

Memorandum

To	Emmet McElhatton	From	Aurecon
Copy	s7(2)(a) [REDACTED], Nathan Briggs	Reference	255585
Date	2025-12-15	Pages (including this page)	9
Subject	Waterloo Station Parking Optimisation and Feasibility Study		

1 Project Introduction

Waterloo Station is a key interchange on the Hutt Valley and Wairarapa Lines and has been identified by the WRLC and GWRC as a Priority Development Area due to its end-of-life infrastructure, accessibility challenges, and its significant role as the region's first transit-oriented development (TOD) site. The Reference Design outlines how the station redevelopment supports TOD principles by optimising land use within the precinct, improving multimodal access, and enabling a more integrated and people-focused station environment. It demonstrates how the upgraded transport hub will act as a catalyst for better connectivity, public realm improvements, and more efficient use of the surrounding urban area.

Following the release of the Waterloo Station Reference Design, Greater Wellington received several public queries seeking further clarity on specific design decisions, operational assumptions, and station precinct outcomes. To support greater transparency and provide deeper insight into aspects of the design that attracted public interest, a series of targeted case studies have been developed.

2 Case Study Purpose

This technical memorandum defines the parking position for the recommended option to inform the TOD market sounding and feasibility discussions in the next stages of work.

3 Executive Summary & Recommendations

- A reduction in available at-grade parking spaces is proposed from 788 to 341 through the Waterloo Train Station Reference Design.
- Provision of minimal park and ride capacity for inner city sites such as the Waterloo Station is consistent with best practice and reflected across areas in New Zealand and Australia.
- There are limited opportunities to provide additional parking spaces on the current constrained site, however pricing and time restrictions could optimise operations and should be further investigated.
- A single storey car parking building is feasible but would only provide approximately 54 additional car parking bays and would require further CAPEX.

4 Current Parking Provision

Waterloo Station currently provides one of the largest Park and Ride (P&R) facilities in the Wellington region. There are currently 788 car parking spaces spread over the multiple areas on either side within the Waterloo Station site.

5 Proposed Parking Provision (with TOD)

Current demand patterns reveal inefficient use of the P&R spaces. Car-based access is displacing sustainable modes - indicated by a high proportion of users originating from within the local walking or bus catchments. This has undermined mode shift objectives and reduced the opportunity to leverage precinct land for higher value uses.

The Reference Design for the recommended option follows a broader integrated access strategy instead of one focused on car access. The total supply of P&R spaces is reduced to 341 as a spatial baseline, freeing up significant Greater Wellington-owned developable land for transit-oriented development and public realm improvements. The recommended option involves repurposing the P&R spaces for more efficient use - contributing towards lowering emissions and alleviating traffic congestion by encouraging people to reduce private car usage.

The reduced parking supply can be optimised through active parking management tools, and targeted strategies that are demand-responsive to ensure flexibility to adapt to future travel patterns.

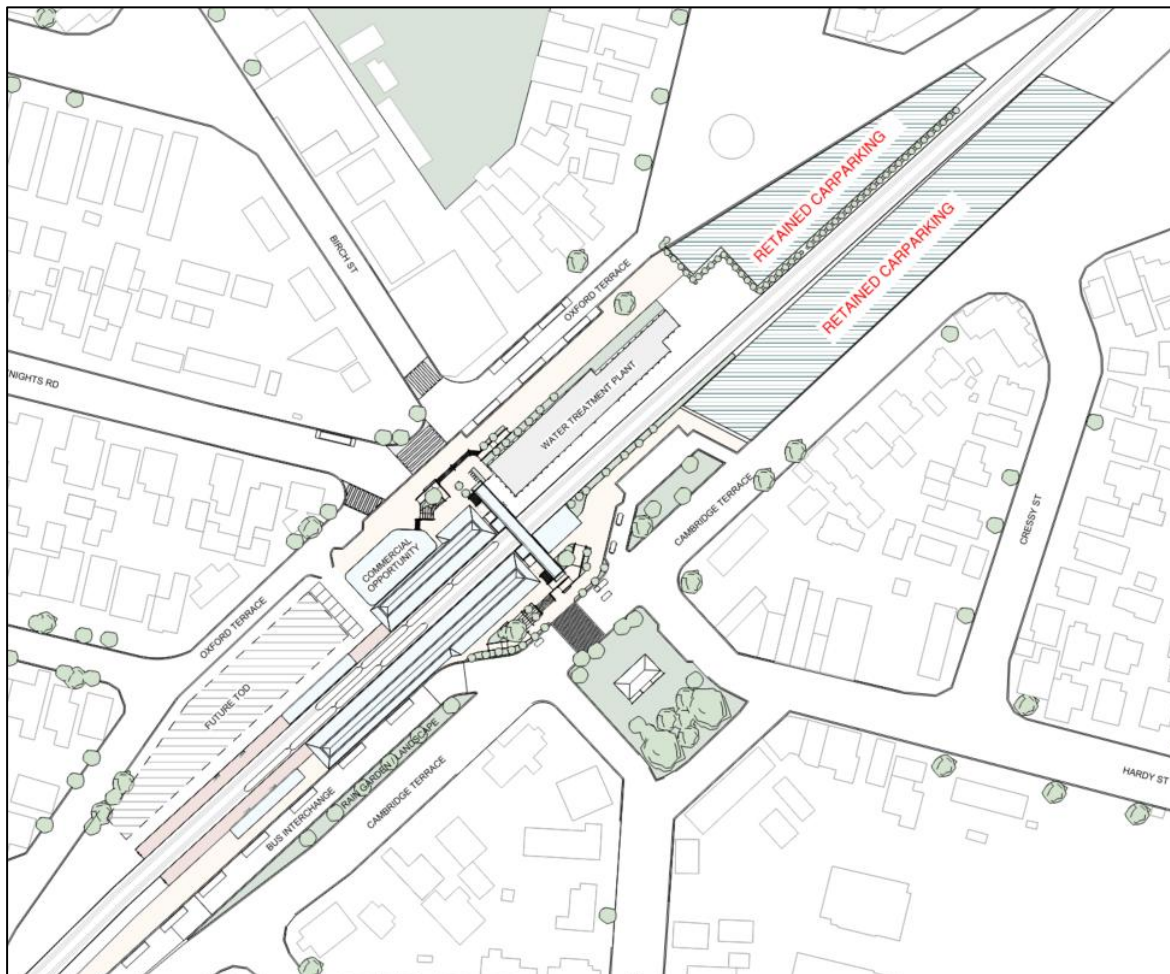


Figure 1 Reference Design Proposed Parking with TOD

6 Capacity Optimisation Measures

After undertaking a comprehensive review of the allocated parking area in the Reference Design, it was determined that any modifications to further optimise the layout and access configuration would likely yield only a minimal number of additional car parking bays.

6.1 Parking Charges for “Park-Not-Ride” Users

Introducing paid parking to replace the current free parking system would aid in managing parking demand. Parking charges for Park & Ride users can be discounted or linked to PT fares to manage parking space availability for genuine PT users over “park-not-ride” users.

6.2 Managing Overflow Parking

It is possible that parking demand may at times surpass the reduced capacity, even with the implementation of parking charges. In such cases, parking could overflow into neighbouring streets. This issue may be mitigated by considering measures such as resident-only parking zones, time-limited parking areas, or designated no-parking sections.

6.3 Single Storey Carpark Structure

The economic and spatial feasibility of a single-storey car park was tested to investigate the opportunity to provide additional parking bays on site. The findings have been summarized as follows:

- A single-storey car park occupying a ground area of 3000m² could be situated within the area designated for retaining car parking in the Reference Design proposed for Waterloo Station. The proposed placement and configuration of the parking structure would also allow retention of approximately 185 existing at-grade parking bays.
- Allowing room for internal circulation and access, the parking structure having a ground and an upper level could accommodate approximately 210 parking bays within it.
- This could increase the total number of parking bays on site (surface parking + parking structure) to 395, compared to 341 without the structure. Thus yielding 54 additional car parking bays.
- A concept layout in Figure 2 below shows the allocation of car parks within the station site for this option.

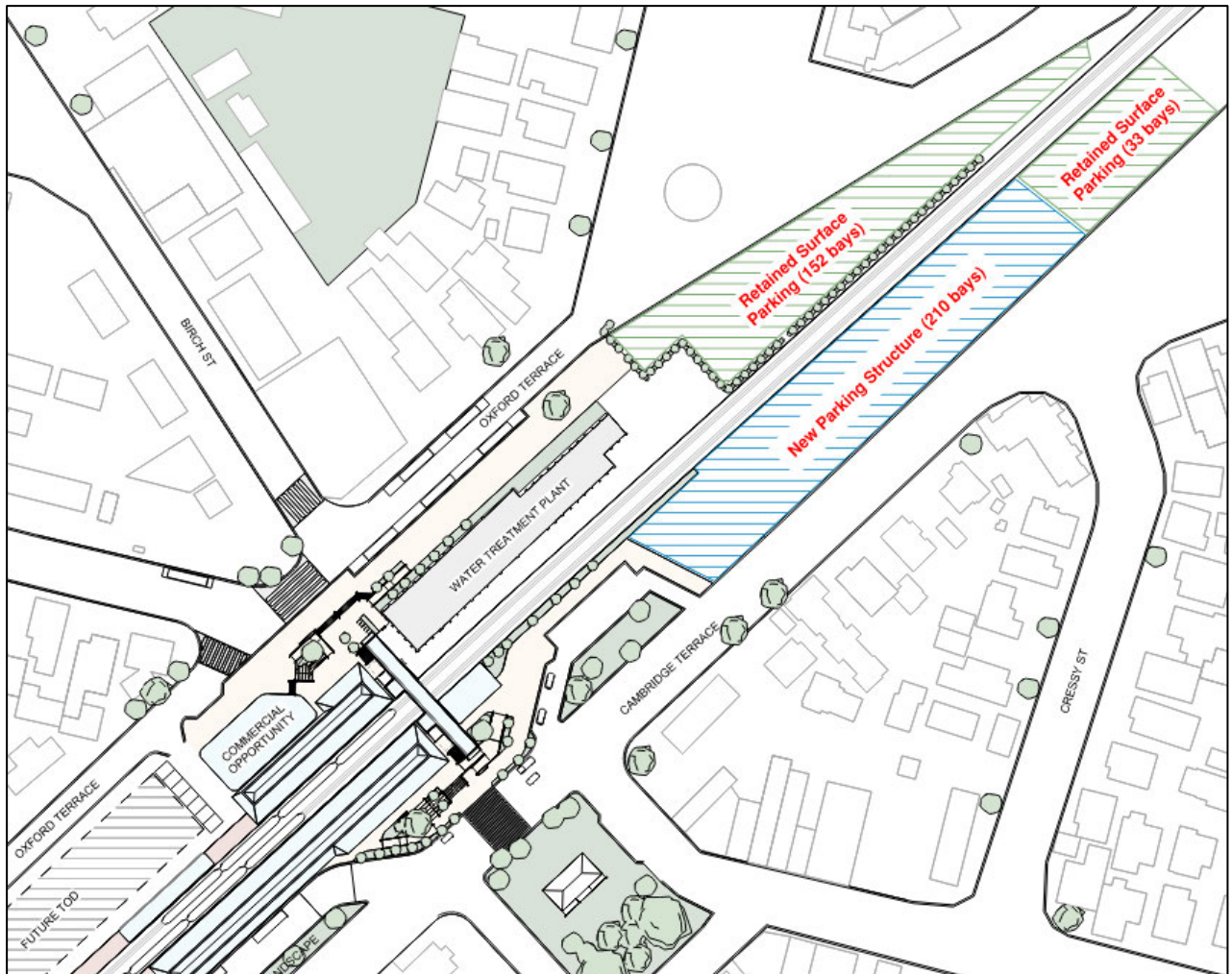


Figure 2 Parking Layout with Single-Storey Carpark Structure

6.3.1 Economical Low Maintenance Carpark Structure

To minimise medium- and long-term maintenance a concrete structure would be recommended. Whilst steel structures may have a lower initial CAPEX they are likely to require maintenance with regular checks on the steel condition. Steel beams have ledges that can accumulate debris and would need regular (estimated 2 yearly) cleaning

As a case study Aurecon delivered a single level car park building at Wellington International Airport at the southern end of the elevated car parking area. The Airport Authorities considered the concrete solution being the most suitable for both durability and minimisation of maintenance.

The design incorporated a combination of precast and insitu cast structural elements with the aim of producing as many of the elements of site to deliver the project quickly and with a higher level of quality control due the factory-based type of fabrication.

Columns were minimised on the ground floor to increase parking space and also to accommodate any future changes in parking layout. There is one less row of columns when compared to the adjacent carpark and as such there is an increase in available space. The upper level contains no partitions or ramps so has extreme flexibility to future alterations.

6.4 Introducing Dedicated Shared-Use Bays

Introducing measures such as dedicated car parking spaces for car-share and car-pool users can contribute to managing demand while also encouraging more sustainable, low-carbon modes of travel through better user outcomes, further contributing to regional transport emission reduction goals.

6.5 Managing Potential Impact of Displaced Parking on Adjacent Stations

The proposed reduction of park and ride capacity at Waterloo Station is anticipated to displace several car users who currently avail its free parking facilities. Waterloo Station provides one of the largest P&R facilities in the Wellington region and the proposed decrease in parking spaces is likely to shift parking demand to other stations within the wider catchment.

Stations that are likely to be impacted by the resulting displaced parking include:

- **Woburn Station:** Identified as highly susceptible to increased parking demand due to its proximity to Waterloo Station, P&R provision and direct rail connectivity.
- **Epuni Station:** Located only one kilometre to the north and serving a comparable commuter catchment, Epuni Station may see an increase in parking on adjacent residential streets where kerbside parking is permitted, causing significant inconvenience for local residents.
- **Ava Station:** Located downstream on the same line and within a short driving distance, Ava Station's car parking bays may see a sharp increase in utilisation and reach full capacity due to displaced commuters seeking available parking at adjacent stations.
- **Petone Station:** While slightly further down the railway line, Petone is a major station with substantial P&R facilities that could draw displaced drivers from the wider catchment.
- **Other Stations:** Melling and Western Hutt may also experience incremental impacts, especially from commuters who are prepared to travel slightly longer distances for free or available parking. The effect on these two stations is not expected to be significant but will depend on the flexibility and habits of the commuter population.

Measures to mitigate the anticipated impacts of displaced parking on adjacent stations could include:

Parking Management Measures:

- Introducing or strengthening resident-only parking schemes around affected stations to control parking supply.
- Implementing time-limited parking in streets adjacent to stations to discourage all-day commuter parking and encourage turnover for short-term users.
- Introducing dynamic pricing at impacted stations that have P&R facilities, using higher rates during peak hours to manage demand by discouraging non-essential car trips and prioritising spaces for public transport users.
- Monitoring parking occupancy and adjusting the implemented demand management strategies as parking behaviour evolves over time

Public Transport and Active Mode Improvements:

- Enhancing local bus feeder services and optimising bus schedules to reduce the need for private vehicle access to train stations.

- Expanding and improving walking and cycling infrastructure, such as secure bike parking at key stations, to encourage a shift to active modes for station access.

Long-Term Considerations:

- Assessing the potential to expand P&R capacity at other strategic satellite nodes or introduce reliable shuttle links to support genuine P&R commuters as travel demand patterns are better understood over time.
- Regularly reviewing the effectiveness of any mitigation measures and remaining flexible and responsive to changing patterns.

It is recommended to employ a combination of these measures to effectively manage any potential impacts of displaced parking, to both advance transport objectives and manage local network impacts.

7 Strategic Outcomes & Opportunities

This section outlines the key strategic outcomes associated with the proposed parking provision in the Reference Design, as well as additional opportunities identified to maximise efficiency and market appeal to support the adopted parking position.

1. Enable transit-oriented development and better spatial use

- Reducing P&R footprint can provide opportunities for precinct uplift through transit-oriented development including new public spaces and mixed-use development.
- Repurposes parking space to also improve interchange infrastructure and amenity enhancements for bus users.
- Redeveloping the surface car park has the potential to increase public transport ridership relative to its current use as parking for vehicles.

2. Alignment with National/Regional/Local policies

- Better alignment of parking provisions with GWRC's access hierarchy, which prioritises walking, cycling, and public transport as the primary modes for station access.
- Creates a more people-centric station precinct by replacing car-based access, contributing to Hutt City's long term growth objectives.

3. Induce mode shift

- By removing the oversupply of free parking, local residents and commuters from nearby suburbs are encouraged to walk, bike, or use connecting bus services instead of driving to the P&R.
- Repurposing parking space for bus station amenity enhancements can encourage PT usage.

4. Improve network efficiency and reduce local congestion

- Encouraging short distance commuters to shift to more sustainable modes by reducing car parking space supports a more efficient use of transport capacity and reduces traffic congestion around stations.
- The decrease in congestion on approach roads to the stations is expected to improve bus reliability, station access and safety for all users.

5. Alignment of supply with the intended purpose

- Park & Ride spaces that no longer serve their intended purpose of intercepting car trips to enable interchanging to PT can be reassigned for other uses.
- Maintaining a large number of P&R spaces in mature urban areas that have good access to walking, cycling and bus infrastructure undermines the intended purpose.
- Right sizing the number of P&R spaces is intended to encourage first and last mile access to stations by modes other than private cars.

6. Allows parking access prioritisation

- Supports opportunity for introducing pricing strategies and user charges to manage parking demand and prioritise PT users.
- Encourages access to public transport by ensuring that public transport users are prioritised over “park-not-ride” users who currently misuse free parking at the P&R. As the P&R parking is free, PT users currently have to compete for parking space with people not catching trains or buses. The recommended option provides the opportunity to replace the current first come, first served parking access model at the P&R with one prioritising genuine public transport users.
- The available supply of parking can be optimised by managing P&R access with PT tickets to prevent misuse and by exploring the integration of any introduced parking charges with PT fares. This can ensure that the available parking capacity is shared fairly.
- Allows further access prioritisation for mobility users, carpool users and regional travellers for better customer outcomes.

7. Better value for money

- Operating Park & Rides at a scale that does not serve their intended purpose limits the opportunity for investment elsewhere. Redirecting land and funds from such Park & Ride sites in mature urban areas that do not add network value can be instead utilised to improve cycling/micromobility parking, feeder bus services and on other P&R sites that can intercept peripheral trips. This delivers better utilisation of funds by moving more people per \$ spent.
- Repurposing parking space for TOD can convert the site into a revenue generating high-value land use.
- Revenue generated by introducing parking charges for the reduced number of parking spaces is likely to offset the cost of installing and maintaining any charging infrastructure.

8. Emission reduction

- Scaling back P&R spaces in the urban area reduces car kilometres for first/last mile connectivity to the station, contributing to regional emission reduction goals.
- Improving station access for PT and active modes induces a shift to more sustainable, low-carbon modes of travel, thereby cutting transport emissions.

8 Benchmarking Case Studies

The parking position for the recommended option is a reduction of the currently available Park & Ride spaces to rebalance car access to better align with regional access priorities and free up developable

land for TOD and public realm improvements. This approach is consistent with best practice in transport hub development. This section presents case studies that demonstrate the application of comparable approaches in relevant parking strategies.

8.1 Auckland, New Zealand

Auckland has multiple Park & Ride sites across the region integrated with stations to provide access to Auckland's bus and train networks- supporting commuters from outer suburbs and satellite towns, especially where public transport coverage is limited. Auckland's Park & Ride sites are categorized into different stages based on the surrounding land use and transport service maturity.

Key Features:

- Reducing traffic congestion in the city centre, encouraging mode shift and reducing transport emissions are key drivers for P&R provision in Auckland.
- Advocates progressive reduction and redevelopment of Park & Ride spaces over time as locations mature into urban centres well served by high-frequency PT and growing walking/cycling catchments.¹
- Minimises Park & Ride facilities in metropolitan areas and town centres, except as a transition to other used such as transit-oriented development.
- Prioritises Park & Ride provision at peripheral (edge of urban) sites that can intercept longer car trips¹, supporting commuters from outer suburbs and satellite towns where access to a strong feeder service to public transport is limited.
- Follows a life-cycle approach that includes site divestment / redevelopment once areas intensify and have strong walking, cycling and feeder-bus access.²
- Recommends adjusting P&R spaces to support future growth in urban areas characterised by high-density and transit-oriented development opportunities.
- Consideration to reduce or remove P&R spaces when they no longer serve their intended role of intercepting peripheral trips.
- Offers bicycle parking with secure bike racks making it convenient for first and last mile journeys.
- To manage parking demand, Auckland Transport has indicated to introduce a charging fee¹ for users who park at P&R sites but do not ride public transport. This aims to discourage misuse and to optimise the allocation of parking spaces for genuine commuters.

8.2 Sydney, New South Wales, Australia³

Sydney has P&R sites strategically located near major transport hubs and key interchange points to intercept suburban and peripheral trips. Park & Ride initiative in Sydney is designed to alleviate congestion in central Sydney, promote the use of public transport from outer suburbs, and enhance accessibility to all public transport services.

Key Features:

¹ AT Parking Strategy (2015)

² Room to Move: Auckland's Parking Strategy (May 2023)

³ Transport Park&Ride car parks, Transport for New South Wales

- The strategic approach follows a modal hierarchy that prioritises walking, cycling, and public transport access, with Park & Ride as a supporting mode to integrate with the broader public transport network.
- Parking facilities at suburban rail stations in Sydney are optimised to balance demand and supply, ensuring efficient use of space for Park & Ride users. This involves a combination of strategic planning, technology integration, and adaptive design which factors in forecast demand, land use, catchment profiles, and road network access when determining the optimal number of parking spaces.
- P&R system is linked with bus/train ticketing, offering free parking to users who complete a public transport trip. This ensures that spaces are used by genuine public transport commuters and discourages misuse by non-transit users, enabling efficient utilisation of parking space.
- Has dynamic pricing strategies that help to manage demand by encouraging off-peak usage.
- Advocates multimodal access to reduce pressure on parking.
- Has utilised measures such as dedicated parking spaces to promote car-sharing options.

8.3 Perth, Western Australia⁴

Park & Ride in Perth aims to improve public transport access for low-density suburbs, ease congestion on main roads and in the CBD, reduce the need for frequent bus services in outer areas, support transit-oriented development (TOD), and promote environmentally sustainable commuting.

Key Features:

- Improving access to public transport for residents in low-density suburbs, while reducing traffic congestion on arterial roads and in high-density central areas is a key driver for P&R provision in Perth.
- The model promotes environmentally sustainable modes of commuting.
- The strategic approach for Park & Ride planning in Perth includes locating Park & Ride facilities at suburban rail stations to intercept car trips before they reach congested urban areas
- Land use planning has been guided by Transit-Oriented Development principles to unlock land for mixed-use development around stations. Park & Ride facilities have been incorporated into TOD to induce high public transport ridership.
- Improvements in safety has been achieved due to fewer traffic accidents from reducing the number of cars on the road.

⁴ Factors affecting park-and-ride travel in Perth, WA, The University of Western Australia