
Technical Note 1

Subject: Park and Ride – Objective and Principles

Project: Park and Ride Strategy

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1. Executive Summary

Greater Wellington Regional Council (GWRC) commissioned MRCagney to provide inputs into a Park and Ride Strategy (PaRS) for the Wellington Region, which will guide how GWRC invests in and manages Park and Ride in the Wellington Region over the next 30 years. In three separate technical notes, we:

- Evaluate **when** Park and Ride is an appropriate intervention (Technical Note 2);
- Identify **where** Park and Ride should be located to maximise benefits (Technical Note 3); and
- Consider **how** Park and Ride should be managed and designed to maximise benefits (Technical Note 4).

In this, the first technical note, we grapple with the question of **why** GWRC provides Park and Ride. To answer this question, we have drawn on the results of a literature review, as well as our experience and discussions with GWRC staff. To finish, we present an objective and a set of principles that is intended to guide our subsequent work on the PaRS.

First, we recommend the PaRS adopt the following, relatively simple, objective:

The objective of the PaRS is to guide investment in and management of Park and Ride facilities in the Wellington Region over the next 30 years in a way that both responds to community expectations and aligns with strategic transport and land use outcomes.

One of the advantages of this objective, apart from conciseness, is that it implicitly highlights the potential tension between “community expectations” (which often manifests as community demand for increasing the supply of free Park and Ride) and “strategic transport and land use outcomes” (which emphasises the importance of effective government investment).

Second, we have formulated a set of principles to inform GWRC’s PaRS. This involves three high-level principles of (1) strategic location, (2) effective design, and (3) demand management. Under each of these high-level principles, we have identified sub-principles, specifically:

1. **Strategic location** – GWRC’s Park and Ride investment should prioritise locations that:
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- a. Expand access to the rapid public transport network;
 - b. Intercept car commuters as early as possible in advance of congested bottlenecks;
 - c. Represent an efficient transport investment; and
 - d. Respond to community needs.
2. **Effective design** – GWRC’s Park and Ride investment should prioritise designs that:
- a. Integrate with local transport networks;
 - b. Enhance safety, security and amenity;
 - c. Minimise adverse environmental effects;
 - d. Accommodate active modes and emerging transport technologies, such as ride-share; and
 - e. Support future land use development (both on the site and in the wider vicinity).
3. **Demand management** – GWRC’s Park and Ride investment should be managed such that:
- a. Available Park and Ride capacity is well-used to support public transport;
 - b. Park and Ride is prioritised for people with a genuine need to drive to rapid public transport;
 - c. Users make an appropriate contribution to the costs of Park and Ride; and
 - d. Overspill parking is appropriately mitigated and managed.

One of the advantages of this structure is that the so-called “high-level” principles broadly align with the key questions identified by GWRC. The individual sub-principles then capture some of the more nuanced outcomes GWRC may wish to achieve through its investment in and management of Park and Ride. These can readily be expanded and adapted as the project proceeds, as more information comes to light and feedback is received. Another advantage is that the principles are somewhat hierarchical. The “strategic location” principle, for example, should be met by all potential sites, independently of design and management outcomes.

The following sections of this technical note are structured as follows:

- Section 2 provides an introductory overview of the potential benefits, costs, and challenges for providing Park and Ride;
- Section 3 reviews literature on Park and Ride policies and practices both internationally and locally;
- Section 4 provides context regarding Park and Ride in Wellington; and
- Section 5 our proposed objective and principles for the PaRS. This is presented along with a brief summary of the role and benefits of Park and Ride.

2. Benefits, Costs, and Challenges

In this section we briefly highlight some of the main benefits, costs, and challenges associated with the provision of Park and Ride in the Wellington context.

2.1 The Benefits of Park and Ride

The benefits of Park and Ride are rather obvious: Park and Ride provides a way for people to access the public transport system. In this respect, it is conceptually the same as connector bus services, walking and cycling facilities, and on-demand services, such as taxis.

The access afforded by Park and Ride is particularly relevant in regions where there is a marked transition from low density, car dependent suburbs to dense central areas, and where road congestion exists at peak times. In such settings, Park and Ride provides a way to connect car and PT systems, allowing each to operate in the parts of the city where it is best suited.

Experience and evidence suggests that carefully planned and managed Park and Ride can generate significant benefits for the wider transport system, including:

- Encouraging public transport patronage
- Attracting long distance commuter car trips to public transport that would otherwise use motorways and arterial roads for the majority of their journey;
- Increasing the attractiveness of key public transport corridors and higher density centres in advance of connecting bus services;
- Facilitating multi-modal integration in lower density centres and/or topographically challenging areas where the scope for walk-up, cycling and connector bus services is limited;
- Providing access to public transport for individuals with mobility issues; and
- Reducing parking requirements at major centres.

While the indirect benefits of Park and Ride for other road users are fairly intuitive, they are not necessarily straightforward. As we will show in the literature review in Section 3, evidence suggests that not all those who use Park and Ride would have otherwise driven to their destination in the event that Park and Ride was not available. The potential for Park and Ride to divert people who are already using public transport is an issue to which we return in our formulation of principles in Section 4.

2.2 The Costs of Park and Ride

While Park and Ride can generate large benefits, it can also incur significant costs. Much of these costs flow directly from land purchase and construction. Based on our experience in Auckland and Australia, we find that the capital costs of providing surface and structured car-parks in New Zealand can vary between \$10,000 and \$40,000 per car-park respectively. However, in Wellington a cost of around \$5,000 has been observed in recent years, which may exclude land purchase costs. Likewise, Wellington is not likely to pursue multi-storey Park and Ride in the foreseeable future, therefore, we will consider a range of \$5,000 to \$10,000 per space within the Wellington context.

Assuming a 6% cost of capital, then we can calculate the annualized capital costs of providing in Wellington Park and Ride is likely to fall somewhere in the range to \$300 - \$600 p.a. If we assume that Park and Ride each car-park is used for 200 days per year on average, and generates 2 peak trips per day, then the capital costs alone per trip can equate to \$0.75 -- \$1.50 per trip.

This raises an obvious but important question that we pose here but do not answer: Is subsidising Park and Ride to this level the most effective way of delivering on strategic transport and land use objectives for the Wellington Region?

There are, of course, other costs from Park and Ride. First, there is maintenance of the facility. Second, the provision of Park and Ride can attract people who would have otherwise accessed the station by another mode, generating additional driving and localised congestion. Third, Park and Ride can crowd out and/or detract from potential land use development, resulting in an opportunity cost in terms of foregone patronage and/or revenue, as well as reduced civic amenity.

We contend that the PaRS should, on a high level, help decision-makers understand where the relative benefits of Park and Ride are likely to exceed its costs. This applies as equally to investment as it does to management, even if the actual intervention is rather different.

2.3 Challenges

In addition to the benefits and costs sketched out above, there are a range of emerging challenges in the Wellington context that the PaRS will need to respond to.

The existing approach towards Park and Ride management and investment in Wellington is informed by the existing *Park and Ride Capacity Strategy*, which is an appendix to the region's *Regional Rail Plan* from 2009, updated slightly in 2013. The existing strategy actively sought to boost patronage at specific commuter train stations by increasing Park and Ride capacity throughout the region.

Consequently, GWRC and the New Zealand Transport Agency (NZTA) were able to secure more land for Park and Ride. Park and Ride capacity increased from 4,450 in 2007 to over 5,700 in 2017. At the same time, ongoing service improvements, such as new rail rolling stock, has seen rail patronage increase from 11 million boardings in 2012 to 13 million boardings in 2017. The result is that most of the new Park and Ride capacity has tended to be filled, whether by new passengers or existing passengers that have changed to Park and Ride.

Notwithstanding the previous successes of the existing strategy, the situation going forward is likely to demand different approaches. The reason for this is simple: The best sites for Park and Ride have already been identified and secured. By extension, the benefits of new Park and Rides are likely to decline on a per parking space basis, whereas the costs are likely to increase. We expect that GWRC will find relatively few opportunities to provide more Park and Ride at a reasonable price. In economic parlance, we see a trend towards diminishing returns from Park and Ride.

Other challenges have also been noted, including:

- Park and Rides becoming full early in the morning;
- Community pressure for expansion of existing Park and Rides and new Park and Rides to serve buses;

- Declining bus patronage outside of Wellington City;
- The need for better cycling access to stations; and
- The need for a more integrated view of decision making on Park and Ride management and investment, including considering a broader station access strategy that includes bus, active transport, and other means.

These challenges suggest that there is a genuine need for the PaRS to guide investment in and management of Park and Ride in Wellington over the coming decades.

The demand placed on existing Park and Ride is illustrated in Figure 2.1. This shows the time at which they are 85% full based on GWRC's September 2017 surveys (we note that 85% represents an ideal utilisation rate for parking resources). The majority of stations with Park and Ride are 85% occupied between 6 am and 7.30 am, which is well before the end of the morning peak-period and diminishes their usefulness for customers who travel later in the day. We do note that the tendency for Park-and-Ride facilities on the periphery to fill up earlier in the morning than those closer to the City Centre may reflect the travel time required to reach Wellington Station.

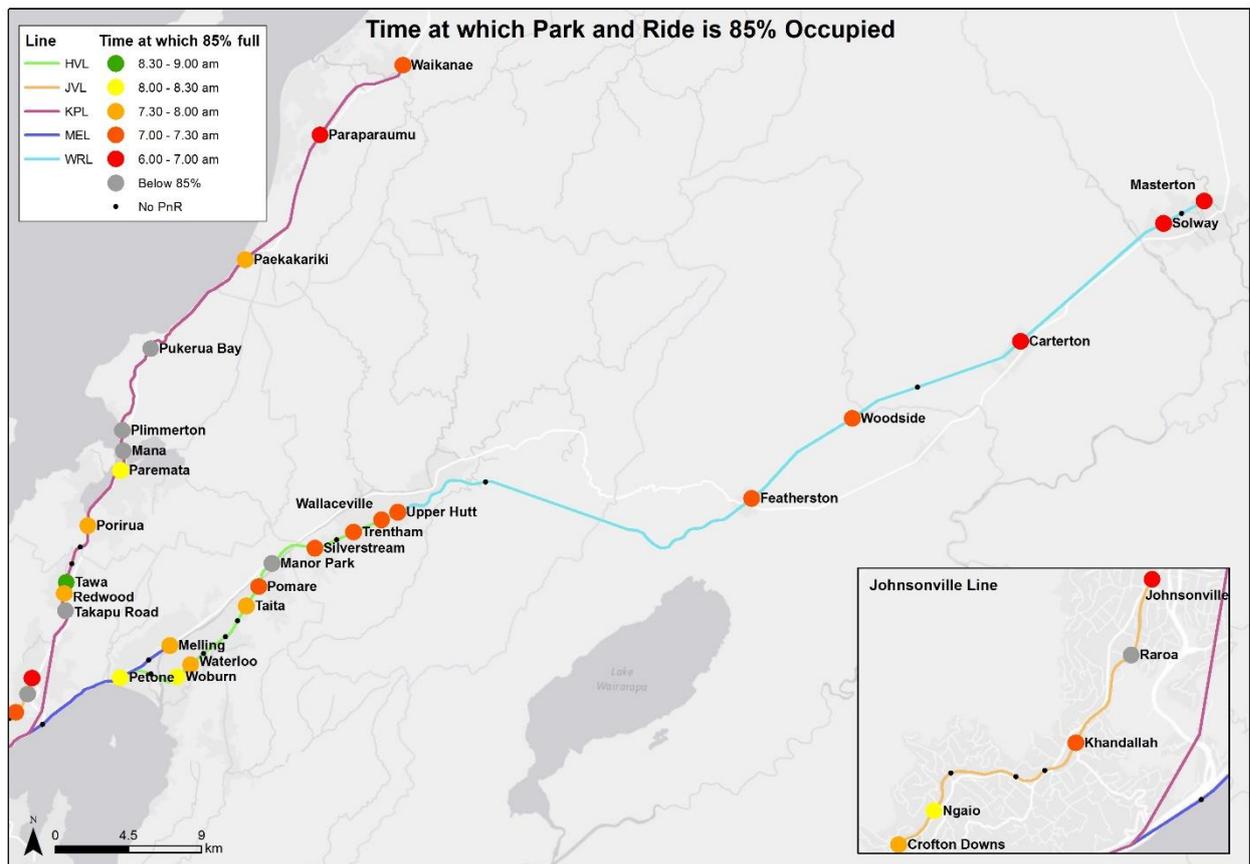


Figure 2.1: Time at which Park and Ride is 85% Occupied

In view of the potential benefits of Park and Ride, as well as these emerging challenges, it seems to be an appropriate time to evaluate how GWRC should approach its investment in and management of Park and Ride.

3. Literature Review

In this section we review the literature on Park and Ride.

In Section 3.1 we consider the technical literature, where we have identified several reports that deal exclusively with Park and Ride policy in a more general sense. Such studies provide a useful and independent sounding board for our own work.

In Section 3.2 we then consider the role of Park and Ride in comparable cities, including Melbourne, South East Queensland (greater Brisbane), Canberra, Vancouver, Edmonton and Auckland. While most of these cities are larger than Wellington (except Canberra), they provide useful examples of some of the policy challenges associated with investing in and managing Park and Ride, and the strategies that may be adopted to guide their investment and management.

Finally, in Section 3.3 we summarise the implications of our literature review for the objective and principles of the PaRS. We note that the literature review presented here is effectively a “work in progress”, which we will expand and refine as our work with GWRC proceeds.

3.1 Reviewing the Literature

3.1.1 Park and Ride – Best Practice Review

The *Park and Ride – Best Practice Review*¹ commissioned by the City of Edmonton, Canada, provides a review of Park and Ride best practice in a variety of cities, including objectives and commonly-cited negative consequences as reported in the studied cities.

This review highlighted the following common objectives of Park and Ride:

- Reduce single-occupancy VKT and overall VKT to mitigate congestion, and air and noise pollution;
- Extend the reach of rapid transit services to a customer base that would otherwise not be viable to serve;
- Provide safe and convenient parking to encourage drivers to transfer to public transport;
- Relocate parking away from the city centre to reduce city centre congestion, thereby freeing up land in the city centre for other land uses; and
- Minimise parking overspill onto local streets.

The review also summarises commonly highlighted negative consequences of Park and Ride on a city and its transport system, comprising:

- The financial cost of providing parking, especially if land values are high;
- The opportunity costs of Park and Ride as the land used for parking could be used for higher-value purposes;
- Encouraging low-density car-based residential developments;

¹ Steer Davies Gleave (2017) *Park and Ride – Best Practice Review*, Steer Davies Gleave, Vancouver, Canada

- Adverse traffic, noise and visual effects;
- Poor integration with active transport modes in the station's vicinity, which discourages access to the station by walking and cycling;
- Undermining existing feeder buses to stations; and
- Inequity effects, as Park and Ride caters only for high socio-economic groups who can afford to drive.

3.1.2 Transportation Research Board Station Access Study

The Transportation Research Board published a comprehensive guideline document on public transport station access, including a detailed chapter on access via Park and Ride.²

The guideline highlights the key benefits of Park and Ride being, among other things:

- Extending the reach of public transport beyond terminal stations;
- Providing access to public transport in places where pedestrian access is difficult and/or feeder bus services are limited; and
- Intercepting motorists and removing them from congested motorways.

The guideline also defines a series of high-level objectives that Park and Ride should achieve, including:

- Improve mobility and convenience for travellers;
- Encourage desirable land use and development;
- Minimise expenditure; and
- Minimise adverse effects on communities.

It further defines more detailed objectives, being:

- Increase the availability of alternatives to single-occupancy driving, by providing travellers with opportunities to readily transfer from low- to high-occupancy travel modes and vice versa, which also includes bicycle access to stations.
- Concentrate Park and Ride efforts to enable and extend rapid transit service in areas that could not otherwise be provided (e.g. in many low-density areas).
- Reduce vehicle kilometres travelled (VKT), emissions, and energy consumption by enabling motorists to transfer to rapid transit lines.
- Reduce the demand for spillover parking onto local streets.
- Stabilise parking demand in the city centre by providing viable alternative transportation to support economic development in the city centre.

² Transportation Research Board (2012) Guidelines for Providing Access to Public Transportation Stations, Transit Cooperative Research Program Report 153

- Prioritise carpooling and van pooling for public transport passengers may allow for more boardings with the same number of parking spaces.

3.2 Park and Ride in Other Cities

3.2.1 Vancouver

In Vancouver Translink provides is a limited amount of Park and Ride at Skytrain, bus and rail stations. There are only 8,000 Park and Ride spaces across the network, but the system has over 231 million annual boardings (approximately 890,000 boardings per weekday)³. Therefore, Park and Ride only supplies around 1% of Vancouver’s total boardings. TransLink’s policy is to pursue the “highest and best use of land”, and pursue Park and Ride only when “it is cost effective and can provide efficient access to the transit network”.⁴

Translink’s policy notes that Park and Ride has several disbenefits, including:

- Sterilising land around stations
- Disconnecting surrounding urban areas from the public transport system
- Promoting low density urban development
- Discouraging all-day rides
- Raising safety and personal security issues

In effect, Translink favours access by lower cost modes, such as walking and cycling, and/or pursuing opportunities for Transit Oriented Development.

3.2.2 Melbourne

International evidence⁵ suggests that many Park and Ride customers will have previously used other modes to access the station. This is especially true when provided in urban areas where Park and Ride effectively competes with walking, cycling, drop-off, and bus connector services.

The effects of new Park and Ride facilities in Melbourne on mode choice was studied in 2010⁶ in a post implementation review. In 2006, the Victorian State Government committed \$90 million to deliver 5,000 additional Park and Ride spaces in and around Melbourne. By 2008 approximately 580 additional spaces at seven different rail stations had been delivered.

The study found that of the Park and Ride users who used the new and expanded facilities, only 36% had previously driven to their final destination. This indicates that 64% of new Park and Ride users were already train users who had simply started to drive to the station instead.

This finding was consistent with international projects reviewed as part of the study that indicated 30% of new rail Park and Ride users previously drove to their final destination. It

³ Ibid at 1

⁴ TransLink (2012) Park and Ride Policy, Translink, Vancouver, Canada

⁵ Hamer, Paul. (2010). Analysing the Effectiveness of Park and Ride as a Generator of Public Transport Mode Shift. Road and Transport Research. 19.

⁶ Ibid at 5

appears that, if not carefully managed, Park and Ride has the potential to cannibalise patronage on connector bus services or undermine walking and cycling access.

Overall the study indicates that new Park and Ride spaces generally do not generate new public transport trips on a pro rata basis, and that Park and Ride is most effective at generating new trips in outlying locations.

3.2.3 Edmonton

The Park and Ride strategy⁷ for the City of Edmonton outlines the key objectives as being:

- Reducing congestion by shifting car trips to public transport;
- Targeting trips from regional areas to the dense downtown and university by intercepting car trips around the edge of the main urban area; and
- Focusing Park and Ride on areas where population densities do not support regular bus services.

This strategy indicates that location for Park and Rides should focus primarily on sites where intensive development is either not possible, or feasible in the short to medium term. Ideal sites are areas zoned for transport or utility purposes where other uses are very limited.

3.2.4 Calgary

Calgary's CTrain light rail network has an average weekday patronage of 300,200, and is supported by around 15,000 Park and Ride spaces, accounting for around 15% of weekday patronage at its suburban stations.⁸ At each of the Park and Rides, 50% of spaces are reserved for monthly leases, while the remainder are free. After 10.00 am, unused monthly Park and Ride spaces are available for use by the general public.⁹

Calgary City Council's Park and Ride policy¹⁰ sets a 15% patronage target via Park and Ride as a formal strategy, which appears to have been realised and will be maintained. Moreover, the policy allows private landowners to make their parking available to commuters by amending their planning regulations, makes it clear that station access should focus on the mode that provides the greatest possible catchment, and adopts a set of criteria for determining Park and Ride capacity based on the station catchment, nearby road capacity, and the character of nearby land uses. The policy also expresses a preference for Park and Rides to be located beyond a 5.0 km radius from the city centre.

3.2.5 South East Queensland Park and Ride Study

The South-East Queensland Park and Ride Study¹¹, undertaken by MRCagney for the Department of Transport and Main Roads, describes the role and purpose that Park and Ride is intended to play. It is described in the context as being one of many possible ways for customers to access public transport services.

⁷ City of Edmonton (2009) Park and Ride: Transportation Planning Branch Position Paper, City of Edmonton, Canada

⁸ Ibid at 6

⁹ Calgary Transportation Department (2016) A review of Calgary Transit Park and Ride, Calgary City Council, Canada

¹⁰ <https://www.calgarytransit.com/calgary-transit-park-ride-policy>

¹¹ MRCagney (2014). South East Queensland Park 'n' Ride Strategy 2014, MRCagney, Brisbane, Australia

The strategy notes that if Park and Ride is carefully planned and managed, it can have a range of benefits like those described in Section 2.1.

However, Park and Ride can also have a number of unintended consequences, including the following:

- Park and Ride can undermine/cannibalise other modes of access to PT;
- Investment in Park and Ride can divert funds from more beneficial transport initiatives;
- Park and Ride can induce localised traffic congestion, reducing the attractiveness and ease of walking and cycling to PT;
- Park and Ride can disrupt local parking markets and, where Park and Ride facilities are utilised to access nearby uses, can undermine the benefits of investment; and
- Park and Ride can impact economic development by reserving large amounts of land for parking and reducing the land available for other, potentially more productive uses.

Other common criticisms of Park and Ride include:

- It generally only caters for peak direction CBD bound trips;
- It encourages urban sprawl;
- It reinforces the requirement for car ownership and in the absence of pricing it can lead to inefficient travel choices; and
- By making it easier for people to use their cars to access their employment, they may subsequently make additional vehicle trips before/after work.

As a result of analysing these benefits and potential negative impacts, the strategy came up with a series of policies with the goal of ensuring Park and Ride spending was optimised to ensure it could deliver the most benefits for the least costs. Key recommendations were:

- Strategically locate Park and Ride facilities to ensure there is a net increase in patronage, rather than just where there is demand for Park and Ride.
- Locate Park and Ride where there is a catchment of low to medium density residential development with limited access by walking, cycling and connector bus services.
- Focus Park and Ride development in areas where land value is low, and away from town centres and pedestrian areas.
- Do not implement Park and Ride where there is potential for dense mixed-use development, as this type of development can deliver significant patronage, economic value, and improve walkability to the station.
- Carefully locate Park and Ride to ensure it does not cause localised congestion issues.
- Where necessary, actively manage Park and Ride facilities, for example using pricing, to (1) ensure the availability of some spaces throughout the day and (2) prioritise parking for customers with genuine needs and a willingness to pay.

3.2.6 Auckland

The *Auckland Transport Parking Strategy*¹² clearly articulates the following key objectives of Park and Ride as being:

- Extension of the market catchment for public transport, especially where connector bus services are cost-prohibitive;
- Contributing to decongestion on Auckland's road network by intercepting commuter trips that would otherwise have been made by car; and
- Allowing relocation of commuter parking away from the City Centre to more peripheral locations.

The objectives in the *Auckland Transport Parking Strategy* are informed by the following principles, which are used by Auckland Transport to identify and prioritise sites for Park and Ride investment in Auckland. These principles include:

- Integration with public transport to extend the customer base and public transport patronage;
- Locate in sites served by rapid and/or frequent public transport, with less effective feeder bus and walking and cycling options;
- Locate in sites that can intercept commuter trips by being 'on the way' from areas of high potential population catchment, and does not worsen local traffic congestion;
- Provide in line with corresponding improvements to public transport such as station upgrades;
- Enable a land use transition that supports transit oriented development in the right locations; and
- Price Park and Rides to manage parking demand, by encouraging travellers to access the station where alternative options are available, which in turn, increases availability to travellers who have limited alternative access options and have a willingness to pay.

3.2.7 Canberra

The *ACT Parking Action Plan*¹³ from 2015 contains objectives and principles for Park and Ride investment and management in Canberra to service the city's existing bus network and planned light rail network. The principles for consideration comprise:

- Location of Park and Ride relative to the frequent network and planned light rail;
- Costs and value for money;
- Environmental effects on the surrounding environment;
- Existing under-utilised parking areas when selecting sites;

¹² <https://at.govt.nz/media/1119147/Auckland-Transport-Parking-Strategy-May-2015.pdf>

¹³ https://www.transport.act.gov.au/__data/assets/pdf_file/0008/888191/ACT-Parking-Action-Plan.pdf

- Base the capacity of new Park and Ride on projected demand;
- Transition Park and Rides to different land uses over time as land becomes more valuable in centres;
- Design, landscaping, and aesthetic considerations; and
- Security, safety, surveillance, and lighting.

Guidance of Park and Ride investment and management via these principles is expected to achieve the following objectives:

- Target Park and Ride at customers who cannot access the frequent network by walking, cycling, or feeder buses; and
- Park and Ride must support planned public transport services and future land use objectives as land becomes more valuable and centres evolve.

3.3 Summary

A summary of common objectives and policies reported in the cities and technical literature from our literature review is provided in Table 3.1 below.

Table 3.1: Summary of common objectives and policies from the literature review

Objective	Principle	Reference
Supports a high quality public transport service	Located close to rapid and frequent public transport, in areas where access by alternative modes is less feasible	Transportation Research Board (2012), (Section 3.1.2) Auckland Transport Parking Strategy (2015), (Section 3.2.6) City of Edmonton (2009), (Section 3.2.3) MRCagney (2014), (Section 3.2.5)
	Treat Park and Ride as a means to extend the public transport customer catchment, rather than changing the way existing customers access public transport.	Steer Davies Gleave (2017), (Section 3.1.1) Transportation Research Board (2012), (Section 3.1.2) Hamer (2010), (Section 3.2.2)
Reduce VKT and associated congestion, tailpipe emissions, greenhouse gas emissions, and energy consumption	Locate on sites that can intercept commuter trips, and does not worsen local traffic congestion.	Steer Davies Gleave (2017), (Section 3.1.1) Transportation Research Board (2012), (Section 3.1.2) Auckland Transport Parking Strategy (2015), (Section 3.2.6) MRCagney (2014), (Section 3.2.5)
	Manage the adverse environmental effects of Park and Ride.	ACT Parking Action Plan (2015), (Section 3.2.7)
Alignment with land use and	Deliver value for money, including comparing the benefits and costs	ACT Parking Action Plan (2015), (Section 3.2.7)

Objective	Principle	Reference
transport objectives	of park and ride to investments in other access modes.	TransLink (2012), (<i>Section 3.2.1</i>)
	Enable Park and Rides to be converted to different land uses in the future as land values and land use strategies change, including transit oriented development.	Steer Davies Gleave (2017), (<i>Section 3.1.1</i>) Auckland Transport Parking Strategy (2015), (<i>Section 3.2.6</i>) ACT Parking Action Plan (2015), (<i>Section 3.2.7</i>)
	Park and Ride provision should be seen in the wider context of station access, focusing on the mode that provides the greatest possible catchment for the same amount of investment.	Calgary Transportation Department (2016), (<i>Section 3.2.4</i>)
	Manage demand on existing parking facilities before providing new facilities, including through the use of pricing.	Auckland Transport Parking Strategy (2015), (<i>Section 3.2.6</i>) MRCagney (2014), (<i>Section 3.2.5</i>)

The review of principles and objectives for Park and Ride in international and local contexts provides a useful basis for thinking about ways that these can be framed for Wellington, taking into account the strategic and statutory land use and transport strategies in place, and the transport trends and challenges facing Wellington. The following sections propose an objective and overarching guiding principles for Park and Ride investment and management in Wellington.

4. Park and Ride in Wellington

The preceding section described a range of objectives and principles for Park and Ride management and investment adopted in the cited cities and literature. In this section, we establish the scene for Park and Ride and public transport in the Wellington Region, by covering existing Park and Ride capacity, existing rail patronage, general population characteristics, and journey to work mode share. The description of these characteristics and statistics provide a useful platform for the formulation of an objective and principles in this technical note, as well as a reference point for subsequent technical notes.

Wellington Metrics	
Park and Ride Capacity	5,846 ¹⁴
Average Weekday Boardings	50,195 ¹⁵
Population	513,900 ¹⁶
Population Density	64/km ²
Number of Jobs	249,700 ¹⁷
Job Density	31/km ²
Journey to Work Mode Shares (2013 Census)	7.9% Bus 6.4% Train 10% Walk 2.5% Bicycle 1.1% Other ¹⁸ 54% Car

As a percentage of the Wellington Region’s average weekday boardings on its rail network, the total Park and Ride capacity makes up around 11.4% of this patronage. When limited to average weekday patronage at only stations with Park and Ride, the total Park and Ride capacity makes up around 22.1% of this patronage.

Further analysis of the characteristics of Wellington’s Park and Ride capacity vis-à-vis patronage as a comparison with similar cities locally and abroad, will be carried out in our second technical note, which will address the question of **when** Park and Ride is an appropriate intervention for station access.

5. Proposed PaRS Objective and Principles

5.1 Objective

Many of the experiences and policies discussed in the previous section are transferable to the Wellington context.

Community pressures to build new Park and Rides and to expand the capacity of existing facilities should be balanced against the need for Park and Rides to be in accordance with the outcomes sought by the prevailing transport and land use strategies for the region.

In this regard, we have distilled the learnings from the literature review and the recent Park and Ride challenges faced by the Wellington Region into a single objective for the PaRS. The objective we recommend is:

The objective of the PaRS is to guide investment in and management of Park and Ride facilities in the Wellington Region over the next 30 years in a way that both responds to community expectations and aligns with strategic transport and land use outcomes.

First, we support the objective adopting the 30-year horizon, as Park and Rides are rather long-lived assets whose function may need to evolve over time in response to, for example, changing commuting patterns, land use development pressures, and technological change.

¹⁴ As of May 2018

¹⁵ As of September 2017, train boardings only

¹⁶ Statistics New Zealand Subnational population estimate, 2017

¹⁷ Employee count, which is a head-count of all salary and wage earners in February 2017, Statistics New Zealand

¹⁸ Includes ferry, taxi, boat, aeroplane, and most likely the cable car in the context of Wellington

This horizon also reflects a common principle seen in the literature review that Park and Rides may need to be adaptively reused in the future, as land values and land use strategies change.

Second, we suggest the objective also explicitly recognises the role of both community expectations and strategic transport and land use outcomes. Community expectations are important because they are likely to be the primary source of demand for Park and Ride investment. We think there is value to GWRC to respond proactively and embrace community expectations as a factor that supports investment.

In saying that, community expectations with regards to investment Park and Ride are not always formed in full cognisance of the wider benefits and costs that may flow therefrom. For this reason, we suggest that strategic transport and land use outcomes should also be mentioned explicitly in the objective. To some degree we could, of course, expect that these outcomes would also respond to community expectations, for example as expressed by way of local consultation exercises. However, such outcomes typically place a bigger emphasis on trade-offs and strategic land use and transport policy, which is an important nuance.

The objective proposed therefore seeks to balance the potentially competing needs of “community expectations” (which often manifests as community demand for increasing the supply of free Park and Ride) with “strategic transport and land use outcomes” (which emphasises the importance of effective government investment). This objective needs to be underpinned by principles, which we discuss in more detail in the subsequent section.

5.2 Principles

We have devised a set of principles to inform the PaRS, which will guide Park and Ride management and investment over the next 30 years. The principles are categorised into three high-level principles of (1) strategic location, (2) effective design, and (3) demand management, under which we have identified individual sub-principles, specifically:

1. **Strategic location** – GWRC’s Park and Ride investment should prioritise locations that:
 - a. Expand access to the rapid public transport network;
 - b. Intercept car commuters as early as possible in advance of congested bottlenecks;
 - c. Represent an efficient transport investment; and
 - d. Respond to community needs.
2. **Effective design** – GWRC’s Park and Ride investment should prioritise designs that:
 - a. Integrate with local transport networks;
 - b. Enhance safety, security and amenity;
 - c. Minimise adverse environmental effects;
 - d. Accommodate active modes and emerging transport technologies, such as ride-share; and
 - e. Support future land use development (both on the site and in the wider vicinity).

3. **Demand management** – GWRC’s Park and Ride investment should be managed such that:
 - a. Available Park and Ride capacity is well-used to support public transport;
 - b. Park and Ride is prioritised for people with a genuine need to drive to rapid public transport;
 - c. Users make an appropriate contribution to the costs of Park and Ride; and
 - d. Overspill parking is appropriately mitigated and managed.

5.2.1 Investment Logic Mapping

GWRC has also concurrently carried out an Investment Logic Mapping (ILM) process internally to identify what it sees as problems in relation to Park and Ride. This ILM is appended to this note in Appendix A. The ILM contains three key problems, which include:

- A lack of clarity of when and where Park and Ride is the most appropriate intervention;
- A lack of understanding of the inter-relationship between Park and Ride, land investment, and other transport modes; and
- A lack of tools and policy to manage Park and Ride demand and operations.

In our view, the problems identified in the ILM translate directly to the principles proposed. For instance, the *Strategic location* principle and sub-principles address the location aspects of Park and Ride, as well as when it is required, which will help with understanding of when and where park and ride is the most appropriate intervention.

The *Strategic location* and *Effective design* principles and sub-principles also relate to Park and Ride’s effects on land development and other transport modes, as these recognise the need for Park and Ride to integrate with local transport networks, to accommodate emerging transport technologies, to support land use development, and to represent an efficient transport investment.

In terms of the problem around tools and policy to manage Park and Ride demand and operations, the principles and sub-principles for *Demand management* relates to this problem.

Each of the principles and associated sub-principles are explained under the subsequent sub-headings below.

5.2.2 Strategic Location

Location is the most important strategic input into investment decisions on Park and Ride. Providing access to the Rapid Transit network is a key consideration, as it is such services that are more likely to appeal to people who would otherwise travel by car for their entire journey.

Similarly, Park and Rides that are located where they can intercept cars before they reach congested bottlenecks helps to maximise potential decongestion benefits, as well as associated benefits from reduced VKT, such as emissions. This would be in line with GWRC’s *Climate Change Strategy* and similar strategies in its constituent territorial authorities such as Wellington City Council’s *Low Carbon Action Plan*.

Notwithstanding the access and decongestion benefits of a strategically located Park and Ride, it must also represent an efficient transport investment in the wider context of a station access strategy. This means it needs to attract sufficient number of users to deliver value for money, when compared to other potential means of access. This sub-principle is informed by the existing challenges facing Wellington in terms of the rising cost of providing or expanding Park and Ride, as well as the experience in South East Queensland¹⁹ where it was recognised that investment in Park and Ride can divert funds from more beneficial transport initiatives.

Finally, we suggest that Park and Rides should be located in areas that respond to community expectations. This means that when deciding where to situate a Park and Ride, the needs of the community should be considered. This could manifest in several ways, such as:

- Certain communities may have a strong preference for/against Park and Ride, which should be considered when formulating investment plans.
- Other communities may see Park and Ride facilities as complementary to their wider development objectives. In some places the location or relocation of Park and Ride could facilitate a town centre upgrade, whereas in other places there may be land uses, such as recreational activities, which experience peak demands on evenings and weekends and can reasonably “share” parking with Park and Ride.
- In some places, the community’s desire for expanded bus service may be best met by increasing frequency on existing services, complemented by strategically locating Park and Ride.

In all these instances, community expectations have an important bearing on the relative merits of investment in Park and Ride. Of course, these expectations must be evaluated in the context of more strategic considerations, such as the others outlined above and below.

5.2.3 Effective Design

A Park and Ride location guided by the Strategic Location sub-principles also requires effective design. Effective design will allow for seamless integration with local transport networks, enhance comfort and safety for users, while maintaining adaptability as station access evolves and transport needs and land-uses change.

Integration with surrounding transport networks is vital for an effective and efficient multi-modal system. The provision of Park and Ride should not diminish the ability for people walking, cycling and using feeder buses to safely and conveniently access the station. Providing for the safety of vulnerable road users in the Park and Ride’s vicinity through safe intersection and footpath designs is essential. Likewise, Park and Ride should be located as not to increase traffic congestion on local roads. Auckland and South East Queensland included principles of this nature in their adopted Park and Ride strategies.

Safety and security concerns of Park and Ride users are an important guiding sub-principle for the design of Park and Rides. Facilities should be designed in a manner that address safety and security for both individuals and property. This means creating facilities that are well-lit, visible, monitored, and free of hazards. Likewise, effective design should result in

¹⁹ Ibid at 11

station areas that attractive and comfortable and add value to the surrounding community. Safety and security were an important consideration in the *ACT Parking Action Plan*, and applying similar sub-principles to Wellington would increase convenience and comfort for users.

The effective design of Park and Rides also has implications for sustainability concerns and environmental outcomes. There are many environmental impacts generated by carparks including reductions in impervious surfaces, stormwater run-off and contamination of stormwater. As such, efforts should be made to minimise their adverse effects. This would require a greater focus on stormwater treatment and detention methods at Park and Ride locations.

Emerging technologies and shifting travel behaviours should also be considered in the overall design of Park and Rides. Whilst the specific impacts of emerging technologies are not yet known, it is reasonable to assume that they will influence on how people travel. As such, the impacts of ride-sharing and other technologies could alter the ways in which people access a station. As recent as the last two years, New Zealand has seen privately-led initiatives which enhance station access by modes other than Park and Ride, such as:

- Discounted Uber ride pilot to and from stations in Wellington and Auckland²⁰;
- On-demand ride-sharing in Queenstown via a mobile app²¹;
- Dockless bicycle sharing scheme in Auckland²²

These initiatives can be seen as nascent in the context of more widespread and mature technology adoption seen overseas. It is therefore not unreasonable to expect station access methods to change markedly in the near future, and even more so over the PaRS' 30-year horizon. Park and Ride design therefore needs to be flexible enough to adapt, for example by providing spaces for Kiss and Ride, ride-sharing pick-ups/drop-offs, or an area for dockless bicycle parking. Emerging technologies may reduce the need for Park and Ride in many locations.

Lastly, Park and Rides should also be designed and constructed with the flexibility to be converted to different land uses in the future. Park and Ride should be considered a temporary use, which can be converted as the area surrounding a station develops and land values increase. Accordingly, Park and Rides can be seen as the first intervention in the long 30-year horizon of a station's access strategy, with the ability to transform into mixed residential and commercial developments potentially providing greater patronage benefits in the future.

5.2.4 Demand Management

Demand management of Park and Ride relates to effectively managing facilities to ensure high utilisation, and prioritising users who have a genuine need to access a station by car, and thus show a willingness to contribute to the costs of Park and Ride provision.

²⁰ <https://www.uber.com/en-NZ/blog/uber-helps-to-movenz/>

²¹ <http://business.scoop.co.nz/2017/11/27/go-bus-brings-savy-transport-solution-to-new-zealand/>

²² http://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=11939421

Best practice parking management techniques typically use time restrictions and or pricing to manage demand. As Park and Rides serve a long-stay parking purpose, time restrictions are generally an ineffective management technique. Therefore, we recommend pricing as the primary mechanism by which demand can be managed, when circumstances warrant it (NB: We will expand on this point in more detail in subsequent work).

As shown by the morning capacity challenges in Wellington's Park and Rides, managing demand to ensure there is parking availability for commuters who travel later in the day and for casual users is of critical importance to maximise a Park and Ride's usefulness. As adopted or contained in parking strategies in Vancouver, Calgary and Auckland, priced Park and Ride is one mechanism to achieve this. Pricing allows commuters to reconsider how they access a station by encouraging access by active transport or connector buses for those who live near a station, thereby freeing up spaces for those who live far away and have a genuine need to drive to a station. Pricing can also be adjusted to ensure there is an availability of spaces throughout the day, which benefits casual users and encourages off-peak travel.

While pricing has demand management benefits, it also has the benefit of increasing revenue, which can be used to defray the substantial costs of Park and Ride. Recent investments in Park and Ride in Auckland have costed up to \$18,000 per space for a basic surface car park, with costs rising to \$25,000 per space or more for a multi-storey car park.²³ However, in Wellington a cost of around \$5,000 has been observed in recent years, which may exclude land purchase costs. Likewise, Wellington is not likely to pursue multi-storey Park and Ride in the foreseeable future, therefore, a range of \$5,000 to \$10,000 per space is likely within the Wellington context. In view of the potential substantial capital costs of providing Park and Ride, pricing, especially from the outset of a new facility, helps to recoup the costs of Park and Ride, and can also be used to fund other public transport initiatives.

6. Conclusion

The Wellington Region successfully developed new Park and Ride in the past five years.

However, the region faces new challenges in providing new Park and Ride and managing existing capacity. New sites are likely to be harder to find and have higher costs and lower benefits. At the same time, there is an expectation from the NZTA that Park and Ride is but one component of potential station access modes, and that an integrated view is required.

In light of these challenges, we are of the view that a greater focus on strategic investment is required. Our proposed principles and objective reflect this position, which have been supported by a review of similar principles and objectives contained in international and local Park and Ride strategies and studies. The proposed objective and principles are also relatively hierarchical, flexible, and integrate with GWRC's proposed work streams for this project.

In our view, the adoption of the proposed principles and objective in the PaRS acts as a useful framework to devise measures to tackle the broader station access challenges in the region. Such benefits might comprise:

- Public transport patronage growth, potentially by targeting new customers;

²³ <https://www.greaterauckland.org.nz/2016/09/05/park-and-ride-not-really-a-no-brainer/>

- Increased accessibility to Park and Ride, for example using pricing to prioritise capacity;
- Decongesting Wellington’s road network;
- Alignment with various GWRC strategies and plans including the 10-year plan, regional public transport plan, and climate change strategy; and
- Adaptive re-use of Park and Ride as circumstances change.

This technical note’s evaluation of **why** GWRC should manage and invest in Park and Ride subsequently leads to a discussion of **when** Park and Ride management and investment is appropriate; this topic will be evaluated in the next technical note.

Appendix A: Investment Logic Map – A strategic approach to Park and Ride

