



2 Justification for the Project

2.1 Overview

This Section provides background to the Project and sets out the following:

- The need for the Project;
- The strategic context;
- The development of the Project; and
- The benefits of the Project.

2.2 The Need for the NCI Project

As outlined in **Section 1**, both SH18 and SH1 are classified as National (High Volume) Roads. National (High Volume) Roads are components of the network that make the largest contribution to the social and economic wellbeing of New Zealand through serving a national function and having high volumes of both heavy commercial vehicles and general traffic.

Once the Waterview project is completed in 2017, the Project area will be the only section of the WRR that is not constructed to motorway standard. The Project will complete the WRR by bringing the final section of this route up to motorway standard.

The Project is comprehensively described in the Project Description at **Section 5**.

The Project has its genesis in the strategic planning documents referred to in **Section 2.3**, below. In addition to these, the following more localised transport issues inform the need for the Project, as set out below.

2.2.1 Travel time reliability and congestion

The section of SH1 between Oteha Valley Interchange and the UHH Interchange along with the intermediate interchanges currently experience high levels of congestion, resulting in delays and unreliable journey times. Completion of other elements of the WRR including the Waterview tunnel and Interchange, and future land use growth in Albany, Massey North, Westgate and Hobsonville are expected to add further to these pressures, significantly increasing local congestion.

Congestion along the Northern Motorway is currently “tidal”, i.e. southbound in the morning peak and northbound in the evening peak. Northbound flow breaks down due to the reduction from three to two traffic lanes on SH1 prior to the UHH interchange. The forecast growth will have a greater impact during the contra-peak periods, as the available capacity is utilised.

This increased level of congestion will compromise the effectiveness of the SH18 to SH1 connection to operate as an alternative route for strategic inter-regional traffic through increased delays and reduced journey time reliability. This will impact on the ability to move inter-regional freight effectively, thus compromising the potential growth of the region.

Greville Road / Albany Expressway (SH17) and Constellation Drive / UHH (SH18) have historically functioned as local arterials. As development has occurred and traffic growth followed, the strategic function of these routes has degraded as a result of the increased congestion. Along with Rosedale Road, these routes provide the important east-west link function in the Project area.

For the SH18 corridor, between Albany Highway and Constellation Drive, there is an inherent conflict between ‘through-traffic’ and ‘local access’ traffic. There are three sets of traffic signals that restrict traffic flow between the SH18 and SH1 motorways, two of which provide local access.



SH18 also separates the North Harbour Industrial Area from the residential catchment (Unsworth Heights) to the south. Consequently, the corridor is used for local trips as well as interregional and cross regional trips. The existing traffic signals, and conflicting road and regional transport functions, contribute to congestion and unreliability for vehicles using SH18.

The following journeys are forecast to be subject to congestion during peak periods in 2021 resulting in low average speeds (less than 30 km/h) and unreliable travel times.

- SH18 to SH1 Northbound (PM Peak);
- SH1 (N) to SH18 (AM and PM Peaks);
- SH1 Southbound (AM Peak);
- SH1 South to SH17 (PM Peak);
- SH17 to SH1 Southbound (AM Peak);
- SH18 to SH1 Southbound (AM Peak); and
- SH1 South to SH18 (AM Peak).

2.2.2 Public transport

The Northern Busway currently extends from the Auckland Harbour Bridge to Constellation Bus Station (just south of Constellation Drive). It is located to the east of the Northern Motorway and includes five stations. Albany Bus Station is identified by AT in its Rapid Transport Network (RTN) plans as a key interchange for the RTN.

Between Constellation Bus Station and Albany Bus Station, buses are required to join general traffic on Constellation Drive and the Northern Motorway. Even with the additional third northbound lane and 1km-long southbound bus shoulder improvements between Greville Road and Constellation Drive which was completed in June 2015, northbound and southbound buses between these bus stations currently suffer from delays and a lack of journey time reliability. The current average journey time between the bus stations northbound and southbound is 4.5 and 6.3 minutes respectively. However, this journey time has been measured to be as long as 13.4 minutes during periods of peak congestion. See **Figures 4 and 5** below.

The average speed of buses using the existing Busway to the south of Constellation Bus Station is approximately 65km/h. Journey time reliability is an important factor for public transport. The current journey times between Albany and Constellation Bus Stations have a large variance, particularly southbound, with 95 percentile journey times 43% longer than the average and a standard deviation of 82 seconds. By comparison the standard deviation of journey times recorded between Smales Farm Bus Station and Constellation Bus Station in October 2014 was 21 seconds.

The opening of the southbound bus shoulder lane between Greville Road and Constellation Drive has reduced the variability to some extent, although travel time continues to be affected by the general traffic and at the Greville Road and UHH Interchanges.



Figure 4 Northbound Bus Travel times Smales to Constellation and Constellation to Albany

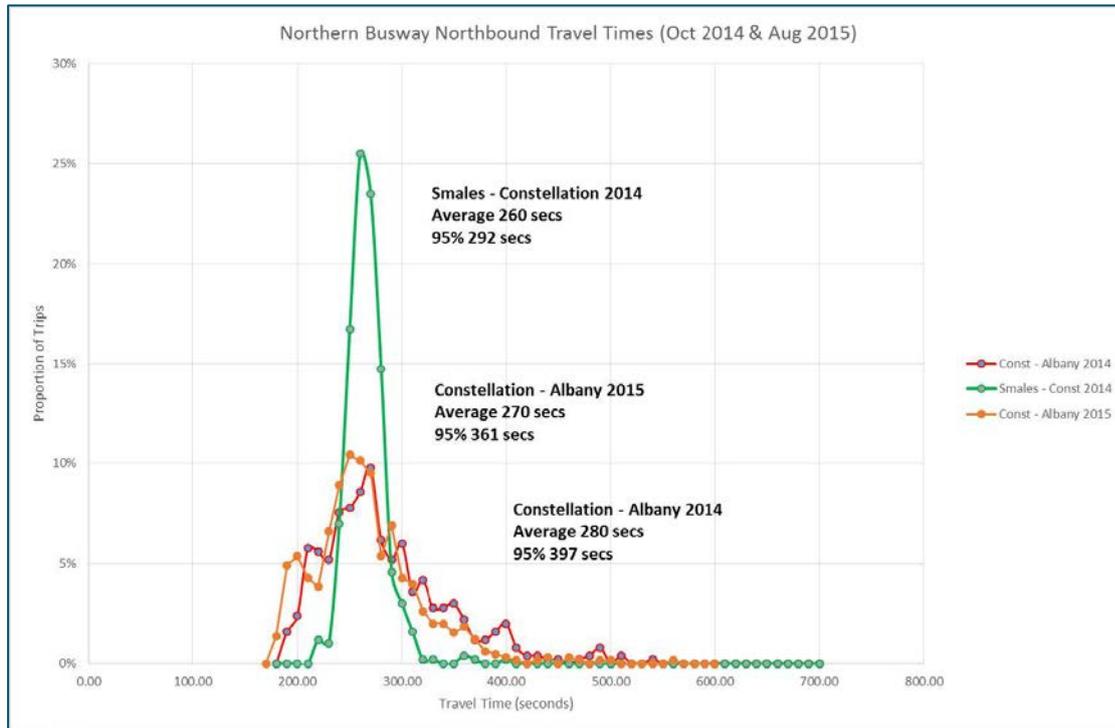
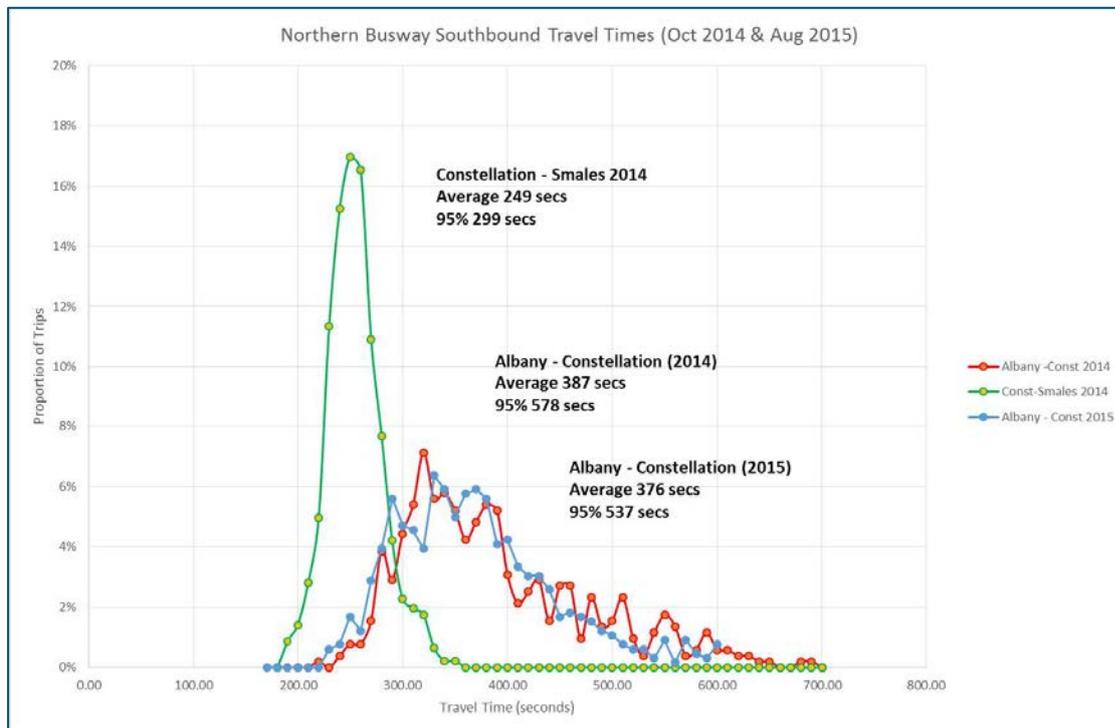


Figure 5 Southbound Bus Travel times Smales to Constellation and Constellation to Albany



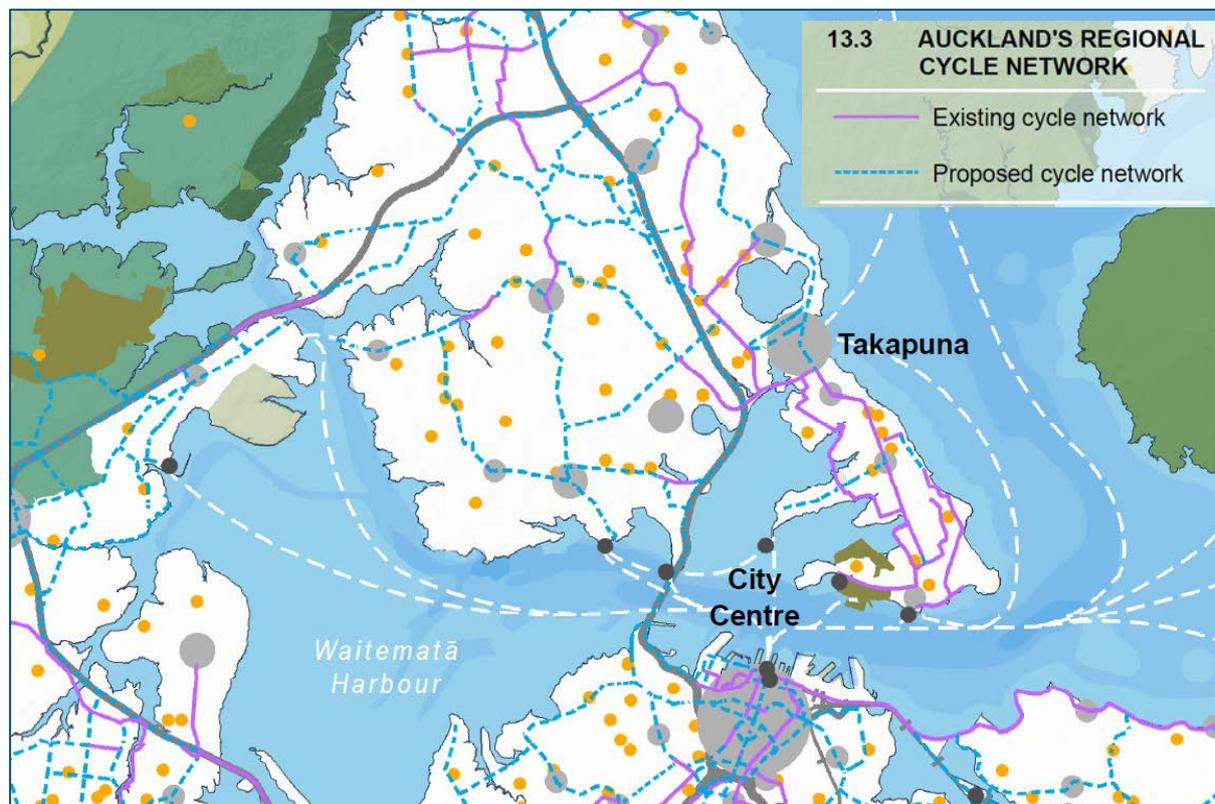
2.2.3 Walking and Cycling Accessibility

The SH1 and SH18 corridors both present significant barriers to walking and cycling accessibility, with a general lack of provision along or across these routes.



The UHH and Greville Road interchanges both form part of the existing or proposed Regional Cycle Network as shown in **Figure 6** below. There are currently no dedicated facilities through the UHH interchange, resulting in a dangerous environment, discouraging active modes.

Figure 6 Extract from the Proposed Auckland Cycle Network Plan



Source: Auckland Transport

Along SH18, there is a footpath on the southern side between UHH Interchange and Caribbean Drive, but no facilities further west. Therefore, there is no walking/cycling connection between Constellation Drive, Constellation Bus Station and the North Harbour Hockey Stadium (NHHS) or the employment area of the North Harbour Business Park (via Paul Matthews Road).

With a few exceptions, the majority of local corridors in the area provide footpaths on both sides of the road. Existing cycle facilities are provided along a few routes, or sections of routes, with several significant gaps present. The gaps prevent cyclists from having a continuous, well-connected route to their destination and often leave cyclists with no safe facility in the most challenging locations, e.g. at intersections and interchanges.

The NZ Transport Agency has completed a National Business Case (2015) (NBC) for investment to make cycling a safer and more attractive transport choice, which concludes that investment in cycling facilities has a range of wider benefits beyond just transport, including safety, participation, societal and individual benefits. The NBC identifies that lack of connectivity of cycle networks is the second main reason people give for not cycling.

The SUP components of the Project provide for greater network connectivity, both north to south and east to west within the Project area.

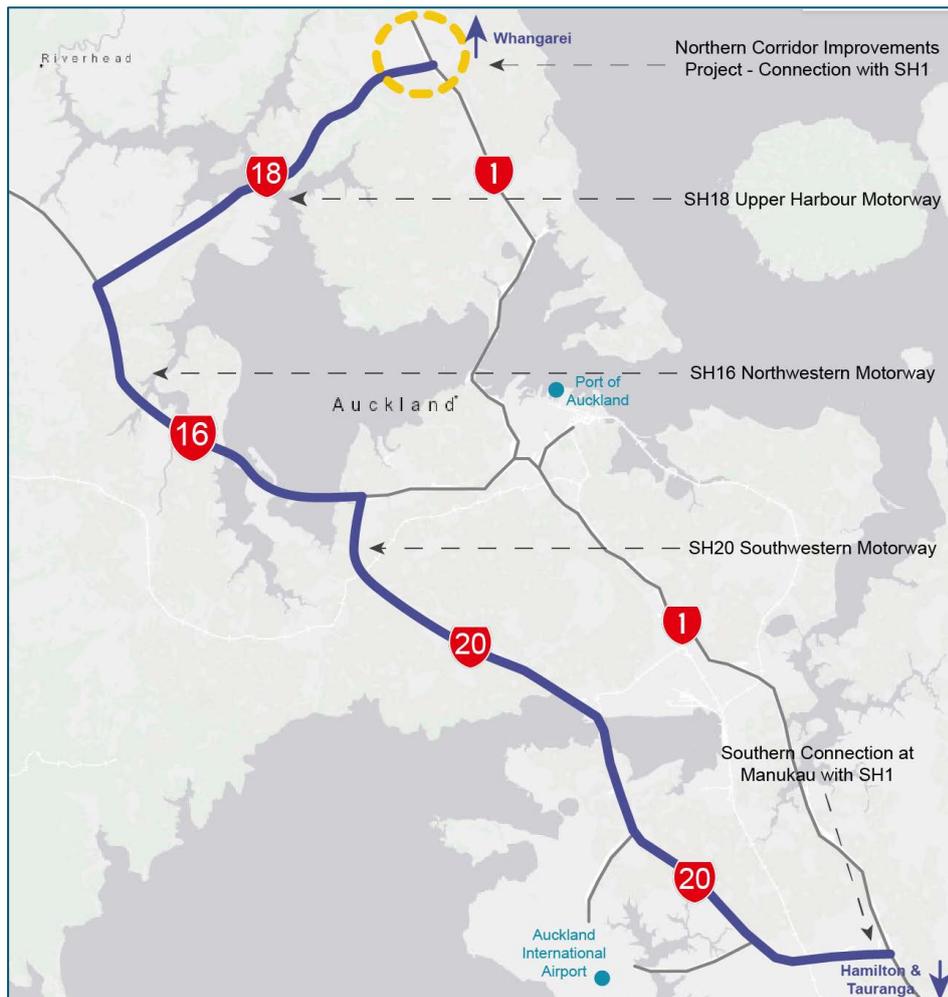


2.2.4 Resilience

The National Infrastructure Plan (NIP) defines resilience as ‘wider than natural disasters and covering the capacity of public, private and civic sectors to withstand disruption, absorb disturbances, act effectively in a crisis, adapt to changing conditions, including climate change, and grow over time’. The NZ Transport Agency has determined that a resilient transport network enables it to be responsive to unforeseen events and provide customers with confidence that they will be able to undertake their journeys in a timely manner, by targeting the risk of anticipated disruption on the network.

The WRR provides such resilience for the Auckland urban area and its region, by providing alternative access to major nodes such as Auckland International Airport.

Figure 7 Diagram indicating the Alternative Connectivity provided by the completed WRR-RoNS



As illustrated in **Figure 7** above, the WRR RoNS is comprised of various projects which together will provide an alternative route to SH1 through Auckland to motorway standard. When the Waterview Connection project is completed in 2017, the WRR will commence in Manukau at the interchange between the Southern Motorway (SH1) and the South-Western Motorway (SH20) and will continue through to where the UHH currently terminates at the interchange with Albany Highway and the SH18 expressway.

The Project will complete the WRR at its northernmost extent by upgrading the connection between SH18 and SH1. When complete, the WRR will add resilience to the Auckland State highway network



by providing an alternative route to SH1. The resilience of the network provided by this alternative route constructed to motorway standard through the Auckland region is highlighted in **Figure 7** above.

2.3 Strategic Context of the Project

2.3.1 Strategic History

The long-term strategy for the State highway network in Auckland has been developed over a number of years, aligned with the development of Auckland Council's strategic transport direction. A critical component of this strategy is the development of the WRR to provide an alternative route for traffic through Auckland. As noted above, the WRR will provide an alternative to SH1, which passes through Auckland's CBD. The WRR will ultimately, upon completion, comprise a 48km continuous motorway encompassing SH 16, 18 and 20, which is intended to improve travel times and reliability through the region, take pressure off local roads and SH1, reduce traffic congestion and enhance network resilience. It will also provide an alternative western route for light and heavy freight vehicles moving through or around Auckland, and contribute to better links for business and freight between the key industrial and transport hubs of Manukau (including Auckland Airport), central Auckland, Waitakere and the North Shore.

The importance placed on the WRR in achieving Auckland's transport strategy is reflected in the high priority it is assigned in the 2012-2015 National Land Transport Programme (NLTP), the State Highway Activity Management Plan and the Auckland Regional Land Transport Plan. On 28 June 2014, this priority was confirmed by the Government announcement that \$375m of funding was to be allocated to accelerate a package of regionally important State highway projects. This included the Project to complete the northern end of the WRR, extending the UHH (SH18) to its intersection with the Northern Motorway (SH1), with appropriate new links.

The Project also looks to address a number of critical transportation deficiencies and constraints within the Project area that affect both inter-regional and intra-urban traffic movement; these are largely attributable to the rapid on-going development of the Albany Centre and surrounding commercial areas, and the wider urban growth of the North Shore and beyond.

The Project was identified in the Auckland Plan as a priority project for the first decade of the 30 year plan, bringing together a number of interrelated multimodal transportation enhancements within the Project area. The purpose of these enhancements was to help facilitate interregional travel between Auckland and Northland by allowing the full benefits of the WRR to be realised by upgrading the SH18/1 connection.

The following paragraphs summarise the various strategic documents and decisions that have informed and driven the development of transport solutions within and beyond the Project area over the last decade that have resulted in the inception of the Project in its current form.

2.3.2 State Highway Strategy 2007

The NZ Transport Agency's State Highway Strategy of 2007 (SHS) identified SH18 as being part of the four-lane standard network at north Auckland. It further identified that any upgrade to motorway design standard was a matter to be determined at a later date. This document further emphasised that any such improvements in Auckland would be developed cooperatively to ensure integration with the local network and to include the provision of public transport and active mode alternatives.

A key concept included in the SHS was the completion of the 'ladder' for Auckland, a concept which was a precursor to what became the WRR, and which included the upgrading of SH18 and its connectivity to SH1.



2.3.3 Roads of National Significance (2009)

The Government announced its first seven RoNS in March 2009, one of which was the Auckland WRR-encompassing SH20/16/18.

Perhaps the most publicly visible part of the WRR is the Waterview Connection which is currently under construction and which is due to come into operation in 2017.

The WRR is New Zealand's largest ever transport project and encompasses a number of projects including this Project, which has been advanced through the Accelerated Auckland Transport Projects Package, as discussed further below, and completes the WRR to motorway standard, all the way from its northern and southern connections with SH1. The WRR is one of the country's most essential routes and a most urgent project within our largest population centres.

2.3.4 Accelerated Auckland Transport Projects Package 2013

On 28 June 2013, the Prime Minister made an announcement regarding the Government's transport package for Auckland. The Government indicated an intention to accelerate three State highway projects in the Auckland region to address congestion and capitalise on the benefits of the WRR, and improve access to the airport. The 2014 Budget provided new capital funding to the NZ Transport Agency to accelerate these Auckland projects by way of a Crown loan to be repaid by funding currently allocated to these projects in the National Land Transport Fund up to 2026/27. The Project is one of these accelerated projects.

2.3.5 New Zealand Infrastructure Plan 2015

The initial NIP, released in 2010, was a guiding document indicating how, amongst other matters, Government investment would be targeted at key infrastructure priorities. RoNS were a particular focus of how Government intended to make increased investment in roading, primarily State highways, to facilitate the efficient transport of goods and people and to remove inefficiencies. As described above, the WRR was identified as one of these RoNS.

The third iteration of this strategy is the New Zealand Infrastructure Plan 2015. It is the first Infrastructure Plan to detail a comprehensive suite of actions that will be undertaken to deliver on the new approach. Included within the Transport sector of the Action Plan is the delivery of the Accelerated Auckland Transport Package announced in 2013, which, as discussed above, includes this Project.

2.3.6 Government Policy Statement on Land Transport Funding 2015/16 – 2024/25

The GPSLT 2015 sets out the priorities, objectives and funding levels for land transport, establishing funding ranges for land transport activity classes and identifying the results expected from this investment.

The GPSLT 2015 continues the overall strategic direction of GPSLT 2012, prioritising:

- Economic growth and productivity;
- Road safety; and
- Value-for-money.

The objectives underpinning these priorities are listed as a land transport system that:

- Addresses current and future demand for access to economic and social opportunities;
- Provides appropriate transport choices;
- Is resilient;
- Is a safe system, increasingly free of death and serious injury;



- Mitigates the effects of land transport on the environment; and
- Delivers the right infrastructure and services to the right level and best cost.

Of note is the GPSLT 2015 emphasis on the need for additional investment in safe cycle networks in the main urban areas with the extension or improvement of dedicated cycle networks and routes where this can be achieved at reasonable cost.

The Project with its comprehensive modal mix of components embodies the priorities and objectives of the GPSLT 2015, by providing for greater connectivity, capacity, safety and resilience of the road network whilst also providing for dedicated shared-use pedestrian/cycle ways and similarly dedicated public transport facilities.

The Project is consistent with the results sought in Table 3 of the GPSLT 2015, which sets out the range of activity classes for transport investment and particular results sought for each activity class. The Project is consistent with the results sought in terms of State highway improvements, public transport improvements and walking and cycling improvements. The Project is also one of the projects which forms part of the Auckland Transport Package, specifically referred to in Table 3. The Auckland Land Transport Package is funded through loan funding that allows for the bringing forward of projects in the NLTP earlier than otherwise forecast.

2.3.7 National Land Transport Programme 2015-18

The NLTP sets out the transport investment over the identified three-year period, reflecting the strategic direction set out in the GPSLT 2015. For the Auckland region, it identifies the components of the Project as key routes and investments that address both travel time reliability and transport choice.

2.3.8 Draft State Highway Plan 2016/17

The State Highway Plan sets out how the Highways and Network Operations arm of the NZ Transport Agency will deliver the outcomes sought by government, as stated in the GPSLT 2015. Its key purpose is to communicate the NZ Transport Agency's annual work programme. In practical terms, the 2016/17 State Highway Plan identifies the project development for the Auckland Accelerated Programme (which includes the Project) and specifically identifies funding for the pre-implementation design phase of the Project for 2016/17.

2.3.9 The Auckland Plan

The Auckland Plan, which was adopted by AC in March 2012, was prepared in accordance with the Local Government (Auckland Council) Act 2009 requirement to produce a spatial plan. Its purpose is to contribute to Auckland's social, economic, environmental, and cultural well-being through a comprehensive and effective long-term (20 to 30 year) strategy for Auckland's growth and development.

The Auckland Plan:

- Sets a strategic direction for Auckland and its communities that integrates social, economic, environmental, and cultural objectives;
- Outlines a high-level development strategy that will achieve that direction and those objectives;
- Enables coherent and co-ordinated decision making by AC (as the spatial planning agency) and other parties to determine the future location and timing of critical infrastructure, services, and investment within Auckland in accordance with the strategy; and
- Provides a basis for aligning the implementation plans, regulatory plans, and funding programmes of AC.

Chapter 12 of the Auckland Plan identifies the existing and future location and mix of critical infrastructure, services and investment including transport.



Specific principles relating to land use and transport identified in the Auckland Plan that are relevant to the Project include:

- Ensure that long-term land use and activities drive long-term transport functionality, (taking into account the existing and proposed transport network), and that transport investment aligns with growth as envisaged in this Plan; and
- Optimise existing and proposed transport investment.

Chapter 13 of the Auckland Plan identifies four strategic transport priorities that are relevant to the Project:

- Manage Auckland's transport as a single system;
- Integrate transport planning and investment with land-use development;
- Prioritise and optimise investment across transport modes; and
- Implement new transport funding mechanisms.

The completion of the SH18 link and connection to SH1 to motorway standard component of the Project is identified on Map 13.2 - Auckland's Priority Transport Projects, as one of the selected State highway improvements. It supports the level of population growth and development in the north of Auckland, which is identified in the Auckland Plan. As a component of the WRR, the Project will contribute to optimising the overall benefits provided by the WRR and will provide overall improved access and connectivity to both the north and south.

The current level of bus prioritisation measures between Constellation Bus Station and Albany Bus Station are identified in the Auckland Plan as constituting part of the RTN at Map 13.2. However, the Project will improve travel times and reliability through provision of a dedicated busway and direct connectivity to Albany Bus Station. The busway improvements are consistent with the RTN as identified at Map 13.1 of the Auckland Plan and similarly consistent with the draft RTN 2016-2026 Plan as promulgated by AT on its web site.

The proposed shared-use pedestrian/cycle way will contribute to improving the Regional Cycle Network shown on Map 13.3 (see extract provided at **Figure 6**). The Project will complete sections along both SH18 between Albany Highway and Constellation Bus Station and adjacent to SH1 between Constellation Bus Station and Oteha Valley Road. It will also provide a number of intermediate linkages to the existing and proposed network, at the following locations:

- Lavender Garden Lane;
- McClymonts Road;
- Greville Road;
- Rosedale Road;
- Arrenway Drive; and
- Constellation Drive.

The State highway upgrade component of the Project is specifically identified in the Auckland Plan as one of the priority state highway improvements. The Project is considered to be consistent with both the principles and priorities of the Auckland Plan.

2.3.10 Safer Journeys

The Government has indicated its intention to take a safe systems approach to improving transport system safety, which it sets out in Safer Journeys, its strategy to guide improvements in road safety over the period 2010-2020. The long-term goal of Safer Journeys is 'a safe road system increasingly free of death and serious injury'.



Safer Journeys states that road improvements have contributed to a reduction of 15.8% in urban road deaths between 1997 and 2005. The Project will adhere to the safe systems approach and should similarly contribute to the long-term safety goal of reducing the likelihood of crashes and minimising the consequences of those crashes that do occur. It will do this by providing safer roads and roadsides and the incorporation of current best practice safety standards.

The Project will include the following safety improvements:

- Replacement and upgrade of all median and edge safety barriers on SH1 and SH18 (within the Project area);
- Improvement in sight distance to State highway off-ramps, particularly at Albany Highway;
- Additional lanes between Greville Road and Constellation Drive to provide increased capacity for weaving manoeuvres; and
- Maintaining a slow vehicle lane on SH1 in the northbound direction between Greville Road and Oteha Valley Road.

The Project also includes safety enhancements through the provision of multi-modal improvements, being:

- Passenger platforms and access facilities at Constellation Bus Station;
- Dedicated busway and direct and separate access to Albany Bus Station;
- Provision of shared use paths adjacent to SH1 and SH18 (within the Project area) to provide cyclists and pedestrians an alternative to the local road network;
- Dedicated shared use pedestrian and cycle paths; and
- Pedestrian and cycle path connectivity through intersections.

Overall, the Project encompasses the Safer Journeys approach through its incorporation of the design components identified above.

2.3.11 New Zealand Transport Agency Statement of Intent 2015-2019 (SOI)

The NZ Transport Agency's current SOI identifies the overarching purpose of the NZ Transport Agency for the 2015-2019 period as creating transport solutions that are:

- Effective: move people and freight where they need to go in a timely manner;
- Efficient: deliver the right infrastructure and services to the right level at the best cost;
- Safe and responsible: reduce the harm from transport; and
- Resilient: meet future needs and endure shocks.

Key objectives that are relevant to the Project include:

- Objective 2: integrate national and local transport networks to support strategic connections and travel choices;
- Objective 5: incentivise and shape efficient travel choices using a customer-focused approach;
- Objective 7: greater resilience of the State highway network; and
- Objective 9: the provision of significant transport infrastructure (the Project is specifically identified as one of the Accelerated Auckland Transport Programme projects).

The priorities set out in the SOI include:

- Priority 2: Predictable journeys for urban customers; and
- Priority 6: Make urban cycling a safer and more attractive transport choice.

The Project will achieve these objectives and is consistent with the priorities because:

- Has a multi-modal focus (supporting travel choice);



- Integrates State highway network improvements with public transport and walking and cycling improvements; and
- Will improve journey reliability and resilience across modes.

2.3.12 Summary

At a nationally strategic level:

- The SHS in 2007 identified a need for network improvements and the need to consider an integrated solution giving consideration to local network integration and public transport and active modes;
- The WRR was identified by Government as a RoNS in 2009, with the Project being the final section of the WRR that will bring it up to motorway standard (see **Figure 7** above); and
- The importance of the WRR has been reinforced through the development of national infrastructure planning and its identification within the current iteration of such strategy, being the New Zealand Infrastructure Plan 2015.

At a regional level, the Auckland Plan has emphasised the importance of three key aspects of the Project:

- The identification of the Constellation Bus Station to Albany Bus Station section of the Northern Busway as a component of the RTN;
- The proposed SUP is identified as part of the proposed Regional Cycle Network; and
- The upgrade of SH18 is a strategic State highway network improvement.

The Project also aligns with the purpose, objectives and priorities of various NZ Transport Agency planning documents.

Additionally, the Accelerated Auckland Transport Projects Package (see **Section 2.3.4** above) identifies the mechanism through which the strategic need for the Project has been able to be addressed with immediacy.

2.4 Benefits of the Project

The Project will have a broad range of benefits which are discussed in the subsections below.

2.4.1 Network resilience and connectivity

Completion of the Project will provide a greater level of resilience to the inter-regional State highway network through providing an alternative north-south route (the WRR), through Auckland, to Motorway standard. This will additionally provide greater intra-regional travel flexibility and access to the Auckland International Airport from across the region and from Northland.

The resilience of an alternative route provides additional flexibility to journey planning for freight and general vehicle movements.

The Project will also provide resilience by improving options for alternative modes (providing choices if the function of SH1 within the Project area is compromised).

2.4.2 Improved journey efficiency

Substantial improved journey times along and between the SH1 and SH18 corridors are forecast as a result of the Project. With the Project being the final link in the completion of the WRR to motorway standard, the benefits to the motorist of the completion of the Project when combined with the travel time savings achieved by other WRR projects, will be even higher.

Similarly, the implementation of the dedicated Northern Busway extension to Albany Bus Station, will improve reliability of journey times for public transport users who complete or initiate their journey at Albany Bus Station.



Improved connectivity of the walking and cycling network will provide for greater accessibility and choice for pedestrians and cyclists that will allow them to plan more efficient journeys.

2.4.3 Improved connectivity and local access

The provision of improved connectivity and efficient access for local traffic will provide improved journey times on the local network and the State highway network with the separation of such journeys.

The Project similarly provides for greater connectivity for pedestrians and cyclists through the provision of walking and cycling facilities along SH1 and SH18, together with connections to Albany and Constellation Bus Stations and to the existing local walking and cycling network.

2.4.4 Greater local travel choice

The provision of the extensive SUP will provide greater travel choice for local trips with a forecast increase in the levels of active modes (walking and cycling). The separation of these active modes from general traffic has associated safety benefits.

2.4.5 Improved efficiency and reliability of public transport

The provision of a dedicated Busway from Constellation Bus Station with direct access to Albany Bus Station will reduce average bus journey times and improve reliability of journey times, due to the separation from general traffic.

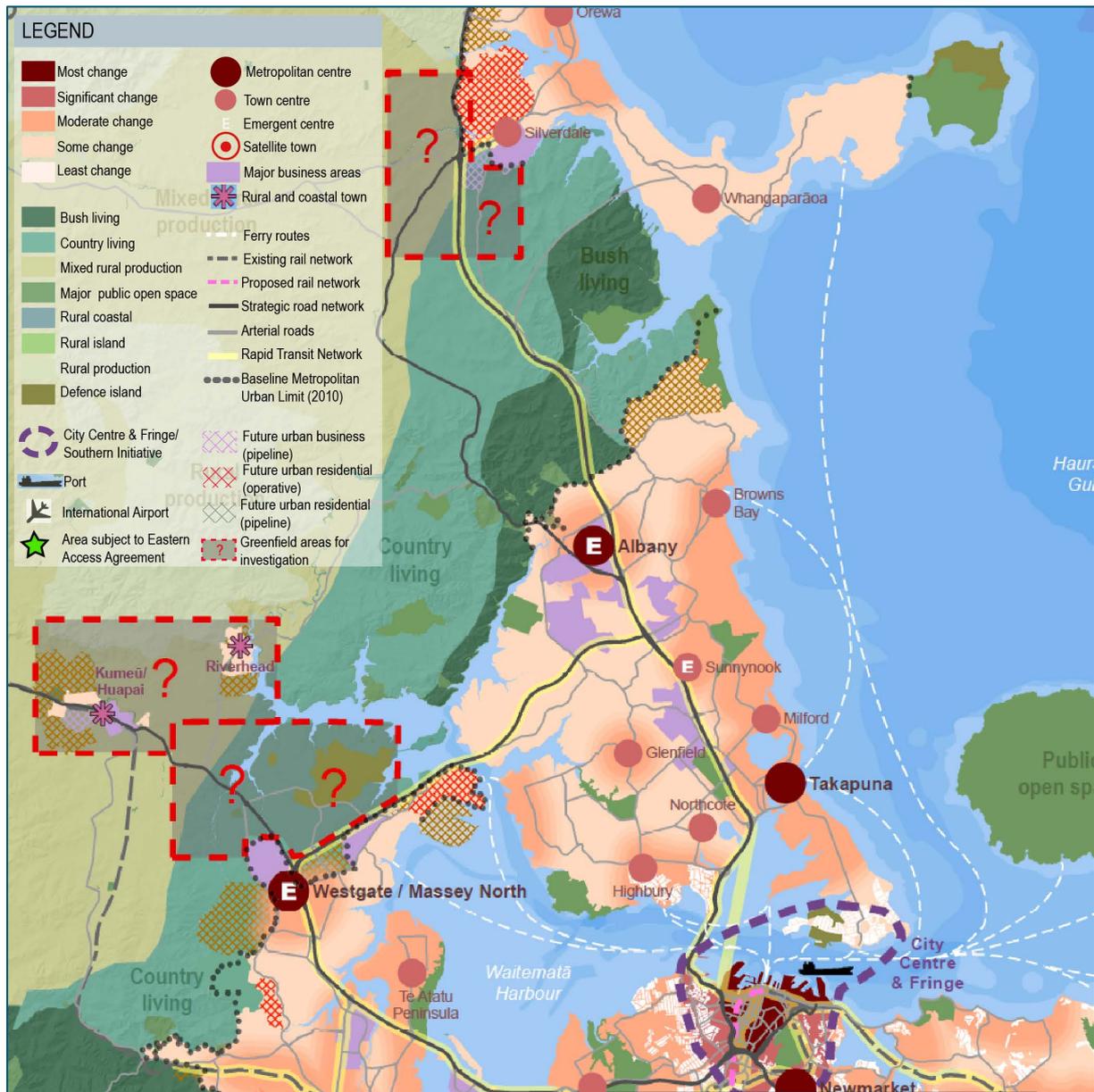
2.4.6 Population growth

The Project will support anticipated development in the northern and north-western growth areas of Auckland. These are identified within the Auckland Plan (**Figure 8**) and are concentrated in Albany, the Eastern Bays, Orewa, Silverdale, Whangaparaoa, Hobsonville Point, Westgate/Massey North, Kumeu and Huapai.

In addition, the Auckland Plan anticipates approximately 27,000 dwellings will be built in the Silverdale, Wainui and Dairy Flat area over the next 30 years. The Upper Harbour area has also been earmarked within the Auckland Plan for significant development over the next three decades, much of which is to consist of high and medium density housing and the growth of commercial and industrial areas.



Figure 8 Development Strategy of Auckland's Urban Core



Source: The Auckland Plan (Auckland Council)

Special Housing Areas feature strongly in these areas as the short term response to the immediate housing demand and supply challenge in Auckland, which will see the completion of new residential subdivisions and developments within the near future.

The 2016 Auckland Council Pre-Election Report states that Auckland is projected to grow by 736,000 people over the next 30 years. Based on highest growth forecasts for Auckland from the 2016 Population Projections, growth of one million people may arise. AC has interpreted this to mean up to 400,000 new dwellings and 277,000 additional jobs could be needed. As such, growth in North Auckland is likely to exceed that envisaged by the Auckland Plan due to demand.