NZ TRANSPORT AGENCY
WAKA KOTAHI


# TE ARA HAUĀURU
# NORTHWEST RAPID TRANSIT

## ASSESSMENT OF TRANSPORT EFFECTS

MEREDITH BATES, BRIAN ANDREW FOY AND MATTHEW HOYLE

15 DECEMBER 2025

New Zealand Government

# Qualifications and experience of the authors

**Meredith Bates**

My name is Meredith Bates. I am a Technical Director – Transport Planning, for Mott MacDonald, a multi-disciplinary engineering consultancy. I hold a first-class honours degree in Civil Engineering from the University of Auckland and have over 23 years' experience in the field of transport engineering. I have experience in multi-modal transportation investigations, traffic engineering, and safety auditing in New Zealand and the United Kingdom. I am a Chartered Member of Engineering New Zealand.

My experience relevant to this Application includes:

- I am currently the Transport and Operations Workstream Lead for Te Ara Hauāuru Northwest Rapid Transit (the Project) for the NZ Transport Agency Waka Kotahi (NZTA). My role involves leading the transport and traffic modelling for the busway and stations, optioneering of station connections between the busway and the local road network, and bus operations and network planning.
- I was engaged as the Investment Case lead for the Northwest Rapid Transit Project in 2023-2024. My role was to provide oversight of the development of the Investment Case that involved assessment of mode, corridor, alignment, station optioneering and selection. I authored the Strategic Case, Options Report, Transport Outcomes Report and Benefits Realisation Plan for this major public transport project and provided oversight of transport and traffic modelling for the busway and stations.
- At my previous employment with Harrison Grierson, I was the Auckland Council traffic specialist for multiple resource consent applications reviewing traffic and transportation effects on behalf of Auckland Council for small- and large-scale developments.
- I have undertaken traffic impact assessments for small- and large-scale private developments including Tamaki Park City in Glen Innes.

Although this matter is not before the Environment Court, I confirm that I have read the Code of Conduct for expert witnesses as contained in section 9 of the Environment Court Practice Note 2023. I agree to comply with that Code. My qualifications as an expert are set out above. I am satisfied that the matters which I address in this report are within my area of expertise, except where I state that I am relying on information provided by another person or expert. I have not omitted to consider material facts known to me that might alter or detract from the opinions I express.

**Brian Andrew Foy**

My name is Brian Andrew Foy. I hold a Bachelor of Planning from the University of Auckland. I am currently employed as a Technical Director with Mott MacDonald, a consultancy providing engineering, planning and advisory services throughout New Zealand. I specialise in transportation planning, transport and traffic modelling, supporting infrastructure development, strategic planning and operational assessment, with 30 years' experience in these areas.

My experience relevant to this Application includes:

- In the previous investigation phase for this Project, I was the Transport Planning Lead supporting option development, assessment, design, transport modelling and assessment reporting. In my role, I specified and oversaw modelling of option scenarios including functional specifications and the framework of bespoke key performance indicators.
- Developing and presenting evidence at Council and Environment Court hearings and have been involved in expert witness conferencing for cases involving designation for infrastructure and Plan Changes.
- At my previous employment with AECOM I led transport modelling, planning and economic evaluation of alternative options for a new public transport corridor between the Wellington rail station and hospital.
- Undertaking numerous transport planning evaluations of proposed infrastructure and development proposals including Redoubt to Mill Road corridor designation, Transmission Gully, Hamilton Southern Links, North Shore Busway Stations and the Albany sub-regional centre.

Although this matter is not before the Environment Court, I confirm that I have read the Code of Conduct for expert witnesses as contained in section 9 of the Environment Court Practice Note 2023. I agree to comply

with that Code. My qualifications as an expert are set out above. I am satisfied that the matters which I address in this report are within my area of expertise, except where I state that I am relying on information provided by another person or expert. I have not omitted to consider material facts known to me that might alter or detract from the opinions I express.

**Matthew Hoyle**

My name is Matthew Hoyle. I am a Technical Director – Transport, for Mott MacDonald, a multi-disciplinary engineering consultancy. I hold a first-class honours Masters of Engineering Studies (Transportation) degree and a Civil Engineering degree from the University of Auckland and have over 23 years' experience in the field of transport and transportation engineering. I am a Chartered Member of Engineering New Zealand.

My experience relevant to this Application includes:

- In the previous investigation phase for this Project, I was the Transport Operations Specialist supporting option development in particular how different options would perform during construction and once the busway was operational. I supported the modelling of option scenarios and assessment of stations and ensured that the Indicative Design would work both with staged delivery and once complete.
- I was previously the Technical Services Manager at the Auckland Transport Operations Centre and I have provided operations advice as a SME in intersection design and signal operations. I have led transportation components of corridor projects and bus station design and delivery, and was the lead author of various Concept of Operations documents for Auckland Transport, including for the Northwest Bus Improvements Project.

Although this matter is not before the Environment Court, I confirm that I have read the Code of Conduct for expert witnesses as contained in section 9 of the Environment Court Practice Note 2023. I agree to comply with that Code. My qualifications as an expert are set out above. I am satisfied that the matters which I address in this report are within my area of expertise, except where I state that I am relying on information provided by another person or expert. I have not omitted to consider material facts known to me that might alter or detract from the opinions I express.

# Executive summary

This transport assessment has been prepared to support a substantive application for Te Ara Hauāuru Northwest Rapid Transit (the Project) under the Fast-Track Approvals Act 2024 (FTAA).

The purpose of this report is to assess the actual and potential transport effects of the Project on the surrounding environment. This assessment identifies the construction and operational transport impacts of the Project and proposes measures to avoid, remedy, or mitigate these effects where necessary.

**Receiving and future transport environment**

The Project proposes a largely segregated busway to run between Brigham Creek and the city centre, alongside State Highway 16 (SH16). SH16 serves as the primary road corridor in Auckland's northwest region, providing access to the north, south, and east parts of Auckland and the city centre.

Public transport services in the northwest region are currently unattractive, due to long travel times and unreliable bus services. Whilst a new Western Express (WX1) bus service opened in November 2023 between Westgate and the city centre, it uses intermittent bus shoulder lanes on SH16 with restricted operating hours, and interim bus stops at Te Atatū and Lincoln Road SH16 interchanges. There are operational constraints and safety issues with this service and it is not considered a long-term or bus rapid transit (BRT) solution. The existing rapid transit heavy rail network does not directly serve the northwest catchment well. There are also no ferry services in the immediate vicinity of the SH16 corridor.

The Northwest Shared Path runs along SH16 from Westgate to the city centre and is one of New Zealand's busiest walking and cycling routes.

**Assessment of construction effects**

In assessing the construction transport effects of the Project, we have identified potential types and magnitudes of effects to inform requirements for future Construction Traffic Management Plans (CTMPs). We have evaluated both overall and site-specific effects based on the indicative construction methodology in Part 2 of the Substantive Application of the Project and the Indicative Design (the indicative design of the Project within the Project Area as shown on the Indicative Design drawings in Part 6 that will be confirmed during detailed design).

The Project is expected to be constructed in stages over the next 20 years and traffic management approaches will be confirmed through CTMPs for each site or stage of work, based on the traffic environment at the time of construction. The CTMPs will consider the level of growth and activities that have occurred in the surrounding area, the availability of alternative routes, and any additional sensitive land use activities. CTMPs will set out measures to maintain safe and efficient movement of people and traffic during construction.

In summary, anticipated construction transport effects include temporary delays and queuing on local roads and SH16 due to speed limit reductions, road layout changes, and increased heavy vehicle movements. Public transport users may experience extended journey times and inconveniences due to changes in bus stop locations and changes in bus routing for the WX1 and local services. Active mode users may face increased travel times, travel distances, and reduced accessibility due to the temporary closures of footpaths, crossings, and temporary diversions of parts of the Northwest Shared Path. Additionally, there may be temporary restrictions on property accesses due to required working areas, and greater safety risks for all road users due to increased construction vehicles on local roads.

All temporary effects are expected to be managed through the measures set out in future CTMPs, reducing the level of effect to minor.

**Assessment of operational effects**

The assessment of operational transport effects has primarily been undertaken for the forecast year 2051, representing the point at which the Project is anticipated to be fully constructed and operational.

Throughout the development of the Project, we used transport modelling tools to conduct quantitative assessments, namely the Auckland Forecasting Centre's Macro Strategic Model (MSM), Aimsun, and Signalised & unsignalised Intersection Design and Research Aid (SIDRA). The assessments informed the

Indicative Design, including the location of stations, their connections, intersections with the local road network, and the form of the busway as a segregated facility.

The Project is expected to deliver substantial operational benefits, including improved bus travel times, reliability and network efficiency. The key positive effects of the Project include:

- **Improved travel times:** The Project will significantly shorten public transport (PT) travel times to the city centre, with a 22-minute trip from Westgate Te Waiarohia station to Karanga-a-Hape CRL station, saving up to 15 minutes in the morning peak compared to the existing WX1 in the 2024 Base scenario.
- **More consistent travel times:** The Project will reduce peak-hour bus travel time variability by 14 minutes eastbound in the morning peak and 25.5 minutes westbound in the evening peak compared to the future Do Minimum scenario. The travel time variance of WX services will be 2-4 minutes across the day due to the segregated busway.
- **Increased PT ridership:** The Project will increase annual weekday bus boardings by 5.4 million by 2051.
- **Increased job and education accessibility via PT:** By 2051, the Project is projected to significantly improve access to key destinations during the morning peak, compared to the 2051 Do Minimum scenario. The proportion of the northwest population able to reach key locations within 45 minutes by PT is expected to increase by 23% at Westgate and 46% at the University Zone (East city centre).
- **Improved PT transferability:** The stations have been designed to support seamless transfers with local bus services, enhancing access between surrounding communities and the Project.
- **Improved PT access via active modes:** Direct connections between the Northwest Shared Path and the bus stations will offer convenient access for active mode users maximising the patronage in each station catchment.
- **Improved walking and cycling provisions**: The Project will improve active mode connectivity and safety by removing at-grade SH16 Northwest Shared Path crossings, introducing a new Te Atatū motorway crossing with a shared path, and future-proofing links to the Auckland Cycling and Micromobility Network.

Key operational transport effects we assessed and concluded to have a negligible effect were:

- **SH16 effects:** The busway will run as a predominately segregated, off-line corridor alongside SH16 like the Northern Busway. In our opinion, the Project will have a negligible impact on the lane capacity and operations of SH16.
- **Local road effects:** While the location of the busway and station access points may alter travel patterns within the Project Area (the Proposed Designation and the extent of the coastal occupation permits sought), in our opinion the Project will have a negligible impact on the volume of general traffic and heavy vehicles on local roads.
- **Station access effects:** The Indicative Design of the stations accommodates the expected movements and demands of all transport modes, and we do not anticipate any adverse impacts on local roads associated with station access and egress.
- **Active mode effects:** The Indicative Design has considered the needs of existing active mode users throughout the corridor to minimise disruption and maintain safety and service levels for all users. Overall, the Project is expected to have a positive effect on active mode users.
- **Parking effects:** Some parking will be removed due to the Project, but the increased attractiveness and demand for PT is expected to reduce overall parking demand in these areas. Any residual impact on on-street parking for residents can be managed by AT as the local road controlling authority.
- **Property access effects:** The Project will permanently relocate some residential and commercial property accesses, as well as accesses to utility sub-stations and loading areas for Westgate Shopping Centre businesses. These effects will be managed through the Public Works Act (PWA) process, resulting in no adverse impacts.

We consider the Project will not result in any material adverse operational effects, and for that reason no mitigation measures are proposed.

**Conclusion**

In summary, the Project is anticipated to deliver significant positive transport outcomes for the northwest. The Indicative Design has been developed in collaboration with Auckland Transport (AT) to enhance PT performance without compromising the operation of SH16 or the local road network. Temporary construction effects are expected to be adequately managed through measures specified in future CTMPs. Potential operational effects have been mitigated through the design of the Project and any remaining adverse effects are negligible.

# Contents

# Tables



# Figures

# Acronyms, definitions and abbreviations

| Term | Definition |
|---|---|
| 2024 Base scenario | Bus data collected in March 2024 for the Western Express service by Auckland Transport |
| A4E | Access For Everyone |
| ADT | Average Daily Traffic |
| AEE | Assessment of Environmental Effects |
| AFC | Auckland Forecasting Centre |
| ANOP | Auckland Network Operating Plan |
| AT | Auckland Transport (or successor organisation) |
| AUP | Auckland Unitary Plan (Operative in Part) |
| BRT | Bus Rapid Transit |
| CCBP | City Centre Bus Plan |
| CCMP | City Centre Master Plan |
| CoPTTM | Code of Practice for Temporary Traffic Management |
| CPTED | Crime Prevention through Environmental Design |
| CRL | City Rail Link |
| CTMP | Construction Traffic Management Plan |
| EB | Eastbound |
| FTAA | Fast-track Approvals Act 2024 |
| FTN | Frequent Transport Network |
| HCV | Heavy Commercial Vehicles |
| Indicative Design | The indicative design of the Project within the Project Area as shown on the Indicative Design drawings in Part 6 that will be confirmed during detailed design |
| km | Kilometre |
| km/h | Kilometres/hour |
| $m^3$ | Cubed metres |
| MOTAT | Museum of Transport and Technology |
| MSM | Macro Strategic Model |
| NoR | Notice of Requirement |
| NX | Northern Express |
| NZTA | New Zealand Transport Agency Waka Kotahi |
| Project | Te Ara Hauāuru Northwest Rapid Transit |
| Project Area | The Proposed Designation and the extent of the coastal occupation permits sought |
| Proposed Designation | The area defined by the Proposed Designation boundary as shown on the Proposed Designation Plans in Part 6 |
| PT | Public transport |
| PUDO | Pick-up/drop-off |
| PWA | Public Works Act |
| RCA | Road Controlling Authority |
| RMA | Resource Management Act 1991 |
| RoNS | Roads of National Significance |
| RT | Rapid Transit |
| RTC | Rapid Transit Corridor |
| RTN | Rapid Transit Network |
| RTS | Rapid Transit Station/s |
| SAP | Site Access Point |
| SH1 | State Highway 1 |
| SH16 | State Highway 16 |
| SH18 | State Highway 18 |

| Term | Definition |
|---|---|
| SH20 | State Highway 20 |
| SIDRA | Signalised & unsignalised Intersection Design and Research Aid |
| SME | Subject Matter Expert |
| SSTMP | Site Specific Traffic Management Plan |
| SUP | Shared Use Path |
| t | Tonne |
| TTM | Temporary Traffic Management |
| UHX | Upper Harbour Express |
| WB | Westbound |
| WRR | Western Ring Route |
| WX1 | Western Express |

# 1. Introduction

## 1.1 Purpose and scope of this report

This technical assessment has been prepared to inform a substantive application for the Northwest Rapid Transit Project (the Project) under the Fast-Track Approvals Act 2024 (FTAA). It forms part of a suite of specialist reports that collectively support the applications for statutory approvals.

The purpose of this report is to evaluate the actual and potential transport effects of the Project on the environment.

The assessment considers both the construction and operational phases of the Project, identifying any adverse effects and assessing their significance. We have recommended measures to avoid, remedy, or mitigate identified effects where we consider necessary.

This transport assessment considers the impacts of the Project, not the potential impacts of the urban development that the Project will serve.

This report should be read alongside the Substantive Application including the Assessment of Environmental Effects (AEE) in Part 4, which contains further details on the context of the Project. The Substantive Application also contains a description of works to be authorised and the typical construction methodologies that will be used to implement this work in Part 2. We have reviewed this and have considered it as part of our assessment of effects. As such, they are not repeated here. Where a description of an activity is necessary to understand the potential effects, it has been included in this report for clarity.

# 2. Receiving environment

## 2.1 Land use and growth

The State Highway 16 (SH16) corridor is surrounded by a mix of residential, commercial, and future urban zones, particularly around Westgate and Brigham Creek. Significant residential and employment growth is projected in the areas along the SH16 corridor between 2018 and 2051.[1] This growth is illustrated in Figure 2-1.

[1] Growth predictions are based on Auckland Council's i11.6 land use model. Auckland Council's new land use model (AGS23v1.1) has been used for sensitivity testing of the Project's benefits.

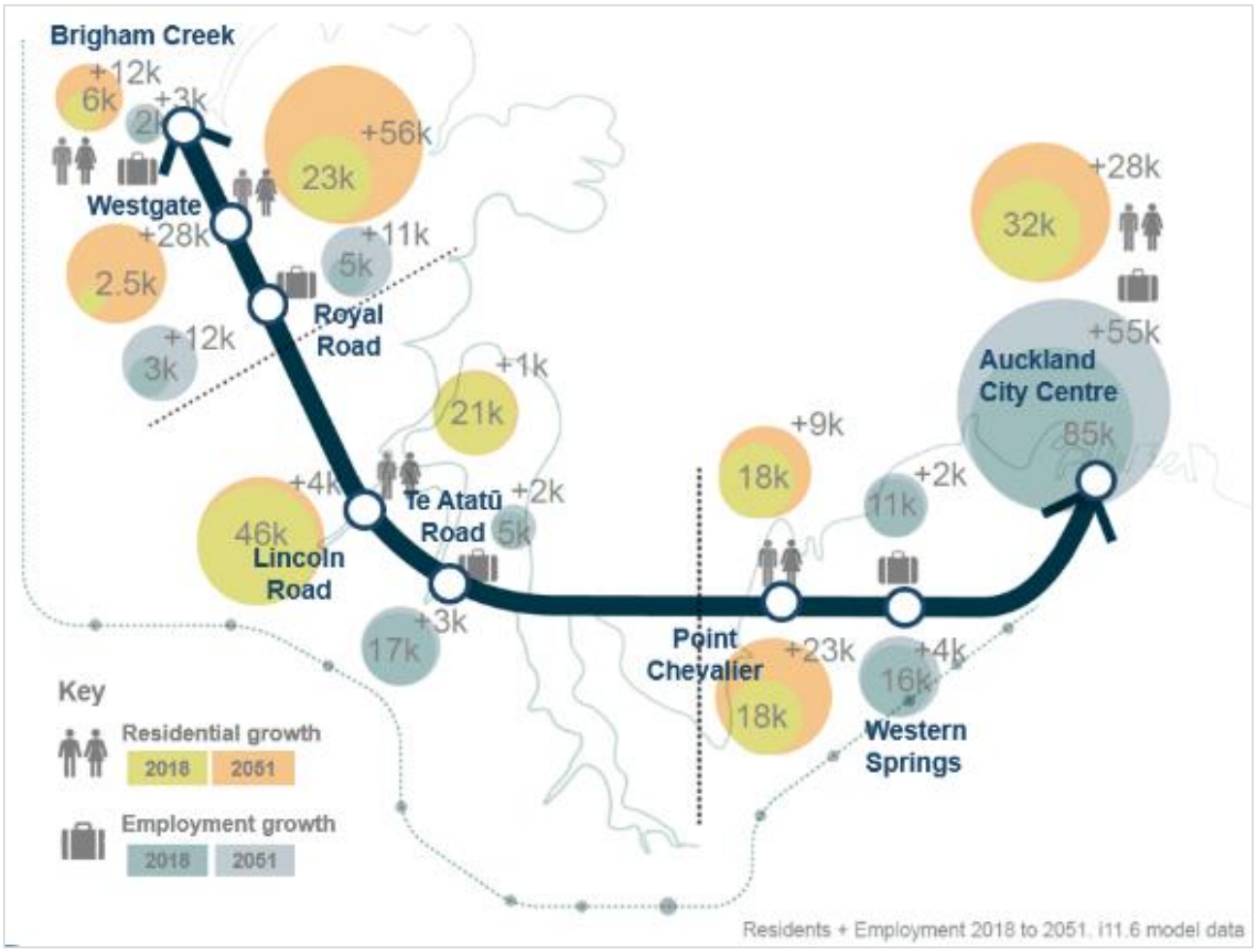


**Figure 2-1: Residential and employment growth predictions around SH16 (2018-2051) - i11.6 model data**

This transport assessment considers both the existing and likely future environment as the baseline for evaluating potential effects as the Project will be constructed in stages over the next 20 years.

## 2.2 Transport environment

Figure 2-2 shows the existing transport environment in the northwest, including the general traffic, freight, public transport (PT) and cycle and micromobility networks.

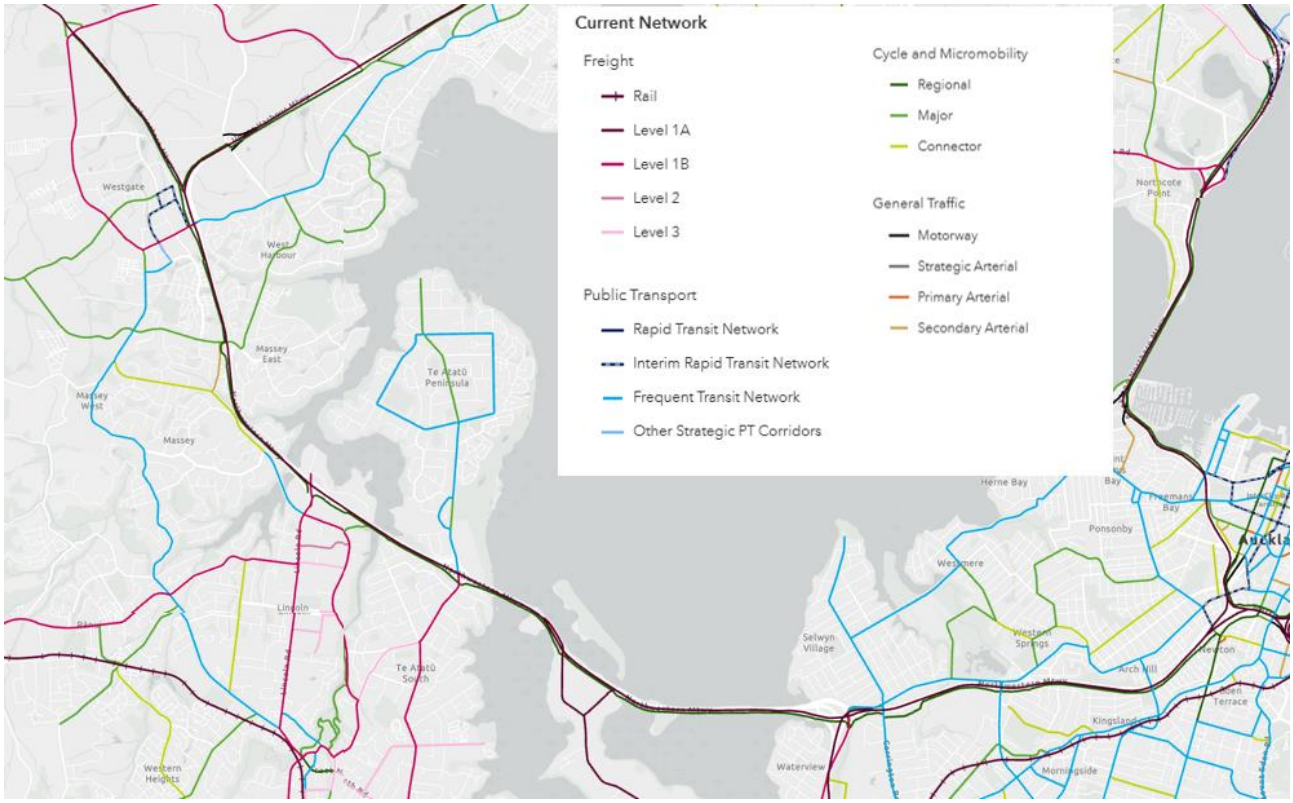


**Figure 2-2: Current transport network around the Project Area (Source: Auckland Transport's Future Connect)**

The existing transport network in the vicinity of the Project Area (the Proposed Designation and the extent of the coastal occupation permits sought), consists of:

- **Road Network:** SH16 is the key corridor in the existing transport environment, part of which forms Auckland's Western Ring Route (WRR). The WRR serves as a vital alternative to State Highway 1 (SH1) between Manukau in the south and Rosedale in the north. Both access routes (SH20A and SH20B) to Auckland International Airport connect to the WRR. SH16 connects to State Highway 18 (SH18) at Westgate, State Highway 20 (SH20) at Waterview, and SH1 in the city, providing access to the north, south and east parts of Auckland and the Port. SH16, as well as other key roads such as Fred Taylor Drive, Triangle Road, Great North Road, St Lukes Road and Carrington Road are approved overdimension and overweight vehicle routes in the Project Area. Newton Road is also an overdimension vehicle route.
- **Public Transport:** The existing transport environment includes a mix of bus, train, and ferry services; however, public transport in the northwest is generally unattractive, due to long travel times and unreliable bus services:
  - **Bus:** There are currently no bus rapid transit (BRT) services serving the area. Key bus routes on SH16 include the Western Express (WX1), 11T, and 11W routes. These services provide frequent connections between Westgate and the city centre, with key stops at Kedgley Road (Westgate), Lincoln Road, and Te Atatū Road motorway interchanges. The WX1 operates seven days a week using intermittent bus shoulder lanes on SH16 with restricted operating hours. Construction of the Westgate station (Phase 1) is underway and is expected to be complete by mid-2026. This station will replace the interim WX1 bus stops on Kedgley Road.
  - **City Centre Bus Operations**: Bus operations in the city centre are guided by Auckland Transport's City Centre Bus Plan (CCBP), the City Centre Master Plan (CCMP) (2020), and the Access for Everyone (A4E) initiative. The City Rail Link (CRL) is anticipated to open in 2026. After the CRL opens, the WX1 service is proposed to stop at Karanga-a-Hape and Te Waihorotiu stations and the Downtown area near Waitematā station, improving integration with the rail network.
  - **Train:** The Western line train service runs between Swanson and Waitematā stations and has services every 10 minutes during peak times and every 20-30 minutes off peak. The current rapid

transit heavy rail network and most heavy rail stations are located some distance south and therefore do not directly serve the northwest catchment with bus connections.

- **Ferry:** There are no ferry services in the immediate vicinity of the SH16 corridor. Ferry services run from West Harbour (5km east of Westgate) and Hobsonville Point (8km east of Westgate) to Downtown, with a headway (meaning the time between each ferry departure) of 30–40-minutes during peak hours and up to two-hours off-peak.

- **Active modes:** The Northwest Shared Path is one of New Zealand's busiest walking and cycling routes, supporting up to 1,500 daily trips and showing strong growth over the past decade. The path runs for approximately 20km from Westgate in the northwest to the city centre, following the southern side of SH16. There are multiple access points along the route to enable entry and exit from the path. However, a key challenge for existing users of the Northwest Shared Path is navigating multiple crossings at the Royal Road and Lincoln Road interchanges, which causes unreliable journey times due to variable waiting times at each of the crossing points and increases the risk of conflict between pedestrians, cyclists, and general traffic.

# 3. Assessment of construction effects

## 3.1 Assessment methodology

This section outlines the methodologies we have used to assess the construction transport effects of the Project (refer to Table 3-1).

**Table 3-1: Construction transport assessment methodology**

| Transport component | Assessment method | Information source |
|---|---|---|
| State highway | ▪ Review the receiving environment of the state highway and its ability to accommodate increased construction vehicle volumes.<br>▪ Use the construction methodology statement in the AEE to identify locations or packages of works that may impact negatively on general traffic flow and safety on SH16 (for example, if lane changes are proposed).<br>▪ If potential impacts are identified, assess those impacts using key model outputs including traffic volumes, levels of service and queue lengths for intersection performance and overall network performance.<br>▪ Qualitatively assess impact if shoulder lanes are closed on emergency stopping and bus operations. | ▪ Transport Modelling tools (SIDRA and MSM) |
| Local road network | ▪ Review the local road network within the receiving environment of the Indicative Design.<br>▪ Assess potential impacts of increased construction vehicle volumes on local road operations. | ▪ Transport Modelling tools (SIDRA and MSM model) |
| Public transport | ▪ Review the PT network within the receiving environment of the Indicative Design.<br>▪ Assess potential impacts on the reliability and efficiency of PT services and facilities. | ▪ Current AT service maps and timetables<br>▪ Future PT network plan (Remix)<br>▪ AT HOP data |
| Active modes | ▪ Review the active mode network within the receiving environment of the Indicative Design.<br>▪ Assess potential impacts on existing active mode facilities and connections. | ▪ AT walking and cycling network maps |
| Parking | ▪ Review existing parking provisions and demands within the receiving environment of the Indicative Design.<br>▪ Assess the potential impacts of construction worker parking. | ▪ Indicative Design of the Project |
| Property access | ▪ Review property accesses within the receiving environment of the Indicative Design.<br>▪ Assess the potential temporary impacts to property access, including servicing impacts. | ▪ Indicative Design of the Project |

| Transport component | Assessment method | Information source |
|---|---|---|
| Safety | ▪ Review road safety within the receiving environment of the Indicative Design.<br>▪ Provide a high-level assessment of potential impacts on public safety during construction. | ▪ Indicative Design of the Project |
| Special events | ▪ Relevant for Western Springs station only: Assess impacts of construction works on local road operations during major events at Western Springs Stadium. | ▪ Indicative Design of the Project<br>▪ I335 Western Springs Stadium Precinct Plan (Auckland Unitary Plan) |
| Emergency vehicles | ▪ Review the local road network within the receiving environment of station locations and the Indicative Design.<br>▪ Assess the accessibility and prioritisation of emergency vehicles within the network. | ▪ Indicative Design of the Project |
| Construction access and haulage routes | ▪ Assess the effects of increased heavy vehicles on identified haulage routes and Site Access Points (SAPs) around the specific locations of construction. | ▪ AT and NZTA heavy vehicle maps (overdimension, overweight routes)<br>▪ AT Future Connect arterial routes |
| Cumulative effects | ▪ Assess the combined impact of Project construction alongside other relevant, planned transport or development projects in the northwest. | ▪ AT website<br>▪ NZTA website<br>▪ Online sources |
| Overall effects | ▪ Assessment of the combined impact of Project construction on all modes and components of the transport environment. | ▪ Consideration of all the above. |

We have assessed the construction transport effects based on the indicative construction methodology in Part 2 of the Substantive Application of the Project and the Indicative Design.

Our assessment of construction transport effects identifies the potential types of construction transport effects and their magnitude and informs the requirements for future Construction Traffic Management Plans (CTMPs).

A CTMP outlines how vehicle, cycle and pedestrian movements will be safely and efficiently managed in and around a construction site. Given the long-term nature of the Notices of Requirement (NoR) for the Project, the construction methodology is indicative only. Nevertheless, we consider it is sufficient to identify the adverse transport effects that could eventuate from the Project and thereby inform the scope of proposed CTMPs.

The Project is expected to be delivered in stages over a 20-year period. The indicative delivery strategy is described in Part 2 of the Substantive Application. We have assessed construction transport effects based on the expected land use and transport environment at the indicative time of implementation based on the delivery staging indicative or any variation to that indicative staging by considering the traffic environment described in the 2051 With Project Scenario.

## 3.2 Whole of Project construction transport effects

This section provides an overview of the potential adverse construction transport effects that are common throughout the whole Project based on the Indicative Design.

Overall, as discussed later in this assessment, we consider the Project will deliver significant positive traffic and transport impacts, specifically decreased travel time, increased reliability of bus journeys and reduced car trips through increased PT use. In our opinion, the construction of the Project will cause temporary adverse effects on road users. Those effects will arise from the required working spaces around existing roads, temporary changes to road layouts, and increased use of existing local roads and state highways by heavy vehicles. Some footpaths, crossings, shoulders, cycle lanes, and traffic lanes will also need to be closed temporarily, and temporary speed limits may lead to delays and affect some property accesses.

The indicative construction methodology set out in Part 2 of the Substantive Application has been developed to minimise adverse construction transport effects as far as practicable. All residual effects will be managed through appropriate temporary traffic management (TTM). TTM includes the careful scheduling of works, safety for all road users, reducing inconvenience for nearby residents and businesses, and avoiding unnecessary disruption or cost.

The Project requires works on and around the live traffic corridors of SH16. As a result, there will be temporary disruption to the existing transport network along this corridor, requiring TTM. The scale and type of traffic management will vary depending on the specific construction stage and activity.

Final traffic management approaches will be confirmed through CTMPs for each site or stage of work, based on the traffic environment at the time of construction. The CTMPs will consider the level of growth and activities that have occurred in the surrounding area, the availability of alternative routes, and any additional sensitive land use activities.

Table 3-2 outlines the construction transport effects we expect to arise from the Project.

**Table 3-2: Whole of Project construction transport effects**

| Construction aspect | Context | Construction effect |
|---|---|---|
| Hours of operation | The hours of operation will be determined on a site-by-site basis, with work generally occurring during the day. However, temporary night time road closures will likely be required for specific activities, such as the safe delivery of large structural components such as bridge piles, piers, and beams. | Temporary lane closures and lane realignments on local roads and SH16 will temporarily disrupt traffic, causing queuing and delays. |
| Staging of works | The Project is likely to be constructed in stages over the next 20 years to deliver incremental benefits, however some stages of work may include construction works in adjacent locations. | Simultaneous construction works at adjacent locations along SH16, such as Westgate Te Waiarohia station and Royal Road Mānutewhau station (both part of Stage 2B), may lead to cumulative impacts on the wider road network. These impacts would be due to the proximity of the construction sites and the reliance on nearby interchanges for detour routes and SH16 motorway access. |
| Site workforce parking | For the purpose of our assessment, we have assumed a maximum number of workers on any site within the Project will be approximately 50 workers. This is based on the indicative construction methodology of the Indicative Design.<br>It is conservatively assumed that all workers will travel to the site individually by car and will each generate two vehicle movements per day. | Parking provisions are provided for within the construction areas to minimise need for worker vehicle movements and parking on local roads. |
| Site Access Points (SAPs) | SAPs are required to provide safe and efficient access for construction vehicles, worker vehicles, plant, and materials. | Increased heavy vehicle movements into and out of SAPs can lead to congestion on local roads and cause delays for general traffic. |
| Heavy vehicles | Heavy vehicles are required to transport cut and fill material from earthworks, as well as structural elements.<br>During peak activity periods (e.g. piling, top-soil removal, or cut operations), daily heavy vehicle movements will be higher than the average daily volumes. However, these periods will be short-term.<br>Heavy vehicle routes (i.e., overdimension and overweight routes) in the northwest have been identified. SH16 is likely to serve as the main heavy vehicle route for construction traffic. | The impact of increased construction vehicles on heavy vehicle routes in the Project Area is expected to be negligible due to the high volume of traffic on these routes already. |
| Motorway shoulder access | Motorway shoulder access will be required on SH16 to construct retaining walls. The two sections where this will be necessary are between Westgate Pedestrian and Cycle Bridge and Royal Road and between Waterview interchange and beyond Bond Street (refer to the Indicative Design drawings in Part 6). Both sections have limited access | Motorway lanes may need to be temporarily closed, shifted or narrowed for the duration of the construction works of the retaining walls. This can lead to reduced road capacity, congestion and longer travel times for general traffic. |

| Construction aspect | Context | Construction effect |
|---|---|---|
| | and will therefore require construction access from the motorway shoulder under traffic management controls. | The temporary unavailability of the motorway shoulder for WX1 buses may increase the bus travel time and reduce service reliability. |
| Public transport | Construction works will require some temporary changes to local/WX1 bus routes and bus stop locations. | Temporary changes to bus stop locations and bus routing may extend PT journey times and reduce attractiveness of taking PT during construction works. |
| Active modes | Some construction areas of the Project overlap with the existing Northwest Shared Path. | Existing entry and exit points along the Northwest Shared Path may need to be relocated during construction, requiring users to take alternative routes. These detours could result in longer travel distances and increased journey times, which may temporarily reduce the convenience and overall use of the Northwest Shared Path during construction works. |
| | Impacts on footpaths and cycle paths on local road network | Temporary closures or detours of footpaths and cycle paths, increasing travel times and reducing accessibility and convenience for pedestrians and cyclists. |
| Property access | Some construction areas of the Project interact with existing property accesses. | Access for residents and businesses may be temporarily restricted during construction works unless alternative provisions are provided. This access restriction may also impact essential services such as rubbish collection and emergency vehicle access. |
| Safety | Many construction sites are situated within or near residential and commercial areas, where pedestrian activity is high, such as visitors in Westgate, Point Chevalier or school children around Royal Road. | Safety risk for all road users due to increased movements of construction vehicles in residential areas. |
| Emergency vehicles | Construction may temporarily close roads or change road alignments within the designation. | Risk of delayed emergency response times. |

### 3.2.1 Interfacing project effects

Several nearby infrastructure projects are planned or underway within the vicinity of the Project, most of which are at the western end of the Project Area. If constructed at similar times to the Project, these projects may influence traffic demand, construction coordination, and access around SH16.

Table 3-3 outlines the cumulative construction transport effects of the Project alongside other interfacing projects, if constructed at a similar time.

**Table 3-3: Cumulative construction transport effects with interfacing projects**

| AT or NZTA Project | Description | Estimated delivery timeline | Cumulative effects |
|---|---|---|---|
| Spedding Road Bridge<br>Designation reference 1484 in the Auckland Unitary Plan (Operative in Part)(AUP)[2] | A new bridge over the SH16 motorway.<br>Two-lane arterial cross section with separated cycle lanes and footpaths on both sides<br>New roundabout at intersection with Fred Taylor Drive. | Within 15 years (no funding for design or construction at this time) | If the Spedding Road Bridge is constructed concurrently with this Project, there may be increased traffic congestion and reduced access flexibility on SH16 and Fred Taylor Drive during construction. Coordination will be needed to manage overlapping construction zones and maintain safe traffic flow.<br>The busway is proposed to underpass the future Spedding Road bridge. |
| Northside Drive Bridge<br>Designation reference 1473 in AUP[2] | A new bridge over the SH16 motorway. | Timeline to be confirmed (no funding for design or construction at this time) | The existing structures already built for the proposed Northside Drive Bridge (i.e., median piers, the western abutment and embankment) may require modification to accommodate the Project. |

[2] Requiring Authority: Auckland Transport

| AT or NZTA Project | Description | Estimated delivery timeline | Cumulative effects |
|---|---|---|---|
| | | | If the construction of the bridge resumes, overlapping works could disrupt SH16 traffic and require shared access or staging areas. Coordination will be essential to avoid conflicts.<br>The busway is proposed to underpass the future Northside Drive bridge. |
| Fred Taylor Drive Upgrade (NoR RE2)<br>Alteration to Designation 1433 in AUP[3] | Widen the two-lane road to four lanes with dedicated walking and cycling facilities and bus priority lanes. | May be delivered within 15 years (no funding for design or construction at this time)[3] | Construction is likely to impact the main access to Brigham Creek Rarawaru station (a new signalised intersection on Fred Taylor Drive proposed as part of this Project). The intersection design allows for potential future road widening. |
| Alternative State Highway (NoR S1)[4] | A new dual carriageway highway and an upgraded Brigham Creek Interchange. | May be delivered within 30 years (no funding for design or construction at this time)[3] | If the upgraded Brigham Creek Interchange is constructed at the same time as this Project, works at the interchange could impact access to Brigham Creek station and increase traffic volumes on detour routes. TTM will be required to manage potential effects. |
| Rapid Transit Corridor (NoR S3) including Kumeū (NoR KS) and Huapai (NoR HS) Rapid Transit Stations[4] | A future rapid transit corridor (RTC) between Redhills North and Kumeū-Huapai. | May be delivered within 30 years (no funding for design or construction at this time)[3] | Construction of the RTC and active mode links may overlap with this Project's works near Fred Taylor Drive and Brigham Creek station. Shared use of corridors and access points may require coordinated staging and TTM. |

While most of the interfacing projects listed above lack confirmed funding or delivery timelines, their potential overlap with the Project's construction period could result in cumulative impacts on the transport network. However, in our opinion, standard mitigation measures that will be set out in a CTMP will adequately manage these potential cumulative impacts if construction periods coincide.

### 3.2.2 Auckland Unitary Plan

Road network activities, such as the construction, operation, and maintenance of infrastructure in existing road corridors and various zones, are a permitted activity in the Auckland Unitary Plan (Operative in Part)(AUP). Accordingly, we understand any effects associated with establishing the parts of the Project located within the existing road corridor are anticipated.

## 3.3 Brigham Creek Rarawaru to Te Whau River

In this section, we provide an assessment of the potential adverse construction transport effects of the busway and five bus stations between Brigham Creek Rarawaru station and Te Whau River. This assessment is based on the Indicative Design in addition to the Whole of Project construction effects considered in Section 3.2.

### 3.3.1 Busway between Brigham Creek and Te Whau River

Construction of the busway (excluding stations) in this section can be accommodated within designated work areas accessed via SAPs. We expect the construction effects of the busway to be minimal.

#### 3.3.1.1 Northwest Shared Path (west of the causeway)

West of the causeway, the Northwest Shared Path runs along the southern side of SH16, positioned on the same side as the Indicative Design. This proximity means construction activities may impact Shared Path users by limiting access and requiring detours. At Royal Road Mānutewhau station, the Indicative Design

[3] NoR not confirmed at time of writing

[4] Requiring Authority: Waka Kotahi NZ Transport Agency and Auckland Transport in conjunction with Te Tupu Ngātahi - Supporting Growth Alliance

would require the Northwest Shared Path to be relocated north of Royal Road. Overall, we expect the construction effects on the Shared Path to be minimal.

#### 3.3.1.2 Westgate Pedestrian and Cycle bridge

The existing Westgate Pedestrian and Cycle Bridge serves as an important active mode access across SH16, linking Hobsonville (east of SH16) to the Westgate Shopping Centre (west of SH16). The busway is proposed to run beneath this bridge and constructing the busway may require the removal or realignment of the bridge. The bridge is an important connection for people travelling between West Harbour and the Westgate Metropolitan Centre, and for access to the Northwest Shared Path. During construction of a new bridge, existing walking or cycling trips would require rerouting via Fred Taylor Drive – a less direct and more hostile environment. This could increase the exposure of people walking and cycling to increased safety risks, result in journeys not being made, or journeys being made by other modes such as private vehicle. These will be temporary effects and in our opinion the effects can be managed through a CTMP.

#### 3.3.1.3 Fred Taylor Drive underpass

The Indicative Design proposes an underpass beneath Fred Taylor Drive. Fred Taylor Drive is a key arterial route in close proximity to the Hobsonville Road interchange, as shown in Figure 3-1.

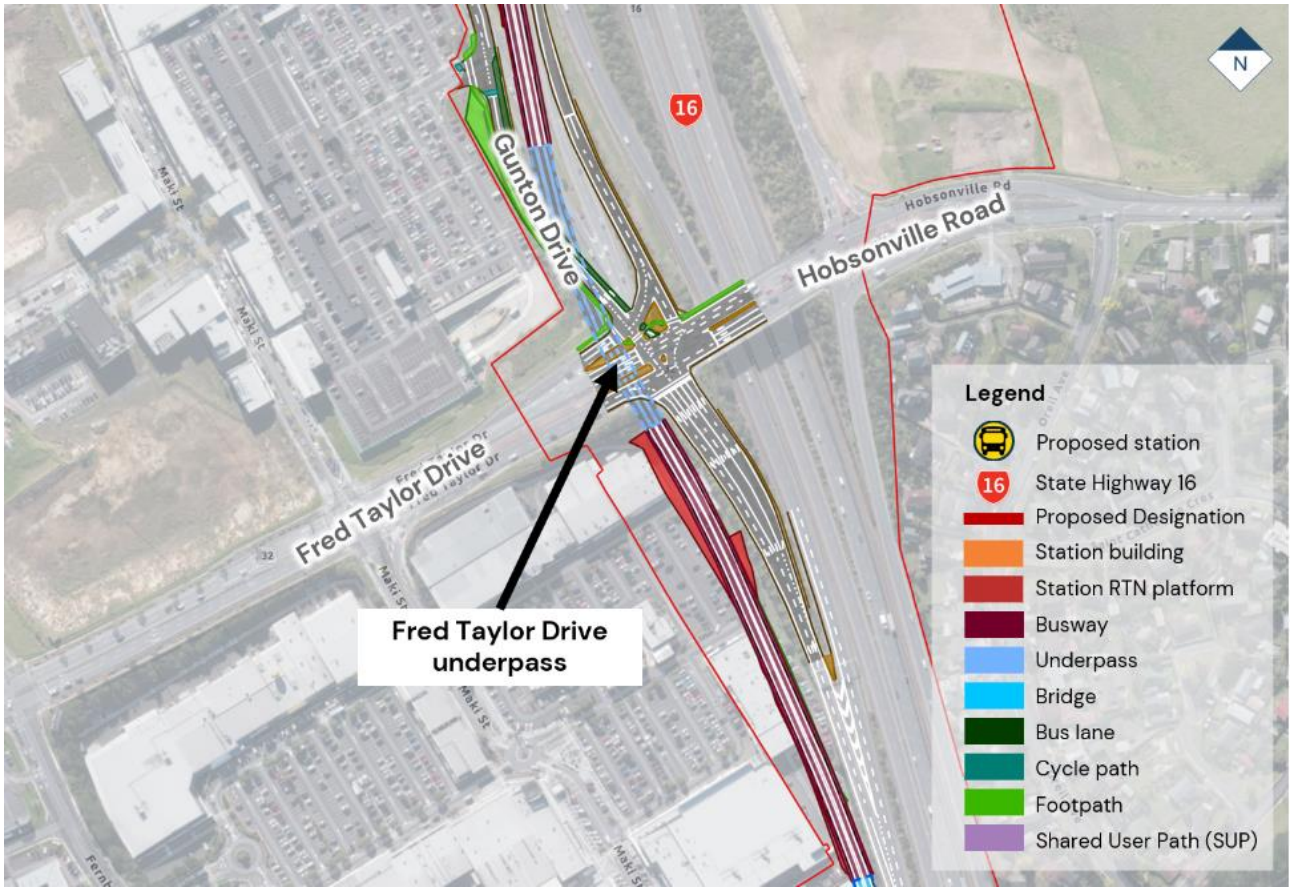


**Figure 3-1: Fred Taylor Drive underpass**

The construction of an underpass at Fred Taylor Drive is expected to take approximately four years. During this period:

- During peak activity periods, approximately 30 workers may be present on site, generating 60 daily vehicle movements (to/from site).
- Heavy vehicle movements are estimated at up to 20 trips per day (avoiding peak hours). This estimate is based on transporting approximately 20,000m$^3$ of cut material over a nine-month earthworks period using standard 10t dump trucks.

Constructing an underpass at the Fred Taylor Drive / Gunton Drive interchange is expected to cause disruptions to local road operations. The assumption is that the Indicative Design can be constructed without closing lanes at this interchange so significant disruption can be avoided. However, some disruption to traffic flow is expected due to:

- Lane shifts, narrower lanes or other geometric changes to the roadway which would increase following distances.
- Temporary speed limits and temporary traffic measures which slow vehicle movement and overall throughput.

These changes may result in temporary delays for general traffic and bus services using Fred Taylor Drive and temporary disruptions to the Northwest Shared Path access point from Westgate Drive.

The Indicative Design includes the widening, extension and remarking of the Hobsonville off-ramp to enable better lane utilisation. In our opinion, the widening of the Hobsonville off-ramp should occur prior to the construction of the Fred Taylor Drive underpass, so this capacity improvement is in place before the underpass construction occurs.

We have undertaken SIDRA modelling and considered a 10% reduction in throughput / capacity as a result of on-site TTM, due to the lane shifts and general restrictions that occur when a worksite is present. The interchange currently has an operational issue due to a heavy demand for trips in a single lane that causes queues to block back at busy periods. This queuing is particularly evident during Saturday peak hours, where the northbound off-ramp has an 19% chance of backing up to the motorway (300-350m queue). This queuing is also an issue during the PM peak on congested days. With the proposed roadworks at the interchange, there will be a greater chance of queuing back onto the motorway. The proposed roadworks will also extend the queues in all directions as the signal operation will balance these queues. However, widening the off-ramp will contain the queue within its 140m storage capacity during the peak Saturday flows and will also assist with construction traffic effects during weekday peak periods.

Approximately 244 parking spaces belonging to Westgate Shopping Centre may be removed during construction of the underpass. These parking spaces are located within the Proposed Designation (the area defined by the Proposed Designation boundary as shown on the Proposed Designation Plans in Part 6), as shown in Figure 3-2 below. Westgate Shopping Centre currently offers approximately 1,350 free outdoor parking spaces in total, with a maximum stay of 180 minutes meaning around 75% of the total parking capacity will remain available throughout construction.


**Figure 3-2: Existing parking spaces at Westgate Shopping Centre within the Proposed Designation**

Loading and servicing areas of the properties adjacent to the underpass construction sites will likely require reconfiguration to maintain access. This reconfiguration will need to be confirmed as part of the construction works negotiated with the tenant.

### 3.3.2 Brigham Creek Rarawaru station

Brigham Creek station is located in a fringe rural area north of Westgate and south of the Brigham Creek Road and Fred Taylor Drive roundabout as shown in Figure 3-3.

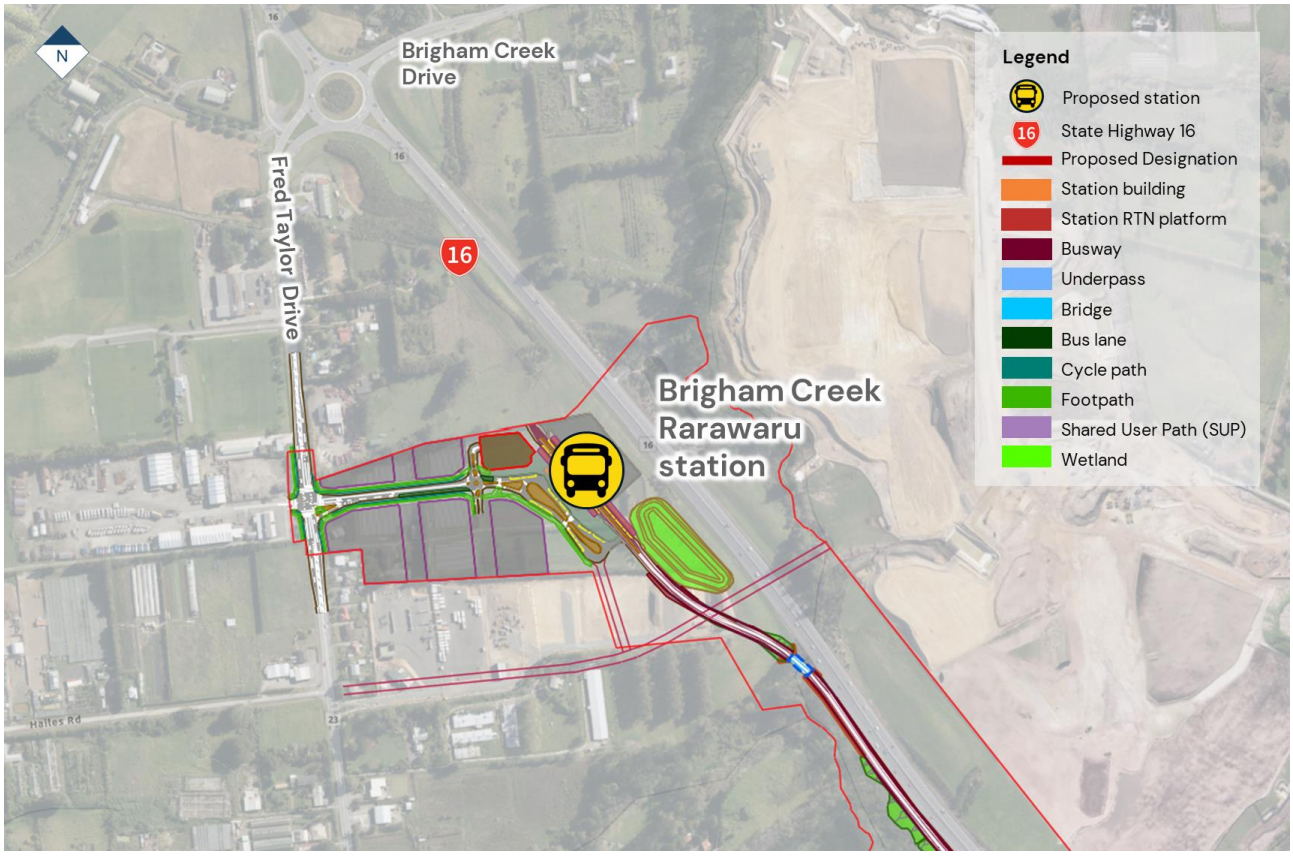


**Figure 3-3: Brigham Creek Rarawaru station – transport environment**

Fred Taylor Drive is an arterial road, currently accommodating four local bus services along its northern most section. There is no existing cycling or pedestrian infrastructure, although future upgrades are planned by AT (Fred Taylor Drive Upgrade – NoR RE2). There is an existing driveway providing access to businesses located opposite the proposed station site.

The construction of Brigham Creek station and Brigham Creek Park and Ride is expected to take approximately one and a half years. During this period:

- During peak activity periods, approximately 40 workers may be present on site, generating 80 daily vehicle movements (to/from site).
- Heavy vehicle movements are estimated at up to 20 trips per day (avoiding peak hours). This estimate is based on transporting approximately 15,000 m³ of cut material over a six-month period using standard 13t dump trucks.

In our opinion, the heavy vehicle movements from construction activities and traffic from workers on site are expected to be accommodated by the existing road network and adequately managed through the implementation of a CTMP.

Temporary minor delays on Fred Taylor Drive to install a new signalised intersection are expected, however local road improvements are permitted activities in the AUP and are routinely delivered with minimal disruptions.

Minor delays to bus services on Fred Taylor Drive are expected due to heavy vehicle movements on Fred Taylor Drive and temporary disruptions caused by the installation of the new intersection. However, the bus frequency (seven buses/hour each direction) is low, and we do not expect the low volumes of construction traffic to materially affect service reliability.

During construction, we consider that the temporary effects on cyclists and pedestrians using Fred Taylor Drive can be managed though a CTMP, despite the lack of existing cycling or pedestrian infrastructure.

Due to the limited number of daily construction-related vehicle movements, access to the businesses located opposite the construction site is not expected to be materially affected by construction traffic. However,

temporary access disruptions may occur during the construction of a new signalised intersection on Fred Taylor Drive. Once completed, the businesses will positively benefit from a signalised access.

### 3.3.3 Westgate Te Waiarohia station

The proposed Westgate Te Waiarohia station will be located off Gunton Drive, between Kedgley Road and Tawhia Drive as shown in Figure 3-4.

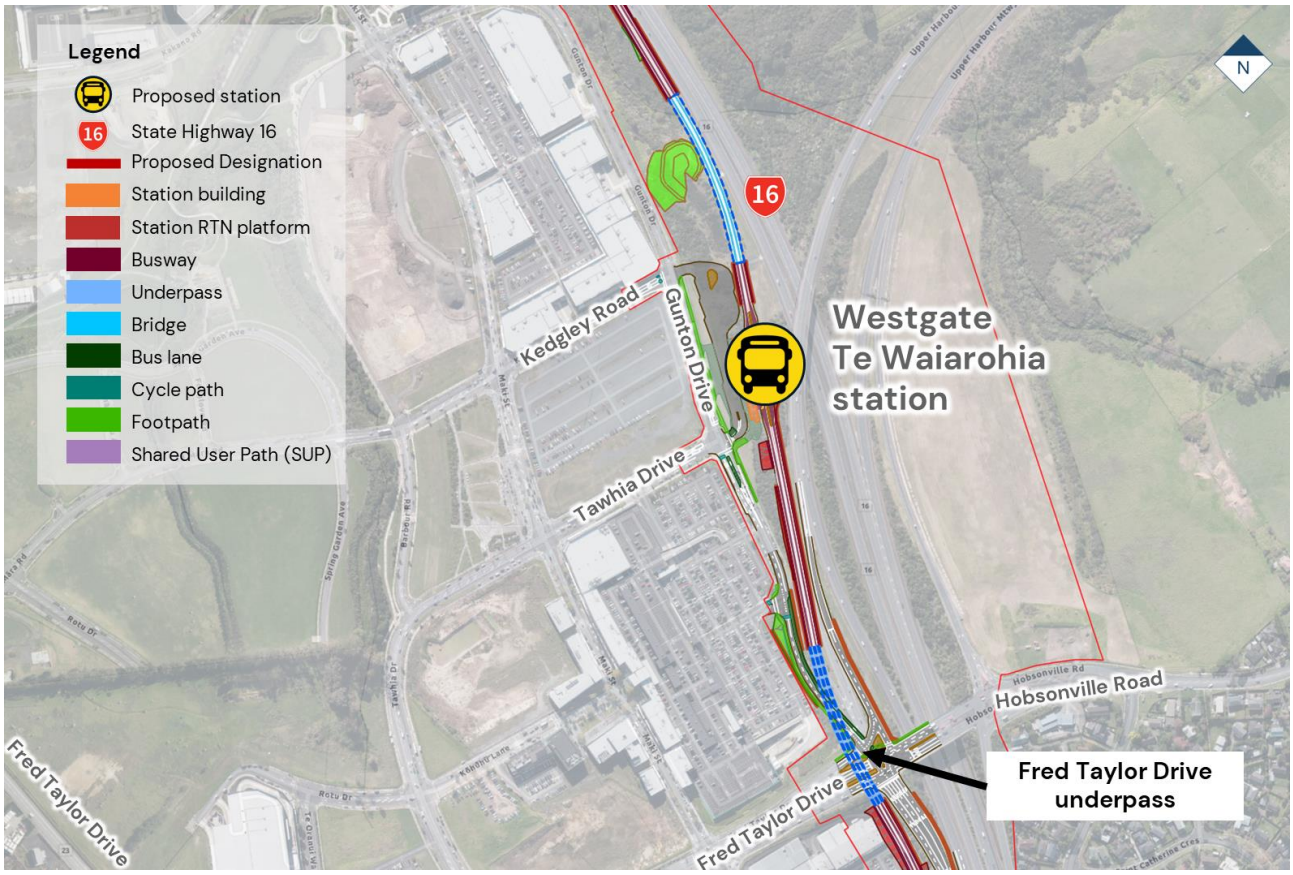


**Figure 3-4: Westgate Te Waiarohia station – transport environment**

Only part of this station is within the scope of this Project. A local bus interchange station is already currently under construction at this location and is expected to be completed by mid-2026. It will serve local bus services and the WX1 service. The Project includes the rapid transit (RT) component of the station, which will be built behind the local bus station to the east.

Gunton Drive and Fred Taylor Drive are the two key roads for construction vehicle access for this station. Both have a posted speed limit of 50km/h and:

- Gunton Drive is a two-lane road (predominantly one lane in each direction) that runs parallel to SH16. It is privately owned north of Kedgley Road. It features on-street parking on both sides and serves as a connection between the NorthWest Shopping Centre and the Westgate Lifestyle Shopping Centre.
- Fred Taylor Drive, a primary arterial, links SH16 to Gunton Drive. It is designated as an over-dimension route and includes dual lanes in both directions near the SH16/SH18 interchange. The road is currently heavily used by construction vehicles supporting various developments in the Westgate area.

Local bus routes around Westgate operate along Fred Taylor Drive, Tawhia Drive, Kedgley Road, Maki Street, and Gunton Drive. After Brigham Creek station is opened and before the RT component of Westgate station and the busway between these two stations is built, the WX1 service is proposed to run along Northside Drive and Fred Taylor Drive.

The area around Westgate station experiences significant foot traffic due to the Westgate and NorthWest Shopping Centres. Maki Street, the main pedestrian thoroughfare, features Te Pumanawa Square, a shared

zone with a 30km/h speed limit between Tawhia Drive and Fred Taylor Drive. Other roads have a 50km/h speed limit.

The construction of the RT component of the Westgate station is expected to take approximately one and a half years. During this period:

- During peak activity periods, approximately 30 workers may be present on site, generating 60 daily vehicle movements (to/from site).
- Heavy vehicle movements are estimated at up to 15 trips per day (avoiding peak hours). This estimate is based on transporting approximately 5,000m$^3$ of cut material over a six-month earthworks period using standard 13t dump trucks.

Construction works for the RT component of the Westgate station will be in close proximity to an existing public transport facility (Westgate Station – Phase 1 Local Station). Heavy vehicles are expected to access the station via Gunton Drive from Fred Taylor Drive, which offers the most direct connection from the Westgate interchange. Heavy vehicles are expected to avoid using Tawhia Drive, Kedgley Road and Maki Street, which experience high levels of pedestrian activity and crossing movements.

Additionally, the SAP for heavy vehicles is expected to avoid the Kedgley Road/Gunton Drive and Tawhia Drive/Gunton Drive intersections used by local bus services accessing Westgate Station – Phase 1 Local Station.

The indicative SAPs and haulage routes are anticipated to help minimise disruptions to Westgate local bus service operations and reduce interaction between construction traffic, general traffic, local bus movements, and pedestrians as much as possible.

The construction of a two-way link on Gunton Drive, as well as upgrading the existing intersection at Fred Taylor Drive and Gunton Drive will also result in temporary, minor traffic disruptions on Gunton Drive and Fred Taylor Drive during construction. The two-way link on Gunton Drive Link involves introducing a southbound bus lane on Gunton Drive to improve bus service efficiency. Upgrades to the existing Fred Taylor Drive / Gunton Drive intersection will improve bus priority. We consider that there is sufficient space adjacent to the motorway to construct this two-way link and Fred Taylor Drive / Gunton Drive interchange upgrade.

These local road improvements may also cause temporary disruptions to the intersection on Gunton Drive to the NorthWest Shopping Centre carpark. However, due to the low volume of construction vehicle movements and potential to schedule works during off-peak periods, the disruption is not expected to materially affect public access to those carparks. Local road improvements are permitted activities in the AUP and are routinely delivered with minimal disruptions.

Temporary closure of the eastern footpath of Gunton Drive will have negligible impact due to limited footpath usage on this side of Gunton Drive (only used for carparking).

### 3.3.4 Royal Road Mānutewhau station

Royal Road station is located on the north side of Royal Road, with Royal Road School to its west and SH16 to its east as shown in Figure 3-5.

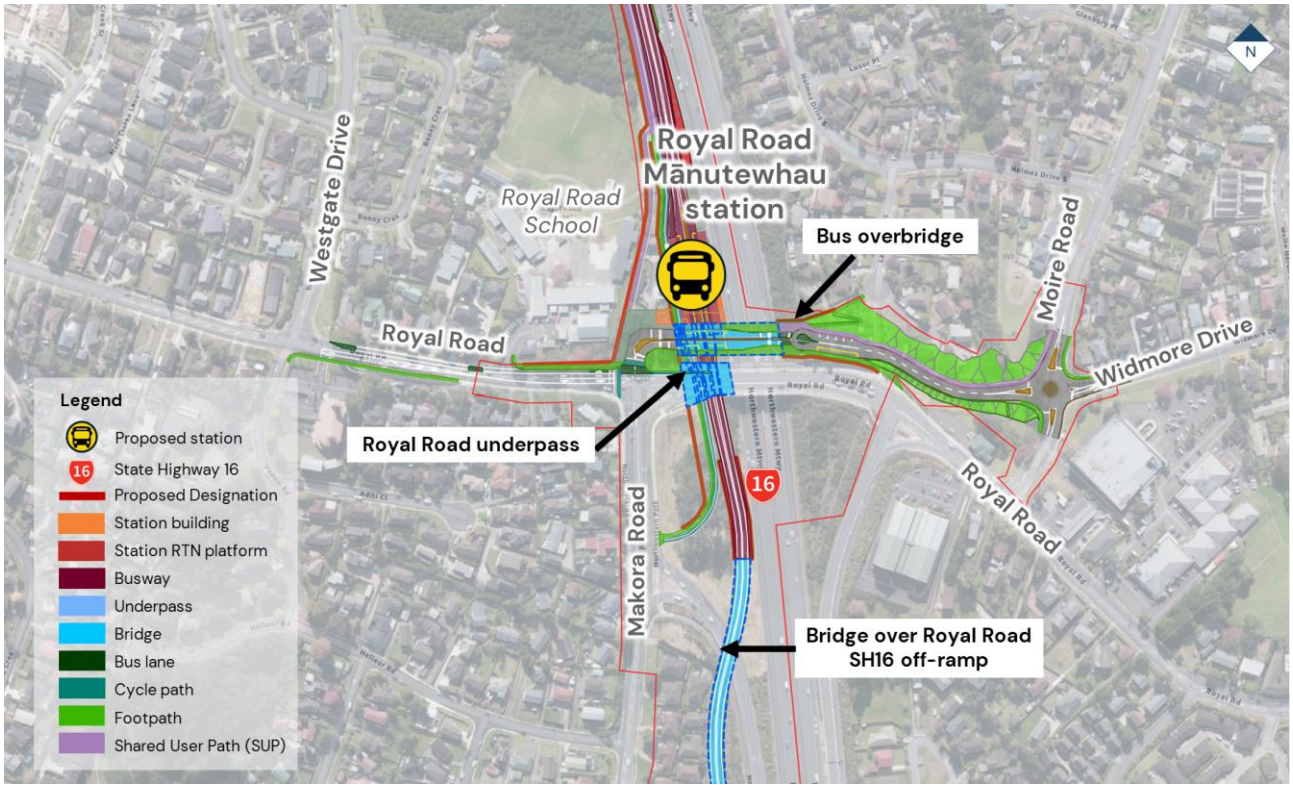


**Figure 3-5: Royal Road Mānutewhau station – transport environment**

Royal Road interchange is a congested, south-facing SH16 motorway interchange. There are no north facing ramps. The Royal Road bridge across SH16 is three-laned, with two lanes in the eastbound direction and one lane in the westbound direction. Makora Road connects Royal Road to Triangle Road (which will provide access to Lincoln Road Wai o Pareira station).

Royal Road, Makora Road and Moire Road are all classified as arterial roads, while Westgate Drive is a collector road and Widmore Drive is a local road. Most roads in this area have a speed limit of 50km/h, with some sections varying between 40km/h and 50km/h.

Royal Road functions primarily as a movement corridor with limited on-street parking, though parking is available on adjacent side roads. Several residential properties and Royal Road School have direct driveway access along Royal Road, with the school located just west of the proposed station.

Local bus services operate along Royal Road, Westgate Drive, and Makora Road. The existing Royal Road bridge includes pedestrian footpaths and unsegregated cycle lanes, but connectivity to the Northwest Shared Path is poor, requiring users to cross two busy intersections.

The construction of Royal Road station and the new Royal Road bus overbridge is expected to take approximately three years. The construction of the Royal Road station itself is anticipated to take approximately one and a half years.

The Royal Road bus overbridge will be used by local buses for layovers and will include a pick-up/drop-off (PUDO) area for private vehicles, entering and exiting via a new roundabout connecting Moire Road and Widmore Road on the eastern end of the bridge. In addition to the new roundabout, a fourth arm will be added to the existing Makora Road and Royal Road intersection to enable buses to access the bus overbridge. These local road improvements are permitted activities in the AUP and are routinely delivered with minimal disruptions.

During the total three-year construction period:

- During peak activity periods, approximately 40 workers may be present on site, generating 80 daily vehicle movements (to/from site).

- Heavy vehicle movements are estimated at up to 20 trips per day (avoiding peak hours). This estimate is based on transporting approximately 25,000m$^3$ of cut material over a nine-month earthworks period using truck and trailer combinations.

Construction of a station adjacent to SH16 will potentially result in traffic disruptions and delays to SH16 and Royal Road. Temporary road closures will be required on the existing Royal Road bridge during construction of the busway underpass. We recommend the construction of the new bus overbridge to be completed prior to commencing the underpass construction. This will enable general traffic to be diverted onto the overbridge during underpass works, diverting traffic away from construction areas and maintaining east–west connectivity across Royal Road.

Temporary disruptions to SH16 may result from the installation of the major bridge structures. The most disruptive construction activities for SH16 and the Royal Road interchange (such as installation of piles, piers, and crossheads) may be scheduled as night works. These works may occur over short periods (for example, between 2–15 nights), supported by appropriate TTM.

Construction of the station will potentially require temporary re-routing and relocation of bus stops for services 111 and 11T. Once the bus bridge is constructed, the 111 service will likely be diverted onto the bus overbridge to maintain the east-west connection over SH16 if the existing Royal Road bridge is temporarily closed during construction of the busway underpass.

### 3.3.5 Lincoln Road Wai o Pareira station

Lincoln Road station is located south of SH16, with access via Lincoln Road and Central Park Drive to Henderson, and Triangle Road to Massey as shown in Figure 3-6.


**Figure 3-6: Lincoln Road Wai o Pareira station – transport environment**

Lincoln Road, a primary arterial, experiences significant congestion, particularly during peak hours. Triangle Road, a primary arterial and Central Park Drive, a secondary arterial, form part of the main corridor in the network. All three roads have a posted speed limit of 50km/h.

Walkability around the proposed station is limited due to vehicle priority. Triangle Road features one-way cycle lanes on both sides between the Huruhuru Creek bridge and Lincoln Road. Users of the Northwest Shared Path must cross four sets of traffic lights to reach the other side of the Shared Path across Lincoln Road.

There is no on-street parking on Lincoln Road and Central Park Drive to prioritise the movement functions of these roads. There is also no provision of on-street parking on Triangle Road between Huruhuru Creek bridge and Lincoln Road (where the future station access is proposed).

The construction of Lincoln Road station itself is expected to take approximately one and a half years and with the Lincoln Road underpass, the total duration in the vicinity is approximately three years. During this three-year period:

- During peak activity periods, approximately 40 workers may be present on site, generating 80 daily vehicle movements (to/from site).
- Heavy vehicle movements are estimated at up to 50 trips per day (avoiding peak hours). This estimate is based on transporting approximately 25,000$m^3$ of cut material over a nine-month earthworks period using truck and trailer combinations.

Construction of Lincoln Road station and associated works will result in traffic disruption and delays to SH16 and Lincoln Road. SH16 is likely to be impacted due to a reduction in road capacity on Lincoln Road, and therefore more frequent queuing that will occur back into SH16.

We recommend the construction of the new bus station to be carried out ahead of the underpass works. This construction order would move bus operations, and the existing interchange bus stops away from the underpass construction area.

Two new intersections on Triangle Road and upgrade of the signalised intersection at Central Park Drive and Lincoln Road will cause temporary disruptions to Triangle Road and Lincoln Road operations. However, local road improvements are permitted activities in the AUP and are routinely delivered with minimal disruptions.

There will be disruptions to bus services using Triangle Road and Lincoln Road and relocation of existing bus stops will be required. Access to existing WX1 bus stops may be impacted during construction of Lincoln Road station, and require the relocation or diversion of access routes.

Cycle lanes on Triangle Road and the Northwest Shared Path connection may be disrupted.

### 3.3.6 Te Atatū Ōrangihina station

Te Atatū is a well-established, primarily residential area separated by SH16 into two neighbourhoods (Te Atatū Peninsula - north of SH16, and Te Atatū - south of SH16) and connected by the Te Atatū interchange. As the only link between these areas, the Te Atatū interchange often experiences congestion. The existing Te Atatū interchange bus stops located within this high-traffic area also raises pedestrian safety concerns due to limited separation from vehicle movements.

Figure 3-7 shows the transport environment around Te Atatū Ōrangihina station.

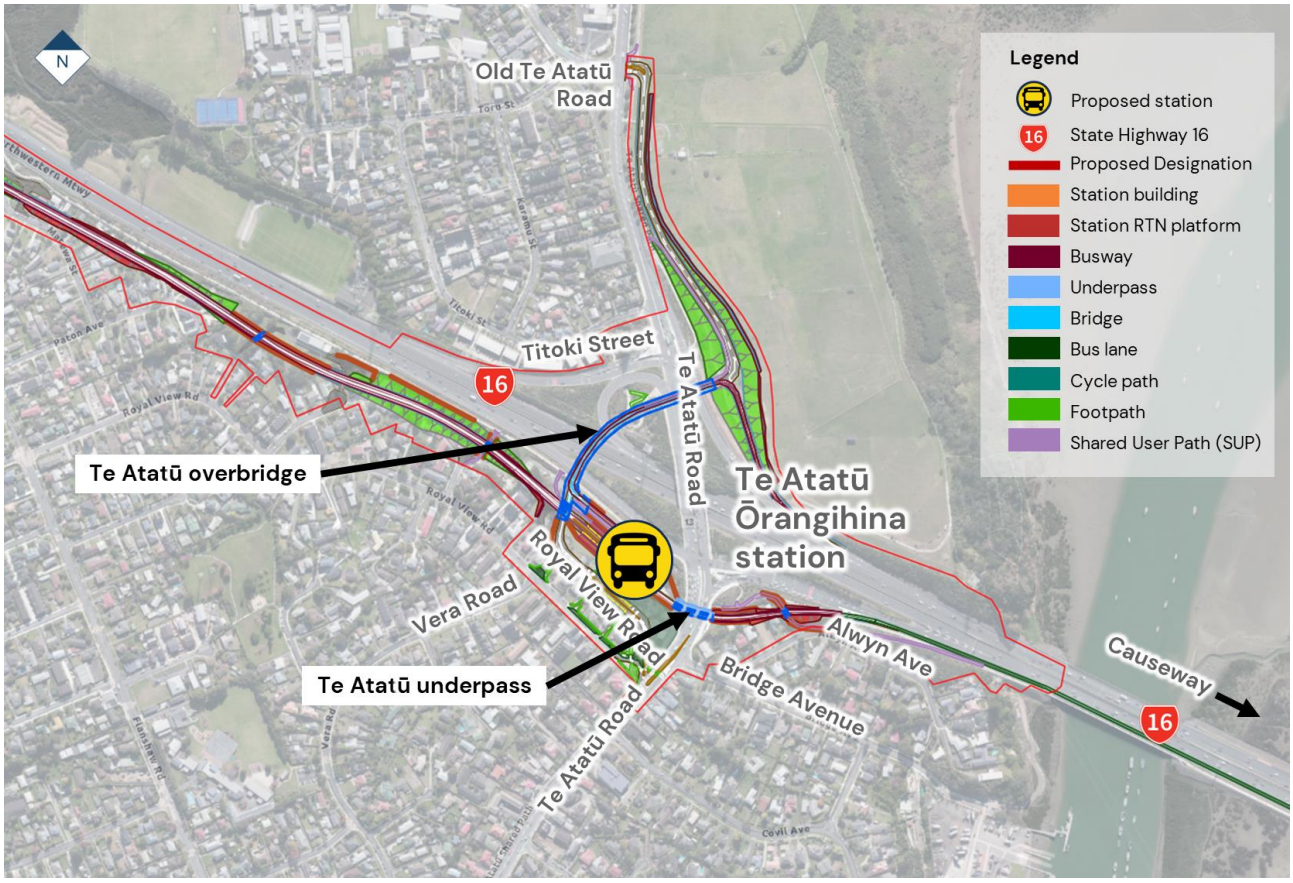


**Figure 3-7: Te Atatū Ōrangihina station – transport environment**

Te Atatū Road near Royal View Road is classified as a primary arterial road, while Royal View Road, Vera Road, Bridge Avenue, and Alwyn Avenue are local roads. Old Te Atatū Road is a collector, and Titoki Street is a local road. All roads have a speed limit of 50km/h.

The Te Atatū bridge over SH16 has shared use paths on both sides of the road, connecting to the Northwest Shared Path. However, the lack of dedicated cycle lanes means connectivity for cyclists across both Te Atatū Peninsula and Te Atatū South is poor. Cyclists using the Shared Path are required to cross two traffic signals to navigate Te Atatū Road. An existing underpass of Te Atatū Road provides a good level of service for users of the Shared Path.

The construction of Te Atatū station, the overbridge and the Te Atatū Road underpass is expected to take approximately three years. During this three-year period:

- During peak activity periods, approximately 40 workers may be present on site, generating 80 daily vehicle movements (to/from site).
- Heavy vehicle movements are estimated at up to 20 trips per day (avoiding peak hours). This estimate is based on transporting approximately 25,000m$^3$ of cut material over a nine-month earthworks period using truck and trailer combinations.

Construction of a station adjacent to SH16 will result in traffic disruptions and delays to SH16, Te Atatū Road and Royal View Road.

There may be temporary road closures and lane diversions on the existing Te Atatū bridge during construction of an underpass. It is assumed the construction of the new bus overbridge will be completed prior to commencing the underpass construction to provide additional capacity for all modes during construction.

Temporary closure of SH16 or lane shifts at Te Atatū to construct the overbridge will cause traffic disruptions. The most disruptive construction activities for SH16 and the Te Atatū interchange (such as installation of piles, piers, and crossheads) are expected to be scheduled as night works. These night works will likely be

over short periods (typically between 2–15 nights) and will result in short-term traffic disruption on SH16 and the local road network.

Intersection works around Te Atatū station will cause temporary delays. Local road improvements are permitted activities in the AUP and are routinely delivered with minimal disruptions.

There will be temporary and minor delays for bus services at the Te Atatū interchange. Relocation of existing bus stops will be required.

There will be disruptions to the Northwest Shared Path and access to existing WX1 bus stops during construction and temporary disruptions to driveways and access, especially on Royal View Road.

## 3.4 Waterview Interchange (east of causeway) to Ian McKinnon Drive

In this section, we provide an assessment of the potential adverse construction transport effects of the busway and two bus stations between Waterview Interchange to Ian McKinnon Drive. This assessment is based on the Indicative Design in addition to the Whole of Project construction effects considered in Section 3.2.

### 3.4.1 Busway between Waterview Interchange and Ian McKinnon Drive

Construction of the busway (excluding stations) in this section can be accommodated within designated work areas accessed via SAPs.

#### 3.4.1.1 Busway over Mountain View Road

Construction of the bridge for the busway over Mountain View Road may require temporary night-time closures with detour routes in place. Given the low traffic volumes on Mountain View Road, we expect this disruption to be minimal.

#### 3.4.1.2 Busway over Haslett Street Footbridge

Construction of the busway over the Haslett Street footbridge may require temporary night-time closures with detour routes in place. As foot and cycle traffic is typically low or absent during these hours, we expect this disruption to be minimal.

#### 3.4.1.3 Northwest Shared Path (east of the causeway)

The Northwest Shared Path runs along the southern side of SH16 (east of the causeway), while the proposed busway is mostly on the northern side until it reconnects via Ian McKinnon Drive. Since the Shared Path is on the opposite side of the busway for most of the corridor (except near Ian McKinnon Drive), we expect disruption to be minimal.

#### 3.4.1.4 Ian McKinnon Drive connection

The Ian McKinnon Drive connection includes a bridge from the east of SH16, over Haslett Street Footbridge, and under Newton Road to connect to Ian McKinnon Drive via a new intersection, as shown in Figure 3-8.

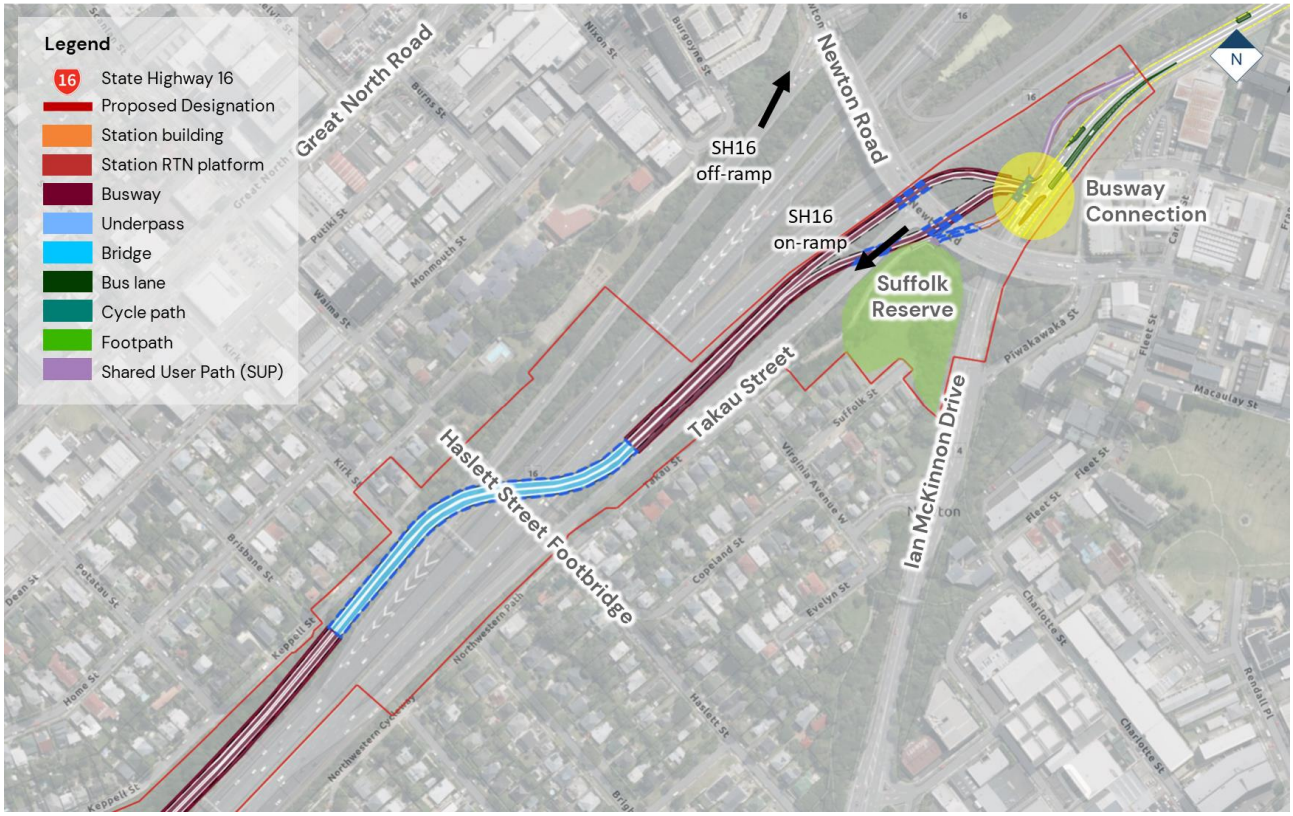


**Figure 3-8: Ian McKinnon Drive connection – transport environment**

Ian McKinnon Drive is a primary arterial road. Ian McKinnon Drive connects Dominion Road to Upper Queen Street and the city centre. The primary city centre entry and exit point for the Northwest Shared Path is located at the intersection of Ian McKinnon Drive and Upper Queen Street and is the busiest section of the Shared Path. The path runs beneath Newton Road, west of Suffolk Reserve, and connects to Takau Street.

The construction of the Ian McKinnon Drive connection is expected to take approximately two to three years. During this period:

- During peak activity periods, approximately 30 workers may be present on site, generating 60 daily vehicle movements (to/from site).
- Heavy vehicle movements are estimated at up to 15 trips per day (avoiding peak hours). This estimate is based on transporting approximately 50,000m$^3$ of cut and fill material over 18 months using standard dump trucks.

Construction sites are expected on both sides of the motorway. Construction activities are expected to cause temporary impacts on SH16 traffic, consistent with those typically associated with bridge installations over motorways. This disruption may involve temporary lane closures and reduced speed limits, leading to short-term congestion. The extent and duration of these impacts will depend on land requirements and access requirements of the construction methodology. It is expected that where possible, the lane closures will occur overnight.

Parts of the Northwest Shared Path also fall within the proposed construction zone, which may result in temporary diversions for pedestrians and cyclists. The diversions could increase journey travel times for Shared Path users.

### 3.4.2 Point Chevalier station and busway under Carrington Road

Point Chevalier is an established town centre at Great North Road, the main corridor between Point Chevalier and the Auckland City Centre. Point Chevalier Road connects to Carrington Road, leading to Mount Albert and Unitec on the south of SH16. The Waterview Tunnel, located west of the proposed station, connects SH16 with SH20, providing access to southern Auckland and Auckland Airport. Figure 3-9 and Figure 3-10 show the wider and immediate transport environments around Point Chevalier station.

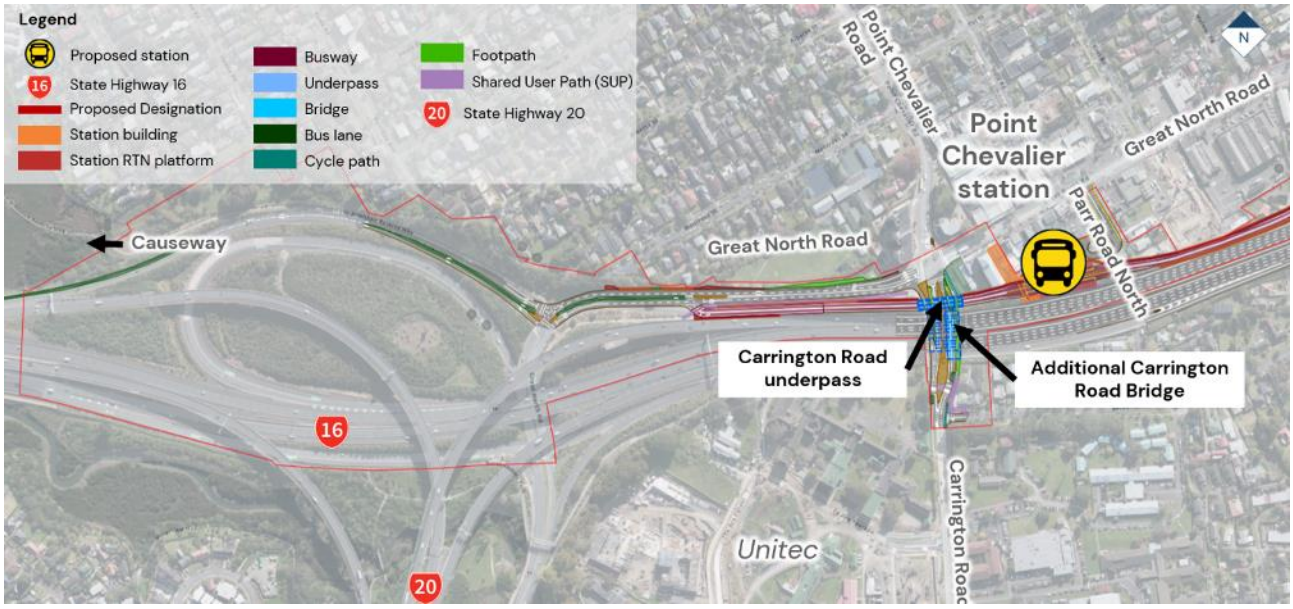


**Figure 3-9: Point Chevalier station – wider transport environment**

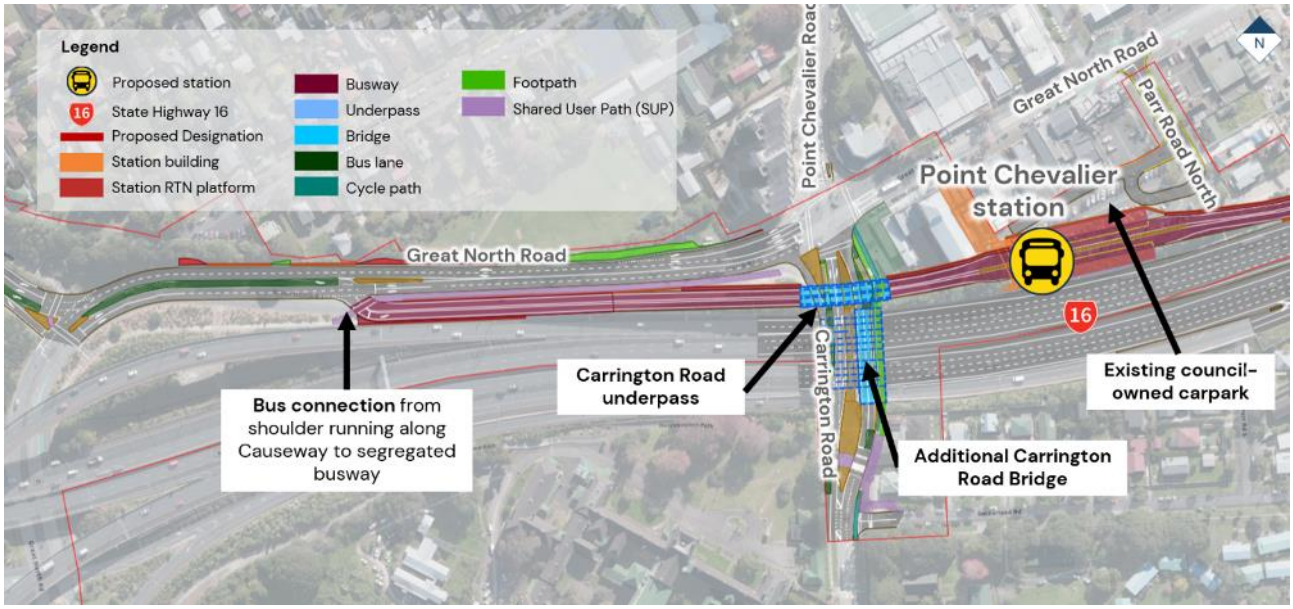


**Figure 3-10: Point Chevalier station – immediate transport environment**

Great North Road and Carrington Road are primary arterial roads with local bus services operating on them. Point Chevalier Road is a secondary arterial road and Parr Road North is a local road. All roads have a speed limit of 50km/h.

The existing active mode environment includes footpaths on both sides of Great North Road for town centre visitors and a shared off-road path along Great North Road. There is a protected cycle lane on Carrington Road between the Great North Road / Point Chevalier intersection and the SH16 shared use path and on road cycle lanes on Carrington Road through to the Mount Albert Town Centre to the south. Additionally, a new separated cycle path connecting Westmere to the Point Chevalier town centre was completed in mid-2025.

The construction of Point Chevalier station and the Carrington Road underpass is expected to take approximately three and a half years. The construction of Point Chevalier station itself is anticipated to take approximately one and a half years of this total period.

During the total three-year construction period:

- During peak activity periods, approximately 30 workers may be present on site, generating 60 daily vehicle movements (to/from site).
- Heavy vehicle movements are estimated at up to 20 trips per day (avoiding peak hours). This estimate is based on transporting 20,000m$^3$ of cut material over a nine-month earthworks period using a standard 10t dump trucks.

Construction of the station may result in temporary delays to general traffic on Great North Road due to an increased number of construction vehicles on Great North Road.

There may also be temporary delays for bus services on Great North Road and disruptions to active mode paths around Point Chevalier, in particular, the Great North Road Shared Use Path (SUP).

To accommodate construction works, the council-owned car park (approximately 102 spaces) at the southern side of Great North Road will likely need to be removed. In our opinion, the impact of this removal is expected to be low, as existing use is assumed to be largely by workers in the surrounding area, with an average duration of stay of 5.5 hours (based on an Auckland Transport parking survey on Wednesday 15 October 2025). Twenty-two people on the day of survey parked for less than two hours and in our opinion, there are parking areas in close proximity to accommodate this short stay demand. Some existing businesses and supermarkets in Point Chevalier provide parking for their staff and customers, and there are good public transport options available during construction and on-street parking in the proximity. The presence of the station and the transport choices it provides, will in our opinion mitigate the loss of parking.

There will also be temporary disruptions to some driveways and access points in Point Chevalier town centre. The CTMP will include details of how access is managed for loading and unloading of goods, rubbish collection and mail/courier deliveries for these businesses. During construction, we recommend maintaining an accessway to support loading and servicing activities carried out directly north of the council-owned car park by local businesses.

**Carrington Road underpass (busway under Carrington Road Bridge)**

The estimated construction duration of Point Chevalier station with an underpass at Carrington Road is three and a half years.

During the construction of the Carrington Road underpass, there will be a material increase in traffic delays around Point Chevalier due to:

- Potential lane closures on Carrington Road bridge, which will reduce road capacity. The reduction in capacity may be required to accommodate specific construction activities. Traffic signal timings may need to be adjusted to provide longer green phases for the impacted approaches at the Carrington Road / Great North Road intersection, allowing more vehicles to clear during each traffic signal cycle and help reduce congestion.
- Lane shifts, narrower lanes or other geometric changes to the roadway particularly at the Carrington Road intersection, which would likely increase following distances and reduce the capacity of the intersection.
- Temporary speed limits and temporary traffic measures, which will slow vehicle movement and overall traffic throughput.

We expect that some traffic will be redistributed to other corridors, to avoid the construction area. This redistribution of traffic may result in minor increases in delays in other corridors.

There may also be temporary minor delays on Great North Road with the installation of a new signalised intersection for buses to transition between shoulder-running along the causeway and the bi-directional busway. However, local road improvements are permitted activities in the AUP and are routinely delivered with minimal disruptions.

Buses using Great North Road may have temporary delays but bus lanes will minimise the impact of the works. Buses using Carrington Road and Point Chevalier Road would experience some delays during construction.

We recommend that two-way bus movements across the Carrington Road bridge are maintained throughout the construction period around Point Chevalier to preserve the operational reliability of existing bus services, including the OuterLink route, which operates every 12 minutes on weekdays from 6am to midnight. Detours are not considered feasible for buses, as alternative routes would significantly increase travel times and cause substantial disruption for public transport users.

Temporary disruptions to pedestrian and cyclist access across Carrington Road may occur during construction. Depending on the stage of works, active mode users may be required to use only one side of Carrington Road, with the footpath on the opposite side temporarily closed. Additionally, the on-road protected cycle path may need to be relocated or removed for the duration of construction.

The Indicative Design shifts the SH16 motorway lanes southwards over a distance of approximately 800m to enable construction of a section of busway between the motorway and properties immediately north of the motorway, east of the Carrington Road bridge. This will require temporary narrowing and shifts of all motorway lanes. Widening occurs progressively from the south creating additional working room. Temporary speed limits and temporary traffic measures will slow vehicle movement on SH16 and lead to reduced road capacity, congestion and longer travel times for general traffic. In our opinion the temporary delays will be minor.

### 3.4.3 Western Springs station

Western Springs is a well-established residential area and a regional destination for recreation and leisure. Major attractions in the area include Western Springs Lakeside Park, Western Springs Stadium and the Museum of Transport and Technology (MOTAT) as shown in Figure 3-11, with Auckland Zoo located to the northwest. Western Springs Stadium attracts large crowds during events. Nearby employment centres include St Lukes, Grey Lynn and Morningside.

Great North Road is the main corridor for access to the city (east) and Point Chevalier (west). St Lukes Road bridge and Mountain View Road provide crossings south of SH16.

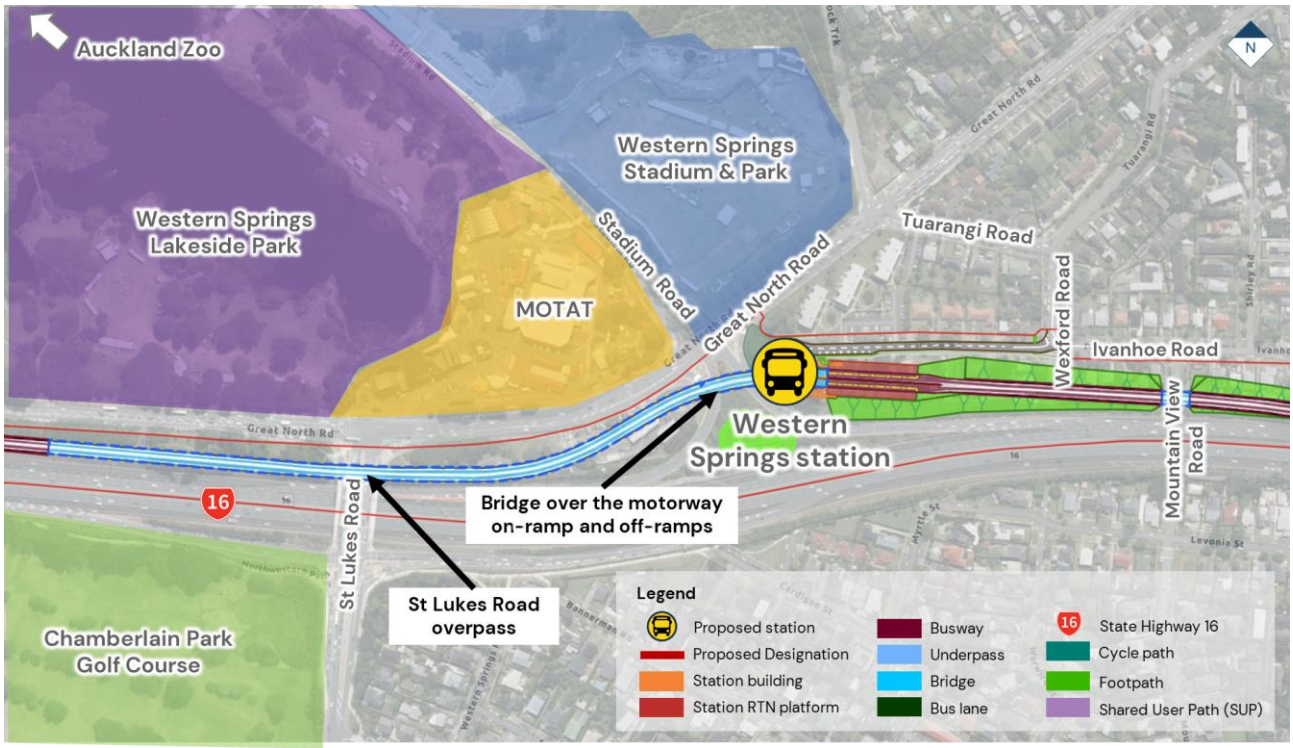


**Figure 3-11: Western Springs station – transport environment**

Great North Road and St Lukes Road are primary arterial roads.

Mountain View Road is a collector road and the route of Tuarangi Road, Wexford Road and Ivanhoe Road connecting to Mountain View Road is a collector, with the remaining sections of these roads classified as local roads. All roads have a speed limit of 50km/h.

The area experiences high pedestrian activity and parking demand due to local visitor attractions including MOTAT, Auckland Zoo, Western Springs Stadium, and Western Springs Park north of SH16, and Chamberlain Park Public Golf Course to the south. As a result of the numerous visitor attractions in the area, many pedestrians are vulnerable users, such as children. There are additional safety risks for these visitors depending on the timing and duration of construction.

Cycling is supported by an off-road SUP, mainly along the southern side of Great North Road between Point Chevalier Road and Bullock Track.

The Western Springs Stadium Redevelopment project may influence future land use and travel demand in the area, although this project is not consented so not part of the existing environment. However, in general, we recommend that CTMPs specify measures to manage special event-related traffic around Western Springs.

The construction of Western Springs station and the bridge over the motorway ramps is expected to take approximately three years. The construction of Western Springs station itself is anticipated to take approximately one and a half years.

During the total three-year construction period:

- During peak activity periods, approximately 50 workers may be present on site, generating 100 daily vehicle movements (to/from site).
- Heavy vehicle movements are estimated at up to 20 trips per day (avoiding peak hours). This estimate is based on transporting approximately 10,000m$^3$ over a nine-month earthworks period using standard 10t dump trucks.

The proposed Western Springs station location at the corner of Great North Road and the SH16 off- and on-ramps offers convenient access for construction vehicles. The location minimises disruption by reducing the need for vehicles to travel through multiple local streets in the Western Springs area.

Temporary disruptions are expected at the SH16 off-ramp, such as closures of the off-ramp to accommodate the installation of the major bus bridge structures. These works would be expected to occur at night to minimise the impact of the works. Intersection works around Western Springs station may also cause temporary traffic delays in the surrounding local road network. These activities, combined with increased construction traffic may result in minor temporary delays for bus services along Great North Road, and disruptions to active mode paths in the Western Spring area.

The busway construction may remove approximately 185 council-owned parking spaces in Western Springs at Western Springs Garden Community Hall Carpark (~136 spaces) and the Western Springs Reserve Carpark (49 spaces). This is depicted in Figure 3-12.

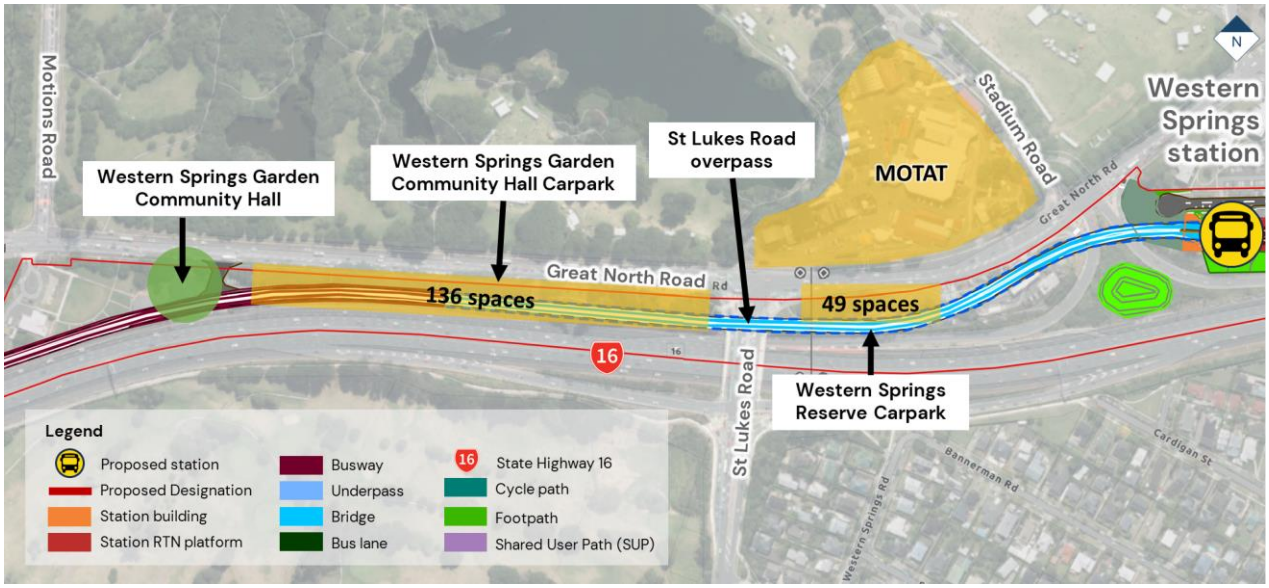


**Figure 3-12: Existing parking spaces at Western Springs within the Proposed Designation**

The current parking demand for the Community Hall will not be required once construction commences, The removal of these carparks will mean parking demand for attractions north of Great North Road (such as Western Springs, Auckland Zoo and MOTAT) will be redistributed to nearby parking facilities and surrounding residential streets. Alternative parking options are available in the area (approximately 600 parking spaces are provided north of Great North Road at the Meola Road carpark, MOTAT, Auckland Zoo, Stadium Road carpark in addition to on-street parking on Motions Road, Stadium Road, Great North Road). Auckland Council and Auckland Transport have the powers to manage the impacts on on-street parking.

Construction activities near Western Springs station may coincide with major events at Western Springs Stadium, potentially contributing to increased temporary traffic delays on nearby roads. However, the anticipated effect is minimal, with only around 20 heavy vehicle trips expected per day during the construction period. These trips are to be scheduled during off-peak hours to reduce local road disruption. The timing of these movements can be further refined to avoid peak event arrival and departure periods, helping minimise traffic delays and reduce safety risks.

## 3.5 Potential construction transport effects of alternative designs

We understand the Indicative Design may change through the detailed design phase. The Proposed Designation does not allow for significant horizontal shifts of the Indicative Design. Vertical shifts are possible within the Proposed Designation. Therefore, we have assessed the potential effects based on the 'envelope' defined by the Proposed Designation.

The Indicative Design includes underpasses at Fred Taylor Drive, Lincoln Road and Carrington Road. In this section, we consider the potential construction transport effects of alternative designs, specifically the use of overpasses at these locations. Within the envelope defined by the Proposed Designation we do not consider any other changes to the Indicative Design are likely to result in material changes to construction transport effects.

### 3.5.1 Fred Taylor Drive overpass

The estimated construction duration of an overpass at Fred Taylor Drive is three-and-a-half years.

The construction transport effects of an overpass are largely the same as the underpass option as described in Section 3.3.1.3. However, the overpass may result in reduced traffic disruption as the duration is slightly shorter and there would be reduced space requirements during construction and fewer utility works required.

Construction transport effects specific to the overpass option are outlined as follows which relate to the challenges of constructing an elevated busway within the limited working space at Westgate:

- Temporary road and lane closures on Fred Taylor Drive to accommodate the installation of structural components such as piles, piers, and crossheads. These works may occur during the night using large mobile cranes, or alternatively through the use of a launching gantry.
- Traffic signal adjustments may be necessary if lane reductions are required for column installation. For example, if a lane was reduced along Fred Taylor Drive, there would need to be an increase in the traffic signal phase time for that movement at the Gunton Drive / Fred Taylor Drive intersection. As there is limited spare capacity through the interchange, to increase the time given to one of these movements to mitigate a lane drop, would cause a reduction in the level of service of the interchange.

Overall, we consider the construction of the overpass option at Fred Taylor Drive would not materially change our assessment of construction effects.

### 3.5.2 Lincoln Road overpass

The estimated construction duration of Lincoln Road station with an overpass at Lincoln Road is three years.

The construction transport effects of an overpass are largely the same as the underpass option as described in Section 3.3.5. An additional construction transport effect specific to the overpass option is temporary road and lane closures on Lincoln Road to accommodate the installation of structural components such as piles, piers, and crossheads. These works may occur during the night using large mobile cranes, or alternatively through the use of a launching gantry.

Overall, we consider the construction of the overpass option at Lincoln Road would not materially change our assessment of construction effects.

### 3.5.3 Carrington Road overpass

The estimated construction duration of Point Chevalier station with an overpass at Carrington Road is three years.

The construction transport effects associated with the overpass option are generally similar to those of the underpass as outlined in Section 3.4.2.

Constructing an elevated busway within the limited working space over Carrington Road and the Point Chevalier commercial area would be a key challenge for the overpass option. Temporary road and lane closures on Carrington Road would be required to accommodate the installation of structural components such as piles, piers, and crossheads. However, these works can be carried out at night using large mobile cranes or alternatively using a launching gantry.

Overall, we consider the construction of the overpass option at Carrington Road would not materially change our assessment of construction effects.

### 3.5.4 Different sequencing within a work package or within Project

In our assessments above in Section 3.3 and 3.4, we have assumed the new bridges across SH16 are constructed before the underpasses (at Royal Road station and at Te Atatū station).

As part of sensitivity testing, we have also considered the potential adverse effects of alternative construction staging within each work package—for example, constructing the underpass before the bridge.

In our opinion, the sequencing of major components may influence the nature and extent of construction transport effects and the CTMP should require the contractor to consider the construction sequencing within the CTMP.

In Section 3.3, we assumed the widening of the Hobsonville off-ramp would be completed prior to the construction of the Fred Taylor Drive underpass. This sequencing ensures that the necessary capacity improvements are in place at the Fred Taylor Drive / Gunton Drive intersection before the underpass works begin. In our opinion, if the construction sequencing differs at this location, it will likely generate adverse effects, including queuing on SH16 and the local road network, and substantial delays to general traffic and buses. The CTMP should require the contractor to consider the sequencing to mitigate these impacts.

We also consider that the simultaneous closures of Lincoln Road and Te Atatū interchanges, or Royal Road westbound off-ramp and Westgate westbound off-ramps will likely generate adverse effects.

Therefore, we recommend CTMPs to consider construction sequencing within individual work packages and in coordination with other work packages in the Project (if staging were to change or accelerate) and with other concurrent projects in the area. CTMPs should provide measures to address any cumulative effects that may arise from simultaneous activities.

### 3.5.5 Conclusion

In summary, we consider that vertical changes to the Indicative Design at Fred Taylor Drive, Lincoln Road and Carrington Road would not materially change the assessment of construction effects. While the duration and type of works may change between an overpass or underpass, the effects would be similar overall and not alter our recommendations.

We also considered the potential adverse effects of alternative construction staging within each work package and consider that alternative construction sequencing is likely to generate adverse effects. As such, the CTMP should require contractors to evaluate the sequencing of construction works to mitigate adverse impacts.

## 3.6 Recommended measures to avoid, remedy or mitigate construction effects

This section outlines the mitigation measures proposed to be implemented to avoid, remedy or mitigate the actual or potential construction effects of the Project as identified in Section 3 of this report.

In our opinion, all temporary construction transport effects will be adequately managed through standard management measures that will be set out in CTMPs.

It is common practice to address traffic management measures for large construction programmes through CTMPs.

The purpose of a CTMP is to ensure that construction activities are carried out in a manner that maintains safe and efficient movement of people and traffic throughout the construction period. Where access constraints to affected properties arise, site specific measures will be developed as part of a CTMP for the applicable Stage of Work.

CTMPs are expected to be developed for each site or stage of works to ensure mitigation strategies are responsive to the specific transport and land use conditions at each site. Where possible, CTMPs will also be prepared as close as possible to the time of construction to provide greater certainty in the expected transport conditions during the construction period.

Table 3-4 presents the recommended mitigation measures to be developed within a CTMP for this Project.

**Table 3-4: Recommended mitigation measures in CTMPs**

| Construction effect | | Recommended mitigation measures to be developed within a CTMP |
|---|---|---|
| Construction adjacent or over SH16 | Temporary lane closures and road realignments may disrupt motorway traffic causing delays and queuing.<br>To carry out larger physical works, night construction may require lane shifts, lane reductions or closures on SH16, especially in constrained areas that may increase delays and congestion. | ▪ Schedule road closures during off-peak hours (e.g., night time) as much as practicable and implement clear TTM to maintain safety.<br>▪ To manage construction effects, sequencing of works within the same vicinity should be staged appropriately |
| | Temporary shoulder closures may impact WX1 bus operations and general traffic flow. | ▪ Coordinate access timing and provide advance notice to AT; use alternative access points where feasible. |
| Local road network | Temporary lane closures and road realignments may disrupt local traffic causing delays and queuing. | ▪ Schedule heavy vehicle movements and works disrupting local road operations during off-peak hours (e.g., evenings or lower trafficked periods) as much as practicable to reduce network impact.<br>▪ To manage cumulative impacts, intersection upgrades within the same vicinity should be staged appropriately. |
| | Increased heavy vehicle movements on local roads may cause congestion and safety risks. | ▪ Use of proposed haulage routes identified in CTMPs will help minimise travel distances of construction vehicles on local roads and limit the number of intersections used by heavy vehicles. |
| Public Transport | Temporary changes to WX1 and local bus routes and bus stop relocations may reduce reliability and convenience for public transport users. | ▪ During construction, the reliability of the existing WX1 service will be maintained to a reasonable level of service to the extent practicable.<br>▪ Coordinate with AT to manage changes, maintain service efficiency, and communicate clearly with the public.<br>▪ We recommend that two-way bus movements across the Carrington Road bridge are maintained throughout the construction period around Point Chevalier to preserve the operational reliability of existing bus services, including the OuterLink route, which operates every 12 minutes on weekdays from 6am to midnight. Detours are not considered feasible for buses, as alternative routes would significantly |

| Construction effect | | Recommended mitigation measures to be developed within a CTMP |
|---|---|---|
| | | increase travel times and cause substantial disruption for public transport users. |
| Active modes | Temporary diversions to walking and cycling connectivity including the Northwest Shared Path and especially along the Te Atatū Road SUP resulting in longer journey times | ▪ During construction, the function of the existing Northwest Shared Path will be maintained to a reasonable level of service to the extent reasonably practicable.<br>▪ A 'reasonable level of service' during construction is defined as a level of service that is broadly reflective of the current operative standard, without interaction with general traffic and without a substantial increase in delay, or substantial deviation from the existing Shared Path alignment.<br>▪ Where the Northwest Shared Path requires relocation or rebuilding to enable construction of the Project, it will be rebuilt at least to the same width as the existing facility.<br>▪ Existing grade separation at motorway interchanges will be maintained.<br>▪ Where existing connections to the Northwest Shared Path from the local network are impacted by the construction of the busway, they will be replaced in a location that maintains a similar connectivity. |
| Property access | Temporary traffic delays and restricted access for residents and businesses. | ▪ Schedule works during off-peak hours, provide clear signage, and ensure alternative routes are available.<br>▪ Assess and provide safe temporary access; document provisions in CTMP and confirm final measures before works begin. Engagement with landowners to understand their requirements, undertaking to move rubbish bins for emptying to an appropriate location for weekly/fortnightly collection, maintaining access for emergency services. |
| Safety | Increased risk to road user safety due to construction traffic and activity; queuing on SH16 and ramps from construction delays.<br>Increased safety risk for all road users due to movement of construction vehicles in residential areas. | ▪ Implement safe and appropriate temporary speed limits in accordance with current traffic management standards in CTMPs.<br>▪ Proposed haulage routes limit the use of residential roads as much as possible.<br>▪ Heavy vehicle movements should be scheduled outside peak hours as much as possible to reduce network impact.<br>▪ Royal Road School – construction vehicles to avoid using local roads during peak traffic times, particularly during school drop-off and pick-up hours.<br>▪ Implement safety zones to protect workers and traffic. |
| Parking | Worker vehicle movements may increase traffic on local roads and increase local parking. | ▪ Contractors should provide sufficient on-site parking to accommodate all workers to minimise pressure on local street parking, alongside considering travel demand management options for staff e.g. the use of public transport or active modes to access the site. |
| Site Access Points (SAPs) | SAPs may cause traffic delays on local roads, turning conflicts, and pedestrian safety risks. | ▪ Design SAPs for each site.<br>▪ Restrict access during peak hours.<br>▪ Coordinate vehicle movements to avoid queuing. |
| Emergency vehicles | Risk of delayed emergency response times for emergency vehicles due to closures or detours. | ▪ Include emergency access plans in CTMPs to ensure continuous access during closures. |
| Special events | Increased traffic and safety risks during high-demand periods at events at Western Springs. | ▪ Coordinate with event organisers and Auckland Council; apply travel demand strategies and real-time traffic management to minimise impacts. |
| Cumulative impacts | Queuing on SH16 and the local road network, along with substantial delays to general traffic and buses, may result from suboptimal construction sequencing. | ▪ Consider construction sequencing within individual work packages and in coordination with other work packages in the Project (if staging were to change or accelerate) and with other concurrent projects in the area.<br>▪ Provide measures to address any cumulative effects that may arise from simultaneous activities. |

| Construction effect | | Recommended mitigation measures to be developed within a CTMP |
|---|---|---|
| | For example, simultaneous works on adjacent interchanges on SH16 (e.g., Lincoln Road and Te Atatū Road) may cause cumulative impacts on the surrounding road network. | ▪ Stage works to avoid simultaneous construction at nearby interchanges.<br>▪ Maintain detour routes in the wider road network. |

## 3.7 Conclusion on construction effects

The construction of the Project will result in a range of temporary transport effects. Overall, we consider these will be able to be appropriately addressed through future CTMPs, mitigating adverse effects such that the level of effect after implementing the CTMP will be minor.

# 4. Assessment of operational effects

## 4.1 Assessment methodology

We have assessed operational effects primarily for the year 2051, when the Project is expected to be fully completed and operational.

Throughout the development of the Project, a range of different transport modelling tools have been used to undertake quantitative assessments. These have informed the Indicative Design including the location of stations and their connections, intersections with the local road network and the form of the busway as a segregated facility.

The following transport modelling tools have been used to identify and assess the operational effects of the Project:

- **Strategic demand model:** The Auckland Forecasting Centre's MSM was used to demonstrate how the Project achieves the expected transport outcomes, namely, to enable bus rapid transit on the SH16 corridor between Brigham Creek Road and Auckland City Centre, providing the following benefits:
  - Improved travel times and reliability.
  - Increased corridor capacity and throughput.
  - A more attractive and efficient public transport option.

  Traffic forecasts from MSM were used to assess the effects of the Project by comparing the future 2051 Do Minimum scenario with the 2051 With Project scenario.
- **Corridor simulation model:** Aimsun corridor models were employed to assess bus operations on SH16. Aimsun forecast modelling was completed for 2031 and 2041. Due to the level of detail and uncertainty in demand changes beyond 2041, these timeframes are deemed suitable for a microsimulation traffic model.
- **Intersection models:** SIDRA intersection models were used to evaluate the effects of changes at intersections and local roads to traffic network operations and capacity requirements. SIDRA assessments were undertaken using a combination of the 2024 Base scenario, the 2051 Do Minimum scenario and the 2051 With Project scenario. Forecast traffic and bus volumes used in the modelling were based on MSM growth projections.

### 4.1.1 The 2051 Do Minimum scenario

The Do Minimum scenario for 2051 represents the existing transport network and committed projects assumed to be implemented in the timeframes relevant to the Project.

The existing transport network includes the bus network (WX1) along SH16 as per the November 2023 changes. Bus interchange points with local services are located at Te Atatū, Lincoln Road and Westgate with intermittent shoulder running.

The committed projects are:

- Bus lanes are provided along Great North Road from Ponsonby Road to Crummer Road.
- City Rail Link (CRL) – expected to be open and operational by 2026.
- NZTA or AT projects that have lodged or confirmed designations that are relevant to this Project:
  - Spedding Road from Fred Taylor Drive to Hobsonville Road.
  - Northside Drive is connected across SH16.
  - Alternative State Highway (ASH) 16 and Brigham Creek Road interchange.
  - Fred Taylor Drive and Brigham Creek Road are connected across SH16.

While the Rapid Transit Corridor from Brigham Creek to Huapai (with stations at Kumeū and Huapai) is designated, it is not included in the 2051 Do Minimum model scenario for Project evaluation as it would increase patronage and deliver benefits that are not associated with the Project.

### 4.1.2 The 2051 With Project scenario

The 2051 With Project scenario adds the Project and associated WX and local bus services to the 2051 Do Minimum scenario.

### 4.1.3 Operational transport effects

Table 4-1 summarises the operational transport components that are assessed as part of the operational effects of the Project.

**Table 4-1: Scope of operational transport assessment**

| Transport component | Assessment method | Information source |
|---|---|---|
| General traffic | ▪ Assessment using key model outputs including traffic volumes, levels of service and queue lengths for intersection performance and overall network performance.<br>▪ The average vehicle delay is used to classify performance into Level of Service (LOS) categories ranging from A (free-flowing conditions) to F (high congestion, delays, and queues). The LOS categories provide a qualitative rating of traffic flow and help identify potential impacts on road and intersection performance. | ▪ Transport Modelling tools (SIDRA and MSM) |
| Public Transport | ▪ Use transport modelling to determine impact on PT journey times and reliability.<br>▪ For stations, assess the capacity to accommodate future network provisions and passenger demands.<br>▪ Average bus delay from SIDRA modelling used to identify impacts on local bus network. | ▪ Transport Modelling tools (MSM and Aimsun)<br>▪ AT Remix Bus Networks<br>▪ SIDRA Intersection modelling |
| Active modes | ▪ Qualitatively assess impact on the active mode network, connectivity and accessibility. | ▪ Indicative Design<br>▪ AT walking and cycling network maps |
| Parking | ▪ High level assessment of impacts across the Project only as AT retains the ability to introduce parking controls on nearby streets around stations. No parking on SH16 or the busway. | ▪ Indicative Design |
| Property access | ▪ Identify affected accesses and assess changes proposed in Indicative Design maintains a reasonable access for affected property. | ▪ Indicative Design |
| Special events | ▪ Qualitatively assess impact during events at Western Springs Stadium. | ▪ Indicative Design<br>▪ Online sources |
| Emergency vehicles | ▪ Qualitatively assess effect on the accessibility and prioritisation of emergency vehicles within the network. | ▪ Indicative Design |

| Transport component | Assessment method | Information source |
|---|---|---|
| Cumulative effects | ▪ Assessment of the combined impact of this Project alongside other planned transport or development projects in the northwest. | ▪ AT website<br>▪ Waka Kotahi NZ Transport Agency website<br>▪ Online sources |
| Overall effects | ▪ Assessment of the combined impact of all modes and components of the transport environment. | ▪ Consideration of all the above. |

## 4.2 Positive effects

The Project will provide fast, frequent and reliable transport choices for communities in Auckland's northwest and will free up space on the motorway for freight, tradespeople and those that need to drive their vehicle. The Project benefits are set out in Part 3 of the substantive application.

The Project will improve access to employment opportunities, deliver faster and more reliable bus journeys, and expand transport choices for commuters along the SH16 corridor.

The busway will be separated from general traffic and run in both directions, as per the indicative cross-section in Figure 4-1.

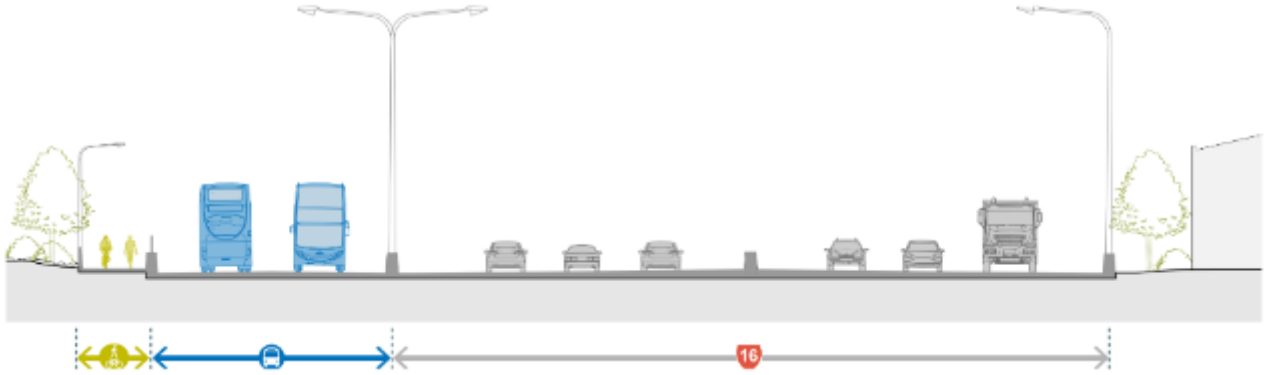


**Figure 4-1: Indicative SH16 road cross section with the busway**

### 4.2.1 Significant transport benefits

In our opinion, the completed Project will deliver significant transport benefits as outlined in Table 4-2.

**Table 4-2: Project-wide positive effects**

| Positive effects |
|---|
| **Strategic transport network effects** |
| ▪ **Completes a key gap in Auckland's Rapid Transit network**, makes cross-town PT journeys more direct and attractive, easing pressure on the region's road network, and maximising previous rapid transit investments.<br>▪ **City Rail Link** – The Project connects with Karanga-a-hape station, enabling a west - south (and wider rail network) link.<br>▪ **Potential to integrate with the Northern Busway**, with potential for service through-running in future of the Northern Express (NX) and WX bus services, enabling a West-North link and reducing bus layover space needed in the city centre.<br>▪ Complements the SH16 Alternative State Highway (RoNS) – to support growth in Kumeū-Huapai, by freeing up capacity on SH16.<br>▪ The Project between Lincoln Road and Westgate stations will **provide a section of the route for the planned Upper Harbour Rapid Transit corridor** (Henderson to Constellation Drive) and the designated extension of **rapid transit to Kumeū-Huapai** will connect directly into the Project at Brigham Creek station.<br>▪ **Integrates with AT's existing and planned strategic bus corridors** in the city centre (Albert Street, Symonds Street, Wellesley Street and Customs Street). |

| Positive effects |
|---|
| **Public transport** |
| ▪ **Improved travel times:** The Project is expected to significantly shorten PT travel times to the city centre, with a 22-minute trip from Westgate station to Karanga-a-Hape CRL station, saving up to 15 minutes in the morning peak compared to the existing WX1 in the 2024 Base scenario.<br>▪ **More consistent travel times:** The Project will reduce peak-hour bus travel time variability by 14 minutes eastbound in the morning peak and 25.5 minutes westbound in the evening peak compared to the future Do Minimum scenario. The travel time variance of WX services will be 2-4 minutes across the day due to the segregated busway.<br>▪ **Increased PT mode share:** By 2051, the Project is expected to significantly boost PT use across the northwest. To assess this, the Project's area of influence was divided into 12 zones along the SH16 corridor from Huapai–Kumeū to the city centre. The most notable increases in PT mode share were in the Brigham Creek zone (30%), Westgate zone (18%), and Royal Road zone (17%) compared to the 2051 Do Minimum scenario. These shifts reflect a reduction in car dependency and improved network efficiency.<br>▪ **Increased PT ridership:** The Project is expected to increase annual weekday bus boardings by 5.4 million by 2051.<br>▪ **Increased job and education accessibility via PT:** By 2051, the Project is projected to significantly improve access to key destinations during the morning peak, compared to the 2051 Do Minimum scenario. The proportion of the northwest population able to reach key locations within 45 minutes by PT is expected to increase by 23% at Westgate, 4% at Unitec, 26% at the city centre and 46% at the University Zone (East city centre).<br>▪ **Improved PT transferability:** The stations have been designed to support seamless transfers with local bus services, enhancing access between surrounding communities and the Project.<br>▪ **Improved PT access via active modes:** Direct connections between the Northwest Shared Path and the bus stations will offer convenient access for active mode users maximising the patronage in each station catchment. Secure cycle parking at each station will further support multi-modal travel in the northwest. |
| **SH16 throughput capacity** |
| ▪ **Increased people throughput on SH16:** The busway with the proposed services has the capacity to move up to 9,000 passengers in one direction per hour (compared to 1,000 passengers with the current bus services on SH16). The busway frees up space on the road network for heavy vehicles, trades and people who need to drive. As people move from driving along the corridor onto public transport, they make space on SH16 for others in their cars to use the corridor. These trips would most likely have been using the local road network for trips more suited to travel on SH16. Compared to the 2051 Do Minimum scenario, projected increases in people throughput on SH16 in the city centre direction include a 24% east of Lincoln, and 18% at the causeway. |
| **Active modes** |
| ▪ **Increased use of the Northwest Shared Path through enhanced safety perception:** The Indicative Design includes the removal of two existing at-grade crossings on the Northwest Shared Path at Royal Road and Lincoln Road to provide access to stations. Providing a more direct path with fewer interactions with general traffic will improve the actual and perceived safety for people walking and cycling. This improved safety will result in a reduction in the number of crashes causing injury or death, and a potential increase in use of the path particularly for commuting to major employment centres like the Auckland City Centre, and for accessing schools, parks, and other amenities along the corridor.<br>▪ **New connection over the motorway at Te Atatū:** The only existing active mode connection between Te Atatū Peninsula (north) and southern Te Atatū is the SUP at the Te Atatū motorway interchange, adjacent to high traffic volumes. The Project includes a new bus bridge over the motorway at Te Atatū, which will include a SUP that introduces a new active mode connection, improving station access and safety for pedestrians and cyclists.<br>▪ **Future-proofed regional connectivity:** The Auckland Cycling and Micromobility Network includes planned links that are not currently constructed or operational. Where the Indicative Design interacts with these planned connections, the Indicative Design does not preclude the ability for the connections to be constructed in the future. The planned connections are north of the existing terminus of the Northwest Shared Path at the yellow pedestrian bridge at Westgate, a future connection to a cycleway along SH18 as part of the SH16/18 Connections Project, and planned connections from the local road network. |
| **Safety** |
| The busway and station designs follow the current safety guidance, incorporating principles from AT's Vision Zero and NZTA's Road to Zero strategies. The busway sections are fully separated from general traffic, with grade-separated crossings at key interfaces.<br>Key safety features include:<br>▪ **Safer transfers:** Stations eliminate the need for passengers to cross live vehicle lanes and roads or interact with high-speed traffic at motorway interchanges, addressing current issues with poorly located stops and complex transfers on the WX1 (e.g. at Lincoln Road and Te Atatū).<br>▪ **Reduced bus–traffic interaction:** Bus layovers and stops are located within station areas, removing buses from local roads and reducing conflicts with general traffic. |

| Positive effects |
| --- |
| ▪ **Safe, accessible station environments:** All stations feature sheltered, well-lit areas with clear wayfinding, seating, and universal accessibility.<br>▪ **Protected active mode access:** The Northwest Shared Path is separated from local roads via new underpasses at Royal Road and Lincoln Road, removing conflict points between pedestrians, cyclists, and vehicles.<br>▪ **Crime Prevention through Environmental Design (CPTED) outcomes:** CPTED advice for the stations have been provided at a high level at the planning stages of the Project. Additional CPTED reviews for the stations will be undertaken throughout the Project as the detailed design is developed. |

### 4.2.2 Enabling improvements to the WX1 service

The Project builds on the success of the WX1 service, launched in November 2023, which has exceeded ridership expectations with passenger demands in 2024 being 40% higher than forecast. By April 2025, the total patronage of WX1 exceeded 1 million passengers since its inception.

Since its introduction, several improvements have been made to the WX1 service, including:

- Additional sections of bus shoulder running (emergency stopping lanes allowing part time bus only operation) on the mainline and through-running at some ramp diverges/merges.
- Additional bus lanes on motorway on-ramps and priority corridors.
- Extending operating hours to meet growing demand.
- The deployment of a new fleet of electric double decker buses in April 2025.

However, operational and safety concerns remain, which the Project will address.

- **WX1 routing at Westgate**: WX1 buses currently operate on local roads (Fred Taylor Drive, Tawhia Drive, and Kedgley Road), subject to congestion and reduced intersection performance in the Westgate area. The Project will relocate these services onto dedicated infrastructure, improving traffic flow and reducing bus volumes in the town centre.
- **Bus stops at Westgate, Lincoln Road and Te Atatū:** The current WX1 bus stops at these locations are temporary and lack sufficient shelter, amenities, and waiting space to support growing passenger demand. At Lincoln Road and Te Atatū, the stops are positioned within high-speed motorway interchange environments, requiring passengers to cross busy roads and navigate multiple crossings to access or transfer between services. The proposed new bus stations will centralise all services at each location, which is expected to improve safety, accessibility, and passenger comfort. These changes are anticipated to lead to increased demand for the WX1 service, encourage a mode shift to public transport, and support greater people throughput on SH16.
- **Brigham Creek and Royal Road**: The WX1 service currently does not serve these areas. The Project will extend rapid transit access to these areas, expanding the passenger catchment and enabling more northwest residents to benefit from fast, reliable connections to the city centre.
- **Point Chevalier and Western Springs**: These areas are currently served by the 11T and 11W routes along Great North Road. The WX1 does not stop on Great North Road. With new stations planned at Point Chevalier and Western Springs by 2051, passengers will benefit from faster, more direct connections to the city centre compared to current travel via Great North Road. The removal of the 11T and 11W services from the local road network will reduce bus volumes on Great North Road, improving efficiency and reliability for local feeder services.

### 4.2.3 Brigham Creek Rarawaru station

Brigham Creek station and Park and Ride will offer substantial transport benefits for Auckland's northwest, extending rapid transit coverage to the fast-growing Whenuapai and Red Hills communities.

The primary station access will be via a new access road from Fred Taylor Drive, aligned with the station entrance to offer direct visibility. Delivery of the Park and Ride facility will be staged (for example, through the initial provision of 500 spaces, with additional parking provided as demand increases). The station will serve as the terminus of the busway, but will not preclude planned upgrades that form part of the future network to the north – Brigham to Kumeū and Huapai RTN, the SH16 Alternative State Highway and a Spedding Road Connection.

### 4.2.4 Westgate Te Waiarohia station

Westgate station (Phase 2) will enhance the transport benefits of the Westgate bus station (Phase 1) by supporting the shift of the WX1 service from local roads onto the dedicated busway. This shift will shorten public transport travel times to and from the city centre and has the potential to reduce car reliance and thereby ease local road congestion in Westgate.

The new RT station has been designed to integrate with the local bus station (opening in 2026) in a flexible, staged way, taking into account the growth of Westgate as a Metropolitan Centre and the planned connections to the North Shore by interfacing projects (i.e., SH16/SH18 Connections). The RT platforms are also proposed to be positioned to enable potential future connections to the Northwest Shared Path, supporting integration with active transport networks as the area develops.

### 4.2.5 Royal Road Mānutewhau station

Royal Road station is anticipated to deliver significant benefits to the local transport network and communities in Royal Heights and Massey by providing access to the WX bus services. The Indicative Design proposes the station forecourt and entrance to face Royal Road with direct active mode access from Royal Road.

The Indicative Design proposes a parallel bridge north of the existing bridge to accommodate bus movements, active modes connections and platforms. This parallel bridge will move bus movements away from general traffic congestion on the existing bridge and its bus-only function creates a safer environment for customers to wait at stops. The new bridge and bus access interfaces with local road at the Makora Road intersection (adding an extra leg), and at Moire Road, via a proposed roundabout.

The proposed Northwest Shared Path alignment beneath Royal Road will also introduce a grade-separated crossing for pedestrians and cyclists, eliminating cyclist interactions with local roads, to improve access to the station.

### 4.2.6 Lincoln Road Wai o Pareira station

Lincoln Road station is expected to deliver significant operational benefits to the northwest. The station will primarily function as an interchange station, facilitating efficient transfers between RT bus services and local bus services from Massey, Henderson, and Rānui.

The Indicative Design includes three new access roads – two from Triangle Road and one from Lincoln Road, connecting the station to the wider transport network. These connections are expected to reduce bus delays and improve overall traffic flow in the local road network. The Indicative Design also does not preclude the future potential of a second RT route through this area, connecting Henderson to Constellation (Upper Harbour Express (UHX)).

The Northwest Shared Path is also proposed to run beneath Lincoln Road next to the busway underpass, eliminating current interactions between Shared Path users, local road traffic on Lincoln Road and bus passengers transferring between services, to improve access to the station.

### 4.2.7 Te Atatū Ōrangihina station

Te Atatū station is expected to deliver substantial operational and network benefits as a strategic transition point in the busway. The station will facilitate the shift from a segregated busway to free-flow / shoulder running along the causeway, improving service efficiency and travel time reliability for citybound services.

A key feature of the station design is its integration with a new bus and active modes bridge across SH16, which will provide:

- A dedicated, traffic-free route for local buses accessing Te Atatū Peninsula and WX buses accessing the eastbound on-ramp to the city
- A pedestrian and cyclist access across SH16 away from the motorway interchange, serving the communities either side of the motorway and nearby Rutherford College and Rutherford Primary School students.
- Improved network resilience for the Te Atatū Peninsula by providing an alternative crossing over SH16.

Station bus access from Te Atatū Peninsula will be facilitated through a new intersection leg at Old Te Atatū Road (north of SH16), linking directly to the bridge. Northbound access will be facilitated via an upgraded intersection at Te Atatū Road and Royal View Road, with an additional local connection off Royal View Road to support busway resilience. The existing Northwest Shared Path underpass beneath Te Atatū Road will also be retained, maintaining the existing grade-separated crossing for pedestrians and cyclists.

### 4.2.8 Point Chevalier station

Point Chevalier is the most urbanised station location within the Project corridor and is expected to deliver significant operational benefits. Point Chevalier station is well integrated into the existing town centre and the station entrance will be located along Great North Road either mid-block or in close proximity to the Carrington Road intersection, offering strong walking and cycling access from the established town centre. Cyclists can access from Point Chevalier Road and Carrington Road cycleways and existing SUPs on the southern side of Great North Road (east of station).

The station will provide improved connections with local bus services on Great North Road, Parr Road North and Carrington Road/Point Chevalier Road. Northwest residents will be able to interchange at Point Chevalier station to connect to bus services such as the OuterLink and buses to Sylvia Park. As urban development continues, access routes to and around the station may also be expanded to support future growth. Its location within the Point Chevalier town centre means the station will attract a significant number of passengers via walking and cycling. Transport modelling indicates that in the 2051 With Project Scenario, this station will have over 500 passengers access it via walking (or cycling) per peak hour and an additional 400 passengers transferring from local buses. The daily number of passengers interchanging at Point Chevalier station is comparable to daily patronage at Te Atatū and Lincoln Road stations.

### 4.2.9 Western Springs station

Western Springs station is expected to deliver significant positive operational effects, including improved access to key destinations such as MOTAT, Auckland Zoo, and Western Springs Stadium. The strategic location of the station will enhance connectivity and convenience for both weekday commuters and event attendees.

The station is positioned directly opposite Western Springs Stadium, a major venue for concerts, cultural and music festivals, and sporting events that can attract up to 50,000 attendees at a time. During both regular operations and major events, bus services operating from the station and nearby stops are anticipated to carry a substantial portion of visitors, helping to reduce pressure on the local road network.

The station forecourt has been designed to accommodate large crowds, with sufficient space and clear sightlines to support safe and efficient passenger movement. It also provides direct connections to key pedestrian crossings over Great North Road, minimising interchange distances to nearby bus stops and enhancing overall accessibility.

To manage potential impacts on the surrounding road network during major events at Western Springs Stadium, AT and Auckland Council, in coordination with Western Springs Stadium, will oversee the delivery of public transport services, traffic management, and parking provisions. The Western Springs station will have a positive impact on managing the transport of people to and from these major events.

### 4.2.10 Busway connections to local road network

The Indicative Design includes connections between the busway and the local road network near Lincoln Park Avenue (between Royal Road and Lincoln Road) and near Motions Road (between Point Chevalier and Western Springs). These connections will enable buses to enter and exit the segregated corridor. The connections are strategically located as resilience access points for the busway to the west and east of the causeway respectively.

Buses or emergency vehicles can exit or enter the busway at these locations during planned and unplanned disruptions, such as periods of maintenance or when an incident requires closure of a station or a section of the busway. The connections will be designed to ensure that general traffic cannot access the busway at the location, for example through use of gates, bollards or barriers.

The proposed resilience access point on Great North Road may also support special events at Western Springs Stadium, enabling buses to park on Great North Road and access the busway to serve stations before continuing their routes.

Overall, we consider these connections a positive effect of the Project.

## 4.3 Whole of Project operational transport effects

This section provides an overview of the operational transport effects relevant to the *whole* Project. It focuses on how the busway and associated infrastructure will function once in service.

As outlined in Section 4.2 of this report, the Project is expected to deliver substantial operational benefits, including improved travel times, reliability, and network efficiency. Due to its predominantly segregated and grade-separated design, in our opinion any adverse operational effects are negligible.

Overall, we consider the Project will generate significant positive operational transport effects.

### 4.3.1 SH16 effects

The busway will run as a predominately segregated, off-line corridor alongside SH16, primarily serving end-to-end Western Express (WX1 and WX2) services between Brigham Creek and the city centre. On the causeway, the busway will remain operating as a shoulder-running facility.

As the busway will operate independently of SH16's general traffic lanes, the busway has no direct impact on SH16 lane capacity, similar to the Northern Busway. By 2051, WX services will run up to 60 buses per hour in each direction during peak times. Route 21 will also use the busway between Brigham Creek station and Te Atatū station, before diverging onto local roads via Rosebank Road. Route 21 will run up to six services per hour during peak hours.

Modelling forecasts (AFC MSM model) confirm the Project will have a negligible impact on SH16 operations, with little difference in traffic volumes between the 2051 Do Minimum and 2051 With Project scenarios (0-2% difference).

In conclusion, we consider traffic volumes remain similar and there are no capacity reductions for traffic along the SH16 corridor.

### 4.3.2 Local road effects

In our opinion, the Project will have a negligible impact on the volume of general traffic and heavy vehicles on local roads. While the location of the busway and station access points may alter travel patterns within the Project Area, these changes are not expected to materially alter overall traffic volumes on local roads.

This outcome has been confirmed by modelling forecasts (AFC MSM model), which show negligible differences in 5-day Average Daily Traffic (ADT) between the 2051 Do Minimum and 2051 With Project scenarios for key roads directly adjacent to the proposed stations: Fred Taylor Drive, Royal Road, Lincoln Road, Te Atatū Road, Carrington Road, St Lukes Road and Ian McKinnon Drive.

### 4.3.3 Station access effects

The introduction of new stations along the busway is expected to increase passenger movement around station areas, particularly during peak periods. This anticipated growth is supported by recent trends in public transport across the northwest. Bus ridership has grown quickly in the northwest, with passenger demands in 2024 being 40% higher than forecast.

Figure 4-2 illustrates projected 2051 AM peak access and egress demand across the seven stations. The busiest stations are expected to be Brigham Creek, Westgate, Lincoln Road and Te Atatū stations. Te Atatū station, Lincoln Road station and Westgate station will continue to function primarily as transfer hubs, consistent with current patterns.

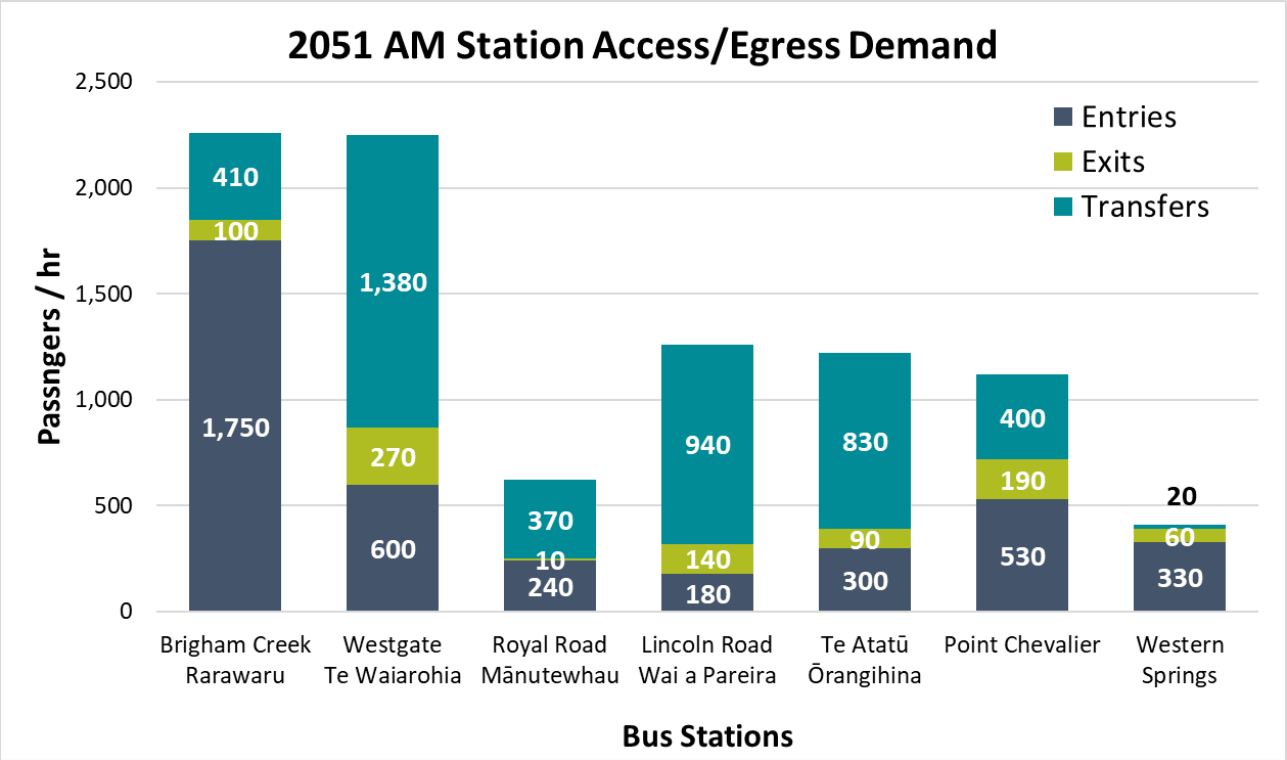


**Figure 4-2: 2051 AM Project station access/egress demands**

Access and egress activity around the new station locations, particularly during peak periods is anticipated to be primarily supported by:

- Local feeder bus services (expected to carry most passengers).
- Private vehicle movements, including pick-up drop-off (PUDO) movements, and the Park and Ride at Brigham Creek.
- Active modes, such as walking and cycling.

### Bus station access

The Proposed Designation includes adequate space for platform access, bus and vehicle circulation routes, and forecourt layouts to have efficient movements and minimise impacts on the surrounding road network. This includes two new bridges over SH16 at Royal Road and Te Atatū to improve the reliability of bus services and mitigate impacts on the local road network.

Throughout the design development, we recommended appropriate mitigation measures to be included in the Indicative Design so that all intersections with the local road network have a minor or less impact.

Station design parameters have been applied based on each station's function and expected growth and to provide capacity for future demand. Intersection upgrades and new connections have also been proposed to improve integration with the surrounding network.

### PUDO station access

PUDO facilities are proposed at all stations. These are proposed within the station layout or in the instance of Point Chevalier station on Great North Road where short-term parking already exists in close proximity to the station.

The number of PUDO spaces at each location will be confirmed at a later date and will be guided by requirements of Auckland Transport's Engineering Design Code and observed demand at the already operational Northern Busway stations. The provision of some PUDO will enable those that need to be driven to the station to do so safely. Most passengers are expected to arrive and depart via local buses, or by active modes (with the exception of the Park and Ride at Brigham Creek station). SIDRA intersection modelling at the local road intersections has taken into account estimated PUDO demand.

Some WX passengers may choose to drive to local streets near the bus stations and then catch the WX. If there are any residual impacts to on-street parking for residents following construction, AT as the local road controlling authority can manage the impacts if needed.

**Active mode station access**

The Project will enable station access for active modes by providing connectivity with the Northwest Shared Path, supporting safer and more direct walking and cycling routes for local communities.

The Project will retain or replace any impacted parts of the walking and cycling network post-construction. Some improvements such as new or separated crossings, and separation of walking and cycling paths are included in the Project, primarily to ensure there is safe access to the stations. These improvements are anticipated to have the additional benefit of increasing patronage on WX services by making station access easier and more attractive.

**Conclusion**

As the Indicative Design of the stations appropriately accommodates the expected movements and demands of all transport modes, we do not anticipate any adverse impacts on local roads associated with station access and egress.

### 4.3.4 Active mode effects

The Indicative Design has considered the needs of existing active mode users throughout the corridor to minimise disruption. The Northwest Shared Path is expected to serve as a primary active mode route for accessing stations.

Where the Northwest Shared Path requires relocation or rebuilding to enable construction of the busway, it is intended that the path will be rebuilt to at least the same width as the existing facility. Existing grade separation at motorway interchanges (i.e. Te Atatū) will be maintained where it currently exists, and new underpasses proposed at Lincoln Road and Royal Road will eliminate cyclist interactions with local roads and enhance safety and connectivity for active mode users.

Where the Northwest Shared Path provides access to the stations, there is potential for interaction between through-cyclists and slow-moving cyclists or pedestrians. Enhancements to the Shared Path, such as widening and separating walking and cycling areas around and within stations, will address any safety issues arising from the interaction between through-cyclists and those accessing the stations, maintaining safety and service levels for all users.

In a number of locations, including the eastern approach to Te Atatū Road and at Ian McKinnon Drive, the Indicative Design introduces increased lengths of gradient over 5% on the Northwest Shared Path due to the need to cross the busway. The introduction of additional lengths of increased grades over a short distance will impact people walking, running and cycling. The negligible effect is due to the ascents being more of a challenge for people to travel along in comparison to a flat gradient along with the descents, which can result in cycling speeds potentially beyond people's competence or comfort. This additional length of increased grades may create an access barrier for a small proportion of people, resulting in some existing users no longer using the Northwest Shared Path or restricting the potential growth in new users.

Overall, in our opinion, the Project will have positive active mode effects.

### 4.3.5 Parking effects

The expected parking effects of the Project include:

- At the Westgate, Te Atatū and Western Springs stations, a small number of on-street spaces on Gunton Drive, Royal View Road and Ivanhoe Road respectively may need to be removed to enable station access.
- At Point Chevalier, the station footprint is located on an existing Council-owned car park, which will require the removal of approximately 102 parking spaces. However, PT and active mode uptake at Point Chevalier is expected to increase with the new station, reducing future reliance on private vehicle parking, and we consider a more efficient use of this land. As a result, the parking provisions on local

roads and in existing off-street parking areas are expected to be sufficient to accommodate future parking demands.

- Some parking spaces will be permanently removed at Western Springs. However, with the introduction of Western Springs station, more people will be able to access the key destinations in this area using the busway, resulting in overall positive effects of the station.
- Along the SH16 corridor, the busway runs independently of local roads, using bridges and underpasses, avoiding conflict with areas that typically offer on-street parking.

  Overall, while some parking will be removed due to the Project, we consider the increased attractiveness and forecast increased demand PT is likely to reduce the overall demand for parking in these areas. Additionally, there are parking facilities available nearby if parking is required. If there are any residual impacts to on-street parking for residents following construction, AT as the local road controlling authority can manage the impacts if needed.

### 4.3.6 Property access effects

The Project will require permanent relocation of some residential and commercial property accesses, as well as accesses to some utility substations and loading areas for Westgate Shopping Centre businesses. The specific treatment for each access will be determined during detailed design, taking into account final design details and adjacent land use, to ensure continued functionality.

We understand property access relocation will be addressed through PWA processes, and therefore there will be no adverse effects.

### 4.3.7 Sensitivity testing

We consider that the overpass options at Fred Taylor Drive, Lincoln Road, and Carrington Road discussed in Section 3.5 above would have no adverse operational effects.

As discussed in Section 4.3.4, the Northwest Shared Path is expected to serve as a primary active mode route for accessing stations. If the Project does not retain the existing Northwest Shared Path or materially impact the existing connectivity, we consider this will have adverse operational effects to existing Shared Path users and active mode access the proposed stations.

As discussed in Section 4.1.1, the 2051 Do minimum scenario represents the existing transport network and committed projects assumed to be implemented in the timeframes relevant to the Project. In our opinion, if these projects are not implemented in the assumed timeframes, it would not make a material impact to transport effects of the Project.

## 4.4 Recommended measures to avoid, remedy or mitigate effects

We consider the Project will not result in any material adverse operational effects, and for that reason no mitigation measures are proposed.

## 4.5 Conclusion on operational effects

In conclusion, we consider the Project will deliver significant positive transport outcomes.

This Project has been developed in collaboration with AT to enhance PT performance without compromising the operation of SH16 or the local road network. Potential operational effects have been mitigated through the design of the Project and any remaining adverse effects are negligible. Overall, the Project will deliver significant transport benefits.