



Wellington's transport history

April 2016

Executive summary

Wellington's geography has dictated the location and form of transportation links, from the earliest Māori settlements through to the first land surveys in the 1840s and later European settlement. Many of the original routes continue to influence the transport planning efforts to shape the city. It is a contained city, developing up from the valleys to hills – its road network is constrained by this topography – and there is an extensive public transport network. However, the capacity of the transport network to meet current and future demands is limited.

This paper will look at the history of Wellington transport planning. Of particular interest is the Ngauranga to airport corridor. This review provides context for what was, is, and could be planned to further develop the transport network.

The context of Wellington

Wellington's topography of hills and valleys has created a central business district (CBD) built partially on reclaimed land along the waterfront. Expansion has been along the valleys and up the hills and particularly to the north. The transport networks have followed development, with narrow streets up hills and arterial routes following the valleys as spokes from the hub (the CBD). There are limited connections between the arterial routes beyond the CBD.

The State Highway heading north splits at Ngauranga, with State Highway 1 going to Porirua and State Highway 2 going to the Hutt Valley. South of Ngauranga, the highway passes through the Terrace Tunnel and travels along Vivian Street (southbound) or Buckle Street (northbound) before joining at the Basin Reserve to pass through the Mount Victoria Tunnel and on to the airport.

Because of Wellington's diverse transport mode share and compact development, the city has limited capacity and connections between local roads and the current arterials. This means the transport network is vulnerable to disruptions (weather, accidents, breakdowns, construction).

A history of Wellington transport planning

Transport planning from the 1960s focussed on expanding the State Highway network. The proposed "Foothill Motorway" has been the basis of the State Highway planning through the inner part of Wellington City, although it was never fully realised. Increasing road capacity significantly along the waterfront was dismissed as not conducive to improving the urban amenity of the city. While the early

plans did recognise public transport as a transport option, no specific action was recommended at the time.

From the 1990s onwards, transport thinking evolved. Public transport was championed and invested in. A compact and contained city was achieved, which intensified the land use and encouraged walking. Environmental sustainability became more prevalent in decision making and is further helping to achieve the city's goals.

Most recently, the focus has shifted to cycling, accessing the key Port and airport 'gateways', and the interface of the CBD urban form with major transport corridors. Cycling requires limited road space (compared to private vehicles or public transport) and has significant public health and environmental benefits, if safety issues can be addressed. The port and airport trips have particular needs in terms of reliability and nature of traffic accessing them. Reconciling high aspirations for quality urban spaces around the CBD, with appropriate quality and capacity transportation choices is resulting in strengthened multi-disciplinary and community engagement processes.

City resilience has emerged as a new lens through which decisions must be viewed. Wellington has earthquake, liquefaction, tsunami, flood and landslide issues, as well as occasionally suffering severe storm damage. The transport network must be able to withstand these impacts, as well as function after these events.

A history of Wellington transport planning

Below is a summary of the major transport documents over the last 50 years. More detail on some of the documents, including plans, can be found in Appendix 1.

Pre-1990

Document	Key aims	Key actions or recommendations	Comments
De Leuw Cather Report (1963)	<ul style="list-style-type: none">• Bypass traffic around the central city.• Improve traffic flow, limit on-street while increase off-street car parking and street environments.• Improve pedestrian environments.• Limit increase in traffic level.• Reduce traffic along the waterfront.	<ul style="list-style-type: none">• Build the “Foothills Motorway”, from Ngauranga to a duplicated Mount Victoria Tunnel.• Introduce a one-way road system for many inner city streets.• Remove all diagonal parking and some kerb parking.• Introduce traffic signal control management (SCATS).• Public transport improvements only if northern Wellington expands.	<ul style="list-style-type: none">• This report set the direction of Wellington transport planning. But as the Foothill Motorway was not completed, the benefits were not fully realised.• The report protected the waterfront (by not recommending a waterfront motorway), but the waterfront roads now carry significant traffic.• The lack of investment in public transport improvement continued despite the growth in the northern suburbs of Wellington, and outside of the city boundaries.
Burrell Report (1980)	<ul style="list-style-type: none">• Link the Terrace Tunnel to the Mount Victoria Tunnel.• The proposed road would be of lower standard than De Leuw Cather, but meets the traffic needs.• Relieve the city streets of through traffic.• Environmental and pedestrian improvements.• Minimise severance which create social problems.	<ul style="list-style-type: none">• Build a trenched road under Willis Street and Victoria Street. The road would be grade-separated over Taranaki Street. The road would allow Cuba Street traffic to join the State Highway network, but not pass through it.• The road would pass under a Sussex Street bridge at the Basin Reserve, reaching grade again at Brougham Street.• The plan would keep the function of the Basin Reserve.	<ul style="list-style-type: none">• The report states “the Basin Reserve is the most critical arterial junction along the route. Turning traffic at the intersections in this area will become increasingly significant with future growth”.• This report did not produce acceptable outcomes by current standards, with many options producing roads which created severance.• Ensuring the Basin Reserve could function was a necessary part of the report.

Pre-1990 themes

The focus of the pre-1990 transport planning was the development of the road network. Particularly the Foothill Motorway, which would provide a ring, or bypass, around the central city so traffic would not interfere with the heart of the city. This would also allow for the removal of traffic lanes along the waterfront, and to strengthen the central area. The Basin Reserve was also protected from becoming part of the State Highway network, which was being extended progressively.

The 1990s

Document	Key aims	Key actions and recommendations	Comments
Transportation Strategy for Wellington's Inner City (1992) & Transport Strategy (1994)	<ul style="list-style-type: none"> • Containment of the inner city. • Improved city–harbour integration. • Bypass route for the central city. • Protect the Golden Mile. • Improve suburban identity. • Create a transport system that was efficient, safe, accessible, affordable and sustainable. 	<ul style="list-style-type: none"> • Provide a bypass around the city. • Strengthen public transport and walking along the Golden Mile. • Provide passenger terminals, park and ride facilities and off-street parking near activity centres, public transport nodes and trip termination points. • Improve the efficiency of the roading network and improve the amenity of inner city streets. • Integrate competing road space users' demands. • Create good pedestrian links from the harbour to the city. • Minimise vehicle congestion. • Implement parking supply and controls (removal of District Plan requirements for car parking in the central area) and pricing controls. 	<ul style="list-style-type: none"> • A key priority was to manage road space demand during peak times (traffic demand management) as well as to increase capacity between the peaks. • These strategies are important to increase public transport and walking. • Cycling was mentioned as an action area, but seems to have not been implemented. • Park and ride facilities were a key part of the 1992 strategy. • Intensification is a key aspect of managing road capacity, congestion, promoting active modes and the city's growth. • Integrated land use and transport planning became a key priority. • The central city became more recognised as a key live, work and play destination.
Public Transport Options: Johnsonville to Wellington CBD Corridor (1993)	<ul style="list-style-type: none"> • Assessment of options for the corridor (rail, light rail transit (LRT), busway or on-street buses). 	<ul style="list-style-type: none"> • The option of improving the existing rail corridor proved to have the highest benefits, while having the least impacts. 	<ul style="list-style-type: none"> • This study has minimal impact on the central city, but importantly did not recommend LRT between Johnsonville and Courtenay Place, due to low cost effectiveness and significant impacts on the CBD.
Extension of the Motorway (1994)	<ul style="list-style-type: none"> • To extend the motorway from the Terrace Tunnel to the Mount Victoria Tunnel. • Assessment of options (Buckle Street; Buckle and Vivian streets; or Buckle, Able-Smith, Ghuznee, Victoria, Vivian streets and Kent Terrace). 	<ul style="list-style-type: none"> • Recommended option number two of Buckle Street catering for northbound traffic and Vivian Street catering for southbound traffic, joining at the Basin Reserve via Kent Terrace. 	<ul style="list-style-type: none"> • The project was implemented and is the current State Highway route. • Impacts on noise, housing, community facilities and heritage were identified. • Project aimed to remove traffic from Lower Cuba, minimise severance, be better for pedestrian safety and convenience and integrate the movement of people, private vehicles, public transport and cyclists. Also to better integrate the harbour and the city. • This alignment has significantly increased traffic on Vivian Street, creating some severance in Te Aro.

Light Rail Transit (LRT) Feasibility Study (1995)	<ul style="list-style-type: none"> Examine the feasibility of the proposed (but not recommended) LRT option from the 1993 study 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> An LRT system would have large impacts on land use within the CBD. An LRT system that terminates at Courtenay Place would not be efficient enough in reaching other key destinations to reduce traffic coming in to the CBD. Therefore the LRT line would need to be extended to destinations such as the hospital, Newtown centre, Kilbirnie centre or the airport.
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1990s themes

Through the 1990s the focus of transport planning shifted towards traffic demand management. Public transport, walking, reducing required car parking and a contained and intensified urban area were all important measures. Options such as LRT and busways were explored for the north but ultimately not pursued. Agreement was made to extend State Highway 1, with the Terrace Tunnel to Mount Victoria Tunnel being linked, via Buckle Street, and Vivian Street with Kent Terrace.

The 2000s

Document	Key aims	Key actions and recommendations	Comments
Life in Public Spaces - Gehl (2004)	<ul style="list-style-type: none"> To resolve the following issues: <ul style="list-style-type: none"> > High levels of traffic along Kent and Cambridge terraces, as well as the waterfront quays. > No functional street hierarchy. > Extensive parking (on and off-street). > Low pedestrian priority. > Limited pedestrian access to the waterfront. 	<ul style="list-style-type: none"> Invest in cycling and walking. Reduce the number of lanes along the waterfront quays. Reduce car dependency. Increase pedestrian priority. Implement public transport improvements (LRT or electric buses). Lower speed limits in the CBD. Divert traffic not stopping in the CBD. Introduce “green waves” (consistent alignment of lights) for public transport and pedestrians. 	<ul style="list-style-type: none"> The report highlights key transport conflicts and issues within the city. Ideas still being implemented, such as the 30km/h speed limit being looked at again by the Council and the cycling network.
Transport Strategy and Urban Development Strategy (2006)	<ul style="list-style-type: none"> Urban containment, with growth focused along the growth spine (Johnsonville to the airport). Further develop the State High network. Develop public transport network supportive of the growth spine. Ensure CBD access for commuters. Develop access to the port and airport. Increase energy efficiency. 	<ul style="list-style-type: none"> Manage travel demand. Reduce commuter parking. Increase walking and cycling. Introduce bus priority. Building Petone to Grenada link road. Increase public transport on the growth spine. Conduct State Highway improvements. Improve port access. Invest in local road improvements. 	<ul style="list-style-type: none"> High-level documents, continuing the work of the 1990 strategies. Particular transport issues are between Ngauranga and the CBD and the airport and the CBD. Transport is supportive of the urban form and land use. Corridor planning became important to implement the actions. Shift towards a more accessible and sustainable transport system.
North Wellington Public Transport Study (2005–2006)	<ul style="list-style-type: none"> Assessment of public transport options for Wellington’s northern suburbs (looked at rail, LRT, busway or on-street bus scenarios). 	<ul style="list-style-type: none"> Costs, risks, economic and social assessments led to no change in mode along the rail corridor, but with a planned improvement of rail service. 	<ul style="list-style-type: none"> Confirmed the findings of the earlier 1993 Johnsonville to Wellington CBD Corridor report.

Ngauranga to Airport Strategic Study – Opus Plan (2006– 2008)	<ul style="list-style-type: none"> • A two year strategic study involving multiple consultation phases to inform development of a corridor plan. • Provide safe, efficient and integrated transport solutions. • Solutions should support current and future land uses, social, business, recreational and other strategic goals. 	<ul style="list-style-type: none"> • Traffic Demand Management – high density living, road pricing or parking supply limitations, promote alternative to car trips. • Walking – pedestrian hierarchy route, wider footpaths, green waves, lighting, removing lanes on Jervois Quay. • Cycling – establish a cycle network, provide cycle facilities, cycle lanes. • Passenger transport – high quality corridor, segregated busway, staged approach to address capacity, central median routes to provide non-interrupted routes. • Bus enhancements – busway along Hutt Road and Thorndon Quay, and associated intersection improvements. • Other passenger transport initiatives – signal detection, GPS tracking and electronic ticketing. 	<ul style="list-style-type: none"> • Detailed a range of potential interventions to reach an improved transport system. • Actions were formalised in the N2A Corridor Plan.
Ngauranga to Wellington Airport Corridor Plan (2008)	<ul style="list-style-type: none"> • High quality and frequency public transport spine. • Accessible and attractive streets. • Reliable CBD ring or bypass route. • Connected local streets, good for walking and cycling. 	<ul style="list-style-type: none"> • Traffic demand management. • Bus priority. • Separation of conflicting traffic movement at the Basin Reserve. • Cycle facilities. • Improved walking routes. • Protection of strategic road network. 	<ul style="list-style-type: none"> • Walking, cycling and bus priority measures all important actions. • The east–west and north–south traffic conflicts at the Basin Reserve need to be resolved to realise the benefits of the public transport spine. Grade separation at the Basin Reserve was a key conclusion of the hearings subcommittee. • Upgrades to Hutt Road (bus lane option) have not been carried through.
Adelaide Road - Planning for the future (2008)	<ul style="list-style-type: none"> • Improve movement networks with a multi-modal corridor. • Support a mix of uses. • Protect local heritage and character. • Improve green and open spaces. • Strengthen social and community networks. 	<ul style="list-style-type: none"> • Create a live/work “suburb” through area specific District Plan provisions. • Facilitate development in the property market. • Implement the corridor upgrade (including land acquisitions). • Review policies, design guides and development contributions applicable to the area. • Undertake a parking study for Adelaide Road. • Upgrade public spaces, include doing an open space assessment. • Improve accessibility of existing services and the use of Crime prevention through environmental design (CPTED). • Complete a detailed heritage study and design guidance. • Working with Housing New Zealand Corporation. • Producing a walking map with connections. • Complete road corridor and streetscape upgrades. 	<ul style="list-style-type: none"> • Plan Change 73 brought in planning provisions for specifically this area. • Some public space enhancements were undertaken, however many actions remain incomplete, including acquiring land and detailed design of the road corridor (widening was required). • The work is dependent on the public transport spine work.

Roads of National Significance (RoNS) (2009)	<ul style="list-style-type: none"> • Reduce congestion. • Improve safety. • Support economic growth. • Focus on moving people and freight between centres. • Increase the road capacity. 	<ul style="list-style-type: none"> • Wellington Northern Corridor – RoNS – Improve the State Highway corridor between Wellington and Levin. > Airport to Terrace Tunnel improvements. > Transmission Gully. > MacKays to Peka Peka. > Peka Peka to Otaki. > Otaki to Levin. 	<ul style="list-style-type: none"> • Considerations for how an urban highway should be treated are not outlined. • Considerations such as urban design and heritage, and an increased number of impacted residents and businesses need to form part of any RoNS project in the urban area. • Highways are important for moving people and freight. • Airport to tunnel improvements could achieve the long-proposed ring or bypass route.
Central Area Bus Operational Review (2009)	<ul style="list-style-type: none"> • Improve efficiency and reliability of bus movement along the Golden Mile and through the central city area. 	<ul style="list-style-type: none"> • Measures to be investigated included: improved route legibility, bus priority, scheduling reviews in the short term, integrated ticketing and bus stop layout/design in the medium term, suburban hubs (interchanges) and road space re-allocation in the long term. 	<ul style="list-style-type: none"> • Review concludes that significant opportunity exists to enhance efficiency through a mixture of infrastructure and operational interventions. • Informed the decision to make Manners Street a two-way route for buses – restoring the Golden Mile spine. Previously buses used a split route via Victoria/Wakefield streets and Dixon/Willis streets.

2000s themes

The 2000s focussed more on developing alternative modes of travel to the private vehicle. This includes public transport, walking and cycling plans or policies. However, significant advancement in these modes was generally not achieved. This is particularly because of a static system, with minimal investment. Urban containment and intensification were strengthened, with the identification of the growth spine (including planning provisions for the Central Area, Adelaide Road, Johnsonville and Kilbirnie), and the role of transport in supporting this urban form. Light rail and alternative bus types were explored again for the north and not supported. The Government's Roads of National Significance at the end of the decade signalled significant investment in the State Highway 1 corridor.

The 2010s

Document	Key aims	Key actions and recommendations	Comments
Basin Reserve Transport Improvements Scheme Assessment Report (2008–2012)	<ul style="list-style-type: none"> • To investigate potential solutions for separating north–south from east–west traffic movements (all modes) at the Basin Reserve. • Key objectives were: <ul style="list-style-type: none"> > Increase the efficiency of through-traffic between the Mount Victoria Tunnel and the Inner City Bypass and SH1 motorway; > improve the efficiency, reliability and level of service of passenger transport services between Kent and Cambridge terraces and Adelaide Road; > improve safety for those who use the streets around the Basin Reserve; > maintain or enhance the present level of service for local traffic between Kent and Cambridge terraces and Adelaide Road and their connections to SH1; and > improve pedestrian and cycling access to and around the Basin Reserve, particularly addressing the need for pedestrians to cross significant traffic flows. 	<ul style="list-style-type: none"> • 2009 Basin Reserve “inquiry by design” workshop with WCC, GWRC, and other key stakeholders to develop and assess concept options. • 2009/2010 Design Surgery Workshops held to assess options and variations. • Project on hold in early 2010 in order to investigate the options and costs of undergrounding Buckle Street as part of the National War Memorial Park Project, which was being developed by the Ministry of Culture and Heritage. • 2011 – Option evaluation workshops held with technical specialists. Benefit-cost ratio BCR for options developed. Preferred options identified. • Consultation on two “bridge” options as part of the wider “Cobham Drive to Buckle Street” public engagement. • 2012 – National War Memorial Park (Pukeahu) Empowering Act, which provides for the undergrounding of Buckle Street and the creation of a National War Memorial Park. Long tunnel option (Option F) reconsidered at this time, but found too expensive and some severance impacts from tunnel portal. • 2013 – The southern-most bridge option was confirmed as the preferred option to take forward for consenting. Assessment of environmental effects (AEE) preparations commenced. 	<ul style="list-style-type: none"> • A wide range of options and sub-options – at grade, tunnel, bridge – were considered over 5 years. Input through the development stages from the three partner organisations, a range of specialists, and community representatives. • The Transport Agency engaged on two bridge options.
Wellington City Bus Review (2011)	<ul style="list-style-type: none"> • To improve the effectiveness and efficiency of the public transport network within Wellington City. • To address bus congestion along the Golden Mile. • To improve reliability, coverage, connections, access, and service levels. 	<ul style="list-style-type: none"> • A new bus network was recommended, to be implemented in 2017, which would include: <ul style="list-style-type: none"> > a simpler and easy to understand network, less route duplication and fewer overlaps; a frequent core bus network serving high demand areas and the cities growth spine; direct commuter services at peak times; greater reliance on suburban hubs to service low demand areas; improved all-day and new weekend services to poorly served areas. 	<ul style="list-style-type: none"> • The new bus network relies on the retirement of the trolley bus network and the new bus contracts as these currently place restrictions on optimised network design. • The new network will be implemented when the contracts under the Public Transport Operating model commence in 2018.

Basin Bridge Board of Inquiry and High Court Appeal (2013 - 2015)	<ul style="list-style-type: none"> • To gain Resource Management Act (RMA) approval for a bridge at the Basin Reserve intersection – to carry westbound SH1 traffic, and separate this from other traffic movements. 	<ul style="list-style-type: none"> • Application lodged with Environmental Protection Authority EPA in 2013. • Board of Inquiry process. • 2014: Board of Inquiry declines consent, NZTA appeals to High Court. • 2015: High Court decision released, upholds Board of Inquiry (BOI) decision. 	<ul style="list-style-type: none"> • BOI evidence suggests that 70+ options and sub-options have been considered for upgrading the Basin Reserve intersection. • High Court Findings: BOI decision did not contain error of law – but – evaluation of every conceivable alternative not required and enabling benefits of a project can be taken into account.
Public Transport Spine Study (2014)	<ul style="list-style-type: none"> • Investigate the feasibility of a high-quality public transport spine through central Wellington City from the railway station to the hospital in Newtown, and to Kilbirnie. • Identify different modes and route options for delivery of the spine. • Estimate costs, benefits, the resilience, compatibility and other impacts of preferred options. 	<ul style="list-style-type: none"> • Recommended route from Wellington Central railway station followed the Golden Mile then continued along Kent/Cambridge Terrace to the Basin Reserve where the route split, following Adelaide Road to the Regional Hospital; and SH1 via Mount Victoria Tunnel/Ruahine Street/Wellington Road/Kilbirnie Crescent through to Kilbirnie. • Three modal choices (bus priority, bus rapid transit or LRT) examined in further detail. • Bus rapid transit (BRT) was selected as the preferred option. 	<ul style="list-style-type: none"> • Study suggested the timing of the BRT works should be linked to State Highway improvements if possible (ie Basin Bridge, Mount Victoria Tunnel duplication, Ruahine Street upgrade) to gain maximum benefits and minimise impacts (particularly during construction stages). • Study was preliminary, with detailed work to be done after option was approved. • An Indicative Business Case was completed in 2015 to progress the assessment of bus rapid options for the spine. A Detailed Business Case is the next step.
Wellington Regional Public Transport Plan (2014)	<ul style="list-style-type: none"> • Decrease congestion. • Improve traffic choices. • Reduce carbon emissions. • Enable efficient land use and sustainable urban development. • Improve health and safety. 	<ul style="list-style-type: none"> • Public Transport Operating Model (PTOM). • Bus review. • Bus Rapid Transit. • All electric buses (hybrid as an interim). • Modernisation of the rail stock. • Integrated ticketing. • New rail service patterns. • Park and ride strategy. 	<ul style="list-style-type: none"> • Public transport is key to the city. Reduces congestion and emissions while increasing transport choice, efficiency of land use, and public health and safety. • Further support for BRT along the public transport spine as the key public transport solution for Wellington City.

Wellington Urban Growth Plan (2015)	<ul style="list-style-type: none"> • Residential intensification around town centres and the central area. • Limited greenfield growth. • Supportive transport infrastructure. • Improve our local centres. • Improve housing options. • Continue to protect and enhance our natural environment. • Improve the city's resilience. 	<ul style="list-style-type: none"> • Improve public transport – including bus priority measures, and eventual implementation of the BRT network. • Plan for redevelopment and intensification of Te Aro and improvement of key streets. • Secure the key transport corridors. • Improve access to and from both the port and airport. • Complete the development of the waterfront. • Walking improvements. • Cycling network and improvements. • Improve the road network – including the state highway and reviewing the one-way system. • Review the parking strategy. • Preserve heritage buildings. • Upgrade vulnerable infrastructure. • Secure access routes and lifelines in case of emergency. • Deliver the Adelaide Road Framework. 	<ul style="list-style-type: none"> • Updates and merges the 2006 Transport and Urban Development strategies. • Integrates land use and transport planning. • Adds environmental and resilience considerations. • Focusses intensification in the CBD and in key areas, which has significant impacts on transport planning through or around the CBD. • Cycling, walking and public transport are integral to the system.
Regional Land Transport Plan (2015)	<ul style="list-style-type: none"> • A high-quality, reliable public transport network. • A reliable and effective strategic road network. • An effective network for the movement of freight. • A safer system for all users of our regional transport network. • An increasingly resilient transport network. • A well-planned, connected and integrated transport network. • An attractive and safe walking and cycling network. • An efficient and optimised transport system that minimises the impact on the environment. 	<ul style="list-style-type: none"> • Ngauranga to Airport improvements. • Resolve the Basin Reserve conflicts. • Implement cycling priorities through policy, corridor works and integration with land use and public transport. • Public transport improvements including bus priority, BRT, rail upgrades and fleet expansions and integrated ticketing. • Implement roading programmes such as RoNS, SH2 enhancements and the Petone to Grenada Link Road. • Increase the access to the port and remove freight rail constraints. • Increase network resilience with transport choices, planning and works to the network. 	<ul style="list-style-type: none"> • Has replaced the Regional Land Transport Strategy and other regional plans, such as the Ngauranga to Airport Corridor Plan.

2010s themes

The current set of documents is supportive of BRT, walking, cycling and intensified land uses. The preferred public transport spine route and modal type have been confirmed and are awaiting implementation. There are also road improvements stemming from the RoNS programme to be completed. There is an opportunity to integrate major road construction, public transport and alternative mode improvements to achieve a significant benefit for the city. Resilience and environmental considerations are also given increasing weight in decision making.

Appendix 1 – Details of transport planning history

Presented below is a list of select policies, strategies, studies or reports discussed in the body of the report. Each document is presented individually.

1963 De Leuw Cather Report

This was the first major transport plan for Wellington. The central idea of the report was an extension of the state highway network and to better facilitate movement in Wellington. The four options explored to achieve this were:

1. Using the existing road capacity, with modification and improvement – this was deemed not to be enough of an intervention to cope with the forecast 1981 traffic models.
2. A waterfront motorway – this was thought to be too intrusive to the city, too expensive and not efficient enough in achieving the transport targets. Specifically, it was noted that such a motorway would divide the waterfront precinct from the rest of the CBD and an international example was referenced as a poor quality outcome.
3. A Foothill Motorway – this was an extension of the current motorway around the back of the CBD along the base of the hills and joining the Mount Victoria Tunnel near the Basin Reserve. This was the preferred and selected option. The route of the Foothill Motorway follows the existing motorway from Ngauranga to the Ghuznee and Vivian streets access, albeit the plan was to have two Terrace Tunnels of three lanes each. The route would then be trenched below Vivian, Abel Smith, Cuba and Taranaki streets, finally rising over streets surrounding the Basin Reserve to join a duplicated Mount Victoria Tunnel.
4. The final option was a combined Foothill and waterfront motorway – this was thought to provide excessive road capacity and the costs prohibitive.

Parts of the Foothill Motorway were redesigned in the coming years, such as the Basin interchange. Initially the plan required the whole Basin to be part of the solution. Alternate schemes were similar to the one put before the Board of Inquiry recently.

The significant aims of the proposed Foothill Motorway were to:

- bypass traffic around the central city, while not impacting the local streets
- improve traffic flow, car parking and the street environment
- improve the pedestrian environment
- reduce or maintain the current level of traffic
- reduce traffic along the waterfront.

The report recognised the general trend of urban sprawl, but suggested Wellington's political centrality and the port functions would help to keep the city compact. It also suggested investment in public transport was not necessary at the time.

To go along with the Foothill Motorway, a one-way system of inner city roads was required. While some roads have changed direction (Vivian Street is an example)

and other streets have been extended (Victoria Street is an example), the one-way system is very much a part of Wellington's inner city transport. It is also worth noting this proposal required the removal of all tram services.

The report also recommended:

- a number of street improvements outside of the current Ngauranga to Airport corridor but within the central city
- removing kerb parking in places
- removing all diagonal parking
- improving traffic control and signals (known as SCATS, this system aims to optimise the traffic flow. This is seen as a key part of urban transport efficiency and was implemented from the mid-1980s to the mid-1990s)
- improvements for pedestrians.

According to the report, public transport's primary role should be to move people during the peak periods. Due to the improvements recommended (including building



De Leuw Cather: Foothills Motorway Plan, 1963

the motorway), the traffic levels modelled were not expected to increase on the city streets. This suggested no major investment in public transport would be required until after 1981. If growth did increase, public transport options included:

- improved rail cars (carriages)
- rail extensions – including a subway system reaching Courtenay Place
- a better rail-bus transfer terminal
- improved bus services (much of this dependent on the roading improvements), including a shuttle from Courtenay Place to the rail station.

1980 Burrell Report

By 1980, part of the inner city bypass had been completed, in line with the De Leuw Cather report. The Burrell Report examined the options for completing the link from the Terrace Tunnel to the Mount Victoria Tunnel.

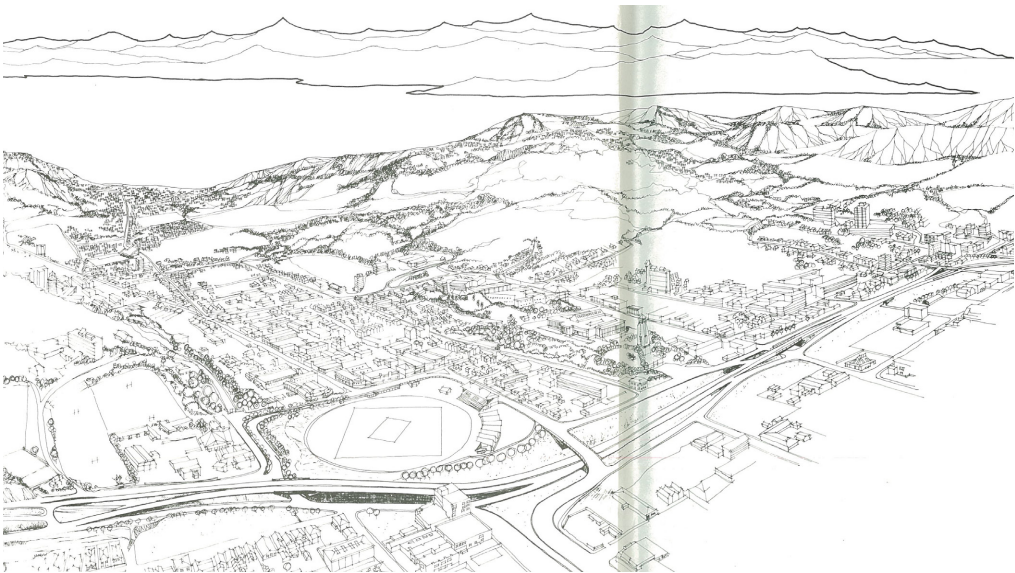
The selection criteria the project used were:

- the alignment of proposal
- quality of the road and how the expansion would be staged
- impact on vehicle traffic, including cyclists and pedestrians
- environmental and landscape impacts
- social impacts
- economic feasibility
- connection and impact on traffic in Mount Victoria and south eastern suburbs.

The report outlines the reasons for selecting the option, including:

- operating standard similar to the arterial
- meeting the traffic needs and lesser cost than other proposals
- relieve the city streets of through traffic, which would benefit cyclists
- giving the opportunity for improvements for the environment and pedestrians
- reductions of barriers in other plans – which would create social impacts.

The proposed solution was to trench the road under Willis and Victoria streets, and have a grade separated road over Taranaki Street. It would be at grade at Cuba Street, but did not allow through traffic. At the Basin Reserve, the road would pass under a new Sussex Street Bridge, and the rest of the roundabout before reaching grade again near Brougham Street. This plan would keep the Basin Reserve and the roundabout function. The report states: “This highlights once again that the Basin Reserve is the most critical arterial junction along the route. Turning traffic at the intersections in this area will become increasingly significant with future growth”.



Burrell Report: Artist perspective of proposed plan, 1980

1992 Transportation Strategy for Wellington’s Inner City and 1994 Transport Strategy

Wellington City Council developed the 1992 Transportation Strategy for Wellington’s Inner City and the 1994 Transport Strategy. These were the first transport strategies since De Leuw Cather in 1963.

The 1992 strategy outlines a number of themes that transport should reflect.

Environmental themes	Economic themes	Social themes
Preserve the form of the city	Improve the interface of government with the city centre	Recognise the central city as a place for people, as the cultural and entertainment capital and as a recreational centre
Conserve heritage	Recognise the city centre as the regional employment hub	Allow the city centre to foster social equity and be democratic for all residents and visitors
Promote a clean environment	Coordinate the city with major institutions	

The objectives of the 1992 strategy were to:

- provide a bypass traffic route
- strengthen public transport and walking along the Golden Mile
- provide passenger terminals, park and ride facilities, and off-street parking near activity centres and trip termination points
- improve efficiency of use and the environment of streets
- integrate requirements of all users
- good pedestrian links from the harbour to the city
- minimise vehicle congestion
- implement parking supply and pricing.

The 1994 strategy outlines a need to reduce demand during peak times, while increasing capacity between the peaks. The strategy explains demand is reduced primarily through increasing public transport patronage and active transport mode share, encouraging different land uses and intensifications, and controlling the supply of parking. Capacity is increased by building more roads and improving efficiency of the existing network.

Overall the both visions were for:

- containment of the inner city
- improved city–harbour integration
- having an effective bypass route for the central city while catering for destination travel in the inner city
- improving and protecting the Golden Mile
- improving suburban identity (this was added in the 1994 strategy).

The strategies state a transport system for the city should be:

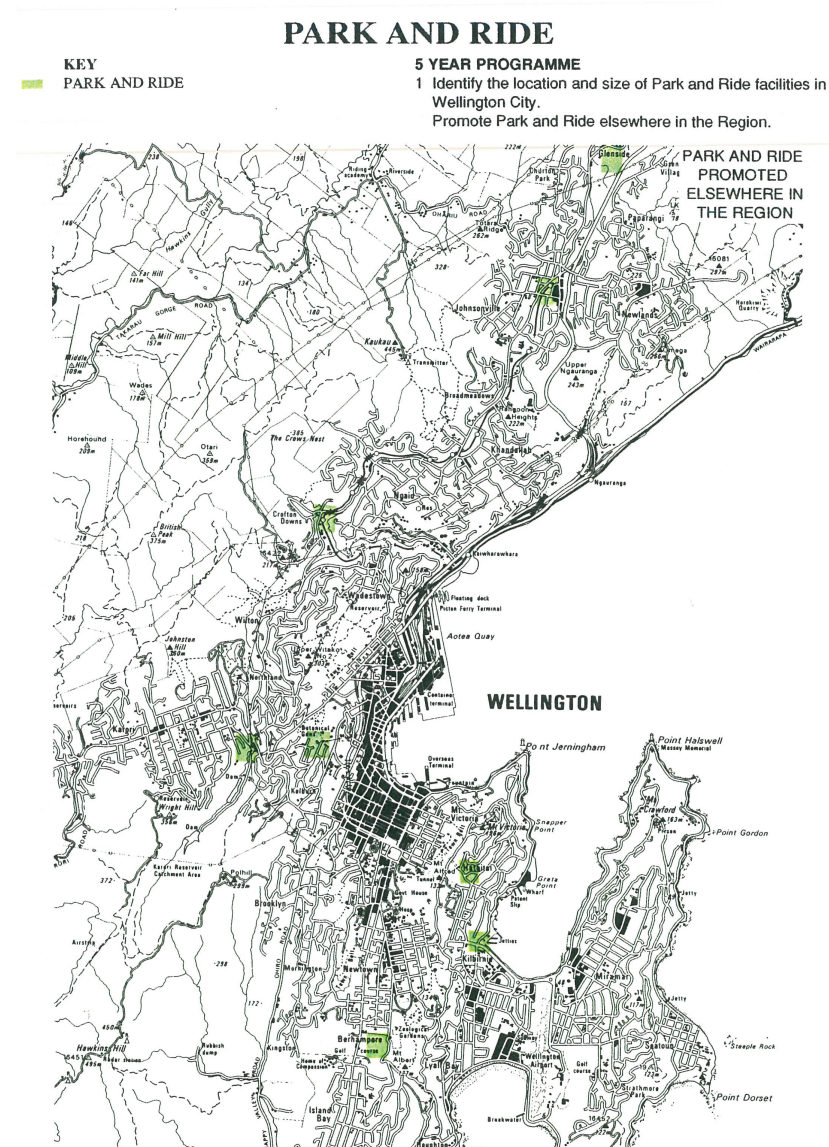
- efficient
- safe
- accessible
- affordable
- sustainable.

Key action areas of the strategies include improvements to:

- public transport
- pedestrian and street environments
- cycling
- parking (including removing the District Plan requirement for car parking within the central area)
- safety
- integration of the city and harbour
- commuter traffic restraint

- the inner city bypass.

These policies are important in the context of Wellington transport planning, as they were at the beginning of the resurgence of modal shift towards public transport and walking. From the mid-1990s, rates of public transport patronage and of active mode use have continued to rise. They also form the starting point for combining transport and land use planning in Wellington.



Transportation Strategy for Wellington's Inner City: Park and Ride Plan, 1992

1993 Public Transport Options : Johnsonville to Wellington CBD Corridor

This study focussed on the northern suburbs and the future of the rail corridor as a transport corridor. Four options were presented:

1. A rail corridor as is (opportunity for new carriages).
2. An LRT system to replace the existing rail, and extending to Courtenay Place.
3. A busway system with guided buses along the rail route. The buses would extend their trip at either end using local roads.
4. An on-street bus system using the local roads.

Primarily the greatest benefits were seen in the LRT or busway system, but these also attracted the highest costs, particularly the LRT. Overall, the options with the greatest overall benefits and least impact were an upgrading of the existing carriages on the rail corridor, or the creation of a busway on the existing corridor. This would require the rail corridor to stop functioning during construction of the busway.

1994 Extension of the motorway

By 1994 the proposed extension of the motorway from the Terrace Tunnel was being examined again. The solution would need to cater for the growing commuter workforce and the growing through traffic, as well as the local traffic within Te Aro.

The three options considered were:

1. A two-way Buckle Street design.
2. A combination of Buckle and Vivian streets being used as one-way roads.
3. Buckle, Abel-Smith, Ghuznee, Victoria, Vivian streets and Kent Terrace.

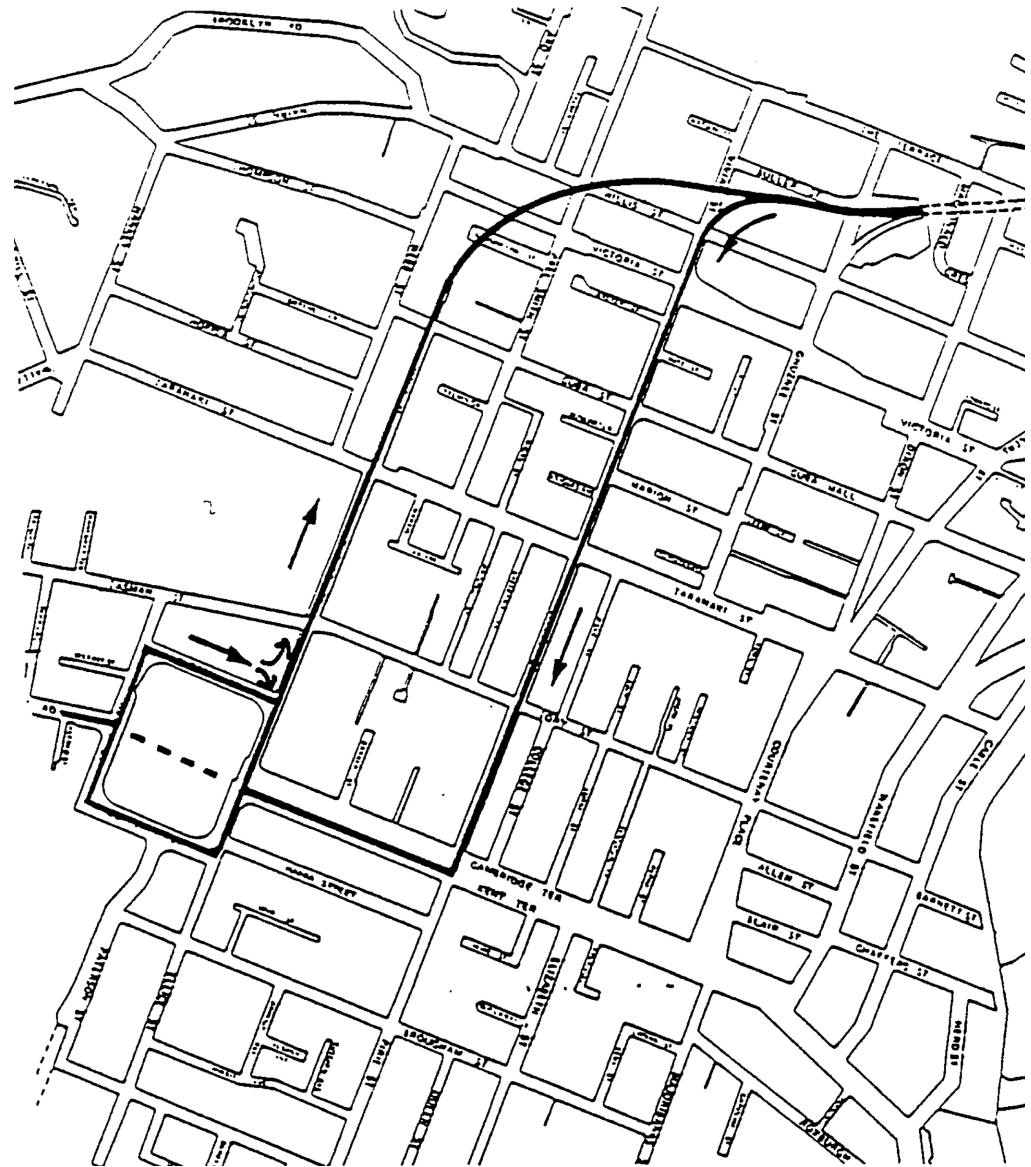
Option two was the preferred solution, as it had the highest cost-benefit ratio and the highest capacity. However, the scheme would impact the local community through:

- increased noise
- loss of housing
- loss of community facilities
- loss of heritage
- creation of a major intersection where Vivian Street meets Kent and Cambridge terraces.

However, the scheme was deemed to:

- remove traffic from the lower Cuba Street precinct
- be better for pedestrian safety and convenience
- minimise the severance of the existing street network
- integrate the movement of people and vehicles
- be attractive for pedestrians, cyclists and public transport options
- encourage the integration of the harbour with the city.

Concept 2: Option 2A & 2B



Extension of the motorway: Option 2, 1994

1995 Light Rail Transit Feasibility Study

This report looked at a light rail system from the station extending through to Courtenay Place. The report found the system is economically, environmentally and transport appropriate.

The report focussed on identifying a route, primarily following the Golden Mile (but looked at different options, including along the waterfront) to serve the largest catchment, but keeping within the existing kerbs. It also highlighted a central running track would be the preferred options wherever possible.

2002 New Zealand Transport Strategy

The national strategy for transport provides high-level direction for transport throughout the country. It highlighted four key principles of sustainability, integration, safety and responsiveness. To support the principles, five key objectives were created.

1. Assisting economic development
2. Assisting safety and personal security
3. Improving access and mobility
4. Protecting and promoting public health
5. Ensuring environmental sustainability

The common themes the strategy focussed on were:

- passenger transport
- walking and cycling
- reducing congestion
- intensification of land use
- enhancing access, mobility and wellbeing
- improving water quality
- safety
- reducing severance
- reducing noise and emissions
- economic development.

Transport projects or policies would be expected to take direction from the above principles, objectives and themes.

2004 Life in Public Spaces - Gehl Report

In 2004, the Council commissioned Gehl Architects to produce a study of the city and recommend initiatives and improvements. Gehl Architects is world-renowned and has done this for several cities around the world.

The report noted several transport issues, including:

- Kent and Cambridge terraces and Jervois Quay all carrying large amounts of traffic – the report described them as urban motorways
- no real street hierarchy
- extensive parking exists both on and off-street
- low pedestrian priority on city streets
- limited pedestrian access to the waterfront.

Gehl Architects proposed the following improvements:

- investing in cycling and walking
- reducing the number of lanes along Jervois Quay
- reducing car dependency
- increasing pedestrian priority
- increasing the function (pedestrian and commercial activity) of smaller streets
- implementing public transport improvements (LRT or electric buses, real-time information, easier ticketing)
- transforming the major streets from urban motorways to boulevards
- lower speed limits in the CBD
- diverting traffic with no business in the CBD around the city
- introducing “green waves” for public transport and pedestrians.

The 2006 Transport Strategy, and the 2006 Urban Development Strategy

Following the 1994 Transport Strategy, an updated policy was developed in 2006. This was done in conjunction with an Urban Development Strategy. These documents concentrated on transport being an enabler of urban containment, focussed primarily along the growth spine – stretching from Johnsonville to the airport. A high-quality multi-modal transport network would be required to support development and population growth within this corridor.

The 1994 strategy outlined the limited capacity of the roading system and deliberately set out to encourage the use of alternative transport modes and some mode shift away from private car, in particular for peak commuter travel. This was supported by a contained urban form.

In 2006, Wellington had high public transport patronage, low congestion, good connectivity and short travel distances compared to other cities. However, there were issues with choke points in the network (particularly between Ngauranga and the CBD, and between the airport and the CBD), and limited investment since the 1960s. It was decided transport should support the urban form and land use decisions of the city, and should also influence economic development, social cohesion, better health and increased sustainability.

The transport strategy identified a number of future issues:

- increasing congestion
- road space competition
- access to the port and airport.

The broad aims were deemed to be:

- developing a state highway network with arterial roads
- developing public transport network for the growth spine
- ensuring CBD access for commuters
- developing access to the port and airport
- developing energy efficiency measures.

The key transport action areas were to:

- manage travel demand
- reduce commuter parking
- increase walking and cycling
- introduce bus priority
- build Petone to Grenada link road
- increase public transport on the growth spine
- conduct state highway improvements for large volumes of cars and freight
- improve port access
- invest in local road improvements.

The Urban Development Strategy promoted intensification along the growth spine – a corridor with high amenity and infrastructure. This would allow the city to become safer and more liveable, more memorable and distinctive, better connected, more efficient and productive, and more sustainable. The strategy was also concerned with the impact of growth on heritage, a poor quality interface between public spaces and private buildings, poor urban design in town centres, and improving the quality of buildings.

2006 North Wellington Public Transport Study

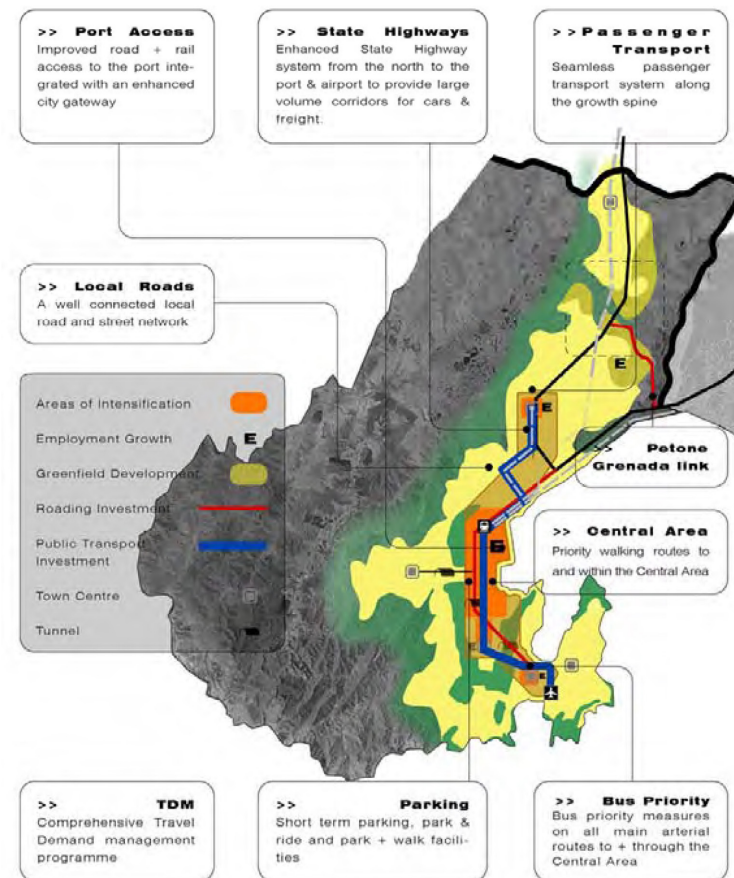
In 2004, funding was committed to by the government to GWRC for rail improvements, based on a full review of the business case. This 2006 study was part of the review process, and is similar to the 1993 study. It looked at public transport options in the north of Wellington. The study's aims were to:

- identify current and future passenger transport needs of northern Wellington
- develop a passenger transport strategy to meet these needs
- develop a passenger transport strategy that would support land use and transport planning.

This study looked at similar options as the earlier study, focussing on:

- improvements to the existing rail
- an off-street bus network with the rail corridor being used for walking and cycling
- a guided busway
- light rail transit.

After examining the costs, risks, economic benefits and social acceptability, the result was the base scenario – a similar level of service (with some service improvements) was found to be the preferred option. This included retention of the Johnsonville line. The study also supported some minor bus service and bus priority improvements in the northern suburbs.



2008 Ngauranga to Wellington Airport Corridor Plan

In response to the issues raised in the 2006 strategies and the 2007 Regional Land Transport Strategy, a plan was necessary for dealing with the congested corridor between Ngauranga and the airport. The corridor plan looks at how to provide a multi-modal system through the city. It looks at linking to the railway to the airport, as well as incorporating passenger transport, walking and cycling.

The plan identified a number of reasons for travel patterns shifting further towards public transport. These included a national direction on sustainability, oil price volatility, increased travel demand, population and economic growth, a denser urban form, social and lifestyle changes, operating costs of private vehicles and car ownership rates.

The aims of the plan were to produce a system with:

- a high-quality and high-frequency public transport passenger spine
- highly accessible and attractive activity streets
- a reliable ring or bypass route
- interconnected and convenient local streets (including for walking and cycling).

Bus priority was the proposed initial service outcome, with an aim to have higher quality services over time. A number of works were proposed for the first 10 years including road improvements, bus priority or high-occupancy vehicle lanes, Golden Mile improvements and Basin Reserve improvements. After the initial 10 years, significant work was outlined, including BRT or LRT, duplication of the Terrace and Mount Victoria tunnels and reducing the number of lanes along the waterfront.

The action areas the plan outlined included:

- traffic demand management
- bus priority
- improved traffic management at the Basin Reserve
- cycle facilities
- improved walking routes
- protection of strategic road network.

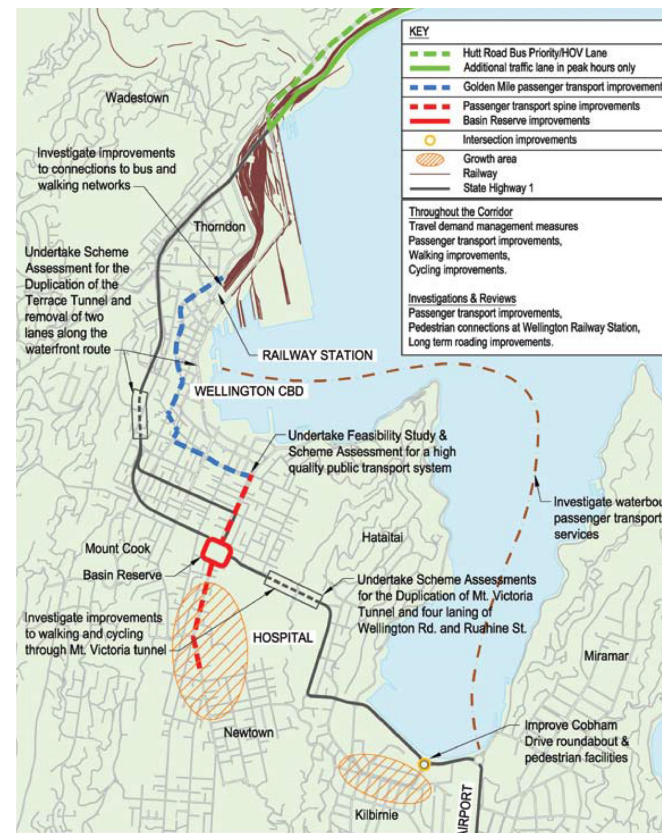
2008 Ngauranga to Airport Study Strategic Study (Opus)

This report is a supplementary report to the Corridor Plan. Overall, the benefits included supporting the economy, protecting the environment and providing safe, efficient and integrated transport solutions. The study concluded a transport corridor through this precinct fitted well with many key objectives specified in the New

Zealand Transport Strategy, the Regional Policy Statement and the Regional Land Transport Strategy.

The study outlines a number of areas in which to take action, including:

- traffic demand management – high-density living, road pricing or parking supply limitations, promote alternate car trips or methods
- walking – pedestrian hierarchy route, wider footpaths, green waves, lighting, removing lanes on Jervois Quay
- cycling – establishing a cycle network, providing cycle facilities, cycle lanes
- passenger transport – high-quality corridor, segregated busway, central run routes to provide non-interrupted routes
- bus enhancements – busway along Hutt Road and Thorndon Quay, and associated intersection improvements
- other passenger transport initiatives – signal detection, GPS tracking and electronic ticketing.



Ngauranga to Airport Corridor Plan: 10 year strategy, 2008

2008 Adelaide Road– Planning for the future

As the Ngauranga to airport corridor was being investigated, the Council recognised the potential of Adelaide Road as a growth area. A plan for the area was developed through workshops and community consultation. The vision was for “a high-quality mixed-use area that is more vibrant, attractive, better connected, accessible and a safer place”.

The framework covered the following themes.

- Open space – providing green areas and quality public spaces
- Social and community – strengthening the local character
- Movement networks – improving the road as a multi-modal corridor
- Heritage and character – recognising and providing appropriate protection
- Mix of uses – recognising and protecting employment opportunities while enabling a transition to a “new economy”

To achieve the goals, actions were broken up into:

- Facilitating development –investigating options for the Council to be more active in the property market;
- Corridor upgrade – including land acquisition, Notices of Requirement and detailed design work;
- Policy review and amendment – including reviewing policies, design guides and development contributions;
- Parking – undertake a parking study for Adelaide Road;
- Urban open space upgrade – including an open space assessment;
- Community network – improving accessibility of existing services and the use of CPTED;
- Character and heritage – a detailed heritage study and design guidance;
- Affordable housing – working with Housing New Zealand Corporation;
- Way-find improvements – Producing a walking map with connections; and
- Capital works – including road corridor and streetscape upgrades.

2009 Roads of National Significance

The Roads of National Significance (RoNS) outlined seven key state highways, ring routes, expressways, corridors or bottlenecks throughout the country. These would require priority work to reduce congestion, improve safety and support economic growth; focussing on moving people and freight between centres.

The Wellington RoNS is the route from Wellington to Levin via State Highway 1. The corridor projects will include inner city transport improvements from the airport to the Terrace Tunnel. Highway work includes Linden to MacKays (Transmission Gully) Kapiti Expressway (MacKays to Peka Peka, Peka Peka to Otaki) and Otaki to Levin. This is a significant commitment to road capacity increases for Wellington, and to further develop the state highway through the central part of town.



Adelaide Road - Planning for the future: Artists impression of Adelaide Road, 2008

2014 Public Transport Spine Study

A recommendation from the Ngauranga to Wellington Airport Corridor Plan was to further investigate the passenger transport spine. The study narrowed the scope from the whole corridor to focus on trips possible from the railway station to the hospital. However, during the course of the study, the route was expanded to include Kilbirnie, as this would open up significant opportunity to increase public transport patronage.

The objectives of the study were to:

- identify the characteristics of a high-quality public transport spine
- assess the merit of differing route options
- estimate costs, benefits, resilience, compatibility and other impacts of preferred options
- provide information to decisions makers.

Overall, 88 combinations of routes and travel modes were assessed. A primary route was then identified, with the three modal options being bus priority, BRT or LRT. The study also looked at the wider transport network and noted major benefits during construction would be available with alignment of other transport and urban development works, particularly along the State Highway network. However, the study was only preliminary work, with detailed design to be undertaken later.

2014 Wellington Regional Public Transport Plan

The public transport network contributes to regional liveability and economic productivity. The Regional Public Transport Plan's objectives were to:

- decrease congestion
- improve traffic choices
- reduce carbon emissions
- enable efficient land use and sustainable urban development
- improve health and safety.

To achieve these objectives, the plan outlined the following initiatives.

- Public Transport Operating Model (PTOM)
- Bus review
- Bus Rapid Transit (BRT)
- All electric buses (hybrid as an interim)
- Modernisation of the rail stock
- Integrated ticketing
- New rail service patterns
- Park and ride strategy

2015 Wellington Urban Growth Plan

The Urban Growth Plan is an update of the 2006 Transport and Urban Development strategies. The plan pulls together both streams of land use planning and transport planning into one strategy, while also recognising the importance of housing, the environment and resilience. The aims of the plan are for Wellington to be a compact, liveable, resilient city that is set in nature.

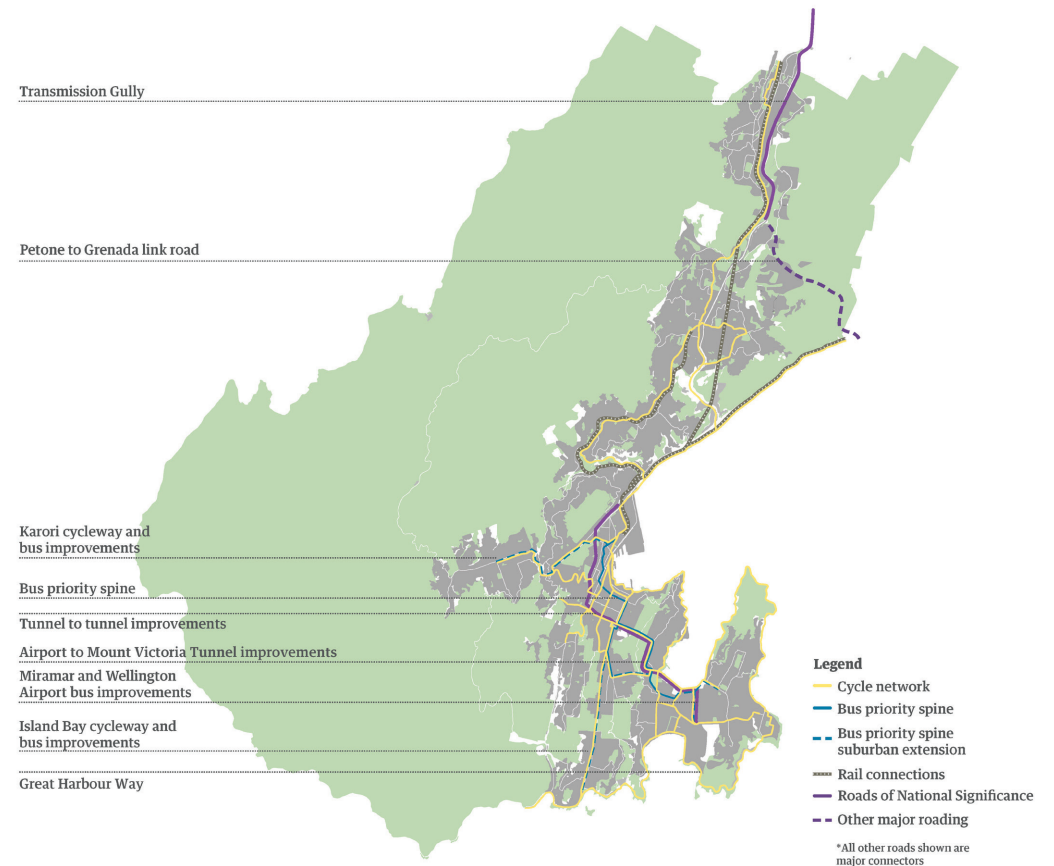
The plan focusses on:

- residential intensification around town centres and the central area
- limited greenfield growth
- supportive transport infrastructure
- improving our local centres
- improving the housing options
- continued protection and enhancement of our natural environment
- improving the city's resilience.

Key actions relevant to the inner city corridor area are as follows.

- Planning, redevelopment and intensification of Te Aro and key streets
- Delivery of the Adelaide Road Framework
- Securing the key transport corridors
- Improving access to and from both the port and airport
- Completing the development of the waterfront
- Walking improvements

- Cycling network and improvements
- Improved public transport – including bus priority measures, and eventual implementation of the BRT network
- Improved road network – including the state highway and reviewing the one-way system
- Reviewing the parking strategy
- Delivering parks and waterfront spaces
- Preserving heritage buildings
- Upgrading vulnerable infrastructure
- Securing access routes and lifelines in case of emergency



Wellington Urban Growth Plan: Real transport choices, 2015

2015 Regional Land Transport Plan

The RLTP has replaced the Regional Land Transport Strategy and the associated programmes of work. This includes the previous Ngauranga to Airport Corridor Plan – although the actions have been reduced to fit in the strategy portion of the plan.

The key aims of the RLTP are to create:

- a high-quality, reliable public transport network
- a reliable and effective strategic road network
- an effective network for the movement of freight
- a safer system for all users of our regional transport network
- an increasingly resilient transport network
- a well-planned, connected and integrated transport network
- an attractive and safe walking and cycling network
- an efficient and optimised transport system that minimises the impact on the environment.

The vision is to deliver a safe, effective and efficient land transport network that supports the region's economic prosperity in a way that is environmentally and socially sustainable.