2 History of Transport Improvements

Overview

The purpose of this Chapter is to provide a summary of the background history that has led to the lodgment of this NoR, which proposes grade-separation via a bridge of SH1 westbound traffic at the Basin Reserve.

The development of SH1 through Wellington City has a long history. The route between Aotea Quay, the Terrace Tunnel, and Mount Victoria Tunnel has been developed over the last 50 years, with varying degrees of activity during that period.

Little progress was made in the 1970s and 1980s following the completion of the Wellington Urban Motorway construction in 1978 (between Ngauranga and the Terrace Tunnel). This was mainly as a result of cost and funding issues, as well as debate on what form should be adopted for the extension of the motorway through innercity Wellington and past the Basin Reserve.

However, since the early 1990s, the NZTA has been working with the city and the region to develop plans to improve these arterial roads, mindful of their urban context and the need to effectively provide for public transport.

The first stage in this process was the creation of a one way roading system along Vivian Street and Buckle Street. The second stage was the development of the Inner City Bypass from Buckle Street to the Terrace Tunnel. These two initial phases have been implemented. The NZTA (formally Transit New Zealand) has also, at WCC’s request, becoming responsible for the SH1 arterial road through Wellington from Aotea Quay to the Airport in 199720, following completion of the first of these stages. However, the third stage, being the creation of a dual carriageway from Mount Victoria to the Terrace Tunnel, was abandoned because of the concerns about the environmental and urban effects that it would cause based on the plans being proposed at that time.

Since then, the NZTA has undertaken several studies to identify improvements to the roading network at the Basin Reserve and roads between the Terrace Tunnel and Mount Victoria Tunnel. These studies have been undertaken in consultation with GWRC and WCC, with the latest being the N2AS from 2006 – 2008, and the consequent adoption of the N2ACP by GWRC in 2008, which was also endorsed by WCC and the NZTA (Transit NZ as it then was). A common feature of these studies has been the need to separate east-west movements from north-south movements at the Basin Reserve and the need to facilitate improvements to public transport and arterial State highway traffic.

The 50 year history of these roading improvements has informed the option selection and also some of the critical design objectives of the Project. This historical development and investigation also provided background to the N2ACP, which set in place a multi-modal

20 The formal notice was Gazetted in 1997, however, the process for NZTA (then Transit NZ) to become responsible for the roads was agreed with WCC in 1995

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transport solution for Wellington City including significant improvements to public transport, and with which this Project is consistent.

2.1 Introduction

This Chapter provides a summary of the key studies and plans that have considered options to improve the transport network around the Basin Reserve over the past 50 years. These studies and plans form a body of evidence that have collectively informed and assisted to shape the current Project.

This Chapter is closely linked to the consideration of project alternatives\(^\text{21}\) (or transport options). Part C of the AEE summarises the alternatives process and provides an overview of the options that have been considered as to how the transport improvements in the Project Area might be best achieved.

The following Chapter outlines the key historical studies from the early 1960s leading up to the N2ACP of 2008.

2.2 Key Historical Studies

A Scoping Report produced by Opus International Consultants Ltd (Opus) in January 2010 provided a list of the key historical studies. These studies are outlined as:

- Comprehensive Transportation Plan for Wellington New Zealand, by De Leuw Cather and Company, August 1963 and 1966;
- Wellington Urban Motorway Extension (WUME), by the Ministry of Works. The WUME scheme was under consideration from the 1970s to the mid 1990s, to extend the motorway from the south portal of the Terrace Tunnel to the west portal of the Mount Victoria Tunnel;
- a traffic arterial from the Terrace Motorway Tunnel to Mount Victoria Tunnel, by RW Burrell and commissioned by the National Roads Board and WCC, 1980;
- various studies during the early 1990s, which led to the development of the Inner City Bypass and the NZTA taking over responsibility of certain streets and in so doing extending the State highway network to the Airport. Initial studies considered the creation of a trench from Willis Street through to the Basin Reserve (known as Tunnel Link), and then later evolved to development of what is now known as the Inner City Bypass;
- Interim Scheme Assessment Report, by Meritec, December 2000;
- SH1 Basin Reserve Long Term Transport Solutions, Scheme Assessment Report, by Meritec and commissioned by Transit New Zealand (now NZTA), March 2001;

\(^{21}\) Section 171(b) of the RMA, Recommendations by Territorial authority
The options that have been considered in the above studies have included fly-overs, underpasses, tunnelling, various forms of public transport (including buses and light rail), and the use of road space for other active modes of transport including pedestrians, and cyclists. While the specific solutions to improve transport links around the Basin Reserve have varied, each of the studies identified that the east-west traffic needs to be separated from north-south traffic to be effective. More recent studies have identified that the public transport links across Wellington City need to be improved and this includes the north/south public transport corridor at the Basin Reserve.

### 2.3 De Leuw Cather Transportation Plan (1963 and 1966)

In the late 1950’s the Ministry of Works, on behalf of the National Roads Board (the name of the Roading Authority at the time), investigated various routes in order to determine how road links into Wellington City could be improved. In the early 1960’s the Wellington Regional Planning Authority (its functions now rest with GWRC) requested De Leuw, Cather & Company, an American transportation consultant, in conjunction with Rankin & Hill Consultants, to prepare a Transportation Master Plan for Wellington City.

The Transportation Master Plan looked at three main roading options:

- a surface street system;
- a foothills motorway; and
- a waterfront motorway.

In each case the Thorndon to Ngauranga Motorway was taken as a necessary given and was assumed to be completed. This Motorway was subsequently constructed in the 1970s. The report recommended the construction of the foothills motorway as the preferred option, to be constructed in three stages at approximately 5 year intervals as follows:

- Stage 1 – Aotea Quay to Hill Street plus the duplication of the Mount Victoria Tunnel;
- Stage 2 – Hill Street to Ghuznee Street and the Vivian Street on ramp; and
- Stage 3 – Ghuznee Street to Mount Victoria.

The total cost of Stage 1 was indicated to be £20 million (1963) which would equate to about $700 to $900 million in 2007 dollars.

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22 Comprehensive Transportation Plan for Wellington, New Zealand – August 1963; De Leuw, Cather & Company & Rankin and Hill Consulting Engineers
The foothills motorway design was based on a limited access highway with a design speed of 50 miles/hr (approximately 80 km/hr). The proposed motorway, with two twin Terrace Tunnels, stayed below ground and passed under the local city streets of Ghuznee, Vivian, Willis, Cuba and Taranaki Street, before emerging near Tory Street.

Significantly, the proposed motorway then passed over Cambridge and Kent Terrace before tying-in on the western approach to the Mount Victoria Tunnel. A duplication of the Mount Victoria Tunnel was also proposed. The design also included extending Cambridge/Kent Terrace through the Basin Reserve at ground level to link directly with Adelaide Road, with nearly half of the Basin Reserve occupied by an interchange to connect this north/south route with the east/west highway.

The alignment also intruded into the north eastern corner of the Basin Reserve and occupied about half of the city block enclosed by Ellice/Brougham/Rugby and Paterson Streets, while retaining the western end of Paterson Street to provide access to Wellington College (see Figure 2-1).

Figure 2-1: De Leuw Cather Transportation Plan, Plan of Proposals near the Basin Reserve

In August 1966, a final report titled the “Wellington Regional Transportation Study” for the Wellington Regional Planning Authority was completed by De Leuw Cather and Company.
This report was based upon field studies undertaken throughout the region in 1965 and other gathered information.

In 1968, the National Roads Board adopted the De Leuw Cather report recommendations east of Willis Street. In 1969 a Middle Line Proclamation between McDonald Crescent and Taranaki Street was gazetted.

The recommended De Leuw Cather foothills motorway was included in the proposed Wellington District Scheme in 1966 and was made operative in 1972. However, the adopted scheme layout in the district scheme significantly modified the original De Leuw Cather scheme (presented in their 1963 report) between Taranaki Street and Mount Victoria Tunnel. Notably the adopted layout ramp connections and mid-block sections were modified and the north/south link through the Basin Reserve and the interchange was deleted (see Figure 2.2 below). The scheme still proposed use of the northeast corner of the Basin Reserve and use of the city block bounded by Ellice/Brougham/Rugby and Paterson Streets for roading purposes. There were also some proposed modifications to Paterson Street. Purchase of the land needed for this scheme commenced shortly after the proposed Wellington Urban Motorway was confirmed in the district scheme.

![Figure 2-2: De Leuw Cather Plan of Proposals between the Terrace and Mount Victoria Tunnels](image-url)
2.4 Ngauranga to Terrace Tunnel - Motorway Construction

The first phase of the Wellington Urban Motorway between Ngauranga and Aotea Quay was opened in 1969. During the 1970's the Urban Motorway was progressively developed and extended from Aotea Quay through to Ghuznee and Vivian Street by 1978. This included the sections of Hawkestone Street and Tinakori Road that were completed by 1974.

The extension of the Urban Motorway also included the controversial section through the Bolton Street cemetery and the construction of the Terrace Tunnel. However, the original De Leuw Cather proposal was pared back with the Bowen Street interchange being abandoned and the second Terrace Tunnel delayed. This necessitated that the single Terrace Tunnel become bi-directional (2 lanes north, one south), with a modified “temporary” layout between Bowen Street and Willis Street.

2.5 The Burrell Report

In 1980 the “Burrell Report”\(^\text{23}\) was published, which was commissioned by the National Roads Board and the WCC. This report considered alternative proposals for the extension of the Wellington Urban Motorway from the Terrace Tunnel exit at Ghuznee Street to Mount Victoria, based on a traffic arterial at a standard less than a full motorway. Seven options were reviewed including a full motorway (located within a trench), an at-surface boulevard, and a ‘one-way pair’.

One option considered included a motorway in a trench to Victoria Street, a boulevard to Sussex Street and no grade separation at the Basin Reserve (but at the expense of reduced traffic movements at the Basin Reserve) with vehicles transferring from Adelaide Road / Kent and Cambridge Terrace to Taranaki and Wallace Streets.

The report recommended a Composite Scheme which was based on a 70 to 80 km/hr design speed, with the arterial passing under Willis Street and the Victoria Street Extension, over Cuba, Taranaki Street and Tory Streets and back to grade at the Basin Reserve. The Composite Scheme included a new realigned link with two-lane flow between Cambridge/Kent Terrace and Sussex Street passing over the arterial and a direct ramp connection from Kent Terrace to Mount Victoria, as it rises to connect to the tunnel(s) (see Figure 2.3 below).

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\(^{23}\) A Traffic Arterial from the Terrace Motorway Tunnel to Mount Victoria Tunnel – April 1980; R.W.Burrell
Further work was undertaken on the Composite Scheme and reviewed using a new WCC transportation traffic model (Micro Trips) in 1987 followed by a study on the social and environmental aspects of the scheme (the SEIAG Report) in 1989. Amongst other issues the SEIAG report recommended a less obtrusive visual option be considered. The updated traffic data also showed serious traffic and geometric issues with the Burrell Composite Scheme (Figure 2-3 above).

### 2.6 Independent Review Panel

In early 1990, a Scheme Assessment Report which assessed 10 options was completed. It recommended a “trenched option”, known as the “Tunnel Link”. The Tunnel Link scheme was submitted to an Independent Review Panel (the Panel), who were appointed by the Parliamentary Commissioner for the Environment to carry out a wide ranging review.

In addition to the review by the Panel, a major public information exercise was carried out on the “Tunnel Link” proposal on behalf of WCC and Transit in late 1990 (see Figure 2-4 below).

In its 1991 report the Panel unanimously recommended that the extension should proceed and made a number of detailed recommendations associated with the project.

As a result of this process Transit resolved in November 1991 that the extension should proceed promptly, subject to the resolution of a number of issues with WCC.
In July 1992 Transit and WCC approved in principle a covered trench design for the proposed Wellington Motorway Extension.

### 2.7 Medium Term Options Assessment Report 1995

Following a thorough review of the costs and benefits of the Project, Transit decided in February 1994 that it could not fund the “Tunnel Link” trench option beyond Ghuznee and Vivian Streets, (the then exit and entrance to the Terrace tunnel), and to defer construction of the motorway extension.

A "study team" consisting of Transit’s consultants (Opus, then called Works Consultancy Services) and WCC was convened to investigate short term and long term solutions. A total of 34 routes were investigated and seven options were costed and modelled using the Trips Transportation Model.

In September 1994, WCC voted to support Option 2B, which was later known as Stage 2, of the now constructed Inner City Bypass.

In late 1994, Transit also confirmed support for the implementation of the Stage 2 bypass option, subject to WCC agreeing to the early implementation of Stage 1 (Option 3B).

In early 1995, environmental issues were scoped, assessments undertaken, with consultation with the general public beginning in April 1995.

A Memorandum of Understanding was developed between WCC and Transit in September 1995 and established a process (at WCC’s request) for Transit to become responsible for the SH1 arterial roads providing a link through to the Airport. The MoU established a process which entailed improvements to the existing road network in a three stage process to develop what is known as the Inner City Bypass (ICB). The process for forming the ICB is described in the following Section 2.8.
2.8 Wellington Inner City Bypass: Stage 1, 2, and 3

Stages 1, 2 and 3 of the Wellington Inner City Bypass project are illustrated in Figure 2-5 below.

Stage 1 construction was completed in October 1995 with the primary change being making Buckle Street one way eastbound. At the same time Transit NZ (now NZTA) took responsibility for the city streets through to the Airport, and extended the State highway over the same.

Stage 2 included a new section of State highway for westbound traffic between Taranaki Street and the Terrace Tunnel and reversed the direction of traffic on Vivian Street, between Willis Street and Taranaki Street, to cater for eastbound traffic, with Ghuznee Street reverting back to a two way local street.

The NoR for Stage 2 was lodged in April 1996. Following the Council hearing in September 1996, a recommendation to confirm the NoR was released. The subsequent decision by Transit NZ to accept the recommendation in part was appealed to the Environment Court\(^\text{24}\). In May 1999 the Environment Court decision dismissed the appeals.

A NoR to alter the motorway designation to provide for Stage 3 of the Inner City Bypass in the Transitional District Plan was lodged with the NoR for Stage 2. This was required to reconcile the land area required for Stage 3 in the Transitional District Plan with that required for the motorway designation in the Proposed District Plan. The Commissioners

\(^{24}\) Estate of PA Moran v Transit NZ w55/99 and Quay Property Management Ltd v Transit NZ [2000] W28/00
appointed by Council to hear the NoRs recommended that the Stage 3 designation be withdrawn due to the environmental and urban design effects of a long term designation. This recommendation was accepted by Transit NZ.

The contract for the construction of Stage 2 (the Inner City Bypass), was let in September 2004 with construction commencing at the end of 2004. In December 2006 the northbound lanes were open and in March 2007 the Ghuznee Street off ramp was closed and the traffic directed on to the new Vivian Street off ramp with the opening of the southbound lanes.

2.9 Basin Reserve Scheme Assessment Report 2001

A detailed study of transport options around the Basin Reserve was investigated in 2001 by Meritec (now AECOM). Meritec investigated over ten options before recommending (what was then known as) Option H as the preferred option. Option H (refer to Figure 2-6 below) provided for:

- a two-lane westbound bridge from Paterson Street to Buckle Street;
- an underpass for Sussex Street traffic to Cambridge Terrace; and
- an underpass for Kent Terrace traffic to Adelaide Road.

This arrangement provided a direct link for westbound traffic from the Mount Victoria Tunnel to Buckle Street and eastbound traffic from Kent Terrace to the Mount Victoria Tunnel. The arrangement reduced the amount of weaving around the Basin Reserve and improved journey times. The scope of this study was limited to the issues of the Basin Reserve and did not extend to the capacity issues of the Mount Victoria Tunnel i.e. the need for duplication such as that contemplated in the earlier de Leuw Cather Transportation Plan in the 1960s.

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25 NZTA SH1 Basin Reserve Long Term Solution, Scheme Assessment Report, prepared by Meritec, 2001
2.10 Ngauranga to Airport Corridor Plan (2008)

The N2AS commenced in 2006 and investigated a range of options for improving the transportation network within Wellington City. It was a multi-modal study that examined options on how to best solve existing transport issues and to provide for the future growth of Wellington City. The N2AS entailed significant public consultation exercises as well as workshops with stakeholders.

The resultant N2ACP was adopted by the Wellington Regional Transport Committee\(^{26}\) (RTC) in October 2008 following a period of public consultation and a hearing. The RTC comprises representatives from a range of transport stakeholders, including local authorities, GWRC, and the NZTA.

The N2ACP provided a vision for the corridor that has subsequently been included in the RLTS as follows:

"Along the Ngauranga to Wellington Airport Corridor, access to key destinations such as CentrePort, Wellington City CBD, Newtown Hospital and the International Airport will be efficient, reliable, quick and easy. Priority will be given to passenger transport through this corridor, particularly during the peak period. Passenger transport will provide a very high quality, reliable and safe service along the Wellington City growth spine and other key commuter routes. The road network will provide well for those trips which cannot be made by alternative modes and will allow freight to move freely through the

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\(^{26}\) The Wellington Regional Transport Committee is comprised of members from GWRC, all Wellington territorial authorities, NZTA, and other members with organisations/objectives such as Economic Development, Safety and Personal Security, Public Health, Access and mobility, Environmental Sustainability, Cultural interests.

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corridor. Traffic congestion through the corridor will be managed at levels that balance the need for access against the ability to fully provide for peak demands due to community impacts and cost constraints. Maximum use of the existing network will be achieved by removal of key bottlenecks on the road and rail networks.\textsuperscript{27}

The N2ACP aims to strengthen four key transport elements in the City.

(1) A high quality and frequency passenger transport ‘spine’;
(2) Highly accessible and attractive ‘activity’ or shopping streets; (3) A reliable and accessible ‘ring’ or bypass route for vehicles; and,
(4) Interconnected and convenient local street, walking, cycling and passenger transport networks.

Wellington City’s aspiration for concentrated future population growth along the growth spine\textsuperscript{28} is dependent on the achievement of the above elements.

The separation of State highway traffic from local traffic helps to achieve a high quality passenger transport corridor. Thus, the N2ACP develops a strategy that will firstly separate traffic at the Basin Reserve before delivering public transport improvements. The N2AS that underpinned the N2ACP recommended that grade separation at the Basin Reserve be achieved by means of a bridge (Option B3). This bridge option was similar to that recommended by Meritec in their 2000 Scheme Assessment Report (refer to Section 0 above) and is similar to that being currently progressed.

The public transport component of the N2ACP is being advanced through the PTSS. The PTSS is due to be finalised in early 2014.

The Project proposes at-grade north-south bus lanes and bus priority at key intersections. These elements have been included on the assumption that this is the preferred option that will be progressed from the PTSS. However, given that the preferred solution has not yet been confirmed, the Basin Bridge team has closely coordinated with the PTSS team to ensure that alternative public transport solutions are not compromised by the proposed bridge design. In this regard, design files have been supplied to the PTSS team which has confirmed that the horizontal and vertical clearances under the proposed bridge are sufficient for any of the public transport options being considered in that study. In particular, that review shows that it will be possible to accommodate the bus rapid transport and light rail within the current Project design.

\textsuperscript{27} Appendix 4 of the Regional Land Transport Strategy

\textsuperscript{28} Transit oriented intensification of employment and housing along a spine of growth, as identified in Wellington City Council’s adopted Urban Development Strategy