: Package 1 Indicative Construction Sequencing

The construction sequencing may involve short-term closures of turning movements at Dunns Crossing Road and Walkers Road with appropriate mitigation determined by the contractor in consultation with the Road Controlling Authority (**RCA**). Alternatives can include opening the roundabout in a temporary form and diverting Dunns Crossing Road onto the new alignment earlier or completing the level crossing upgrade and opening Walkers Road ahead of reconstructing the existing highway.

The potential traffic effects during construction associated with Package 1 are summarised in Table 8-2. This table also outlines the proposed mitigation measures (in addition to standard temporary traffic management) to minimise the anticipated effects.

Table 8-2: Temporary effects

Stage	Activity	Effect	Mitigation
Stage 1 - Construction of the ancillary works	SH1, Dunns Crossing Rd. Walkers Rd, Runners Rd	Delays associated with temporary speed limits through work zones. Stop/go single lane operation for short durations.	Effects likely to be less than minor as these are low volume roads and new alignments are largely away from the existing road.
	Widening Main South Road	Delays associated with temporary speed limits through work zones.	Improved safety due to lower speeds especially for turning traffic. Travel time disbenefits expected to be minor.
Stage 2 - Reconstruction of Main South Road	Reconstruction Main South Road	Delays associated with traffic diversions to newly constructed SH1 widening. Delays associated with temporary speed limits through work zones.	Improved safety due to lower speeds especially for turning traffic. Travel time disbenefits expected to be minor.
	Closure of turning movements at Dunns Crossing Rd.	Traffic diversions to alternative intersections.	Public communications and signed detour routes. Mitigation at other intersections e.g. temporary speed limit at Rolleston drive South. Safer alternatives are available.
	Closure of turning movements at Walker Rd. Likely to be short term and limited to closures of right turns	Traffic diversions to alternative intersections.	Public communications and signed detour routes. Mitigation at other intersections. Closure of right turn out need to be carefully planned to avoid diverting traffic to a less safe intersection.
Stage 3 - Tie in works	Tie ins on Walkers and Dunns Crossing Rd	Delays associated with stop/go single lane operation for short durations.	Effects will be less than minor as these are low volume roads and new alignments are largely away from the existing road.

Interdependencies	2 Chain Road upgrades	Reduced visual amenity in the vicinity of the intersection during construction, noting the construction works are essential for opening the roundabout.	Work with SDC on integrated programme and coordinated traffic management planning.
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A Construction Traffic Management Plan (**CTMP**) is proposed to manage the potential effects during the construction works. It will outline the procedures to produce Site-Specific Traffic Management Plans (SSTMPs) and the relevant standards that must be complied with.

The SSTMPs will detail the specific traffic management set ups at each stage of the worksite as well as any mitigation measures for impacts of the works. Each SSTMP will be developed in line with the current New Zealand guide to temporary traffic management (**NZGTTM**) and will set out the requirements for the planning, design and implementation of temporary traffic management.

The objectives of temporary traffic management for the construction of the Project are:

- Adherence to the standards set out in NZGTTM wherever reasonably practicable. Engineering Exception Decisions (EEDs), which authorise temporary traffic management measures, will need to gain approval and be signed-off by the Road Controlling Authority or authorised representatives.
- Minimise disruption on the state highway and local roads as far as is practicable and maintain existing flows and travel times;
- Minimise the number of construction vehicle trips and their effects on local roads and seek to avoid residential areas where practicable;
- Minimise the effects of construction vehicle parking;
- Develop traffic management plans that have consideration of all key stakeholders, including Selwyn District Council and Residents;
- Gain approval of SSTMPs at least five working days ahead of implementation;
- Provide for effective communication and the gathering of feedback from key affected parties; and
- Provide a safe environment for the public and construction staff.

The SSTMP will address the following potential construction related effects in Table 8-3:

Table 8-3: Potential construction related effects

Effect	Mitigation and Management
Cumulative effects - Coordination of Traffic Management	<p>A construction sequencing plan (prepared by the Contractor) that identifies the various activities that will take place and when these will occur.</p> <p>The details of the temporary traffic management will be included in the construction sequencing plan to identify the potential cumulative traffic effects associated with several construction locations being active at the same time.</p> <p>One aim of the sequencing plan will be to avoid and/or mitigate significant cumulative traffic effects arising from multiple construction activities (which individually would only result in minimal effects).</p> <p>The Contractor will be required to restrict impact on the surrounding areas, such as predetermined haul routes and site access points or amendments to NZGTTM to impose a greater lead in time for submissions of SSTMPs. Any controls will need to be agreed by the relevant RCA.</p>
Traffic Effects	<p>Traffic modelling will be required of some temporary traffic management activities to identify potential delays. Alternative methodologies may need to be considered or mitigation measures to minimise the effects. These may include:</p>

	<ul style="list-style-type: none"> • Undertaking works at times of low traffic flow (school holidays or night works); and • Advanced communication of the works to pre-warn the public or enable them to think of alternative routes.
Site Access	<p>Construction site access points will be required and managed as part of the SSTMPs. These access points will need to operate in a safe manner and not cause undue disruption to general traffic flows (noting some disruption and inconvenience may occur). The SSTMPs will need to consider the following regarding site access points:</p> <ul style="list-style-type: none"> • Signage to identify the accesses for delivery vehicles and suppliers; • Permitted vehicles (trucks/articulated trucks/cars) and permitted uses (visitors/deliveries/staff); • Permitted movements and/or movement restrictions e.g. left in/left out; • Pedestrian, cyclist and public safety; and • Deceleration and acceleration requirements to minimise traffic disruption and provide for safe access/ egress.
Diversions	<p>Temporary road closures are anticipated to be required on some of the local roads. These closures and the proposed diversion routes will be discussed with the relevant RCA prior to implementation. Diversion routes will utilise arterial roads and avoid residential areas where possible.</p> <p>It is expected that any diversions would generally take place during the night when traffic flows on the state highway and local road networks are low. Any diversions that would take place over a number of consecutive days would be run as a series of night works, with 'make good' works to reinstate traffic during the day.</p>
Property Access	<p>The SSTMPs will include measures to minimise the effects on property access (including turning restrictions) and on-site parking/ manoeuvring. Consultation will be undertaken with affected property owners to identify the impact on access, duration and date of work. All reasonable steps will be taken to maintain property access during construction including providing satisfactory alternatives if necessary.</p>

In addition to the above, the SSTMP will manage pedestrian and cyclist movements through the work site with temporary foot and cycle paths (where existing facilities are impacted). No temporary pedestrian and cycle provision will be installed along the state highway for safety reasons.

Operational effects

The Project will provide significant improvements to the transport network around Rolleston. At a local level, the Wider Project demonstrates a 5.0%-14.6% reduction in total vehicle hours travelled during each of the time periods modelled in 2038. The Project will result in significant improvements in safety on the network, with a predicted 40% reduction in deaths and serious injuries, primarily as a result of changes at SH1 intersections at Dunns Crossing Road and Walkers Road, which are currently high-risk.

The Project will change the road access for eight residential properties along Dunns Crossing Road near the current intersection with SH1. However, the changes will improve safety with no notable disbenefits. The Project (Package 1) will likely result in only minor increased traffic volumes on Dunns Crossing Road. It is noted that the implementation of Package 2 is likely to increasing the volume of traffic travelling along Dunns Crossing and SDC is intending on implementing a school speed zone and safety improvements on Dunns Crossing Road near West Rolleston School. These measures will appropriately manage student and pedestrian safety considering the increase in traffic volumes expected (from the implementation of the Wider Project) along Dunns Crossing Road.

SH1 Access Changes

Specific regard has been given to West Rolleston Primary School in the ITA, located on Dunns Crossing Road. The Project is projected to result in an additional 2,000 vehicles per day (**vpd**) in 2028 and an additional 2,600vpd in 2038 along Dunns Crossing Road adjacent to the school compared to the Do minimum volumes (a 39-48% increase from the 2028 and 2038 Do minimum traffic volumes). This equates to an additional 220 vehicles per hour (**vph**) and 330vph in 2028 and 2038 respectively in the AM peak when the school is opening. As discussed in the ITA, the narrow nature of the road, combined with the presence of parked cars, is likely to result in slow-moving traffic along this section of Dunns Crossing Road.

As discussed in the ITA, a shared use path (**SUP**) currently exists on the eastern side of Dunns Crossing Road between 382 Dunns Crossing Road and Burnham School Road. The Project will extend the SUP with a greenway cycleway on the Dunns Crossing Road cul-de-sac to the north to create a safe cycle connection from the West Rolleston Primary School to Newman Road and existing houses on Dunns Crossing Road to the north.

A kea crossing is currently provided outside the school on Dunns Crossing Road, offering a safer crossing point for children noting that the main school pick-up and drop-off (**PUDO**) occurs on Burnham School Road.

There are currently 'no parking' lines on the eastern side of 382 Dunns Crossing Road to Burnham School Road. The project will extend the 'no parking' lines to the north to SH1 so parents dropping off students on Dunns Crossing Road will be on the same side of the road as the school, minimising the number of students required to cross this busy road.

The following additional safety improvements around West Rolleston School, to be delivered by SDC, were identified as part of DBC in partnership with SDC and are expected to be in place prior to the opening of Package 2:

- A 30km/h school speed zone during PUDO time to be implemented by April 2025 as specified in the SDC Interim Speed Management Plan.
- Dunns Crossing Road / Burnham School Road safety improvements. This includes signalisation of this intersection and safety improvements at this intersection. This is expected to be implemented by April 2025

8.3.3 Recommended measures to avoid, remedy or mitigate potential adverse effects

The following sections summarise the measures proposed to mitigate adverse traffic effects during both the construction phase and operational phase of the Project.

Construction traffic effects mitigation measures

The Transport Assessment recommends a number of measures to address the potential impacts arising during the construction phase as outlined earlier in Table 8-2 and summarised below:

- An overarching CTMP, supported by individual site-specific temporary traffic management plans.
- An overall philosophy to construct 'offline' works first, to minimise the impact on the travelling public.
- To construct this Project (Package 1) prior to affecting traffic movements at the SH1 / Rolleston Drive (north) and SH1 / Hoskyns Road Intersections for Package 2. Completion of these works will reduce the impact of any effects from Package 2 (overpass), and it is essential that the roundabout is operational before any turning movement are removed at Rolleston Drive or Hoskyns Road.
- The existing number of lanes on SH1 (one lane in each direction, with left and right turn bays) will be maintained as far as possible to preserve the capacity of all roads and minimise the impact for the travelling public duration of the construction.

The anticipated construction duration for the Wider Project is expected to be between three and four years. Package 1 is expected to be constructed over two years (2025 and 2026). Package 2 is anticipated to follow (2026 to 2028).

Package 1 will contribute to improved access to/from Rolleston residential and industrial areas and is expected to integrate with associated SDC projects.

Operational traffic and transport mitigation measures:

The following measures are recommended to manage transport effects arising from the operation of the Project:

- The preparation of **Traffic Management Plans** (parallel to the Outline Plan process) – prior to the construction and implementation of the Project, the detailed design process will be undertaken to determine the final design including cross-sections, stacking lengths, and any required safety measures. A Traffic Management Plan will then be required to be submitted to SDC as part of an Outline Plan (or Plans).
- **The development of a ULDF** – the ULDF provides a mechanism for determining how the Project is designed to integrate with the adjacent urban and landscape context, provides appropriate walking and cycling connectivity, promotes inclusive access and a sense of personal safety by aligning with best practice guidelines such as CPTED principles, and Safety in Design requirements. It also requires details of roadside elements such as wayfinding and signage.
- **Consultation regarding property access** – Consultation with landowners whose vehicle access to their property will be altered by the Project and to demonstrate how safe reconfigured or alternative access will be provided.

8.4 Landscape and Visual

The Landscape and Visual Assessment (**LVA**) has been prepared by Beca and is included in Appendix I. The following sections cover the methodology applied, the potential effects associated with the Project during both construction and operation and discuss the measures to manage these effects.

The LVA focused on potential effects on rural character and amenity and addresses the nature of the rural/urban interface at the western edge of Rolleston. With mitigation measures in place, the LVA concludes that the Project is appropriate from a landscape and visual standpoint in relation to its function, form and scale in the context of the surrounding area.

In terms of effects, the scale of the Project is consistent with other transport upgrades which appear localised within the context of the Canterbury Plains. The proposal will have no effect on physical landscape values. The location and nature of the roundabout and connecting roads will help to organise the range of activities and land uses within the area and create a more coherent urban to rural transition in the north-west corner of Rolleston.

Proposed planting together with the offset from the existing urban edge serve to visually integrate the Project into its surrounds and reduce the presence and potential pervasiveness of traffic. Overall, effects on perceptual values as a result of the proposal will be positive.

For the majority of viewing audiences including the residents along Dunns Crossing Road, occupants and users of Rolleston Prison, Rolleston West Primary School, future properties in the Industrial Zone, and road users the proposal will result in negligible and positive effects.

Visual effects on future Large Lot Residential Zone (**LLRZ**) properties directly adjacent the roundabout will be less than minor. While proposed planting will demarcate the western edge and help to soften and reduce the prominence of the roundabout for this currently undeveloped area, the visual presence of traffic may be something that new property owners may choose to screen further through additional planting - noting that the Project will be a known factor when future residents purchase sites and subsequently develop these.

8.4.1 Assessment methodology

The LVA assessment methodology is based on, and consistent with, the Te Tangi A Te Manu Aotearoa New Zealand Landscape Assessment Guidelines (the Guidelines), Tuia Pito Ora New Zealand Institute of Landscape Architects, July 2022. The Guidelines emphasise the need for the scope and method of assessment to be tailored to consider three key aspects:

- The relevant landscape setting;
- The nature of the proposal and associated degree of change in the landscape; and
- Associated policy framework.

Appendix 6 of the LVA sets out the full Landscape and Visual Assessment methodology and terms used when assessing the potential landscape and visual effects of the proposal. A desktop review of the available data relating to the existing landscape, project proposal and statutory planning context was undertaken, a site visit to the Project site and surrounding landscape was also undertaken in April 2024. The operational effects associated with the Project on the surrounding landscape are best described as physical effects and perceptual.

8.4.2 Physical effects

The proposed roading infrastructure will be slightly elevated above existing flat terrain with the high point being the central part of the roundabout. The scale of the proposal is also consistent with other roading upgrades forming a continuation of interventions across the state highway network. Due to the scale of the plains surrounding the proposal, adjacent LLRZ zoning currently in rural production, the localised raising of the roundabout and connecting roads will have no effect on physical landscape values.

8.4.3 Perceptual effects

While the designation will enable a new roundabout and connecting roads the roading infrastructure will appear as a natural extension or upgrade to the network. It will be co-located with other utilitarian facilities/interventions at the rural/urban interface of Rolleston. The new roading infrastructure will provide a transition or demarcation point between the Rolleston Prison, Pines Wastewater Treatment Plant and associated distribution fields, Pines Resource Park and the western residential edge of Rolleston.

Within the LLRZ, the roundabout and connecting roads will reinforce the transition between the residential edge of Rolleston, the larger lot residential zone and rural land beyond. The area between the roundabout and Dunns Crossing Road containing the proposed stormwater ponds will provide an area of open space adjacent to the built edge of the new road infrastructure and associated vehicle movements.

Adjoining residents will likely experience positive effects due to the separation of the new roads, reducing the proximity of traffic along the frontage of the residential properties accessing SH1. The large area of stormwater retention between the southern leg of the roundabout and Dunns Crossing Road will provide an opportunity to enhance the outlook of those residents.

The proposal will also enhance the existing pedestrian and cyclist experience. The provision of a shared path subway between Dunns Crossing Road and Walkers Road will increase the ground level legibility and sense of safety when moving along/across the SH1 corridor.

The proposed recommendations in Section 7 of Appendix I address the opportunities outlined above, to help integrate the Project with the residential character. This includes planting of the stormwater basins, roundabout and residual areas within the proposed designation to support urban amenity and within the road corridor to further enhance the 'on the ground' experience for road users, pedestrians and cyclists.

Overall, the proposal will have low adverse effect without the proposed recommendation in Section 7 of Appendix I. With the recommendations the Project will have positive effect on perceptual values within the landscape.

8.4.4 Associative Effects

The co-location of infrastructure along existing lineal road corridors will have no effect on associative values. The proposal will not disrupt the flat topography and patchwork patterning of the Canterbury Plains. At the time of preparing this assessment the author is not aware of any cultural values that may influence the associative effects assessment – noting that engagement with mana whenua is ongoing.

8.4.5 Recommended measures to avoid, remedy or mitigate potential adverse effects

The Project will have landscape, visual and natural character effects that are consistent with what is anticipated from an upgrade of state highway infrastructure. An Urban and Landscape Design Framework (**ULDF**) is being developed to achieve landscape design outcomes and these outcomes will feed into a Landscape Management Plan (**LMP**).

The implementation of a LMP will provide a design response for the land adjacent to Dunns Crossing Road, Newmans Road, Walkers Road, and Runners Road along with other design opportunities within the

carriageway in accordance with the ULDF. With a LMP in place, any potential and actual effects on the landscape will be appropriately mitigated.

8.5 Noise and Vibration

The Assessments of Construction and Operational Noise Effects have been prepared by Marshall Day Acoustics (MDA) and are included in Appendix J. The following sections cover the methodology applied, actual and the potential operational effects associated with the Project and measures to manage effects using the methods recommended in the POSDP and New Zealand Standard NZS 6806:2010 Acoustics - Road-traffic noise - New and altered roads (NZS 6806).

The positive effects relating to operational noise are covered as part of Section 8.2 above.

8.5.1 Assessment methodology

The assessment methodology for construction phase assessment addresses the following legislation:

- POSDP, Construction noise NOISE-REQ2 and Noise -R4 Vibration Thresholds.
- New Zealand Standard NZS 6803:1999 Acoustics - Construction Noise.
- German Standard DIN 41503:2016 Vibrations in buildings – Part 3: Effects on structures.
- British Standard BS 5228-2:2009 Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration.

The assessment methodology for the operational phase has been modelled using the SoundPLAN 9.0 software with inputs for both the Do-Nothing and Do-Minimum situations. MDA has advised that modelling outputs have been assessed against measurements of the existing ambient noise environment and provide a margin of conservatism of 2 to 3 dB across the Project.

The predictions have used the latest road surfacing corrections outlined in NZTA Guide to assessing road traffic noise (Feb 2024). A -3dB correction has been applied to the modelled data for the conversion from $LA_{10,18h}$ to $LA_{eq,24h}$ and -2.5 dB for the conversion from façade to free field levels.

Traffic noise levels have been predicted for each façade of the PPF and the highest level used for assessment against the NZS 6806 altered road criteria as set out below:

The Do-minimum noise environment would be greater than or equal to 64 dB $_{LA_{eq,24h}}$, and if no specific noise mitigation was undertaken, the alterations would increase road traffic noise at this assessment position by 3dB or more at the design year when compared to the Do-nothing noise environment; OR

The Do-minimum noise environment would be greater than or equal to 68 dB $_{LA_{eq,24h}}$, and if no specific noise mitigation was undertaken, the alterations would increase road traffic noise at this assessment position by 1dB or more at the design year when compared to the Do-nothing noise environment

Neither of the above criteria are triggered by the Project on the basis of the input data. A schedule of predicted Do-nothing and Do-minimum noise levels are provided in within Appendix J.

MDA advise that the below methods were followed in the assessment of operational effects:

- Traffic noise levels were assessed at sensitive receivers along the Project extent and evaluated how future noise levels will change as a result of the Project.
- The Project is assessed using New Zealand Standard NZS 6806:2010 Acoustics - Road-traffic noise - New and altered roads.

8.5.2 Construction effects

The assessment prepared by MDA acknowledges that construction activities have the potential to exceed the recommended noise criteria from NZS 6803 when work is occurring close to residential properties – within approximately 60 metres – noting that noise will be of relatively short duration at any single

dwelling. Construction noise effects can be mitigated by various means, such as through the use of temporary site hoardings, the selection of quieter equipment, and effective communication with residents. MDA has identified a number of PPFs within 100m of the Project as depicted in Figure 8-2.



Figure 8-2: Dwellings (highlighted green) within 100 metres of construction activities at Dunns Crossing Road

8.5.3 Operational effects

The potential effects during operation of the Project on PPFs to the south and east of the Project footprint are as follows.

- For the majority of PPFs there will be an imperceptible change in traffic noise levels (less than $\pm 2\text{dB}$) as a result of the Project implementation, resulting in a negligible change in noise effects.
- Approximately 6 PPFs in the vicinity of Dunns Crossing Rd will experience a “just noticeable” to “noticeable” reduction in traffic noise levels, which is considered a minor to moderate positive effect.

Any potential and actual effects on Rolleston Prison and its residents as a result of the Project have been considered by MDA through a separate report. This report concludes the following:

- Noise measurements in the area suggest that existing traffic noise levels vary across the Rolleston Prison site and Walkers Road traffic dominates the noise environment along the eastern site boundary, where noise levels are approximately $65 \text{ dB } L_{Aeq(24h)}$ at the site boundary.
- The noise levels reduce to approximately $60 \text{ dB } L_{Aeq(24h)}$ at the exterior wall of the nearest prison buildings to Walkers Road. Near the centre of the prison site, the noise level is approximately $50 \text{ dB } L_{Aeq(24h)}$.

- Using NZS 6806 as a guide, we have assessed the traffic noise level with the proposed Walkers Road roundabout in operation (Do-minimum situation) and compared this to the traffic noise level assuming no roading improvements are made (Do-nothing situation).
- There will be negligible change in traffic noise level across most of the Corrections land as a result of the proposed roundabout and road improvements – the plot shows a 0 to 2 dB reduction.
- There will be an increase in noise level in the southeast corner of the site adjacent to the re-aligned Walkers Road. However, the effect of the change becomes negligible within approximately 15 metres from the edge of the proposed road.
- The residents at Rolleston Prison are unlikely to experience any change in traffic noise level as a result of the proposed road improvements.

Overall, the assessment concludes that the change in operational noise as a result of this Project will not trigger the NZS 6806 altered road criteria at any PPF, including Rolleston Prison.

8.5.4 Recommended measures to avoid, remedy or mitigate potential adverse effects

No specific mitigation measures are required for operational phase noise as the calculations show that the Project will not trigger the NZS6806 altered road criteria at any PPF.

In terms of construction phase mitigation, MDA has recommended several strategies to mitigate potential adverse effects on PPFs within the surrounding area. Mitigation measures include the following:

- Implementation of a CNMVP for the duration of the construction period.
- Engagement with nearby residents during construction.
- Installation of temporary noise barriers.
- Avoidance of night works where possible and minimise where practicable to do so.

NZTA will incorporate appropriate noise mitigation measures into the CNMVP (proposed) and liaise with contractors throughout the course of the Project to mitigate potential and actual effects on neighbouring properties and the wider community.

8.6 Terrestrial Ecology

An Ecological Impact Assessment for the Project is included in Appendix K. This section provides a summary of the assessment, including the methodology applied and the recommended measures to manage effects. The following potential adverse ecological effects associated with the Project relate to:

- Permanent loss of terrestrial habitat for avifauna and herpetofauna
- Temporary disturbance of avifauna and herpetofauna
- Injury/mortality of avifauna and herpetofauna

Importantly, it is acknowledged that the works are likely to produce a positive outcome, as the creation of stormwater ponds is likely to increase habitat diversity of the area. Where possible, potential adverse effects on inhabiting fauna may be avoided or minimised by reducing the amount of vegetation clearance undertaken.

Based on the scale of the Project, to reduce the risk of injury/mortality of herpetofauna where possible a lizard survey will be undertaken. This will assess lizard presence/absence and abundance at the site. If a population is present, a Lizard Management Plan (**LMP**) will be prepared and will likely require the staged vegetation removal to encourage relocation of lizard populations. This approach will be discussed with the Department of Conservation (**DoC**), and if required, a Wildlife Permit will be sought.

The Project design has measures to minimise the low-level effects of the terrestrial vegetation clearance. This includes the using native species for planting when landscape design is finalised, as well as taking any opportunity to reduce the area of vegetation clearance necessary to complete the Project.

Following the implementation of these management measures, the overall level of ecological effects associated with the Project work will be less than minor with no adverse residual effects expected.

8.6.1 Assessment methodology

A desktop-based review was undertaken using ecological information from the following sources:

- Information held by ECan, SDC, and Department of Conservation (**DOC**) on the ecological values of the site;
- iNaturalist, eBird, and DOC Bioweb species data;
- Historical aerial imagery from Canterbury Maps and Retrolens; and
- Other publicly accessible reports or information.

In addition to the desktop review, a site visit was undertaken by ecologists to assess freshwater, terrestrial, and fauna habitat values.

8.6.2 Construction effects

In relation to herpetofauna and permanent loss of habitat, rank grassland provides habitat for southern grass skink and is classified as ecologically significant under the Canterbury RPS and Selwyn District Plan: Eco-Schedule 1 (Criteria 4).

The identified areas of potential habitat are part of contiguous stretches of similar habitat types. The portions of habitat that are to be impacted are currently at the edges of the contiguous habitat and are largely located within the bounds of the existing NZTA and KiwiRail designation. As such, any effects relating to loss of habitat will be less than minor, particularly when considering the scale of habitat already within designation boundaries.

In relation to avifauna, the disturbance to the avifauna will be negligible. While construction-related noise and movement, as well as human traffic can lead to disturbance of native fauna working at and on the Project site, it is expected that a mobile species like the swamp harrier, silver eye and fantail will be able to retreat to other available and connecting habitat in the wider surroundings once works commence. Furthermore, a baseline level of disturbance already exists from the vehicle traffic along SH1, Dunns Crossing Road, and Walkers Road.

8.6.3 Operational effects

Planting of vegetation within the Project area, namely the stormwater areas, and roadside plantings as part of the stormwater infrastructure design is likely to result in positive effects relating to increased vegetation diversity. The areas where this is likely to occur, subject to the LMP, are as follows:

- Between Walkers Road, Runners Road, and the northern leg of the roundabout.
- Between Dunns Crossing Road and the southern leg of the roundabout.

Although amenity and stormwater plantings are not considered typical ecological mitigation, these aspects of the Project will increase the extent of vegetation types within the Project corridor and over time, will provide habitat for native avifauna and resulting in an overall positive effect.

8.6.4 Recommended measures to avoid, remedy or mitigate potential adverse effects

A LMP be prepared at Outline Plan stage and will identify specific actions to protect lizards and their habitats during the construction and operational phase of the Project.

The LMP will be prepared by a suitably qualified specialist and will be consistent with DOC guidelines⁵. Ongoing engagement with DOC will occur and should lizards be located during the lizard survey; a Wildlife Permit will be sought for handling and relocation.

8.7 Stormwater

An Assessment of Stormwater and Flooding Effects for the Project is included in Appendix L. This section provides a summary of the stormwater assessment, including the methodology applied and the recommended measures to manage effects. Stormwater effects trigger the need for two regional resource

⁵ *Guidelines and model for producing management plans for New Zealand lizards (Department of Conservation Lizard Technical Advisory Group)*

consents being sought from ECan relating to operational phase and construction phase stormwater discharge. The potential and actual effects relate to:

- Water quantity
- Flooding
- Water quality
- Groundwater effects
- Construction effects

Notwithstanding the above, in relation to the NoR it is acknowledged that ineffective management of stormwater can be a district planning matter.

The design of the proposed stormwater management system has been carried out using the design philosophy, set out within Section 3 of Appendix L. As a minimum the design includes the treatment, attenuation and disposal to ground for the additional impervious area created by the Project.

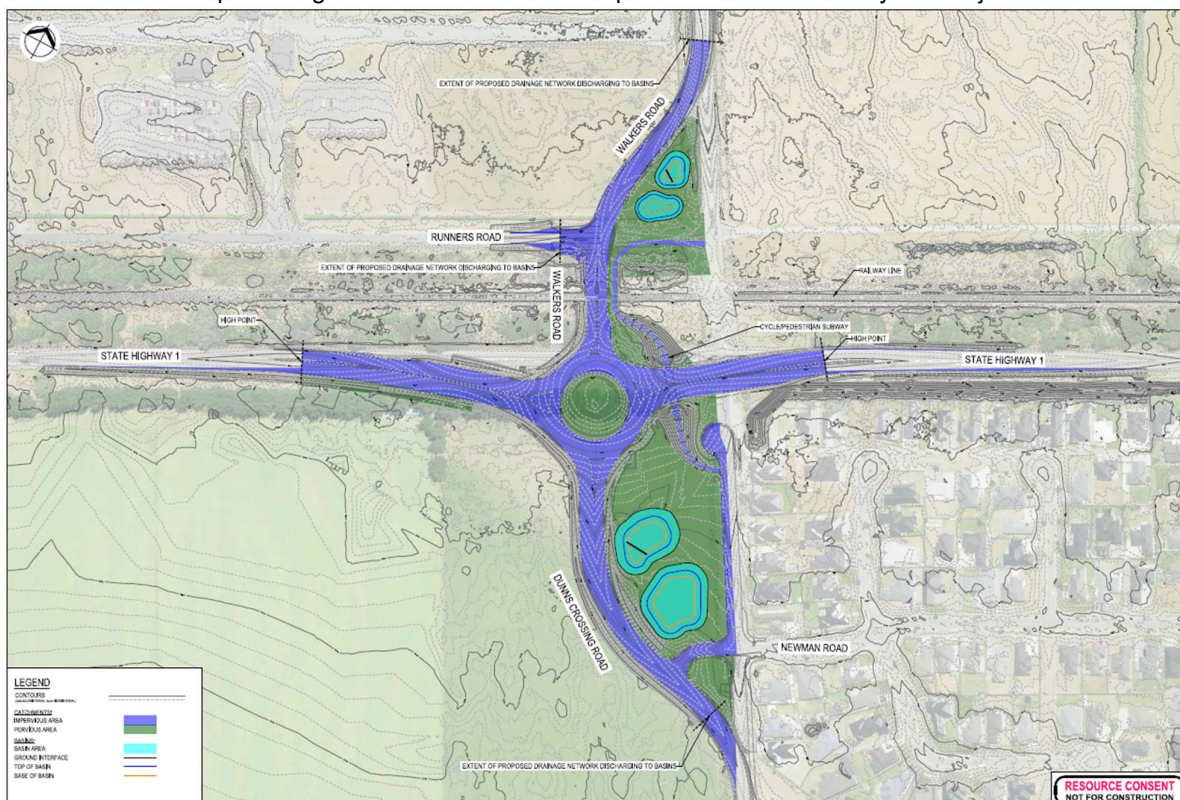


Figure 8-3 below shows the catchment areas and indicative stormwater basin locations as part of the Preliminary Design for the Package 1 footprint. The impervious areas of each catchment are shown in blue and the pervious areas shown in green. These are defined for the purpose of calculating the runoff generated from the road corridor.

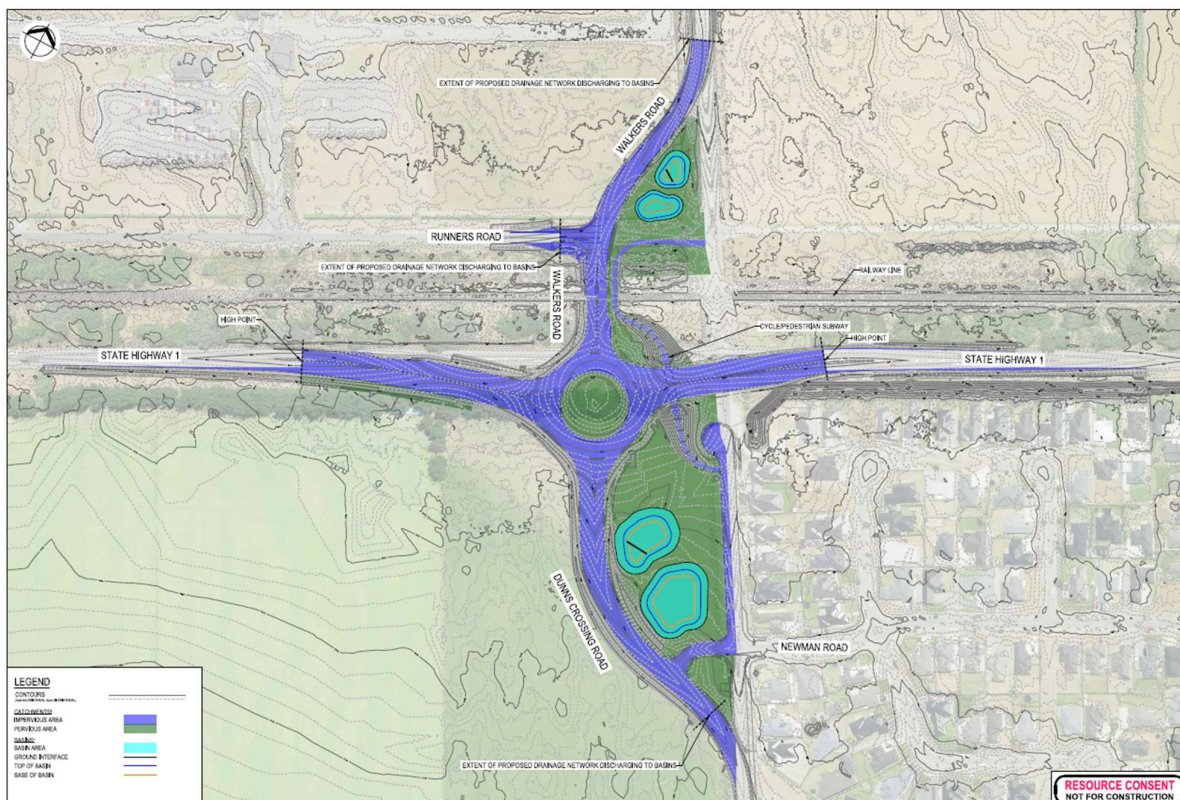


Figure 8-3: Project area, catchment areas and indicative stormwater basin locations

8.7.1 Assessment methodology

A number of design standards and guidelines have been used in the development of the stormwater design for the Project to manage effects. The design philosophy is outlined in Section 3 of Appendix L.

During construction, there is the potential for adverse effects to arise from discharges of sediment from earthworks during road construction, and from construction of pipes, culverts, swales and stormwater basins. Earthworks activities will be managed through proposed erosion and sediment control (**ESC**) measures. These will use the methods best practicably available to minimise erosion, sedimentation and dust generation. The fundamental principles of good E&SC practice for the Canterbury region are:

- Control run on water.
- Separate 'clean' water from 'dirty' water.
- Protect the land surface from erosion.
- Minimise sediment leaving the site.

As discussed in Section 2.1, the Project footprint and surrounding area is relatively flat and low lying. Run-on to site is unlikely to be an issue due to the localised levels and relatively limited cross-catchment area. Walkers Road, Runners Road and Dunns Crossing Road all have some catchment areas which currently discharge towards the Project footprint. There are existing soak-pits within the Project footprint, some of which will be removed and some which will remain.

Soils are generally free draining to the gravel layers below and the groundwater level is sufficiently deep so that natural drainage is likely to occur across most of the site. Dewatering is not expected to be required for the Project, however, if required, this would be disposed of in a manner which manages erosion and sediment.

Construction runoff will be able to be effectively managed within the Project area. This could include adapting a long-term stormwater management system (e.g. swales) for erosion and sediment control purposes (e.g. establishing bunds along the swales), but not the basins. It is important that construction

runoff and erosion and sediment devices are kept clear of the proposed first flush infiltration basins, soakage basins, and soak pit sites, to protect the underlying ground from clogging.

There will be no adverse effects on neighbouring properties or road reserve associated run-off during the construction period.

8.7.2 Operational effects

Water quantity

The additional impervious areas constructed as part of the Project will increase stormwater runoff. If not managed appropriately, this has the potential to:

- Increase peak discharges to surface water, potentially causing erosion and increasing flood levels.
- Increase the volume of water discharged to surface water during the critical duration event for the catchment, increasing flood levels.

There are also existing flow paths across SH1 in the Project area, as shown by SDC's flood modelling. The upgraded alignment crosses these flow paths. This has the potential to block the existing flow paths, increasing flood levels, or diverting the flow paths, changing the flooded area.

Water quality

The Project may result in additional contaminant loads from vehicular traffic, littering, pavement and landscape activities. The main contaminants will be gross pollutants (litter), suspended sediments, heavy metals (including zinc and copper from vehicle wear), hydrocarbons, and to a lesser extent nutrients. If not managed there is the potential for additional contaminant load to have a negative effect on the receiving environment (i.e. the local groundwater).

Discharge to Ground and Groundwater Effects

As stormwater system for the Project discharges to stormwater to ground at basins and soak pits, this has the potential to locally increase groundwater levels and affect nearby groundwater users.

As part of the site investigations, the local water table has been identified at depths greater than 10m below ground level at the Project site. Soakage from basins is therefore expected to be subject to at least 8m vertical unsaturated flow through the vadose zone from the soakage basins (assuming basin depth of less than 2m). At the subway, the soakage is expected to occur at depths of approx. 4.0m below existing ground level, with at least 6.0m vertical unsaturated flow before the infiltrated water reaches the water table.

The discharge of stormwater to ground via soakage will locally raise the water table, however the mounding at the water table is likely to be delayed, and of lesser magnitude than the peak flooding event at the basin, due to the soakage through the unsaturated land. For example, an event resulting in 1m deep water in the basin would result in less than 1 m mounding at the water table, with the peak level at the water table likely occurring hours to days later than the peak level in the basin.

Currently local groundwater is recharged by soakage from rainfall events. The proposed basins will not increase the total volume of water infiltrated to the water table but will redirect it to infiltrate over a smaller area (i.e. at the basins and soak pits). This will locally raise the water table directly under the basins and soak pits, and then as pressures equalise, result in a groundwater level change comparable to current groundwater level response to rainfall events, i.e. within the seasonal range.

As such, effects on groundwater levels due to the proposed soakage basins are expected to be localised, and short term, with no long-term effects on groundwater levels in the area. No effects on water availability are anticipated at any nearby bores due to the net neutral change in water soakage.

Potential effects on drinking water supplies have also been considered, noting the Project area and associated stormwater infrastructure does not fall within any Community Drinking Water Protection zones (CDWPZ) nor are there any bores within the Project area. Notwithstanding this, there is a small community supply bore at Rolleston Prison (M36/4459) located north of the site. M36/4459 is 55m deep (with no screen information given). This bores location and its associated CDWPZ is shown below in Figure 8-4.

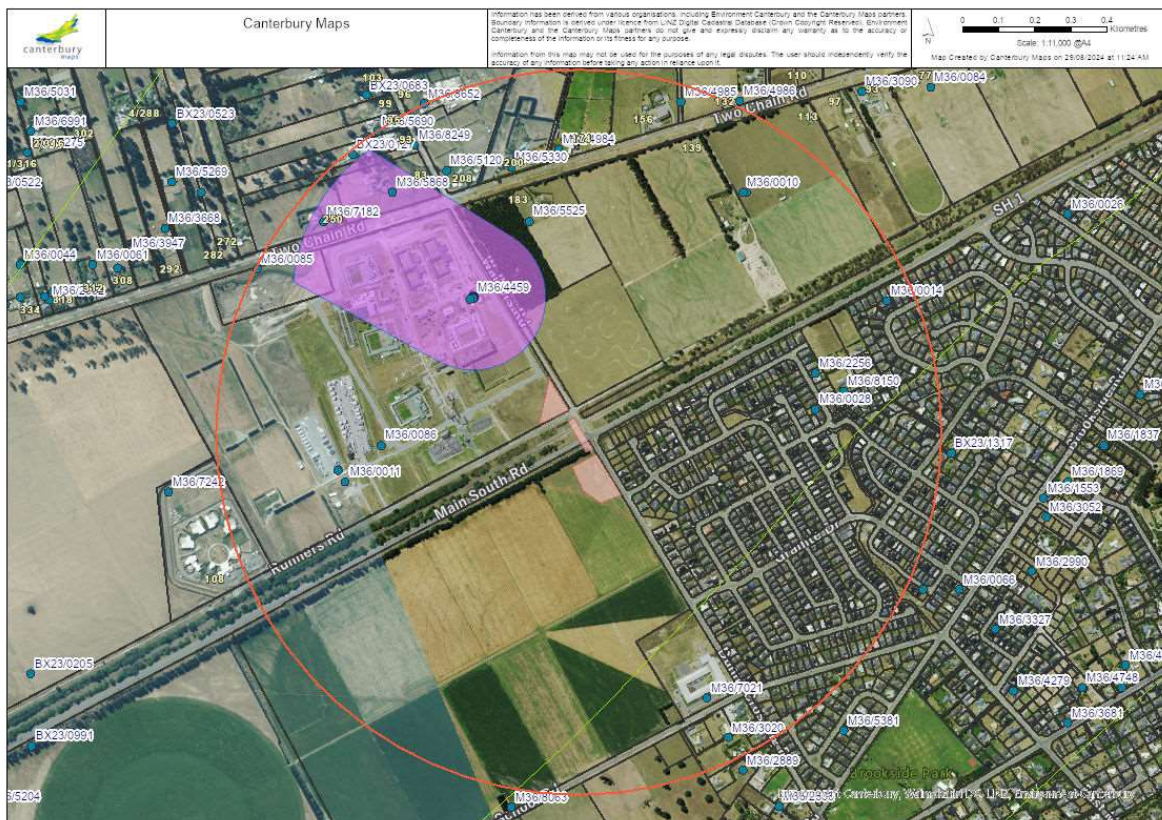


Figure 8-4: Approximate Project soakage locations (red polygons), 1km radius (red circle), nearby bores, community water supplies and protection zones (purple) and regional piezometric contours showing groundwater flow direction (in green).

The ECan Wells database indicates that the bore is only used for emergency supply, and that the prison is connected to the Rolleston water supply.

The Walkers Road soakage basin is outside the CDWPZ for M36/4459, is located down gradient of the bore, and there presumably is at least 50m vertical offset between the soakage basin and the bore intake. Therefore, no adverse effects are expected at this bore.

8.7.3 Recommended measures to avoid, remedy or mitigate potential adverse effects

Construction phase mitigation

During construction, the potential discharge of sediment during construction will be avoided, remedied, or mitigated via the preparation and implementation of an Erosion and Sediment Control Plan (**ESCP**). To achieve this the ESCP may employ various ESC measures including:

- Construction staging to limit stripped/open areas and stabilising surfaces as soon as practicable.
- Diversion of run-on water.
- Silt fences.
- Decanting earth bunds.
- Sediment ponds.
- Construction soakage basins – not in locations where long-term soakage is proposed.

Water quantity mitigation

Once operational effects on water quantity of the Project will be managed through attenuation and soakage to ground. The proposed Project stormwater system includes attenuation basins and soak-pits with discharge to ground (via soakage), mitigating the water quantity effects. Stormwater runoff from an

area equivalent to at least the additional impervious area of the Project will be discharged to ground, up to the 1% AEP event.

Stormwater runoff will be collected and conveyed to stormwater basins or soak pits. Stormwater attenuation will be provided in the soakage basins (and in some locations, soak pits) which discharge to the ground below the basins (or soak pits). Attenuation storage in the basins (or soak pits) provides a buffer between the inflow of runoff into the basins (or soak pits) and the discharge to ground via soakage.

The basins and swales will be located and designed so that during a larger than 1% AEP design event stormwater will follow the existing overland flow paths.

With regard to the existing flow paths across SH1, runoff from the cross-drainage catchments up to the 1% AEP event will be captured and conveyed (within the footprint of the Project) before being discharged into the existing overland flow route (that it currently travels on).

The Project cross-drainage stormwater management system is proposed to include a series of swales, inlets, and culverts/pipes to capture and convey these overland or flood flows across the highway. The cross-drainage system will be designed to manage the 1% AEP critical duration event without increasing flood levels or extents of flooding outside the designation or NTZA land.

Due to the proposed stormwater management system and cross-drainage system described above, the water quantity and flood risk effects for the Project will be less than minor.

Water quality mitigation

During operation of the Project, effects on water quality will be mitigated through capture of first flush runoff and treatment via infiltration (also called biofiltration) through a designed sand media. The proposed Package 1 stormwater system includes first flush basins for infiltration treatment of first flush stormwater, before soakage to land, to mitigate these effects.

Swales have been provided where space allows. While the swales have been designed for conveyance purposes, and are not part of the formal treatment design, they will provide some pre-treatment before the first flush infiltration basin (i.e. treatment train).

There are small sections of new impervious area at the extremities of the Project footprint that are not able to be conveyed to the first flush infiltration basins. This is because the proposed highway vertical alignment and the distance from the proposed basins means that stormwater from these areas is unable to drain to the basins. Stormwater from these areas will run off the road over the grass berm, as stormwater from the existing adjacent road does. This will provide some treatment (from filtration through the grass berm) prior to discharge to land, either via infiltration through the berm or an existing soak pit.

The proposed stormwater design for the Project includes first flush treatment of larger area than the increase in impervious area across the Project footprint. As such, the water quality effects for the Project will be less than minor.

8.8 Air Quality

The Assessment of Discharges to Air Report has been prepared by Beca and is included in Appendix M.

The actual and potential construction and operational air quality effects associated with the Project and measures to manage these effects are mostly a regional matter and will be addressed in detail in the resource consent sought from ECan relating to the siting of construction stockpiles.

Discharges to air will occur during construction of the Project, as well during the operation of the completed transport network. These discharges can have potential health and amenity effects. The existing residential dwellings located adjacent at 388 - 406 Dunns Crossing Road (and 1 Newman Road) are the nearest sensitive receptors to the Project.

Air quality at these receptors is currently impacted by vehicle emissions from existing road traffic and it is noted that the proposed road corridor for the Project will be setback a greater distance than existing thereby having a positive effect on air quality for the owners and occupiers of the aforementioned properties.

8.8.1 Assessment methodology

The methods for the assessment of construction effects are summarised as follows:

- Analysing the Good Practice Guide for Assessing and Managing Dust (2016) (GPG Dust).

The methods for the assessment of operational effects are summarised as follows:

- The AERMOD (v23132) dispersion model has been used to predict the downwind concentration of contaminants emitted from motor vehicles.
- The air impact has been assessed by comparing the predicted maximum contaminant concentrations against relevant air quality criteria concentrations.
- Separated dispersion models have been constructed for the Package 1 and Package 2 projects areas.

8.8.2 Construction Discharges to Air

The primary discharge to air during construction is dust (particulate matter). The emitted dust has the potential to have adverse nuisance effects at the adjacent residential properties. The risk of dust nuisance effects being experienced at these properties, when no dust mitigation is implemented, is assessed as being low to medium (based on the CASANZ⁶ classification of dust risk for motorway projects).

As discussed in the Air Quality report in Appendix M, the risk of an amenity effect decreases with increasing separation distance. At distance of 50m or more the risk is expected to be low. Potential adverse dust effects will be minimised by implementing standard dust control procedures such as watering. Provided these procedures are maintained any discharges during construction will be less than minor.

Dust control procedures in the Project area will be implemented through the Dust Management Plan (DMP). The DMP will be compliant with Schedule 2 of the CARP and consistent with guidance provided by the MfE GPG Dust.

8.8.3 Operational Discharges to Air

Air contaminants are discharged to the atmosphere from motor vehicles when travelling on roads. While the primary discharges are from the combustion of petrol and diesel, discharges of particulate matter also occur from brake and tyre wear.

During operation of the new roundabout and associated transport upgrades, the primary discharges to air will likely be vehicle emissions. Figure 8-5 below shows the location of the residential dwellings which have been considered. These receptors have been grouped into Receptor Area 1 and Receptor Area 2.

⁶ CASANZ, 2023. *The Good Practice Guide for the Assessment and Management of Air Pollution from Road Transport Projects*.

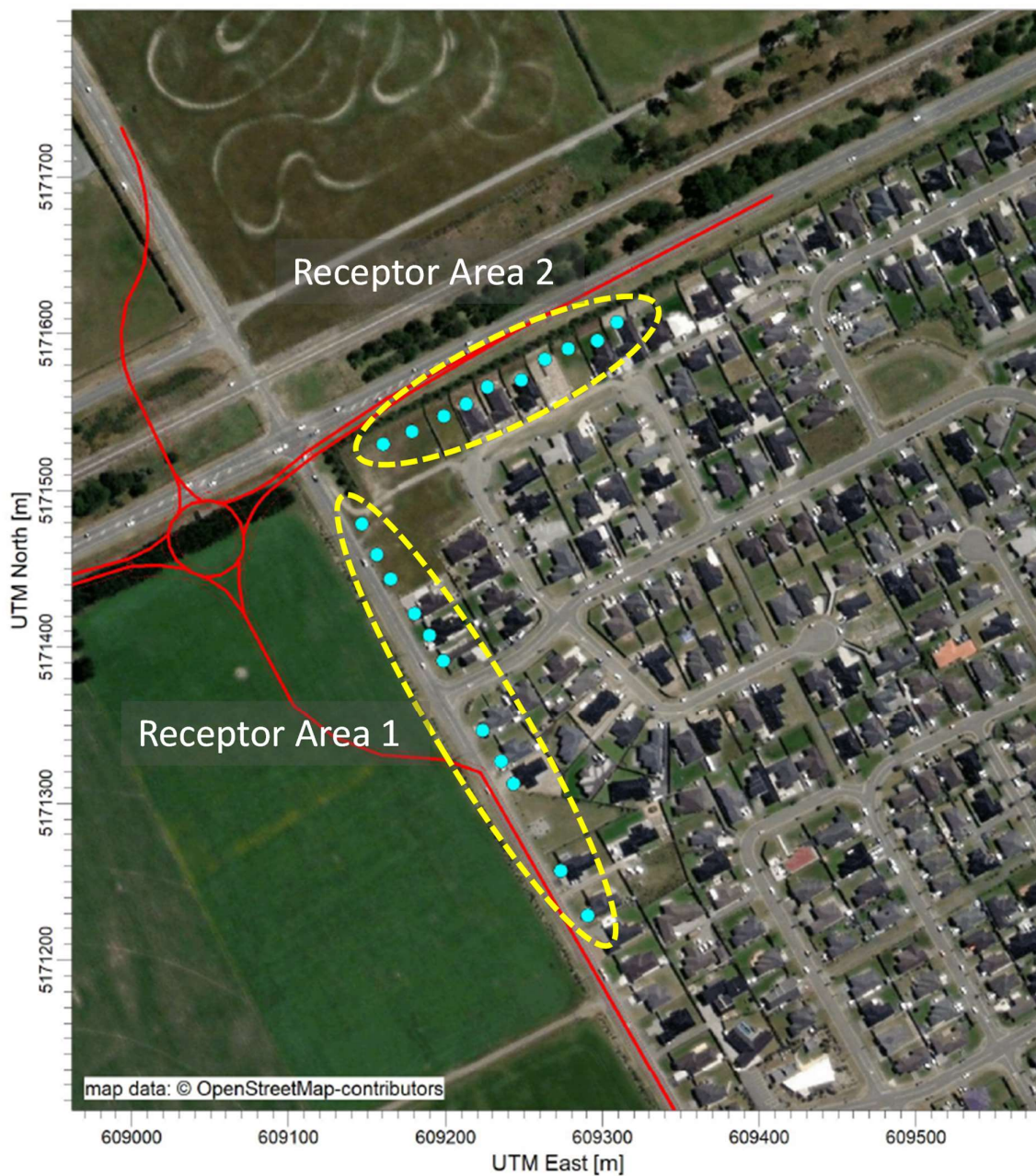


Figure 8-5: Package 1 location of sensitive receptors

The modelling results outlined in the Air Quality assessment demonstrate that the ambient air contaminant concentrations are unlikely to exceed the relevant air quality concentration criteria limits at any existing sensitive receptor in the Project area.

Vehicle emission rates are predicted to decrease over time as the emission performance of the national vehicle fleet improves, including the move to electric powered vehicles. Therefore, the contribution from vehicle emissions to ambient air contaminant concentrations in the Project area are also expected to decrease over time, as the emission performance of vehicle fleet improves, even though some increase in traffic volumes is predicted.

The potential air quality effects of the Project are predicted to be comparable to those associated with the 'do minimum' traffic scenarios. Overall, the results indicate that vehicle emissions from the project would not have an adverse health or environmental effect.

8.8.4 Construction effects

The potential discharge to air effects, anticipated during construction, relate to the risk that the residential dwellings at 388 - 406 Dunns Crossing Road (and 1 Newman Road) experience dust effects unless appropriate mitigation is implemented.

8.8.5 Operational effects

It is acknowledged that the potential discharge to air effects anticipated during operation of Project of this type relate to discharge of air contaminants from motor vehicles which have potential adverse health effects where people are exposed to contaminant concentrations which exceed ambient air criteria over the prescribed averaging period. Based on the scale of this Project and the findings discussed in the Air Quality assessment, the operational effects of the Project would not have any adverse health or environmental effects.

8.8.6 Recommended measures to avoid, remedy or mitigate potential adverse effects

The Project is proposed to provide and implement a DMP which is compliant with Schedule 2 of the CARP and consistent with guidance provided by the MfE GPG Dust.

Preparation of, and adherence to, a DMP will appropriately mitigate potential adverse effects on air quality associated with the temporary stockpiling of construction materials within 100m of the sensitive receivers on Dunns Crossing Road and Newmans Road.

8.9 Archaeological and Heritage

An Archaeological Impact Assessment (**AIA**) and Heritage Impact Assessment (**HIA**) for the NoR is included in Appendix N, prepared by Underground Overground Archaeology (**UOA**). This section provides a summary of the assessment, including the methodology applied and measures to manage effects.

The results of the archaeological research found that the Project area is located at least 2.5 km from any previously recorded archaeological sites. The historical research indicates that the area was predominantly pastoral in use well into the 20th century, with no evidence for pre-1900 occupation likely to result in archaeological remains. The exception for pre-1900 occupation in the affected parcels is related to the first Rolleston railway station and associated buildings, first constructed in the 1860s. Although some of the parcels to be affected by the proposed works are within the former rail reserve, the proposed works are outside the area of the pre-1900 railway station, and no evidence was found that pre-1900 archaeological remains would be encountered during works. As such, it is unlikely that the Project works will affect unrecorded archaeological sites. Likewise, this assessment has not identified any significant heritage places that will be impacted by the Project.

8.9.1 Assessment methodology

UOA consulted numerous sources of documentary evidence in order to determine the historical context of the Project area. Archaeological and heritage research undertaken for the AIA and HIA included reviewing the following:

- ArchSite.
- New Zealand Heritage List/Rārangī Kōrero.
- CCC District Plan.
- Ngāi Tahu Kā Huru Manu website.
- Mahaanui Iwi Management Plan, 2013 (Silent files).
- W.A. Taylor's (1952), *Lore and History of the South Island Maori*.
- Historical maps of Canterbury.
- Historical aerial imagery.
- Historical photographs.
- Christchurch City Library name indices.
- Historic newspapers.
- Canterbury Deeds Indexes.
- Certificates of title.

- Deposit plans and survey office plans.
- Local documentary resources.

This was followed by a site visit to assess the results of the research and to determine if any unrecorded archaeological sites or heritage items were visible. The survey was limited to publicly accessible areas and was a surface assessment only; invasive techniques such as probing, and test pitting were not used due to the high likelihood of services being present near the roads.

8.9.2 Construction effects

Across the Project area, there is potential for unrecorded archaeological and heritage sites to be encountered during construction. This will be managed through the implementation of an ADP throughout the course of construction.

8.9.3 Operational effects

No potential or actual operational effects on archaeology and heritage have been identified through the Archaeological Impact Assessment and Heritage Impact Assessment.

8.9.4 Recommended measures to avoid, remedy or mitigate potential adverse effects

An authority under the HNZPTA is not required based on the current scope and location of the Project. The Project works will take place in accordance with Accidental Discovery Protocol (**ADP**). In the event of archaeological discoveries works will cease and Heritage New Zealand Pouhere Taonga (**HNZPT**) and an archaeologist will be contacted.

8.10 Lighting Effects

A Lighting assessment for the NoR is included in Appendix O. This section provides a summary of the assessment, including the methodology applied and measures to manage effects.

Lighting is proposed at and adjacent to the Project to clearly identify the proposed roading infrastructure, to illuminate the road corridor, changes in alignment, road surface markings and kerb locations, as well as to illuminate any stalled or stationary vehicles. Pedestrian subway and shared path lighting is proposed in specific locations.

Luminaires used in the design, and the design itself meet the requirements NZTA M30, and AS/NZS1158 series of standards. Luminaires are generally pole mounted at a height of 14m above ground level, and aimed away from residential units, providing less glare and spill light than might otherwise be observed.

AS/NZS 1158 requires a Threshold Increment (glare control) below 15% and Upward Waste Light Ratio (**UWLR**) shall not exceed 1%. Because of these factors, and the use of full cut-off luminaires, the effects of glare, unwanted spill light, and upward waste light (that would contribute to sky-glow) on the environment will be less than minor.

Along the majority the Project, there are buffer distances between the road carriageway and the adjacent residential properties, and this will assist in mitigating any effect of headlights on the owners and occupiers of the existing residential units on from 388 Dunns Crossing Road to 406 Dunns Crossing Road and 1 Newman Road. The effects from headlights will be less than minor because the vehicles will not generally be moving directly towards aforementioned residential properties.

Any additional landscape planting proposed between the proposed road corridor and residential properties will offer additional visual barriers that will further reduce the lighting effects.

8.10.1 Spill lighting

Light spill, which occurs when light extends beyond intended boundaries, can be either intrusive or beneficial depending on the situation. While excessive light spill can disturb residents and transportation users, it is sometimes necessary for safety, particularly on state highways, arterial roads and subways to illuminate users of footpaths and shared paths for vehicular road users.

The indicative lighting design shows that there will be no adverse light spill effects at the windows of adjacent residential properties from 388 to 406 Dunns Crossing Road and 1 Newman Road. The modelled results from the indicative lighting design of spill lighting at existing residential windows along Dunns Crossing Road are below the permissible limits noted within AS/NZS4282:2023 after curfews.

Based on the assessment, given the requirements of the Standard and the Guideline are met, the spill lighting levels on neighbouring residential properties will be less than minor.

8.10.2 Headlight sweep

Headlight sweep refers to the movement of a vehicle's headlights as the vehicle approaches, passes, and moves away from a particular point. This sweeping motion of light can momentarily brighten areas not illuminated by fixed lighting, such as the sides of roads or adjacent properties.

It is anticipated that effects from headlights are most likely to affect existing residential properties on Dunns Crossing Road and Newmans Road when headlights are directed toward a dwelling. Where headlights are visible from passing traffic, with headlights oriented at obscured angles, the effects would be less than if headlights were directed towards the existing residential units from 388 to 406 Dunns Crossing Road and 1 Newman Road. Within the Project area, there are buffer distances between the proposed road and the adjacent residential properties to the east on Dunns Crossing Road, this will further assist in mitigating the effect of headlights.

The separation distance between the Project and existing residential properties from 388 to 406 Dunns Crossing Road, in conjunction with the circular nature of the roundabout, will minimise light from headlights beyond the proposed SH designation. As such, any effects associated with headlight sweep on existing residential units on Dunns Crossing and Newmans Road will be less than minor.

When considering PPC73, it is acknowledged that the roundabout may result in headlight sweep for future dwellings. Based on the separation of the roundabout from future residential properties as identified in the ODP for PPC73, the distance between the roundabout and future residential properties is such that any effects would be less than minor.

8.10.3 Glare

Glare is the brightness of a luminaire when compared with the brightness of the background against which the luminaire is visible. For example, a road luminaire looks brighter (and has higher glare) when viewed against a dark sky than when viewed in the surroundings of an illuminated urban environment. There are two forms of glare:

- Disabling glare; and
- Discomforting glare.

The light technical parameter used in the Standard and the Guideline is Threshold Increment (**TI**), which is “a measure of the loss of visibility caused by the disability glare from the road lighting luminaires”. The indicative lighting design carried out for Package 1 shows that the TI achieved by the design is well within the limits specified in both the Standard and the Guideline.

Given the separation of the road carriageway and therefore the lighting from the closest existing residential units at 388 to 406 Dunns Crossing Road and 1 Newman Road or future residential properties within the current PPC73 site, the glare effects from the road lighting can be controlled to the point where these effects will be less than minor.

Similarly, when considering PPC73, it is acknowledged that the lighting proposed for the roundabout may be perceived to have glare effects on future dwellings. Based on the separation of the roundabout from future residential properties as identified in the ODP for PPC73, the distance between the roundabout and future residential properties is such that any effects would be less than minor.

8.10.4 Construction lighting effects

Temporary flood lighting for construction activities, where installed adjacent to residential areas, may require glare and spill light control. This lighting has not yet been designed and will be considered through a Construction Management Plan however it is anticipated that this lighting will be fully compliant with the

requirements of POSDP rules for obtrusive light and the relevant clauses of the Australian Standard (AS 4282).

Mitigation of adverse effects relating to temporary construction lighting will be achieved with cut-off luminaires, sunshade cloth screening and through achieving appropriate setbacks from the residential properties at 388 to 406 Dunns Crossing Road, and 1 Newman Road who are considered sensitive receivers. Construction lighting is usually relatively transitional and will be reduced with careful location of any on-site offices and equipment in relation to the residential area.

8.10.5 Recommended measures to avoid, remedy or mitigate potential adverse effects

As any potential and actual effects are less than minor, and the proposed lighting complies with the relevant standards, no specific mitigation measures are required.

8.11 Network utilities

Due to the siting of the Project, there are a number of network utilities from various providers that will be temporarily or permanently affected as a result of the works as outlined in Table 8-4.

Table 8-4: Network utilities

Network Provider/Type	Utility matters
SDC – Water Supply	Existing water services are not expected to be impacted with the main services corridor located on Walkers / Dunns Crossing Roads and Runners Rd.
	SDC are in the process of installing a new 560mm diameter PE water main from Izone Drive along Jones, Two Chain and Walkers Roads with a connection to Runners Rd main.
	Provision has been made for an adjacent second 560mm diameter main in the future. Two 750mm ducts are to be installed under Two Chain and Walkers Road rail crossings and trenched under SH1 between Walkers and Dunns Crossing Roads. Connections to Dunns Crossing Rd are presumed at a later stage.
	Potential to upgrade Runners Rd water supply (100mm PVC to 150mm PE) throughout length of NZTA works to save digging up the pavement in the future.
SDC - Wastewater	Existing wastewater services are not expected to be impacted with the main services corridor located on Walkers / Dunns Crossing Roads and Runners Rd.
Orion NZ Ltd - Power	Overhead services including 66kV will be compromised by the roundabout alignment.
	Discussions to date with Orion have identified that SH1 overheads will be undergrounded through the length of roundabout project while the 66kV overheads on Dunns Crossing / Walkers Rd could remain as overhead, subject to alignment and new poles.
	New ducts will be required under SH1 and the rail tracks. Orion have identified an alignment following the new design.
	There is insufficient cover for cables to cross above the subway and alternatives such as shallow protected services or trenching across the pedestrian ramp area have been suggested.
	Further underground services may be compromised by new road alignments – Orion to carry out assessment by their designers.

	A new power supply will be required for the KiwiRail road crossing infrastructure.
	A concept proposal for undergrounding and relocation of overhead cables has been received.
Chorus	Existing services in the SH1 corridor will be compromised by the roundabout and subway. Chorus have proposed to make these services redundant.
	Existing services in Runners and Walkers Rd remain and a Chorus cabinet on the east side of Walkers Road will still be critical infrastructure. A relocation design has been received for Runners Rd.
	Existing Dunns Crossing / Walkers Roads alignment remains as an important service corridor.
	Construction costs (Approx. \$40k excluding GST) and design have been received.
One NZ	The main trunk fibre in the SH1 corridor will be compromised by the roundabout subway excavations. This service requires a major network relocation to minimise introduced joints. The proposed new cable and relocation route will include Two Chain/Walkers and Runners Rd joining to SH1 south of the Dunns Crossing Rd. We have received a design sketch, and we are waiting for construction costs. The alignment runs on the NE side in Corrections previous land, and a rail crossing will be required (location to be confirmed).
Enable	There are ducts in Runners Rd and Dunns Crossing Rd which do not appear to be affected by NZTA works. Standover by Enable has been identified by Enable when working in these areas.
	The existing ducts appear to end without any service connection near Runners / Walkers intersection and Enable have been queried about any further works likely in this area. Additional futureproof ducts have not been requested by Enable at this stage.
KiwiRail	A new Orion power supply will be required to KiwiRail for the rail crossing infrastructure.
	SDC are currently installing a new crossing watermain under rail (and SH1) on existing Walkers Rd.
	New Orion services crossing required at the new road crossing alignment.
	New One NZ rail crossing required – location to be confirmed.

Ongoing engagement will be undertaken with network utilities providers as the Project progresses. This will minimise potential adverse effects on services throughout the construction and operational phase of the Project.

8.12 Effects on Cultural Sites, Landscapes and Values

8.12.1 Manawhenua Partnership

As outlined at Section 4.3 of this AEE, the Project Team has engaged and worked collaboratively with mana whenua as Project partners throughout the business case process and into the preliminary design phase. This engagement has taken place with the Cultural Advisory Group (**CAG**) forum over the past 3 years at a Project-specific level since the commencement of the DBC process in 2021.

The CAG is a forum for mana whenua to provide advice and guidance on cultural matters, relating to Māori values, heritage, and tikanga (customs and practices), in the context of transport projects and policies. The group advises on projects under NZTA's jurisdiction in order to respect and incorporate

Māori worldviews, particularly in areas where transport infrastructure may intersect with culturally significant sites, landscapes, or communities.

NZTA acknowledge Ngai Tahu (iwi), Ngai Tūāhuriri and Te Taumutu (rūnanga) have a direct interest in the Project area and are a partner in the Project. During the DB, the partnership with mana whenua included the following:

- Participation in workshops with project teams to inform the investment logic mapping process, and the constraints mapping process;
- Attendance on site visits with project teams and specialists;
- Participation in option development and assessment (MCA) workshops, subsequently reflected in the Assessment of Alternatives (as discussed in Section 4); and
- Feedback through the CAG forum noted above.

During the NoR process and the preparation of this AEE, the partnership with mana whenua includes the following (in addition to the above):

- Request to prepare the Cultural Advice Report (CAR).
- Attendance at the CAG form.

Mahaanui Kurataiao Limited (**MKT**) have prepared a CAR, attached in Appendix P. MKT have acknowledged that the Project is within the catchment of Te Waihora, a tribal taonga representing a major mahinga kai and an important source of mana. MKT have advised that a review of the land tenure in the proximity of the Project has not identified Māori Reserve Land however recommended NZTA undertake investigation to ensure no further confiscation of Māori land will occur because of the proposed works.

8.12.2 Recommended measures to avoid, remedy or mitigate potential adverse effects

MKT have categorised the potential areas of concern into three main categories - earthworks and potentially contaminated land; discharges of stormwater to land and contaminants to air; and Cultural landscape, indigenous biodiversity, and ecology.

MKT recommended the following mitigation measures:

1. *An erosion and sediment control plan should be in place during all earthworks and until such time as all exposed soils have been stabilized.*
2. *Where indigenous plants need to be removed, they should be replaced like for like.*
3. *Indigenous planting is required to increase indigenous habitat in the takiwā and enhance the cultural landscape.*
4. *Stormwater should be treated prior to discharge to ground to ensure groundwater is not impacted by stormwater containing contaminants. Treatment for heavy metals should be included in the treatment train.*
5. *The use of flocculants is discouraged as residual chemicals can be toxic to indigenous species.*
6. *There should be a suitable minimum distance between the bottom of a soak pit or soakage pond and the maximum groundwater table.*
7. *Contaminated material should be removed from the site and disposed of at a licenced facility.*
8. *An ecologist should survey the site for taonga/indigenous species. If taonga/indigenous species are found works should be undertaken under the supervision of an ecologist.*
9. *Natural landform features such as river rifts and waipuna (springs) should be retained, protected and enhanced with indigenous planting where practical.*
10. *Mana whenua advocate for the retention, protection and enhancement of waterways including drains and water races.*
11. *An accidental discovery protocol should be in place during all earthworks, and it may be appropriate to have a cultural monitor onsite during earthworks to ensure that there is a procedure in place in the case of archaeological discovery.*
12. *There should be a dust management plan in place during the works phase and until such time as exposed soils have been stabilised and stockpiles have been removed.*

The proposed conditions of designation include the preparation of a CEMP, LMP and adherence to an Accidental Discovery Protocol. Additionally, where possible, locally sourced and indigenous vegetation will be incorporated.

8.13 Overall conclusion on effects

The Project will significantly improve safety and connectivity of the state highway through Rolleston. Key positive effects include the conversion of the high-risk SH1 / Dunns Crossing Road / Walkers Road intersection into a roundabout, which will address its crash history and provide safer connectivity for road users.

Upgrades to the level crossing, developed through engagement with KiwiRail, will provide for additional queuing space for vehicles, improving safety by reducing the risk of near misses with trains. The Project provides for travel choices through the proposed subway which enables safe movement of pedestrian and cyclists across the state highway which addresses existing severance issues between north and south Rolleston.

While there are impacts on some private properties, the Project results in numerous positive effects benefiting the community by providing for a safer and more reliable SH1 corridor, enhanced walking and cycling facilities, and noise reductions for select properties near Dunns Crossing Road. Additionally, the Project does not inhibit future development by maintaining capacity for future infrastructure. As such, these improvements contribute to a safer and more connected transport network for Rolleston and the Selwyn District.

The assessment of the Project concludes that the majority of the actual and potential adverse effects on the surrounding environment will be less than minor and can be suitably mitigated.

A summary of measures incorporated in the design and proposed to manage adverse effects is provided in Table 8-5:

Table 8-5: Summary of measures to manage adverse effects of the proposed work

Effect	Key measures to manage adverse effects
Traffic and Transport	Ongoing engagement with the community; preparation and implementation of a CTMP; and considered sequencing of the stage of works as to minimise adverse effects associated with diversions.
Landscape and Visual	Preparation and implementation of a ULDF to achieve landscape design outcomes which will be incorporated into an LMP
Noise and Vibration	Implementation of a CNMVP for the duration of the construction period; engagement with nearby residents during construction; installation of temporary noise barriers and avoidance of night works where possible and minimise where practicable to do so.
Terrestrial Ecology	Undertake a Lizard survey, preparation and implementation of Lizard Management Plan and preparation of a Wildlife Act Permit, if required.
Stormwater	Preparation and implementation of a ESCP and first flush treatment for discharges.
Air Quality	Preparation and implementation of a DMP which is compliant with Schedule 2 of the CARP and consistent with guidance provided by the MfE GPG Dust.
Archaeological and Heritage	Ongoing engagement with mana whenua and adherence to an Accidental Discovery Protocol
Lighting	Minimised light spill, sky glow, and incorporated within lighting design

Property and Access	Ongoing engagement with nearby property owners and residents throughout the construction phase of the Project
Network utilities	Ongoing engagement with network utility providers throughout the detailed design, construction and operational phase of the Project.
Cultural values	Ongoing engagement with mana whenua; preparation and implementation of an ESCP; adherence to an ADP; preparation and implementation of a DMP; and where possible, the use of locally sourced and indigenous vegetation.
Construction effects	Erosion and Sediment Control Plan; Construction Noise and Vibration Management Plan; and Construction Traffic Management Plan

9 NOTIFICATION

NZTA request that this s181(1) Notice of Requirement is processed on a non-notified basis.

The steps which inform a decision whether to notify the Notice of Requirement application on a limited or public basis are set out in Sections 95A – 95E RMA.

A public notification analysis against Section 95A is provided in Table 9-1 below:

Table 9-1: Public notification tests

PUBLIC NOTIFICATION TESTS – Section 95A	
Step 1: Mandatory notification – section 95A (3)	
➤ Has the applicant requested that the application be publicly notified?	No
➤ Is public notification required under s95C (following a request for further information or commissioning of report)?	No
➤ Is the application made jointly with an application to exchange reserve land?	No
Step 2: If not required by Step 1, notification is precluded if any of these apply – section 95A (5)	
➤ Does a rule or NES preclude public notification for all aspects of the application?	No
➤ Is the application a controlled activity?	No
➤ Is the application a boundary activity?	No
Step 3: Notification required in certain circumstances if not precluded by Step 2 – section 95A (8)	
➤ Does a rule or NES require public notification?	No
➤ Will the activity have, or is it likely to have, adverse effects on the environment that are more than minor (discussed above)?	No
Step 4: Relevant to all applications that don't already require notification – section 95A (9)	
➤ Do special circumstances exist that warrant the application being publicly notified?	No

In accordance with the provisions of section 95A, the NOR is not precluded from public notification. A limited notification analysis in accordance with Section 95B is provided in Table 9-2 below:

Table 9-2: Limited notification tests

LIMITED NOTIFICATION TESTS – Section 95B	
Step 1: Certain affected groups/persons must be notified – sections 95B (2) and (3)	
➤ Are there any affected protected customary rights groups or customary marine title groups?	No
➤ If the activity will be on, adjacent to, or might affect land subject to a statutory acknowledgement - is Te Rūnanga o Ngāi Tahu an affected person in this regard?	No
Step 2: If not required by Step 1, notification is precluded if any of the following apply – section 95B (6)	
➤ Does a rule or NES preclude limited notification for all aspects of the application?	No
➤ Is this a land use consent application for a controlled activity?	No
Step 3: Notification of other persons if not precluded by Step 2 – sections 95B (7) and (8)	
➤ Are there any affected persons under s95E, i.e. persons on whom the effects are minor or more than minor, and who have not given written approval (discussed above)?	No
Step 4: Relevant to all applications – section 95B (10)	
➤ Do special circumstances exist that warrant notification to any other persons not identified above?	No

This AEE for the Project is supported by technical reports relating to traffic, contaminated land, ecology, landscape and visual matters, stormwater, air quality, lighting and noise effects. In addition, consultation and engagement has been undertaken to identify potential matters of concern for mana whenua, the community, and stakeholders such as KiwiRail, SDC, Corrections and utility providers.

The assessment undertaken demonstrates that the majority of effects will relate to the construction phase, will be temporary and effects be less than minor. Permanent effects on the environment will be less than minor and appropriate mitigation will be provided as part of the proposed work to address these effects.

As such, the Project does not warrant public notification. In regard to limited notification, written agreements under s181 are being sought from all affected landowners and will be provided in due course. Similarly, s176 and s177 Written Agreements are being sought from KiwiRail and Corrections.

Should Council not be of mind to process the NoR on a non-notified basis, NZTA request that this NoR is processed on limited notified basis to the owners and occupiers of the following properties:

- Rolleston Prison - 28 Runners Road, Burnham;
- 17 Fountain Place;
- 19 Fountain Place;
- Section 2 SO 480906; and
- KiwiRail - Railway Reserve.

Limited notification is appropriate in this case, as the effects of the proposed alteration are limited to a small number of adjacent landowners as discussed throughout Section 7 of this AEE. Additionally, the Project has significant positive effects, contributing to the sustainable growth, connectivity, and well-being of both local and regional community. The Project is consistent with the outcomes sought throughout the POSDP, particularly in relation to the Strategic Directions and the Transport chapter.

10 STATUTORY ASSESSMENT

10.1 Statutory Considerations

The following sections provide an assessment of the NoR against:

- Section 171(1)(a) of the RMA;
- Section 171(1)(c) of the RMA;
- Section 171(1)(d) of the RMA; and
- Part 2 of the RMA.

It is noted that the requirements of section 171(1)(b) are addressed in Section 4 of this AEE and will therefore not be repeated here.

10.2 Section 171(1)(a) – Relevant statutory provisions

Section 171(1)(a) of the RMA requires territorial authorities, subject to Part 2 of the RMA, to consider the environmental effects of NoRs having particular regard to any relevant provisions of:

- *A national policy statement;*
- *A New Zealand coastal policy statement;*
- *A regional policy statement or proposed regional policy statement; and*
- *A plan or proposed plan.*

In accordance with section 171(1)(a) of the RMA, an assessment of the Project in the context of the relevant statutory documents has been undertaken.

Table 10-1: Relevant Statutory documents

Type of statutory provision under s171(1)(a)	Relevant Plans and Provisions
National Policy Statements (NPS)	<p>The following NPS's are considered relevant to the Project:</p> <ul style="list-style-type: none"> • National Policy Statement on Urban Development (NPS-UD)
Regional Policy Statement (RPS)	<p>The Canterbury Regional Policy Statement (CRPS) is relevant to this application. In particular, the following sections are of relevance:</p> <ul style="list-style-type: none"> • Chapter 5 – Land-Use and Infrastructure • Chapter 11 – Natural Hazards • Chapter 13 – Historic Heritage • Chapter 14 – Air Quality • Chapter 15 – Soils
Plans or Proposed Plans	<p>The LWRP, Operative Selwyn District Plan (OSDP) and Partially Operative District Plan (POSDP) are relevant to this application.</p> <p>The following sections of the LWRP are relevant:</p> <ul style="list-style-type: none"> • Section 3 – Objectives • Section 4 – Policies • Section 11 – Selwyn – Te Waihora <p>The following sections of the OSDP are of relevance:</p> <ul style="list-style-type: none"> • Culture and Historic Heritage • Outstanding Natural Features and Landscapes

- Land and Soil

The following sections of the POSDP are of relevance:

- Transport
- Natural features and Landscapes
- Urban Growth
- Natural Hazards
- Sites and Areas of Significance to Maori

10.3 National Policy Statement on Urban Development 2020

The NPS-UD came into effect on 20 August 2020 and should be considered as part of this application.

The NPS-UD provides sufficient development capacity to meet the different needs of people and communities under the RMA. The NPS-UD has eight objectives, aiming to support well-functioning urban environments across New Zealand, the objectives of relevance are included below:

Table 10-2: Objectives of the NPS:UD relevant to the Project

Objective / Policy	Description	Assessment
Objective 1	New Zealand has well-functioning urban environments that enable all people and communities to provide for their social, economic, and cultural wellbeing, and for their health and safety, now and into the future.	<p>The Project will contribute to a well-functioning urban environment that provides for improved connectivity and safety for the community.</p> <p>The existing SH and local network at the Dunns Crossing Road/Walkers Road/SH1 intersection currently experiences a number of deficiencies resulting in unsafe use of the road network. Without the Project interventions the network will continue to experience unsafe congestion and high-risk movements.</p>
Objective 4	New Zealand's urban environments, including their amenity values, develop and change over time in response to the diverse and changing needs of people, communities, and future generations.	The changing urban environment is inherently linked to the upgrading of infrastructure to support the development, including transport infrastructure. The proposed intervention will support the changing needs of the Selwyn District over time by improving connections across the state highway.
Objective 5	Planning decisions relating to urban environments, and FDSs (Future Development Strategy), take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).	The principles of the Treaty of Waitangi (Te Tiriti o Waitangi) have been taken into account throughout the Project. Mana whenua have been partnering with NZTA since the development of the Project and this will continue throughout the implementation phase.

10.4 Canterbury Regional Policy Statement

The CRPS was made operative on 15 January 2013, however it is currently under review as they draft the replacement CRPS. The Minister for the Environment has approved Change 1 to Chapter 6 of the CRPS under the streamlined planning process.

Change 1 was made operative on 28 July 2021. The CRPS provides an overview of the resource management issues in the Canterbury region, and the objectives, policies and methods to achieve integrated management of natural and physical resources. The Project is consistent with the outcomes sought in the CRPS.

A full assessment against the relevant objectives and policies of the CRPS is contained within Appendix E.

10.5 Canterbury Land and Water Regional Plan

The LWRP was made operative on 1 September 2015. The most recent addition to the operative plan was approved by Canterbury regional council on 13 December 2018. The LWRP identifies the objectives and policies required for managing land and water resources in the region to achieve the RMA. The Project is consistent with the outcomes sought in the LWRP.

A full assessment against the relevant objectives and policies of the LWRP is contained within Appendix E.

10.6 Partially Operative Selwyn District Plan

The POSDP is mostly operative, with minimal sections subject to appeal. The latest version was updated on the 5 March 2024.

The Project is consistent with outcomes sought in the POSDP, particularly those set out in the Strategic Directions and Transport Chapters.

By improving traffic safety and connectivity along and across SH1, the Project aligns with SD-DI-O1 and EI-O1 which promotes well-connected, safe and accessible development. The Project contributes to the key transport corridors remaining accessible and functional, contributing to local and regional economic growth.

The Project design and methodology is consistent with the outcomes sought in SD-MWV-O1 and ECO-O2, demonstrated by ongoing consultation with Ngai Tahu through the CAG, having regard to cultural values and heritage. By balancing infrastructure development with environmental protection and cultural values, the Project is consistent the district's direction for sustainable, inclusive growth.

In regard to the Transport chapter, TRAN-O1 and TRAN-P1 seek to enhance transport efficiency and safety by improving intersections and reducing traffic conflict points. The Project will contribute to improved connectivity, improved traffic safety and more reliable travel times thereby promoting a safer, more efficient transport network. By improving road safety and accessibility, the Project also supports the well-being of the community, consistent with TRAN-O2 and the district's broader goal of sustainable, inclusive growth.

The Project accommodates existing traffic volumes from residential and industrial developments, enhancing connectivity and supporting the local economy. By upgrading the SH1 intersection, the project contributes to efficient access for both residents and businesses, in line with TRAN-P3, which supports the maintenance of key transport corridors.

A full assessment against the relevant objectives and policies of the POSDP is contained within Appendix E.

10.7 Section 171(1)(c) - Whether the work and designation are reasonably necessary for achieving the objectives

Section 171(1)(c) of the RMA requires a territorial authority to have particular regard to whether the work and designation are reasonably necessary for achieving the objectives of the requiring authority for which the designation is sought. NZTA consider that it is reasonable for:

- Necessary to fall somewhere between desirable and essential; and
- Reasonably allows for some tolerance in terms of where necessary falls.

Accordingly, we consider that the threshold of “reasonable necessity” allows for a threshold assessment, proportionate to the circumstances to determine whether the Project is justified in the context of Section 171(1)(c) of the RMA.

As noted in Section 2.2.2, the objectives for the Project are as follows:

1. Improve the safety and efficiency of travel on the state highway and intersections with the state highway through Rolleston.
2. Provide safer connections and access for goods and people travelling between the residential and industrial areas of Rolleston enabling transport choices.
3. Improve the safety and travel time reliability of the regional journey on the state highway between Rolleston and Christchurch.

The Project is reasonably necessary to achieve these Project objectives because:

- The existing environment experiences congestion and safety issues as a result of the current intersections between SH1 and Dunns Crossing Road/Walker Road. These existing deficiencies have been addressed by the Project, with the proposed interventions supporting the function of the state highway network. The current transport network between SH1 and Dunns Crossing Road/Walker Road cannot not achieve the Project objectives.
- The proposed work responds to and addresses these issues. The roundabout and associated works alleviates the traffic safety issues at the SH1, Dunns Crossing/ Walkers Road intersection. The network benefits are further discussed in the Traffic and Transport section of this AEE (refer to Section 8.3) and in Appendix H.

The designation is reasonably necessary to achieve these objectives because:

- Section 4 above evaluated that a designation was the most appropriate method under s171(1)(b) for the Project. Alternative sites, alignments, and methods for undertaking the work have been adequately considered. Therefore, the use of the designation mechanism is reasonably necessary to achieve the Project objective.
- The proposed extent of designation provides for the ongoing operation and maintenance of the proposed infrastructure as well as its construction. As such, the extent of designation includes areas required for the construction-process such as laydown areas and construction yards. It also provides areas that may be utilised to implement recommended mitigation.
- The designation extent is reflective of the needs of the Project and has taken into account inputs from mana whenua, public engagement and landowners / stakeholders, and technical specialists and feedback from various NZTA departments

10.8 Section 171(1)(d) - Other Matters

When considering the Project, the territorial authority must have particular regard to any other matter the territorial authority considers reasonably necessary to make a recommendation on the requirement.

No other matters are considered directly relevant to the consideration of the Project by the territorial authority

10.9 Part 2 of the RMA Assessment

Section 171(1) of the RMA states that when considering a NoR, a territorial authority must consider the effects on the environment having particular regard to a number of matters (assessed above) and this is subject to Part 2 of the RMA.

Part 2 comprises ss5-8 of the RMA. Section 5(1) of the RMA states that the purpose of the RMA is to promote the sustainable management of natural and physical resources.

Section 5(2) of the RMA then provides a definition of sustainable management. In our view, in determining whether the Project promotes sustainable management, consideration of Sections 6, 7 and 8 of the RMA

is required before drawing any conclusions regarding consistency with Section 5 of the RMA. The following section provides an assessment of the effects of the Project subject to Part 2 of the RMA Purpose of the Act

Section 5 of the RMA sets out the purpose of the RMA which is to promote the sustainable management of natural and physical resources.

10.9.1 Matters of national importance

Section 6 of the RMA states that in achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall recognise and provide for specified matters of national importance. It is considered that the following matters of national importance to be relevant to the Project.

Table 10-3: Matters of national importance

Matters of national importance		Assessment
(a)	<i>the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development</i>	The Project is not located within a coastal environment. Adverse effects on natural character values have largely been avoided or minimised through the alternatives assessment process, noting there are no streams or wetlands of significance located in the Project area.
(b)	<i>the protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development</i>	The Project will not impact any outstanding natural features and landscapes, as discussed through the Ecology assessment including in Appendix K.
(c)	<i>the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna</i>	The Project will not impact any areas of significant indigenous vegetation or any significant habitats of indigenous fauna, as discussed throughout the Ecology assessment included in Appendix K.
(d)	<i>the maintenance and enhancement of public access to and along the coastal marine area, lakes, and rivers</i>	The Project will not impact public access to and along the Coastal Marine Area (CMA), lakes and rivers.
(e)	<i>the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga</i>	The Project has had regard to, and taken into account, the principles of Te Tiriti through the development of the design. Furthermore, ongoing engagement with mana whenua is occurring. Based on discussions with mana whenua, it is understood there are no areas of cultural significance within the proximity of the Project.
(f)	<i>the protection of historic heritage from inappropriate subdivision, use, and development</i>	There are no areas or items of historic heritage identified in the Project area, as discussed throughout the Archaeological Assessment included in Appendix N.
(g)	<i>the protection of protected customary rights</i>	There are no affected protected customary rights groups or affected customary marine title groups.
(h)	<i>the management of significant risks from natural hazards</i>	A number of design measures to provide resilience to flooding, inundation and climate change have been adopted across the Project area.

The stormwater has made recommendations which are to be implemented at detailed design so that there is sufficient space within the proposed designations for stormwater and flood mitigation, noting the Project falls within overland flood paths.

10.9.2 Others matters

Section 7 of the RMA states that, in achieving the purpose of the RMA, particular regard shall be had to specified other matters. NZTA consider the following other matters in Table 10-4 below to be relevant:

Table 10-4: Other matters relevant to the Project

Other matter	Assessment
Kaitiakitanga	Mana whenua have been actively involved through the DBC and this phase of the Project and will continue to exercise kaitiakitanga through the construction and operational phases of the Project.
The ethic of stewardship	This has been recognised through engagement with key stakeholders, residents and the wider community who exercise stewardship over particular resources
The efficient use and development of natural and physical resources	Through the assessment of alternatives process, the Project was determined to be the most efficient use of natural and physical resources, particularly as it utilises the existing corridor.
The efficiency of the end use of energy	Not considered relevant to the Project.
The maintenance and enhancement of amenity values	The Project will maintain and enhance the quality of the environment through the preparation and subsequent implementation of a ULDF
Intrinsic values of ecosystems.	The design of the Project has sought to avoid adverse effects on ecosystems as far as practicable while providing sufficient width within the proposed designation boundaries,
Maintenance and enhancement of the quality of the environment.	The Project will maintain and enhance the quality of the environment through the preparation and subsequent implementation of a ULDF.
Any finite characteristics of natural and physical resources.	Not considered relevant to the Project
The protection of the habitat of trout and salmon.	Not considered relevant to the Project.
The effects of climate change.	The Project responds to the effects of climate change and the reduction of greenhouse gas emissions by improving high-quality walking and cycling facilities to and across SH1.
The benefits to be derived from the use and development of renewable energy.	Not considered relevant to the Project.

The development and implementation of Project has had and will continue to have regard to the matters outlined above. As such, the Project is consistent with Section 7 of the RMA.

10.9.3 Te Tiriti o Waitangi | Treaty of Waitangi

In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).

NZTA have partnered with mana whenua throughout the development of the Project to identify areas and matters of cultural significance and incorporate this as part of the alternatives assessment process. This has included avoiding or minimising impact on waterbodies within the wider area and providing for the implementation of construction management plans to be in place to protect water quality and any previously unrecorded items of cultural heritage encountered. Further engagement will be undertaken in the detailed design and construction phases to achieve consistency with the principles of Te Tiriti o Waitangi.

Given the above, the development of the Project is consistent with the principles of the Te Tiriti o Waitangi, and section 8 of the RMA.

10.9.4 Purpose of the Act

Section 5 of the RMA sets out the purpose of the RMA which is to promote the sustainable management of natural and physical resources, in a way, which enables people and communities to provide for their social, economic, and cultural well-being.

The Project is consistent with the principles of the RMA, by utilising an existing transport corridor, the Project optimises efficiency, while simultaneously promoting improved accessibility to the broader transportation network.

This enhanced access supports a more connected community, and increases access to employment opportunities and recreation, which will support the economic and social well-being of Rolleston.

The Project will result in some adverse effects although these are largely associated with construction. Appropriate measures are proposed to avoid, remedy, and mitigate these noting that construction is also a temporary effect. Consequently, noting the significant regional and local benefits of the Project, the Project is consistent with the purpose and principles of the RMA.

11 CONCLUSION

The Project relates to transport improvements along SH1 through Rolleston that will:

- Improve the safety and travel time reliability across the SH1 network in Rolleston.
- Improve connectivity between the residential-commercial part of the township and the Rolleston industrial area.
- Improve transport choices.
- Support national and regional economic growth and productivity.

Gradual plan changes in the POSDP have enabled growth in Rolleston and accelerated the transition of the surrounding area from rural to urban. The upgrades to SH1 will provide essential and safe transport infrastructure to support and integrate with the transport network and nearby urban development.

While it is acknowledged that adverse effects during the construction and operation of the Project may arise, these are mitigated through the proposed management plans and mitigation measures proposed in the NoR. These are further discussed throughout this AEE. Furthermore, the Project is expected to produce significant positive effects, contributing to the sustainable growth, connectivity, and well-being of both local and regional community.

The Project is designed aligns with the relevant planning policies and plans and meets the statutory requirements. As such, the Council have adequate information to proceed in making recommendations on the NoR. Overall, the Project is a crucial step towards achieving a sustainable and integrated transport system that supports the future growth and development of the Rolleston township, Selwyn District and the Canterbury region.

APPENDIX A – Designation Plan (as attached to the NOR)

APPENDIX B – Designation Plan Schedule

APPENDIX C – General Arrangement Plans

APPENDIX D – Resident Access Plan

APPENDIX E – Detailed Statutory Assessment

APPENDIX F - Consultation and Engagement Report

APPENDIX G – Detailed Site Investigation (DSI)

APPENDIX H – Integrated Transport Assessment (ITA)

APPENDIX I – Landscape and Visual Assessment (LVA)

APPENDIX J – Noise and Vibration Assessment

APPENDIX K – Ecological Impact Assessment (EcIA)

APPENDIX L – Stormwater Assessment

APPENDIX M – Air Quality Assessment

APPENDIX N – Archaeological and Heritage Assessment

APPENDIX O – Lighting Assessment

APPENDIX P – Cultural Advice Report (CAR)

APPENDIX Q – S181 Written Agreement

APPENDIX R - Community and Stakeholder Engagement Plan

APPENDIX S - The path to a flyover - SH1 Rolleston Transport Improvements

APPENDIX T – DBC Multi-Criteria Analysis

APPENDIX U - Geotechnical Memorandum