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Executive Summary

Hamilton City is currently grappling with a range of transport and planning challenges and opportunities, many of which impact on parking.

This Parking Management Action Plan (PMAP) aims to ensure sufficient parking is available in the right place and at the right price. The need for a balance between availability and price recognises that parking is both an essential and an expensive part of the transport system. Reconciling the trade-off between availability and price will allow Hamilton City to provide for parking in a way that not only meets the needs of drivers but also contributes to broader community objectives, such as economic revitalization, improved liveability, and smart land use development.

Hamilton City currently experiences a number of issues specifically related to parking policies and management: motorists complain of difficulties finding parking spaces; demand for commuter parking spills over into residential areas; and large amounts of “free” parking at outlying retail centres is thought to undermine the competitiveness of the CBD. The high cost associated with providing more parking is an equally relevant issue, albeit less well-understood. Expected growth in residential and employment activity is only likely to increase demand for parking and exacerbate existing parking issues.

Current parking practices, particularly minimum parking requirements, have created an over-supply of under-priced parking. Minimum parking requirements force new developments to provide large amounts of free parking. In doing so, they reduce development densities and provide considerable subsidies for vehicle travel. Both these effects reduce the relative attractiveness of alternative transport modes and contradict many of Hamilton City’s strategic objectives.

This PMAP identifies a range of measures designed to encourage more efficient use of existing parking resources. This approach to parking management will not only help Hamilton City better address existing parking issues as well as capture a host of economic, social, and environmental benefits. This plan identifies the following key actions:

1. **Remove minimum parking requirements**: We recommend that parking requirements are removed from the District Plan. In the intervening period between the plan changes coming into effect, leniency should be shown to those developments that cannot meet current parking requirements.

2. **Develop a performance based parking management policy**: Where possible this policy should use prices to manage demand, instead of time-limits. This recognises that time-limits reduce convenience for drivers and prioritises low value travel. We suggest that Hamilton City set prices to manage demand between 70-85% of the available parking supply.

3. **Establish a TMA**: A transport management association should be established to coordinate transport and parking related services in Hamilton’s CBD, outlying parking attractors (University of Waikato, Waikato Hospital) and town centres. The objectives of the TMA are to manage
access to parking resources; engage and educate stakeholders; and promote travel demand management.

4. Investigate supplementary policies: We recommend Hamilton City investigate the use of innovative financial mechanisms, such as commercial parking levies and targeted development contributions, which create incentives to more efficiently manage private off-street parking.

Introducing these parking management actions as part of a broader integrated transport strategy will contribute to achieving the objectives of Access Hamilton, including reducing private vehicle mode share and supporting alternative transport modes. These actions will also contribute to more compact and diverse development patterns.

Due to their ability to contribute to a range of positive transport and land use outcomes, this PMAP recommends that parking reforms are progressed with some degree of urgency. It is noted, however, that successfully implementing these recommendations depends on an ongoing process of community engagement. This process will need to recognise and respond to cultural and emotional expectations for “free” parking.

Public acceptance of these reforms, and their subsequent willingness-to-pay for parking, will be closely linked to how parking revenues are used. As much as practicable, parking revenues should be reinvested in the communities from which it is raised. The establishment of a TMA, possibly as part of a business improvement district, should provide an appropriate vehicle through which parking revenues can be funnelled back into the community.

The actions identified in this plan represent a paradigm shift; they reject “predict and provide” type planning practices and instead embrace more market-oriented measures. Reactions to this shift will vary across stakeholders, such as landowners, developers, real estate agents, transport professionals, businesses, and residents. Education is important to help them understand and benefit from the recommended actions.

The reforms outlined in this PMAP are expected to deliver economic benefits in the order of $900 million, or $4,000 per capita. These benefits arise from progressively splitting parking costs out of the real estate sector and into the transport sector, where they can be managed more sensibly. The large economic benefits suggest the proposed reforms should be implemented as a matter of urgency.
Introduction

Hamilton is now New Zealand’s fourth largest metropolitan area and is predicted to attract an additional 85,000 residents within the next 35 years. Hamilton’s high rate of growth presents significant transport and planning challenges and opportunities, with considerable recent development focussed in the city’s north.

Parking is an essential component of the transport network, and plays a key role in the functioning of urban areas. Parking has implications not only for transport, but also for economic development, land use, planning, and urban design: “parking policy acts as the glue between the implementation of land use and transport policies” (Marsden 2006).

A paradigm shift is occurring in what is considered best practice parking management. Current practices unintentionally stimulate urban sprawl and reduce development density; encourage high rates of vehicle ownership and use; impose significant costs on governments and businesses; and in the process exacerbate various problems including traffic congestion, air pollution, noise.

In short, current parking management practices contribute towards a host of expensive and undesirable consequences (Shoup 2005; Litman 2006). Furthermore, these practices tend to suppress economic activity in existing town centres (where land is expensive) in favour of greenfields development on the urban fringe (where land is comparatively cheap).

A new approach to parking management, based on a suite of innovative and integrated measures, is essential if these challenges are to be addressed. Parking management strives to provide the right amount of parking, in the right place, and at the right price in order to adequately serve the needs of vehicle users while minimizing costs to society.

These impacts – including urban sprawl and the loss of economic activity from the CBD – have been identified by Hamilton City as central challenges to the city’s future economic and social performance. By way of background, this Parking Management Plan is one of seven components of the Access Hamilton integrated transport strategy. The scope of this parking management plan is to:

- Investigate and evaluate the current parking situation citywide in terms of both driver behaviour and the effectiveness of existing consent rules contained within the Proposed District Plan;
- Provide a strategic framework to carefully evolve parking management to fully balance the needs of all involved parties (residents, retailers, employers etc) using national and international best practice; and
- Model future demand for parking and revenue in two scenarios for the CBD. This modelling estimates the potential economic benefits of implementing parking management practices.
Current Parking Trends

Current parking trends in Hamilton need to be understood in terms of the interaction between the supply, price, and resulting demand for parking. A number of areas within Hamilton City have been identified as having parking issues, as illustrated in Figure 1 below.

Figure 1: Map of Current Parking Issues in Hamilton City

Hamilton Central and Hamilton East experience high demand that spills over into adjacent streets. Similarly, areas such as Waikato University, Waikato Hospital and Chartwell Westfield also suffer from spill-over. This suggests either: a) the supply of parking is insufficient or b) the management of spill-over parking is inadequate. At the other end of the spectrum, large developments such as The Base provide ample parking at no direct cost to shoppers - as required by the District Plan. This situation avoids vehicles spilling over into local streets, but requires an abundant supply of parking which
in turn stimulates sprawl and vehicle traffic. This increases infrastructure costs that are often borne by governments, businesses, and consumers.

The breakdown of the parking supply in the CBD is illustrated in the graph below.

The following sections discuss current parking trends in Hamilton in more detail.

**Central Business District**

The Central Business District is the city’s main employment centre, with a number of major shopping complexes, department stores, banks and government departments. In recent times there has been a rise in the number of people living in the CBD; this trend that is expected to continue. The CBD is the primary employment destination from across the city. Commuters can either park in spaces provided on site for them by their employers, pay for all day parking, or park (possibly illegally) in areas adjacent to the CBD (‘spill-over’).

The area affected by spill-over has widened considerably in recent years, with substantial creep into residential areas. This trend is naturally frustrating for residents and results in increasing traffic on sections of the road network generally unsuited for high volumes of vehicles. Retail activities in the CBD have also suffered with the development of the Base at Te Rapa. This issue requires attention and is discussed in more detail in later sections.

**On-Street Parking**

There are approximately 2,350 on-street car parking spaces in the CBD, with an additional 1,000 spaces in Hamilton East. Over half of these spaces are unrestricted, while one-third are time-restricted (between 5 minutes and 2 hours). On-street parking regulations are clearly indicated by signs and marking with simple delineation of time restrictions, “No Parking” areas, mobility zones, and loading zones. Consumers are able to clearly identify the parking that meets their needs with respect to the time they wish to spend in the area. Only 12% of on-street spaces in the CBD are metered, at $2 per hour. Current meters are relatively inflexible compared to newer parking payment technologies that allow for payment via SMS and credit card. Each car-park requires an individual meter, which increases collection costs, as well as cluttering footpaths and creating barriers to movement for pedestrians. There is high demand for parking in certain areas, such as around the central shopping precinct and on the southern and eastern fringes of the restricted zones, as illustrated in Figure 2.
Weekday occupancy of on-street parking within the CBD and Hamilton East is displayed in Figure 3. This indicates that weekday demand peaks in the middle of the day at an average occupancy of 66%, before declining in the afternoon. Demand varies substantially between areas, ranging from 25% - 100%.

**Off-Street Parking**

Off-street parking includes parking provided by businesses (for use by either employers or customers) as well as dedicated parking facilities (which may be either privately or publicly owned). In the CBD there are approximately 14,100 off-street parking spaces in total, of which 49% are provided by individual businesses for use by their employees and customers, and 51% are paid.
parking facilities available to any motorist. The latter group is further broken down into 11% publicly owned pay spaces and 40% privately owned pay spaces. Demand and occupancy data for some of the larger parking facilities within the CBD are illustrated below.

![Figure 4: Off-street Parking Demand Profile in Hamilton Central (with dashed lines indicate the range in values across different parking facilities)](image)

Like on-street supply, peak demand occurs in the middle of the day before decreasing through the afternoon. However, in contrast to on-street parking, there is a greater change in demand across the day, rising steeply towards mid day and then declining more sharply. This highlights the benefits of parking resources that are able to be shared between multiple uses. As on-street parks enable convenient access to multiple destinations, they are more evenly utilised across the day. This means that the same amount of parking can provide for more trips.

**Public Parking Revenue**

Public parking revenue is generated from users of on-street and off-street parking. Prices are applied to council owned off-street car-parks, as well as on-street car-parks in bus downtown locations. Current hourly rates are approximately $1-$2 per hour.

Trends in parking revenue over the last ten years are illustrated in Figure 5 below. Trends show parking revenues increasing from $2,500 per month in 2000 to approximately $30,000 in July 2006. After this point parking revenues fell back to approximately $25,000 per month by January 2008, since which they have remained relatively constant.

The timing of the drop in revenue occurs approximately 2 years after the opening of The Base at Te Rapa, which suggests the drop in retail activity in the CBD may not be solely attributable to retail leakage. The last 6 months has since a stabilisation in parking revenues, which may suggest that the impact of The Base has been fully felt. It is important that ongoing development in the CBD is encouraged so as to reverse this trend.
Minimum Parking Requirements

Minimum parking requirements are regulations that require new developments to provide a minimum number of car-parks. In New Zealand minimum parking requirements are determined at the local government level and implemented through District Plans. Minimum parking requirements are typically related to the size (gross floor area) and nature (type of activity) of the development.

These requirements place the responsibility for meeting parking demand onto private developers. Generous parking supply reduces spill-over problems, but significantly increases development costs, particularly in areas with high land values such as the CBD. In medium density situations where structured parking is required, each on-site car-park typically costs $20,000-$40,000. Even where surface parking can be provided, the cost of the land used to provide parking is approximately $6,000 per year. Reserving large quantities of land for parking directly impacts the affordability of goods and services. For example, the cost of providing parking for residential dwellings can add 10-30% to the total costs of development.

With the benefit of hindsight, it is clear that the unintended negative consequences of minimum parking requirements outweigh their benefits. These detrimental impacts are largely self-reinforcing and contribute to a cycle of automobile dependence (Newman and Kenworthy 1999; Shoup 2005; Litman 2006). This cycle occurs as a result of the following processes: (1) Increased vehicle use creates additional demand for parking; (2) This increased demand is subsequently reflected in increased minimum parking requirements; (3) These increased parking requirements results in reduced urban density, and subsidised vehicle trips as users do not pay directly to park; and (4) Reduced urban density and an over-supply of under-priced parking then stimulates increased vehicle use.
Moreover, the methodology underlying minimum parking requirements is considered to lack accuracy and efficiency in the following ways:

- **Conservative design standards:** Minimum parking requirements are typically designed to cater for individual peak demands. This considers developments independently of the surrounding urban environment and ignores potential to manage parking resources between adjacent developments, leading to an over-supply of under-utilised parking.

- **Fragmentation of urban form:** Minimum parking requirements require that individual developments cater for their own parking demands on-site. This fragments the supply across individual properties and detracts from the quality of the overall urban form.

- **Ignorant of value:** Minimum parking requirements give no consideration to the economic costs of investing in parking. The costs of meeting minimum parking requirements tend to increase in town centres and growth corridors where land values are higher, thereby preventing intensification and redevelopment.

- **Unresponsive to demand management:** There are numerous examples of cost effective parking management measures that do not require increasing the supply of parking. Examples include car-sharing, home-delivery, shower and locker facilities for employees who walk or cycle, unbundling employee parking from salary packages, providing free passenger transport passes for employees, and developing workplace travel plans. Minimum parking requirements suppress efficient demand management strategies.

For these reasons minimum parking requirements are considered to be both inaccurate and inefficient. The costs associated with minimum parking requirements have become disproportionately high in relation to their benefits. There is a stark contradiction between the consequences of minimum parking requirements and many of Hamilton City's strategic economic, social, and environmental objectives, such as stimulating economic development, efficient resource management, and compact urban form. These objectives are articulated in numerous planning and policy documents, which are summarised in Appendix D.

Some examples from Hamilton City serve to illustrate the large amounts of land required to satisfy minimum parking requirements. Te Rapa Road has witnessed considerable development in the last decade, and has recently seen the establishment of a large retail complex ('The Base'); significant expansion of The Base is continuing to occur. The Base is characterised by a large supply of free parking, and future growth of the area will incorporate a multi level carpark, in addition to the outdoor parking currently provided. Currently, the amount of land provided as parking supply generally matches that attributed to commercial use (Figure 6). Additional development and the inclusion of more parking supply will result in parking encompassing a greater combined area than the gross floor area.

Similar over-supplies of parking characterise other new developments in the outer suburbs, such as at Horsham Downs (Figure 7), where parking occupies a greater area of land than the retail activity it services. Rather than inducing
spill-over, this parking supply - the result of minimum parking requirements - impacts land values, lost revenue in rates for Hamilton City, and the road network supporting these areas.

Figure 6: Land use Patterns at 'The Base' (Red = parking; Green = retail, Yellow = future development).

Figure 7: Land use Patterns at Horsham Downs (Red = parking; Green = retail)
Future Parking Trends

This section models future demand for on-street and off-street parking in the CBD from 2009-2044 under a ‘business as usual’ scenario. These models take into account current parking trends - including on-street and off-street occupancy - and estimated growth in the number of residents and employees in the central city. This model assumes no change in travel patterns or parking pricing in this time, such that the results are likely to be highly conservative. The results provide insight into when parking demand may exceed supply in the CBD. Specific details of the assumptions and parameters of the models are described in Appendix 1.

On-Street Parking

Figure 8 shows growth in on-street parking demand modelled for the period 2009-2044. Maximum on-street parking capacity within the 32 zones in Figure 2 (approximately 3150 spaces) is shown below. The optimal demand level for on-street parking is typically around 85% of total supply, as indicated by the dashed red line. The model suggests ongoing growth in demand for on-street parking, although the rate of growth declines into the future. Demand reaches 85% occupancy of around 2024 and exceeds available capacity around 2034.

Off Street Parking

Off-street parking demand was also modelled from 2009-2044. There is a total of 14,100 spaces in the CBD, of which surveys indicate approximately 11,000 are occupied at peak times.

The model does not take into account any increase in supply of off-street parking capacity. This is considered to be a reasonable assumption, given that
parking supply did not appear to increase from the period 2002-2009. Should events prove otherwise, then the results of this model may not hold. The expected growth in off-street parking demand is shown in Figure 9.

![Figure 9: Forecast Off-street Parking Demand 2009-44 (maximum and 85% occupancy Levels indicated in red).](image)

Demand for off-street parking is likely to increase over the next decade, although at a reducing rate over time. Data indicate that the optimal 85% occupancy rate may be reached sometime around 2014.

**Commuter Spill-over**

Even though current parking supply in the CBD is underutilized, some parts of the surrounding street network do experience spill-over. This is due to the desire on the behalf of some commuters to park for free during the day, and the unrestricted residential streets are attractive for that reason. As such, while the extents on the map shown in Appendix 1 reflect areas where commuter spill-over is noted, the spatial variation of this pressure is dynamic, reflecting the preferences of commuters, their home locations and their end destinations.

With this ‘moving field’ in mind, it is difficult to predict the likely volumes of commuter spill-over around the CBD into future. However, it is possible to identify the likely areas at risk of experiencing commuter spill-over, based on (a) the likely growth in employment opportunities in the CBD and surrounds (Hamilton East, Frankton Junction, Hamilton Lake) and (b) likely growth in commuter home locations, based on the Hamilton Urban Growth Strategy. These risk areas are shown Figure 10.
This map indicates that new areas likely to experience commuter spill-over in addition to current areas include more of Hamilton East’s residential network in the north and south, Frankton Junction, northern areas of the CBD and south of the Hospital. It is likely that these areas would begin to experience spill-over issues as central parking supply becomes more and more constrained towards 2030-2040. The more northern risk areas in Hamilton East and north of the CBD are likely to experience commuter spill-over earlier due to the development of residential capacity Rototuna and Rotokauri, while southern areas may experience a lag due to the later intended development of Peacocke.
Parking Management: Principles and Measures

This section introduces principles to guide future parking management in Hamilton City Council and identifies the measures that should be implemented to support progress towards these principles.

Principles of Best Practice Parking Management

The following ten principles are adapted from Litman (2006a). They should guide the development and application of parking strategies and regulations:

1. **Consumer choice**: Consumers are allowed to choose between travel options in an economically neutral environment, which directly rewards those who choose to travel by less resource-intensive transport modes.

2. **Pricing**: As much as possible, users should pay directly for the costs of providing parking facilities, particularly the opportunity costs associated with land it occupies. This reduces costs for those who do not use parking.

3. **Prioritisation**: The most desirable spaces should be managed to favour higher-priority uses, such as commercial vehicles and the mobility impaired. This principle effectively seeks to establish a hierarchy of parking users.

4. **Sharing**: Parking facilities should serve multiple users and destinations. This allows for parking resources to accommodate variations in peak demand associated with different land uses.

5. **Efficient utilisation**: Parking facilities should be sized and managed so spaces are frequently occupied. Policies should facilitate the redevelopment and/or conversion of inefficiently used parking facilities.

6. **User information**: Users are well informed of the location, availability, prices, regulations, and penalties associated with the use of parking facilities. This information should be made available electronically.

7. **Flexibility**: Parking management needs to flexibly accommodate uncertainty and change in demand and supply. This is particularly relevant to pricing, which should respond to changing demands.

8. **Peak demand management**: Special measures should be implemented to deal with peaks in demand, recognising their negative impacts on driver frustration, illegal parking, and traffic congestion.

9. **Emphasis on quality**: The quality of parking facilities is as important as quantity. Parking facilities should provide security, accessibility, and user information so as to encourage a ‘park once and walk’ mentality.

10. **Comprehensive analysis**: All significant costs and benefits should be considered when planning and managing parking resources. The most cost-effective strategies should be implemented first.
Parking Management Strategies – High Level

**Abolishing Minimum Parking Requirements**

Previous sections of this study have sought to illustrate the unintended consequences that minimum parking requirements have had for urban areas. These consequences include urban sprawl, fragmented parking facilities, and artificially low costs for the use of private vehicles.

Abolishing minimum parking requirements allows developers the freedom to determine the marginal value of providing car-parks. In this way, the market is allowed to price out unnecessary demand and/or supply in favour of more valuable, productive land uses.

It is expected that a primary benefit of removing minimum parking requirements will be accelerated levels of brown-fields redevelopment on sites which were previously constrained by the need to provide on-site parking. Removing parking requirements is expected to result in:

- The development of land that is currently used for parking into more productive activities, resulting in higher development densities; and
- The adaptive reuse of older buildings, particularly in town centres, where affordable residential accommodation, such as loft apartments, may be incorporated onto floors above ground level.

Removing minimum parking requirements means that parking facilities will not lock up valuable urban land. Parking becomes a dynamic land use which may change over time according to supply, demand, and price. Car-parking will be accommodated as a consequence of development, rather than as a prerequisite.

Perceived risks of removing minimum parking requirements tend to revolve around the fact that developments may under-estimate parking demands and exploit public and private parking resources which are available in the surrounding area. This perceived risk, however, is predicated on the following assumptions:

- Private and public providers of parking will not take steps to manage additional demand for parking resources created by new developments;
- Parking resources will continue to be paid for by developers and building owners, rather than users; and
- The occupiers of the new development will not adjust their travel patterns and demand for parking in response to the lack of on-site parking.

These assumptions are questionable given that:

- Demand for parking is already managed, albeit inadequately, to limit opportunities for private developments to exploit public parking resources, through such measures as time-limits and prices;
• Removing minimum parking requirements is expected to increase the value of parking, allowing the Council and/or private operators to justify investment in additional parking facilities when needed; and
• Developments without on-site parking are likely to experience reduced vehicle mode share. This recognises that the provision of parking has a significant impact on travel patterns (Booze Allen Hamilton, 2007).

Instead of removing minimums altogether, some jurisdictions have experimented with making their application increasingly flexible. This is not recommended as a stand-alone strategy due to limited benefits, relative uncertainty, and increased administrative burden.

**In-lieu Payments**

In-lieu payments allow individual developments to offset the onsite provision of parking required by minimum parking requirements by making payments to the council. The cost to the developer is based on the size of the parking shortfall and the estimated cost to the council of providing alternative parking. In-lieu policies are currently implemented in a small area of the Hamilton CBD.

In-lieu payments provide additional flexibility for developers to determine the relative costs and benefits of on-site parking. This flexibility is particularly beneficial in areas with relatively small properties, where the provision of access to on-site parking may be disproportionately expensive.

In-lieu payments have a number of practical risks and theoretical pitfalls, including:

• The council is expected to calculate the cost of a car-park, which may or may not accurately reflect the actual cost now and into the future;
• Responsibility for the provision of parking is shifted from the developer to the council, creating the potential for pressure to be exerted on the council in terms of its management of parking resources;
• In-lieu payments go only part way towards creating a market for parking, where the developer is able to buy out on-site parking supply in the beginning without the opportunity of trading demand parking resources on an as needed basis; and
• Users are not directly charged for the costs of parking, violating the principles of economic neutrality and consumer choice. In-lieu payments perpetuate some aspects of the status quo, where the costs of parking are bundled into the costs of development and dispersed through the economy.

It is noted that an “in-lieu” parking policy is required only in the event that minimum parking requirements are retained. Where the regulatory framework absolves developments from catering for parking demand, that is, no minimum parking requirements apply, then an “in-lieu” policy becomes redundant.
Limits on Parking Supply

Limits on parking supply describe regulations designed to reduce the amount of parking that is provided with new developments. Limits on parking supply are often controversial with landowners and developers. Limits on parking supply are typically justified on the grounds of:

- **Economic value** - Minimum parking requirements have artificially lowered the perceived value of parking. This has created a host of negative consequences, including low density urban form and increased use of private vehicles. Limits on parking supply are a means to accelerate progress towards a more economically efficient parking supply. In Waitakere City, surveys have indicated a significant over supply of parking (SKM, 2004; SKM, 2007). This is best addressed through limits on the parking supply that ensure that the status quo does not persist;

- **Strategic direction** - National, regional, and local transport strategies support reduced dependence on single occupant vehicles. This reduced dependence is to be supported by the integration of transport and land use development, intensification around PT infrastructure, and improved walking and cycling facilities. Limits on parking supply support these objectives by identifying that current levels of vehicle use are highly unsustainable and likely to reduce in the future, particularly in areas where mixed use development and investment in alternative transport modes intersect, such as town centres and growth corridors; and

- **Professional competency** - professionals working in the field of transport planning are accustomed to working within minimum parking requirements which typically over-estimate the demand for parking. It is likely that minimum parking requirements will continue to be applied unless the onus for conducting more sophisticated assessments of parking demands is placed, firstly, on developers, and, secondly, on professionals advising the developers.

This suggests that limits on parking supply are required to support economic, strategic, and practical objectives and encourage a more rapid uptake of sophisticated demand analysis amongst professionals. There are a variety of ways to limit the parking supply, including:

- **Area caps** - a maximum parking supply is set for a defined geographical area;
- **Site caps** - a maximum parking supply is set for individual developments; and
- **Maximum ratios** - a maximum ratio of parking supply to floor area is set for individual developments

The area and site caps define the maximum number of car-parks provided within an area and development respectively, whereas the maximum ratios prescribe the maximum proportion of parking relative to gross floor area. Limits on parking supply have been applied in cities in New Zealand and overseas, as shown in the table below.
Management Strategies

Priced Parking
Priced parking has been shown to be an extremely effective demand management strategy (Booz Allen Hamilton, 2001; Shoup, 2005). The advantage of pricing is that it provides for high priority customers while discouraging long stay users, such as commuters. In this way priced parking supports the principles of consumer choice and prioritisation. Priced parking is most suited to areas experiencing more than 70% peak occupancy. Pricing is first and foremost a demand management tool rather than a mechanism for gathering revenue (Litman, 2006a). The price level set will thus aim to keep occupancy levels high, but not saturated, resulting in a situation where a few car-parks are almost always available to those who are willing to pay for them.

The overall elastic response to priced parking is in the order of 10-30%. However, this response varies significantly depending on travel and land use patterns. Booz Allen Hamilton (Booz Allen Hamilton, 2001) suggests the following elastic response in a New Zealand metropolitan region:

<table>
<thead>
<tr>
<th>Duration</th>
<th>Elasticity</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-2 hours</td>
<td>-0.1</td>
</tr>
<tr>
<td>2-4 hours</td>
<td>-0.3</td>
</tr>
<tr>
<td>4-7 hours</td>
<td>-0.5</td>
</tr>
<tr>
<td>7+ hours</td>
<td>-0.9</td>
</tr>
</tbody>
</table>

This suggests that demand for long stay parking is highly elastic to price, while short stay demand is relatively inelastic; which essentially means that commuters and long stay parkers would be discouraged more by priced parking. In this way, pricing contributes to higher turnover without the inconvenience of time-limits.

It is important to emphasise that elasticities are not necessarily constant over time. In many instances the short term impacts of those who are discouraged from visiting the town centre reduces over time as new behavioural patterns emerge. These delayed adjustments can be as simple as allowing time for people to familiarise themselves with public transport timetables or coordinate car-pooling. For this reason, the number of people discouraged from visiting the shops due to parking prices may be expected to reduce over time.

Those discouraged from travelling by single occupant vehicle (in the main) may respond in a variety of ways, including:

<table>
<thead>
<tr>
<th>Urban area</th>
<th>Relative size</th>
<th>Relative density</th>
<th>Limits on parking supply</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Area caps</td>
</tr>
<tr>
<td>Auckland</td>
<td>Large</td>
<td>High</td>
<td>-</td>
</tr>
<tr>
<td>Wellington</td>
<td>Medium</td>
<td>High</td>
<td>-</td>
</tr>
<tr>
<td>Portland</td>
<td>Large</td>
<td>High</td>
<td>✓</td>
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<tr>
<td>Scotland</td>
<td>Variable</td>
<td>Variable</td>
<td>-</td>
</tr>
<tr>
<td>Brisbane</td>
<td>Variable</td>
<td>Variable</td>
<td>-</td>
</tr>
<tr>
<td>Lacey</td>
<td>Small</td>
<td>Medium</td>
<td>-</td>
</tr>
<tr>
<td>Short term</td>
<td>Long term</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------------</td>
<td>---------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Car-pooling</td>
<td>Move location of home or work to increase accessibility to destinations by alternative modes.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Switch to alternative mode</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Travel outside of peak times</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Link trips with other errands</td>
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<tr>
<td>Trip avoidance</td>
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<tr>
<td>Discouraged from visiting</td>
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</tbody>
</table>

**Unbundled and Shared Parking**

Unbundled parking refers to the strategy of separating the costs of purchasing or leasing residential and commercial property from parking resources. For example, in a medium density residential development, dwellings may be purchased separately from the car-parks. This “unbundles” the cost of parking from the cost of living and supports the principle of consumer choice. For example, unbundled car-parks associated with residential development in town centres can cost an additional 20-25% of the total purchase price of smaller dwellings (Litman, 2006a).

In a mixed use development there are considerable opportunities to share parking between uses with complementary peak hours (Smith, 2005). Each space can be used more hours during the day, week or month. There are no significant operating and management constraints to preclude the development of a shared parking facility. However, a number of factors must be considered to ensure the efficient design, operation and management of shared parking facilities (Smith, 2005).

Opportunities for shared and unbundled parking are enhanced by the existence of a Travel Management Association (TMA) that provides parking brokerage services. In the event of a parking surplus (i.e. not all car-parks provided with a particular development are purchased) then the building owner or body corporate committee is able to, through the TMA, make car-parks available to other users.

**Overflow and Spill-over Parking Plans**

Overflow and spill-over parking plans seek to manage the effects of excessive parking demands that may arise during special events and peak retail season, such as Christmas and Easter, or as a result of changes in parking management in adjacent areas. These plans can help mitigate the potential negative effects associated with excessive parking demand, such as increased vehicle congestion; unsafe and/or illegal parking on streets, footpaths, and grass verges; and driver frustration.

Overflow parking plans should involve some of the following components:

- Signage to identify when parking areas are full, as well as to direct vehicles to alternative parking areas. This increases the utilisation of existing parking resources;
- Identification of appropriate temporary parking that may be shared, such as opening up parking at Henderson High School for the period immediately before Christmas when schools are out. This temporarily
increases the supply of parking through identifying shared parking opportunities;
- Including the cost of PT passes in the ticket price for special events, such as sports and cultural events. This encourages the use of PT for travel to major events.; and
- Retailer funded reimbursement of PT travel costs. This encourages the use of PT for travel during high retail seasons.

Residential parking schemes are a possible tool for managing the impacts of spill-over and overflow parking in residential areas adjacent to town centres and growth corridors. The scheme primarily involves the administration of a parking permit that exempts residents from parking regulations and pricing. This may need to be implemented to discourage employees and visitors from exploiting residential on-street parking resources. Residential parking schemes may incur additional administration costs, which should be recouped by annual fees paid by residents for the privilege of the parking permit.

It is recommended that resident parking schemes be viewed and advertised as an intermediary tool to aid the implementation of parking controls in areas where residents feel a historical attachment and/or property right in regard to on-street parking resources. This attachment, however irrational, is likely to be relatively strong in many instances. For this reason, parking permits should be tightly controlled and only granted in situations where parking controls are shown to cause severe and irreconcilable disadvantage to individual residents. Moreover, parking permits should not be provided to residents who move into the area after the implementation of the scheme. This treats the permit as a non-transferable benefit that is tagged to residents adversely affected at the time of implementation. An example of adverse effects might be where off-street parking cannot easily be accommodated without significant expense. The number of permits can thus be expected to decline over time.

An overflow parking plan is therefore a combination of strategies designed to efficiently accommodate peak parking demands without actually increasing the supply of parking. Overflow parking plans are another example of a parking management strategy that could be developed and administered by TMA.

**Directional Signs and Parking Information**
Directional signs provide real time information on the location and availability of parking. These signs should be placed on key access roads into town centres and inform drivers of the locations, availability, and potentially the price and maximum duration of stay associated with off-street parking facilities. A travel planning website for the city can also provide information about the price, location and availability of parking in town centres, in addition to other important transport information (including comparing the price and expected travel time of different modes.) This information allows drivers to, firstly, identify the nearest available parking facilities and, secondly, evaluate the relative value associated with different parking areas.
In Figure 11 above, drivers are alerted prior to the signalised intersection that the Convention Centre 1 car-park facility is full, but that parking is still available in the other car-parks to the left. The goal of directional signs is to reduce the distance travelled by vehicles looking for a car-park, thereby resulting in positive external benefits to other road users as well as encouraging more efficient use of available resources. Supplementing these signs with take away maps of available parking areas and pricing information may increase familiarity and understanding of parking availability for frequent visitors to the town centres. It may also encourage employees to park in more remote areas, freeing up convenient car-parks for short-stay visitors.

Support Strategies

Support strategies describe parking management measures that do not directly address strategic or management issues, but which may contribute to improved parking outcomes.

Transport Management Associations

Transport management associations (TMA) are usually formed to manage the provision of transport within a particular geographical area. They frequently involve both public and commercial stakeholders so as to connect strategic directions with on the ground community interests.

Possible functions of TMA may include:

- Parking brokerage services – designed to connect demand for parking with surplus private off-street parking resources. The availability of parking brokerage services is crucial to the viability of demand reduction
strategies, such as financial incentives (parking cash-out, subsidised PT passes) and unbundled parking.

- Input into the allocation of parking revenues - TMA provide an interface through which community projects can be identified and funded using parking revenues.
- Over-seeing the management and implementation of travel plans and overflow plans for times of peak demand, such as special events and seasonal shopping patterns.

A market for parking brokerage services may emerge as the value of car-parking transactions increases. However TMA would be expected to deliver more rapid benefits due to its higher level of coordination and community involvement.

Lloyd District in the United States has had a TMA operating for approximately 10 years (www.lloyd dma.com). This encompasses 650 business and 21,000 employees. The Lloyd TMA lists the following headline accomplishments for the period 1997 to 2006:

- Drive alone trips have reduced from 60% to 42%; and
- PT mode share has almost doubled from 21% to 39%.

The reductions in drive alone trips has significant implications for the amount of parking required to support land use in the Lloyd District. The increased efficiencies catalysed both by the reduced demand for parking and the increased transport accessibility has facilitated the addition of 20,000 employees and 4,000 housing units.

It is considered that Hamilton may be well served by a local TMA that could coordinate transport needs amongst the numerous small businesses who might otherwise not realise opportunities for cost-effective collaboration.

### Commercial Parking Levy

A commercial parking levy charges commercial land owners an annual levy for every car-park they provide on-site. Revenues are usually used to fund transportation improvements, which is much more direct than methods based on property taxes (rates). When combined with reforms that remove minimum parking requirements, parking levies provide a powerful incentive for the redevelopment of under-utilised parking spaces.

Commercial parking levies come in two primary forms: a sales tax or an annual levy. Sales taxes on commercial parking transactions are implemented in a number of U.S. cities but - due to lack of enabling legislation - are not feasible in New Zealand. Annual levies have been applied in Australia: Perth, for example, charges $200AUD per car-park per year, while Sydney and Melbourne charge from $400-$800, depending on the location.

New Zealand’s local territorial authorities, such as Hamilton City Council, may implement a commercial parking levy as a targeted rate under existing legislation, although revenues from the levy would need to be linked to general transport investment.
Funding transport investment using parking levies has a number of desirable effects. It will help level the playing field and enable compact, centrally located, and high-value properties (which tend to not provide much parking) to be more competitive with low-density, sprawling, and low-value properties (which tend to provide a lot of parking).

In this way, a commercial parking levy better reflects the travel demands generated by each individual property and may lend significant support to strategic land-use and transport objectives.

**Tailored Development Contributions**

The potential exists for development contributions to be tailored to the particular nature of the development. In this way the development contributions become a policy lever through which HCC can influence the distribution and nature of development that occurs across the city.

HCC could look to develop a series of “transport factors” which inflate or deflate the contribution for specific developments based on the degree to which they incentivise good outcomes. For example, the transport contribution for multi-unit residential developments could compare the average number of car-parks provided per unit to some average baseline. Where the development provides fewer parks than average, the transport contribution would be reduced.

‘Parking factors’ as a feature of development contributions, while slightly more complicated than a simple flat fee, will encourage developers to consider reducing the parking they provide. This will help build out the current over-supply of under-priced parking. Other factors could also be developed to, for example, encourage land use density and diversity and/or proximity to the CBD. Over time, these price signals are likely to influence developments in ways that support strategic outcomes.

**Car-share Organisations**

Car-sharing organisations are based around the management of a pool of vehicles parked at numerous locations around the city. Auckland’s first car-sharing operation (City Hop, www.cityhop.co.nz) has recently been established in the CBD and inner city suburbs such as Parnell and Newmarket. City Hop has also expanded to Wellington, Christchurch, and Palmerston North. Members of the organisation are able to book vehicles online and then gain access to the vehicles via electronic swipe cards. Every car-share vehicle is typically utilised by a large number of people and businesses, thereby reducing the costs of car-ownership, especially vehicle maintenance and parking.

Membership to a car-share organisation is considered most attractive to households that do not rely on vehicles for home-to-work commuting, or small to medium sized companies that do not need to manage their own pool car fleet. Census data indicates that approximately 30% of residents in Hamilton central area unit commute to work by walking and cycling. As such there may be an untapped market for car-share. Moreover, by removing the need for commercial pool vehicles, the incentive for employer funded vehicles is also removed. In this way, car-share vehicles tend to be shared by businesses during the day and residential needs during off-peak hours.
Numerous studies have indicated that members of car-sharing organisations have more sustainable travel patterns, with higher reliance on walking, cycling, and public transport. As a result, people who join car-share companies typically reduce their vehicle travel by approximately 40%.

**Travel Plans**

Travel plans are a management tool designed to reduce organisational barriers to more effective home-to-work and work-based travel. Travel plans typically involve an audit of current travel arrangements, along with an assessment of a series of ongoing measures designed to reduce vehicle travel—particularly by single-occupant vehicles. Travel plans help to manage organisational issues affecting how people choose to travel, such as company cars and free parking. Company policy changes have been shown to catalyse large reductions in employee vehicle use, including:

- Parking cash-out - provides an option for commuters who normally receive free parking to take cash instead;
- Car cash-out - as per parking cash-out except for company cars;
- PT passes - involves providing employees with a subsidised PT pass in place of a free car-park; and
- End of trip facilities for cyclists, including showers and lockers.

Travel plans thus support other parking strategies by undertaking a detailed assessment of the institutional barriers to shifting mode. It is important to realise, however, that the motivation for businesses to conduct travel plans is best provided by the accurate realisation of the costs associated with vehicle travel. For this reason, the use of travel plans will become more common in a situation where parking is more accurately charged to users, whether they be individuals or businesses.

**Amenable Pedestrian Environment**

An amenable pedestrian environment increases the willingness of people to walk from a car-park to a larger range of destinations. This increases trip-linking while also reducing demand for parking and lowering vehicle travel within the town centre. Urban design initiatives to improve the pedestrian environment can often be funded from parking revenues.

**Effective Enforcement**

Enforcement is the bedrock of improved parking management. Enforcement of parking rules needs to be both rigorous and fair. The goal should be to reduce numbers of parking infringements through clear communication of parking rules. We note that enforcing time-limits is relatively labour-intensive, especially in contrast to the ease of enforcing pay and display.

**High-Quality Parking Facilities**

Improving the quality of parking facilities encourages visitors to park off-street, reducing demand for convenient on-street car-parks. People are generally prepared to pay more for high-quality parking facilities.
Recommended Measures

On the basis of our assessment of the current and future trends we have identified the following parking management measures as being most suited to Hamilton CBD:

1. **Remove minimum parking requirements**: We recommend that parking requirements are removed from across the metropolitan urban area, particularly in the CBD and outlying town centres. This will require changes to the District Plan. In the intervening period between the plan changes coming into effect, leniency should be shown to those developments that cannot meet current minimum parking requirements.

2. **Develop performance based management policies**: Where possible prices should be used to manage demand, instead of time-limits. We suggest that Hamilton City set prices to manage demand between 70-85% of available supply. In residential situations time-limits may be an option in advance of meters, although limits below 180 minutes should be avoided.

3. **Establish a TMA**: A transport management association should be established by council to coordinate transport and parking related services in Hamilton’s CBD, outlying parking attractors (University of Waikato, Waikato Hospital) and town centres, such as:
   
   3.1. **Manage access to parking resources** through facilitating parking brokerage services, setting appropriate prices for public parking (both on and off street), and identifying opportunities for redevelopment of underutilised and/or surplus parking areas. The TMA could also oversee the development of directional signs to ensure existing parking facilities are legible and well-used.

   3.2. **Engage and educate stakeholders** to ensure that the strategic direction and practical implications of the parking management measures are well-understood by planners, engineers, and developers in the public and private sectors. This will ensure that the socio-economic benefits of parking management (discussed more in following section) are realised more rapidly.

   3.3. **Promote travel demand management** such as parking information, electronic travel information, overflow parking plans, and workplace travel plans, particularly in and around town centres. It is recommended that Hamilton City Council ‘leads from the front’ by developing a work place travel plan for its own staff.

4. **Investigate supplementary policies**: We recommend Hamilton City investigate the use of innovative financial mechanisms, such as commercial parking levies and targeted development contributions, which create incentives to more efficiently manage demand for private off-street parking.

It is anticipated that the implementation of these management measures will enable Hamilton’s urban areas to develop in a more dynamic, compact, and sustainable way. The benefits of these measures are discussed in more detail the following section.
Benefits of Recommended Measures

The recommended measures identified above generally seek to establish a market for parking resources by rationalising the supply of parking (i.e. removing minimum parking requirements) and using prices to manage areas of high demand. These measures should deliver a range of benefits to Hamilton City Council, including:

- $224 million in savings compared to a ‘business as usual’ approach from reduction in demand for off-street parking, including redeveloping current facilities.
- $223 million in direct savings in congestion reduction benefits from reduced vehicle travel, particularly at peak times.
- $77 million in reduced environmental costs, such as emissions to air, water, and soil.
- $387 million in benefits from more compact urban form, such as reduced travel demands, agglomeration benefits, and household energy savings.

The benefits and costs of parking reforms are summarised in the table below.

<table>
<thead>
<tr>
<th>Economic Benefit</th>
<th>Amount</th>
<th>Economic Costs</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parking cost savings</td>
<td>$224</td>
<td>Collection costs</td>
<td>$4.1</td>
</tr>
<tr>
<td>Congestion reduction</td>
<td>$223</td>
<td>Ancillary services</td>
<td>$5.0</td>
</tr>
<tr>
<td>Environmental externalities</td>
<td>$77</td>
<td>New parking meters</td>
<td>$4.5</td>
</tr>
<tr>
<td>Compact urban form</td>
<td>$387</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total benefits</td>
<td>$911</td>
<td>Total costs</td>
<td>$13.6</td>
</tr>
</tbody>
</table>

When considered in net present value terms the recommended parking reforms were estimated to have a benefit-cost ratio of 25, which suggests that for $1 invested Hamilton City will receive $25 in benefits. Moreover, from a council perspective the higher parking revenues will more than offset the increased costs, such that the proposed reforms will strengthen Council’s financial position.

Many of these benefits accrue from the fact that the proposed parking reforms allow floor space to be used for its higher economic use, which – more often than not – is not parking. This also means that vehicle users will increasingly be expected to pay “fair market value” for the parking they use, which in turn will encourage them to make more efficient travel and lifestyle decisions.

The calculation of these economic benefits, including underlying assumptions and modelling parameters, are discussed in detail in a separate report Parking Reforms – The Economic and Financial Implications. Maximizing these benefits will require that HCC is actively involved in the implementation of the recommended parking management measures. Changes need to be (1) well signaled to allow time for people and businesses to adjust, (2) staged so that people can make incremental adjustments over time, and (3) coordinated so as to maximize uptake of viable alternatives.
Winning Hearts and Minds

Parking reform is a crucial issue facing New Zealand’s cities and towns. The importance of parking reform cannot be understated: It is the single most important way local government bodies can positively influence travel and lifestyle choices. Parking reform is likely to make a major contribution to improved economic, social, and environmental performance.

Despite these benefits, parking reform is, however, a deeply vexing issue for many communities. Minimum parking requirements, and other historical practices, have intentionally sought to provide “free” parking wherever and whenever people drive. Proposals to reform parking therefore often run up against a deeply ingrained cultural expectation for “free” parking.

It is important to recognise from the outset that parking is a highly emotional issue. On a psychological level parking represents the transition point between the journey and the destination. Finding a car park is for many people the most unpleasant and stressful part of the entire journey. Most of us have bad memories of arriving at a destination only to not be able to find a car park.

Proposals to reform parking must therefore recognise and respond to these complex cultural and emotional sentiments. Winning public support for parking reforms requires effectively communicating the need for and benefits of change, understanding diverse perspectives, and developing well-targeted messages, all of which are discussed in more detail in the following sections.

Putting Parking in Perspective

Minimum parking requirements were perhaps the result of, and have reinforced, a highly distorted perception of the role and value of parking. Free parking is perceived as an entitlement for those using a private car. In other words, motorists feel like they should always have free and convenient parking at their destination. Traffic engineers and city planners have thus focused on providing for this demand, without ever considering the cost of providing it, and what the trade-offs are.

Similarly, many businesses owners take it for granted that ample parking is essential for their clients to access their goods and services. Employers often are concerned about having enough car parks for each employee to keep staff happy. For motorists, if a park is not readily available and convenient, frustration ensues. Parking infringement fines are often seen as an unfair penalty handed down by a revenue hungry large bureaucracy.

It is understandable that each of these stakeholders thinks about parking in a first-person perspective. However, from this perspective, often the only consideration of the cost of parking is along the lines of: “why do I have to pay?” or, “why is it so expensive?” In this context the word “expensive” must be understood as relative to their usual experience of free parking.

Parking is an essential component of the transport system. Every mode of transportation has three components: 1) vehicle (e.g. bus, train or car) 2)
rights-of-way (e.g. rail line or road), and 3) terminal capacity (e.g. station yard, bus depot, or car park). However, parking is the only component of the transport system that is provided free at any cost and at no direct charge to users. The anomalous treatment of parking does not make sense.

Moreover, in comparison to other transport modes, providing terminal capacity for private vehicles soaks up large amounts of land and/or floor space. In many situations the cost of providing parking is greater than the cost of providing and maintaining the rights-of-way and the costs of owning and operating vehicles. Put another way, the cost of providing parking is the single largest cost of the transport system supporting private vehicle use.

Motorists park for free 99% of the time because minimum parking requirements have removed the cost of parking from the transport sector and shifted it into the rest of the economy (Shoup, 2005). The trade-off is that while we pay less for parking, we pay more for everything else. However, because free parking provides a subsidy to motorists, and thus increases the demand for and supply of parking, we indirectly end up paying more than we need to.

Putting parking in perspective, that is, helping stakeholders and transport engineers and planners 1) think about parking from a bird's eye perspective to understand the complex effects it has on the city, and 2) understand parking as an essential but expensive component of the transport system, is an important step in building support for a new approach to parking management.

**Communicating the Benefits of Change**

Social commentators have noted that New Zealand society is relatively resistant to change (McLauchlan, 1976). Resistance to change is likely to reflect not only ignorance but also, at least to some degree, relatively high levels of contentment and satisfaction with the status quo. Proposed changes must therefore, in the minds of the general public, be supported by evidence demonstrating how the change will benefit them.

In the case of parking reforms, the benefits of change are highlighted by truly understanding the trade-offs associated with the status quo. The key trade-off is that parking is never free - the actual choice is between paying directly, based on use, or indirectly, through rents and taxes. Paying directly is almost always more efficient and equitable because you ‘pay for what you get and get what you pay for.’

The benefits of parking reform (which appeal to differing degrees to different communities of interest) include:

- **Better Travel choices:** By more accurately charging the costs of travel to users, parking reforms will encourage better travel choices.
- **Reduced cost of living:** By reducing the costs of development, parking reforms will, over time, lower the costs of goods and services.
- **Economic development:** Parking reforms will free up valuable urban land and reduce compliance costs for new developments.
- **Environmental quality:** Parking reforms will improve the quality of our urban environments by reducing demand for vehicle travel.
This turns the debate away from questions of “do you want to pay more for parking” to “do you support policies that reward people for making good travel and lifestyle choices, reduce the cost of living, stimulate economic development, and improve the urban environment?” By framing the debate in terms of trade-offs, we can close off portrayals of parking reforms as simply an attempt to increase the costs of driving.

**Targeted Messaging**

Successful parking reform requires communicating the need for and benefits of change to a wide variety of stakeholders early on and at key stages. These stakeholders are concerned with vastly different issues, all of which need to be addressed in the development of comprehensive parking management solutions. Understanding and responding to the issues that are of concern to these various stakeholders is critical to successful parking reforms.

<table>
<thead>
<tr>
<th>Stakeholder Group</th>
<th>Stakeholder Concerns and Message Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public servants – such as council planners and engineers;</td>
<td>Concerned with broad community outcomes, including environmental and social. Present full evidence and technical detail of how current standards undermine desired community outcomes, and elaborate on alternative management techniques. Council officers need to be confident that new management techniques will be successful and not leave them open to criticism for changing the approach.</td>
</tr>
<tr>
<td>Community representatives – including elected officials and business groups;</td>
<td>Concerned with broad community outcomes, particularly economic development. May be concerned with public acceptance. Focus on business case for changing parking management. Demonstrate alternatives that will be publicly acceptable. Demonstrate examples where parking management has already been successfully implemented.</td>
</tr>
<tr>
<td>Land owners and developers – particularly where development/regeneration is planned;</td>
<td>Concerned with compliance costs of development, rating implications, and market demand for properties. Focus on a) the opportunities for cost reduction by removal of minimums, b) less expensive means of providing access that also add value, c) potentially significant reduction in rates, and d) growing market demand for compact development. The proposed parking management institutions (such as TMAs) and reinvestment of revenue raised by parking will likely be of interest to landowners.</td>
</tr>
<tr>
<td>Professional consultants – especially those working in the private sector; and</td>
<td>Concerned with meeting the compliance requirements of Council, advising clients on parking demand and requirements. Focus on technical rational for proposed changes and how the new strategies will reduce compliance costs. Explain the principles of good parking management and especially the role of data collection to establish likely demand for parking in new developments, to encourage a shift from relying on standards.</td>
</tr>
<tr>
<td>Business owners – who are usually extremely risk averse.</td>
<td>Concerned with the impact on local turnover, and in some cases rating implications. Focus on the benefits of improved economic development and turnover. Customer surveys to demonstrate how clients are currently accessing the business may be necessary to convince business owners that new parking management can enhance their custom.</td>
</tr>
</tbody>
</table>
Residents Concerned with availability of on street parking, rates, and broader community objectives.
Focus on the increased convenience of parking, improved transport options and urban environment, improved access and equitable rating. Explain how parking management strategies and new institutional structures (e.g. TMAs) will help mitigate their concerns.

In general, successfully communicating the need for change relies on presenting complex information in a simple way. A high priority should be placed on effective visual content (including photographs and illustrations) and succinct reporting. Figure 12 illustrates vividly the amount of land used for parking (blue) and roads (orange) in Manukau City centre. Most people can intuitively appreciate that this does not represent an effective use of valuable urban land or contribute to an attractive urban environment.

Figure 12: The impact of parking and transport infrastructure on urban density

Timing of Consultation
It is critical to communicate with stakeholder groups early so that they understand the issue and do not feel threatened by sudden changes that they feel have been sprung upon them. The following table suggests a possible order for engaging with key stakeholder groups for each specific project to ensure that reforms are well understood and supported.

Note that consultation will often be wider than simply the key group, but that it is essential to communicate very early with the identified key stakeholder group. The ideal way to engage in this consultation would be to hold workshops and focus groups with the stakeholder group prior to issuing a formal consultation document, so that concerns and objectives can be answered effectively in advance. Stakeholder ideas and input can then be usefully incorporated into final plans that are then formally consulted on.

The chronology of the different steps of reform is relevant to the political success of the package. For example, to institute a commercial parking levy
without first initiating plan changes to remove minimums could generate opposition from landowners who feel they are required to pay for parking that the Council obliged them to provide in the first place. Developments that have been recently consented under the previous rules may be resentful that the rules will be changing, and it could be useful to engage these developers early on as well to inform them as to why the rules are changing and how they might benefit from the new rules now and in the future. The same holds true of some changes to developer contributions, though a special streamlined process for providing less parking and more alternative transport options can be instituted by the Council in parallel with a new more sophisticated developer contribution scheme while the plan change process is running its course.

<table>
<thead>
<tr>
<th>Proposal</th>
<th>Key Target Stakeholders</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Initiate Plan Changes to remove minimums</td>
<td>Council Staff Developers &amp; Land Owners (Property Council) Professional Consultants</td>
<td>It is essential to engage developers and property owners early to secure their understanding of and support for the reduction in compliance costs.</td>
</tr>
<tr>
<td>2 Commercial Parking Levy</td>
<td>Land Owners (Property Council) Developer Contributions Developers</td>
<td>These policies can be implemented independently of one another or at the same time, but should follow changes to the DP.</td>
</tr>
<tr>
<td>3 Parking Management Strategies</td>
<td>Residents and Business Owners Professional Consultants</td>
<td>Leaving the bulk of the implementation of parking management strategies (especially pricing parking) until after district plan changes have been initiated means that the community will already be perceiving the benefits of improved travel options and increased development in key centres.</td>
</tr>
</tbody>
</table>

The package of parking management strategies can be rolled out subsequent to initiating District Plan changes, and it will be helpful to leave consultation about some potentially emotive parking management strategies (especially the eventual introduction of priced parking to new areas) to a later date when the public have already begun to perceive the benefits of additional development in town centres and improved transport options.

That said, as there is already priced parking in the CBD, if the Council would like to implement some strategies sooner (such as replacing time restrictions with pricing), this should be used as an opportunity to introduce new more convenient meters and demonstrate to the public how parking management can increase the availability and convenience of parking.

Examples of Successful Parking Reforms
In New Zealand, Waitakere City is an excellent example of a how parking reform can be successfully implemented with the support of a wide range of stakeholder groups.
Waitakere City Council (WCC) commenced by undertaking numerous detailed parking surveys of key town centres, which identified the totally supply of and demand for parking. These surveys demonstrated a significant oversupply of parking relative to demand, and an undersupply according to their District Plan requirements. This data motivated the case for a Strategic Parking Report (SPR) that researched and recommended changes to the district plan. As part of the Strategic Parking Report, an international parking and travel demand expert was brought to New Zealand for a series of meetings with council staff and elected officials. His presentations were filmed so they could be used again in future consultation meetings. These meetings helped inform staff and elected officials of the rational for the approach recommended in the SPR, as well as giving them an opportunity to raise issues and questions.

WCC began discussing the implications of changes to the district plan with developers and other key stakeholders, including the Property Council early on, and sought feedback from all interested parties on three options for a general approach to changes to the District Plan, with a preferred option indicated. That feedback was used to inform both the plan changes and final development of the specific town centre parking plans.

This communication strategy will continue through all future steps in the roll out of the parking reform measures WCC has chosen to adopt. There is a strong need for an education and marketing campaign to inform the entire process of developing and implementing parking management strategies, to ensure that affected stakeholders fully understand the issues posed by parking. Some of the new institutional structures, such as TMAs, will also allow ongoing public participation in the process of parking management. The enormous opportunities presented by parking reform stand to benefit all stakeholders, and there is thus no reason why public acceptability should be a serious barrier to implementation of district plan changes, new ratings and contributions policies, and parking management plans.
Appendices

Appendix 1: Modelling Parameters and Assumptions

Residential and Employee Growth Modelling

On-Street and Off-Street parking demand in the CBD were modelled into 2044 by integrating modelled residential and employment growth with current parking occupancy. Past residential growth rates in the CBD were calculated from the 2001 and 2006 Census. Future residential growth in the CBD was estimated to be 25% of future population growth, that is, 50% of the 50% future growth to be accommodated through the regeneration of existing town centres, from the Hamilton Urban Growth Strategy. This growth was calculated in household units, taking into account the average household size in the CBD and Hamilton East areal units. This growth was assumed to be linear in nature, and is shown in Figure 13.

![Figure 13: Modelled Households Growth in Hamilton CBD and Hamilton East Area Units (Black points are estimated, red points are Census statistics)](image)

Employment growth rates was estimated based on 2000 and 2006 figures, coupled with estimated employee numbers in Hamilton CBD and Hamilton East in 2036. A logarithmic growth model was calculated, which acts to front load most of that growth in the shorter term, before stabilising in the longer term. This growth rate is shown in Figure 14.
Figure 14: Modelled Employee Growth in Hamilton CBD and Hamilton East Area Units (Red dots indicate Census and projected points, blue points indicate modelled growth points)

Future on-street parking demand was calculated based on an employee, residential and visitor component. Residential parking demand is not residents, but rather the traffic associated with residential activity, such as trades-people, deliveries, etc. This was estimated as one trip per household per day, spread evenly in probability over the 9am-5pm period. Thus, residential traffic activity contributes a ‘flat’ component to the total traffic, and is contingent on the total number of households. Employee parking demand was calculated as a function of the total number of employees, modified by the private vehicle mode share and number of passengers per vehicle. Mode share was held to be 82.2%, with an average of 1.2 passengers per vehicle. Visitor parking demand comprised the remaining component of existing demand not accounted for employee or residential parking activity, and future growth of visitor parking demand was modelled as a function of growth in residential and employee growth over the 2009-2044 period, given the most visitor activity in the CBD (such as shopping) can be attributed to the employment or residential centres there. Future off-street parking demand was calculated in much the same way as on street parking, except that the residential activity component was not included; it was assumed that most parking demand for residential activity is short term, such as home deliveries, and would thus likely to be taken up in on-street capacity rather than off-street capacity.
Appendix 2: Data Collection Guidelines

The new approach to parking management will require a much greater focus on collecting data. This section outlines the rationale for this and principles of data collection that will need to be undertaken by the Council to achieve the benefits outlined in previous sections.

The Need to Collect Data
The recommended parking reforms aim to create a parking environment that provides consumers with transparent travel and lifestyle choices. That is, consumers should be allowed to choose travel and lifestyle options in an economically neutral environment that directly rewards people for making good choices.

To achieve a parking environment that is consistent with the principle of consumer choice we have recommended the removal of minimum parking requirements from the District Plan. The expected increase in demand for public parking should then be managed using measures such as time-limits and prices.

Deploying these measures effectively, however, requires accurate and up-to-date information. More specifically, the management measures need to be responsive to people's demand for parking. Studies suggest management measures aim to keep parking utilisation around the 65-90% level (Litman, 2006a).

This level of utilisation ensures available parking resources are well-used, while providing sufficient opportunities for circulating vehicles to park quickly and conveniently. Accurate and up-to-date data will help HCC tailor management measures, such as time-limits and prices, in a way that ensures high utilization of parking resources while reducing risks of over-saturation.

Management measures should therefore be allowed to vary in response to changing demands across the city and the across the day. Clearly, access to complete, quality data plays a central role in determining where and how parking management practices should be implemented, but also can be used to evaluate the effectiveness of management strategies.

The collection of good quality data is therefore vital for an adaptive approach to parking management. The following section introduces types of data and discusses how this data is best collected.

Parking Performance Indicators
Parking management aims to ensure parking resources are well-used but not over-saturated. The utilisation of parking (measured in percentage terms) is therefore the primary performance indicator. Parking utilisation is calculated simply by dividing the parking supply by the parking demand for a particular area or time of day.

The optimal level of utilisation is 85%, although anywhere between 65-95% is considered reasonable, at least until such time as data or information suggests otherwise. Where utilisation is at the high end of this range then stronger
additional parking management measures should be implemented to bring demand back towards the optimal point.

We note that while time-limits are a useful parking management tool, they do discourage longer high-value trips. For this reason, the use of time-limits is not recommended below P180. Instead, below this point prices becomes the preferred management tool. Utilisation is the key performance indicator because it encapsulates how much parking is supplied and how well it is used. Calculating parking utilisation requires knowing:

**Parking Supply:** Requires an inventory of available parking resources. Parking supply is often aggregated into zones in order for analyses to be performed. Those spatial zones need to be clearly defined and explained, and appropriate for comparisons. Zones of approximately 2-5 hectares are appropriate depending on the prevailing density. Within these zones the parking supply also needs to be delineated in terms of whether they are on-street or off-street time, public or private, and restricted or metered (and if so what pricing structure is applied). Inventories of parking supply are usually best collected immediately prior to undertaking demand surveys (discussed below).

**Parking Demand:** Requires a survey of available parking supplies to determine how they are used. Surveys are typically undertaken to pick up variations in demand across time and space. Temporal variations occur both on short and long time scales, such as across the day and across the year. Parking demand data needs to highlight where people are choosing to park and also at what times that demand is occurring. Comprehensive information on parking demands should also be collected at regular intervals and at least every 2-3 years. In between these comprehensive surveys demand for priced parking can be somewhat back-calculated from parking revenues.

The supply of parking is often illustrated spatially, as shown below for Pukekohe town centre.

![Figure 15: Map of Parking Supply – Pukekohe town centre, Franklin District](image-url)
The utilization is then calculated for different types of parking in different areas of the city at different times of the day. This level of delineation is the key input determining when and where parking management measures shall be introduced and/or amended.

While utilisation provides a useful overall picture to inform the deployment of parking management measures, other performance indicators that should also be considered. We also suggest that HCC also monitor the following indicators:

- **Duration of stay**: Describes the length of time that vehicles are parked and is an important indicator of parking performance. Calculating the duration of stay provides important insight into where commuters are parking.
- **Turn-over**: Describes the rate at which car-parks are accessed by different users. Turn-over is related to duration of stay, although is fixed to a particular car-park rather than a specific vehicle, which is often of interest to shop-owners.
- **Shifting**: Describes the number of times vehicles are parked. Shifting often occurs where people try to avoid time-limits. Where high rates of shifting are observed there may be a need for either increased enforcement or to replace time-limits with prices.
- **Revenue**: There are several indicators of financial performance, such as revenue per vehicle or per hour. Revenue can also be compared to the opportunity cost of providing parking to identify the level of subsidy, which should ideally reduce over time.

### Methods of Data Collection

On-the-ground surveys are the preferred method of data collection. These proceed by recording number plates of parking vehicles in a table, where the rows of the table represent the individual car-parks and the rows of the column represent the time of day, as illustrated in the table below. This provides information on the duration for which vehicles are parked. Surveys have the advantage of being able to take into account signage indicating restriction conditions, including time restrictions, disabled parking and loading zones, as well as instances of illegal parking. Surveys are especially suited to inner city areas where there is structured parking. While surveys require intensive organisation, they tend to provide good data at a reasonable price.

#### Table 1: Typical Parking Survey Form

<table>
<thead>
<tr>
<th>Car-park</th>
<th>8:00 a.m.</th>
<th>9:00 a.m.</th>
<th>10:00 a.m.</th>
<th>11:00 a.m.</th>
<th>12:00 p.m.</th>
<th>1:00 p.m.</th>
<th>2:00 p.m.</th>
<th>3:00 p.m.</th>
<th>4:00 p.m.</th>
<th>5:00 p.m.</th>
<th>6:00 p.m.</th>
<th>7:00 p.m.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<tr>
<td>2</td>
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<td></td>
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<tr>
<td>3</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
Aerial surveys are also sometimes used to collect parking data. These are mainly used in low-density areas that do not have structured parking, or where access to private off-street parking is not feasible. Aerial surveys have the advantage of being able to very quickly ascertain the parking supply and demand in a large area. However, because the movements of individual vehicles are not recorded, aerial surveys provide less information on the duration that vehicles are parked. It is possible to derive this information by recording number plates of vehicles entering and exiting the site, although this incurs additional expense. Aerial surveys are only likely to be more cost-effective when surveying large areas of land.

- Revenue data from on- and off-street parking is important for a number of reasons:
  - Firstly, for publicly owned and operated facilities these data are necessary to provide a transparent account of the revenues and income gained by local authorities from the services that they provide to the public. Additionally, Council can transparently indicate what proportions of parking revenue will be spent on specific projects to improve public space and amenity, or contribute to other transport related outcomes.
  - Revenue data provide an informative illustration of the effect of changes in parking management on the use of parking resources. Revenue information can be used in ‘before/after, control/impact’ models that allows council officers to gauge the effect of new management practices on consumer patterns against historical trends.
  - Revenue data can be used to test the efficacy of parking management practices – especially differential pricing strategies – and whether or not those practices (price levels) need to be altered to better cater to demand. This is a key feature of adaptive management, which is central to effective parking management plans.

Parking revenues can also be used to provide data on parking demand. This requires that the revenues earned in a particular area be recorded at the same time as surveys are undertaken. The revenue earned per vehicle-hour parked (which is determined from surveys) can then be back-calculated. This value may then be used to calculate how parking demands vary in the future. The advantage of this measure is that it provides the ability to make consistent estimates of parking demand across the year.

We also note that at some point in the future it is probably worth upgrading to more sophisticated payment machines. Modern machines provide a number of key advantages:

- **More convenient payment mechanisms:** Many machines now provide change as well as accepting payment by notes, credit card, and mobile phone.
- **Advanced communications:** Machines communicate wirelessly and identify when they are full of coins or requiring maintenance.
- **Detailed information:** Modern machines record detailed information on each transaction.
- **Fewer machines:** One machine serves several carparks, reducing obstacles on the footpath and collection costs for HCC.
The advantages of modern parking machines are also likely to save more money on collection costs in all but the most low turnover sites. By providing detailed information on parking revenues they will also over time reduce the need for on the ground surveys. User convenience is also paramount, as it is often not the fact of paying for parking, but the inconvenience that people most object to.

**Issues and Costs of Data Collection**

Some on-street and off-street parking areas are not delineated into individual bays. Surveying parking supply and demand is subsequently more difficult. Parking supply in on-street areas can be estimated by simply involves dividing the total length of available kerb by 6m (where fractions are rounded down to the nearest integer). For unmarked off-street areas it is often necessary to estimate the available parking assuming 3 metres width per vehicle. Aerial surveys may provide an easy way of determining the parking supply in such situations.

Gaining access to private off-street parking facilities can be problematic. Private land owners may be unwilling to allow Council to survey the parking supply or demand. For uncovered parking, this capacity may be possibly recorded by observing the parking area from an adjacent public area or using aerial surveys. For more recent developments parking capacity may be obtained from information submitted with the resource consent application. Again, a commercial parking levy would lessen the importance of accessing private off-street parking areas.

Demand and occupancy data should ideally be collected every 5 years, or more frequently in areas of high demand and/or when substantial development occurs. Where parking management measures are changed, it is important to undertake additional surveys to gain an understanding of their impact. This may also allow the derivation of local elasticities of demand with respect to changes in the price and/or time-limit applied to parking in Hamilton.

We have estimated the costs of data collection based on the following assumptions:

- There are a total of 17,250 car-parks in the CBD (14,100 off-street and 3,150 on-street)
- Each surveyor can survey 250 car-parks per hour at a cost of $20/hour
- Surveys are undertaken on a Tuesday, Thursday, and a Saturday
- Car-parks are surveyed once per hour from 9am to 5pm.

On the basis of these assumptions, the cost of surveying these car-parks is approximately = (17250/250) surveyors x 3 days x 8 hours per day x $20 per hour = $33,000. Additional time will be required for setting up and monitoring the surveys, suggesting that the total cost is likely to be in the order of $40,000. When undertaken every 5 years the annual costs of $8,000 for these surveys is equivalent to approximately one week of parking revenue. Instead of undertaking one large survey every 5 years it is probably more effective to divide the CBD into five areas and survey one area every year. This would reduce the size of the survey and make it easier to manage, as well as ensure the council was more up-to-date with year to year trends.
Appendix 3: Action Plan Summary

Areas for Action

<table>
<thead>
<tr>
<th>Coordination with other Action Plans</th>
<th>Parking</th>
<th>Safety</th>
<th>TDM</th>
<th>Active Modes</th>
<th>Activity</th>
<th>Passenger Transport</th>
<th>Network</th>
<th>Cost</th>
<th>Funding*</th>
</tr>
</thead>
<tbody>
<tr>
<td>P01 CityHeart – River Road Car Park</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>$1M</td>
<td>N</td>
</tr>
<tr>
<td>P02 District Plan review of minimum parking standards</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$30K</td>
<td>N</td>
</tr>
<tr>
<td>P03 Electronic handheld ticket machines renewal</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>$228K</td>
<td>LF</td>
</tr>
<tr>
<td>P04 Investigate feasibility of establishing a joint parking authority</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$50K</td>
<td>N</td>
</tr>
<tr>
<td>P05 Knox Street Car Park Stage 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$3.4M</td>
<td>LU</td>
</tr>
<tr>
<td>P06 North CBD Commuter car park</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$900K</td>
<td>LU</td>
</tr>
<tr>
<td>P07 Parking Information System</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$50K</td>
<td>N</td>
</tr>
<tr>
<td>P08 Parking meter renewal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$228K</td>
<td>N</td>
</tr>
<tr>
<td>P09 RT renewals for parking enforcement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$15K</td>
<td>LF</td>
</tr>
<tr>
<td>P10 Data collection and consultation to inform policy development</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$50K</td>
<td>N</td>
</tr>
<tr>
<td>P11 Strategic planning, develop parking policy and confirm direction.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$30K</td>
<td>N</td>
</tr>
</tbody>
</table>

* LF = included in LTCCP as funded, LU = included in the LTCCP but unfunded, N = funding source unknown

Parking Management Action Plan Summary

Access Hamilton is one of Hamilton’s eight key strategies that assist the City Council to achieve its strategic objectives and guide the city’s development and transport infrastructure planning over the next thirty years. It is a high-level integrated transport strategy that identifies the strategic transport aspirations of the city to deliver Council’s objectives, and contributes to national goals and regional priorities.

Access Hamilton will meet the changing travel demands of the city by providing an affordable, safe, responsive and sustainable transport system.

The Access Hamilton strategy focuses on Hamilton’s transport partners working together to improve access and considers transport in five ways:

- Working together to improve access
- Planning for the future
- Understanding our choices
- Managing and adapting for the future
- Providing for the future

This Action Plan

The Parking Management Action Plan presents areas for action relating to investigation, strategic planning to optimise utilisation and investment, integration of parking with land use and other transport activities, management and information systems, and car park infrastructure.

Parking availability and pricing has a significant impact on the city’s economic, social and transport environment. The objective is for parking in Hamilton to support the city’s future economic and social performance.

The action areas proposed include:

- Data gathering and analysis
- Engaging and educating stakeholders
- Developing robust and effective policies and management practices
- Integrating parking with land use and other transport activities
- Investment in information technology and parking infrastructure
# Issues

Hamilton currently experiences a number of parking related issues, including:

- An inefficient and fragmented parking supply in the Central Business District
- Commuter spill-over at the edge of the city centre
- Spill-over in peripheral areas around other parking attractors,
- The effects of minimum parking requirements on the land transport network and economic well-being of the city.

# Objectives

- An appropriate and robust parking framework that will enhance the city’s economic success
- A market for parking resources with support strategies to facilitate better parking management
- A close working relationship with key stakeholders including commercial operators, retailers and developers to achieve the best outcome
- Parking standards that achieve Hamilton’s economic development, transport, environmental and social objectives
- Optimise parking resource availability and revenue by pricing parking where utilisation exceeds 70%
- Manage inappropriate parking in residential areas

# Approach

Hamilton’s approach is based on best practice parking management guided by the principles of choice, efficient utilisation; user information; and flexibility, recognising the relationships with economic activity, land use and travel patterns.

The table below outlines actions and their implementation for parking in Hamilton. The project numbers refer to Access Hamilton projects as described in the table at the back of this document and included in the Integrated Transport Plan.

<table>
<thead>
<tr>
<th>Area</th>
<th>Objective</th>
<th>Outcome (by 2019)</th>
<th>Output</th>
<th>Success measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contributing to travel demand management (TDM01)</td>
<td>Lower travel demand particularly in town centres</td>
<td>Promoting parking-related travel demand management, particularly in town centres</td>
<td>Available and effective parking information and electronic travel information, to minimise overflow and spill-over parking, and support Workplace Travel Plans,</td>
<td>Traffic and travel data</td>
</tr>
<tr>
<td>Investigation, data collection, consultation and education (P04, P10, TDM03, TDM04)</td>
<td>Rapid implementation and realisation of benefits of parking management measures</td>
<td>Input into strategic direction Practical implications are well-understood by planners, engineers, retailers and developers in the public and private sectors.</td>
<td>Information to inform policy development and implementation Education programme, to engage and educate stakeholders</td>
<td>Better understanding of parking patterns and needs Community participation</td>
</tr>
<tr>
<td>Managing access to parking resources through facilitating parking brokerage services, and provide appropriately located parking facilities based on the adopted parking strategy.</td>
<td>Inclusive parking management arrangement 85% utilisation of parking spaces and identifying opportunities for redevelopment of underutilised and/surplus parking areas.</td>
<td>Collaborative parking management authority 85% utilisation Programme of action for underutilised/surplus parking areas</td>
<td>Community participation Car park utilisation, area of underutilised parking space</td>
<td></td>
</tr>
<tr>
<td>Strategic planning to optimise utilisation and investment (P02, P11)</td>
<td>Confirm strategic direction for parking consistent with Hamilton’s strategic objectives, including a vibrant city centre and consolidation around existing nodes</td>
<td>Robust parking policy and confirmed direction Investment plan</td>
<td>Adopted parking policy Budgeted projects in LTCCP</td>
<td>Adopted parking policy</td>
</tr>
<tr>
<td>Investigate removing minimum parking requirements (particularly CBD and suburban centres).</td>
<td>Efficient, effective and sustainable development</td>
<td>Revised District Plan standards</td>
<td>Development monitoring, user satisfaction</td>
<td></td>
</tr>
<tr>
<td>Integration of parking with land use and other transport activities</td>
<td>Coordinate transport and parking related services in Hamilton’s CBD and outlying parking attractors</td>
<td>Matching strategy, policy and services and guidance/information for key parking attractors and traffic generators</td>
<td>Established Traffic Management Authority: (EW, University of Waikato, Waikato Hospital and town centres)</td>
<td>Operational Traffic Management Authority</td>
</tr>
<tr>
<td>Develop directional signs to ensure existing parking facilities are well used.</td>
<td>Existing parking facilities are well used.</td>
<td>Information/directional sign programme</td>
<td>Car park utilisation</td>
<td></td>
</tr>
<tr>
<td>Management and information systems (P03, P07, P08, P09)</td>
<td>Manage price to achieve optimum utilisation. Prices should be used to manage demand for parking where utilisation exceeds approximately 70%.</td>
<td>Parking charges lead to 85% utilisation</td>
<td>Parking pricing policy Parking price management to achieve utilisation targets</td>
<td>Utilisation, user satisfaction, TDM outcomes</td>
</tr>
<tr>
<td>Car park infrastructure. (P01, P05, P06)</td>
<td>Managing access to parking resources through facilitating parking brokerage services, and provide appropriately located parking facilities based on the adopted parking strategy.</td>
<td>85% utilisation of parking spaces and identifying opportunities for redevelopment of underutilised and/surplus parking areas.</td>
<td>85% utilisation Programme of action for underutilised/surplus parking areas</td>
<td>Car park utilisation, area of underutilised parking space</td>
</tr>
</tbody>
</table>
Appendix 4: Current Policy and Planning Framework

This section outlines the national, regional, and local planning and policy framework relevant to parking management. This framework includes a number of documents related to urban design, land use development, and transport planning.

National and Regional Planning and Policy Documents

The national and regional planning and policy documents set out below consider urban design, land use development, and transport planning. The impact of parking management on the objectives within those documents is discussed.

The Local Government Act 2002
The Local Government Act sets out the responsibilities and powers of local government and these powers support the use of car parking management strategies. Parking management is a fundamental avenue to advance these goals by promoting accessibility, economic development, reducing automobile dependence and encouraging use of alternative modes of transport while providing for better use of parking related resources.

Resource Management Act 1991
Parking management has fundamental impact on specific key sections of Part II of the Act. At the highest level, parking management can reduce land consumption and promote alternative modes of transportation, both central to principles of sustainability and resource conservation. Further, more compact and efficient land use patterns with allows for more efficient resource utilisation, as well as a reduction of externalities associated with land use and transport.

Urban Design Protocol 2005
Parking management supports the objectives of the UDP by enabling quality urban design that places a strong emphasis on walking, cycling and public transport, managing travel demands and providing a sustainable choice for integrated transport modes. This encourages diverse urban environments and a wider array of development types resulting in unique identities of a town, city or neighbourhood, and strengthens the positive characteristics that make each place distinctive. It also results in reduced automobile dependence; reduced vehicle congestion; intensified development; and consolidated parking resources.

The underlying objectives of the NZ Transport Strategy and the Land Transport Management Act are to ensure environmental sustainability, assist economic development, assist safety and personal security, improve access and mobility, and protect and promote public health. Parking management supports these objectives by prioritising access to parking resources. This in turn mitigates the impacts of private vehicles, provides a mechanism for sustainable transport, and therefore promoting economic development.
**Sustainable Transport Discussion Paper 2007**
The Sustainable Transport Discussion Paper aims to guide implementation of the NZ Transport Strategy and manage the contribution of transport emissions towards greenhouse gases. Parking management supports the vision of the STDP by promoting the integration of land use and transport, and user information ensures efficient management of available parking resources. In addition, economic neutrality aims to charge road users the true costs of parking.

**Future Proof – Draft Growth Strategy and Implementation Plan 2009**
The Draft Growth Strategy and Implementation Plan identifies key growth issues in city centres, such as the development of large scale retail and residential projects away from the traditional town centres, design of quality city centre public spaces, and access to public parking. Parking management increases the resilience of urban centres to competing retail nodes in remote locations by allowing greater flexibility for development and operation of parking facilities and increased quality of the public realm through a reduced focus on the automobile, thereby helping maintain healthy urban centres. By providing easy and enjoyable access, parking management helps town centres to maintain a competitive edge against outlying retail areas. Parking management offers the additional benefit of supporting public transport and alternative means of accessing town centres, which in turn serve to reduce traffic congestion.

**Transit Regional Management Issues 2007**
Strategic parking management measures are expected to result in significant improvements to the operation of the state highway network through discouraging the use of private vehicles for low priority trips or for those that are easily replaced by alternative transport. In many respects, the rapid and comprehensive application of the measures discussed in this report may be sufficient to avoid the need for substantial upgrades to the state highway network, particularly when considered in conjunction with the cumulative effects of road pricing.

The LTCCP notes that transport is an increasing concern for residents, and that a well planned, efficient and accessible transport system is a central goal in creating a sustainable economy. Parking management increases the efficiency of parking resources and related economic benefits central to the LTCCP. Reduced automobile dependency and promotion of alternative modes of transport (greater choice) are outcomes of parking management.

**Local Planning Framework**
Hamilton City Council has a range of policies setting the direction for its future growth, principally the Vision Hamilton strategy framework. There are many sub-policy documents focusing on economic development, physical infrastructure, development, and environmental and social well-being. While...
Parking is fundamentally related to many of the goals espoused in the framework, it is given little attention in detail.

Below is an explanation of how objectives of various Hamilton City Council planning and policy documents (including the PDP) are undermined by minimum parking requirements. The PDP itself is contradictory in this respect, as discussed in further detail below.

**Proposed District Plan**
The Proposed District Plan (PDP) aims to evolve the current District Plan to the point where it better supports Hamilton’s strategic direction. The PDP is well advanced through the statutory process and therefore Hamilton City Council places significant weighting on this document. The PDP, like almost all other District Plans throughout New Zealand, contains generous minimum parking standards that specify the number of car parking spaces that must be provided for various types of buildings, commonly referred to as “minimum parking requirements.”

As discussed previously, District Plan parking standards tend to be generous and applied with little flexibility. In most situations the same number of parking spaces is required regardless of the development’s proximity to public transport, the type of occupants (such as higher or lower-income residents), or the price of parking. Generous parking supply increases the costs of urban development, stimulates sprawl and encourages increased vehicle ownership and use. This in turn contributes to traffic problems such as congestion, accidents, energy consumption and pollution emissions. Paying cash-in-lieu of providing on-site parking spaces is only permitted in the Hamilton city centre. While this policy provides for greater flexibility, it still does not reduce the overall compliance costs associated bundling the costs of parking into the costs of development.

Given that car parking areas have a fundamental impact on the urban form of centres; it is important that policy changes are made throughout the District Plan and not just within the sections that deal with car parking. In this way, the planning provisions contained within the PDP form part of a comprehensive framework, so that any subsequent plan changes can contribute to more effective parking outcomes. Further, should the planning provisions be challenged by a developer at a subsequent stage, there is a robust framework in place to allow the integrity of the plan provisions to be defended.

**Access Hamilton**
The Access Hamilton integrated transport strategy seeks to deliver a safe, convenient, accessible, efficient, resilient and sustainable transport system to the residents of Hamilton City. Minimum parking requirements undermine these objectives by providing distorted subsidies for private motor vehicle use. This undermines modal shift to passenger and active modes. They also decrease the efficiency and density of land uses by fragmenting urban form resulting in an even greater reliance on private motor vehicles.
Cityscope
This document outlines the way design processes should interact and be applied in Hamilton in order to guide the city towards a sustainable, quality urban environment. Minimum parking requirements reduce the efficiency of land uses in the form of reduced walkability and increased vehicle trip generation. This, in turn, increases the costs of development by forcing internalization of parking costs; also resulting in reduced creativity in development designs (i.e. less public amenity). Parking management strategies can support projects such as sustainable development, CBD regeneration, heritage strategy, walkability, design quality, District Plan review, growth nodes, public open space, and circulation.

Economic Development Study
This study creates an economic vision for Hamilton as New Zealand’s leading centre for the research and innovation. Minimum parking requirements encourage the dispersal of economic activity to green-field areas, thereby constraining design options and reducing the attractiveness of built form for business locations. Collectively, these factors undermine local economies, particularly in town centres. Parking management strategies can support a thriving business environment, building on economic strengths, and attracting and growing talent, while also assisting in specific projects.

Environmental Sustainability Strategy
This strategy aims to define the changes needed to create a sustainable Hamilton. Minimum parking requirements undermine this objective by promoting an increase in car dependency and demand for land, and discourages use of more sustainable and energy efficient modes of transport. This results in an increase in per capita parking supply, leading to increased land consumption and stormwater runoff and contamination. Parking management can be used to influence indicators such as open space, infill housing rate, motor vehicle use, public transport, active transport, and air and water quality.

Hamilton Urban Growth Strategy
This strategy facilitates a move towards more choices for compact living environments in the existing city. Minimum parking requirements undermine the intent of this document by providing for limited opportunities for intensification, and in so doing constrain the regeneration of growth centres. This increases negative impacts of cars in dense town centres and growth corridors. Private car use is subsidised, and consequently there is lack of support for modal shift, which undermines the objective of residential growth around existing transport hubs.

Hamilton City Council’s Long Term Council Community Plan (2006-2016)
Minimum parking requirements undermine the objectives of the LTCCP by reducing intensification opportunities by subsidizing private car use, which in turn reduces a modal shift to more sustainable transport. They also encourage low value SOV travel (congestion). Parking management strategies support the LTCCP by providing for increased intensification and redevelopment opportunities, encouraging the use of more sustainable travel choices, removing
the contribution of parking to urban sprawl, and discouraging low priority travel.

**The Development and Financial Contribution Policy**

The Local Government Act (LGA) 2002 makes provision for territorial authorities, such as Hamilton City Council, to recover a proportion of increased infrastructure expenditure from developers through “Development Contributions”.

Parking costs passed onto Hamilton City Council by new/infill development will tend to relate to the provision of public parking facilities supporting commercial areas as well as maintenance of on-street parking facilities and the lost development opportunity that these areas present. While development specific parking requirements can be addressed in the CBD through pay in lieu of parking, this fee needs to be reconciled against the assessment of community infrastructure and transport categories of the DFCP.

There may be areas of Hamilton where the strict average funding approach is not supportive of parking management strategies. There is an opportunity for the DFCP to advance and promote parking management strategies by discounting some anticipated benefits (e.g. reduced parking demand freeing up more land for economically productive use or green spaces) against the DFCP assessment.

**Parking Control, Central Business District**

This Council Policy is an internal policy document specific to Hamilton City. The principal objective of this policy is to provide on-street parking in the Central Business District to maximise access to and enhance the commercial viability of the Central Business District, while ensuring that safety is not compromised.

A secondary objective of providing parking in the Central Business District is to generate funds. Funds are transferred to the Public Transport and Parking Reserve account as specified in the Council’s Public Transport and Parking Reserve Policy. We recommend this objective is modified to more fully explain the rationale for raising revenue from parking. A further policy states that the provision of on-street commuter parking in the Central Business District shall be restricted through the use of the time limits, to maximise the availability of shopper parking. Overall, parking control in the Central Business District aims to encourage turnover of parking space and shorter duration stays.

This Council policy is meant to provide for parking in the CBD and thereby support the community outcome of being sustainable and well-planned by ensuring easy access to services and facilities. The policy applies strictly to public parking areas and seems particularly targeted to on-street parking. There is no differentiation between public car park facilities and on-street parking. It is expected that the users of these two different types of parking facilities will have different characteristics and benefit from different management strategies. There may be a benefit if the policy is changed to reflect this. While the generation of funds is an important part of parking management there is a lack of detail in this policy which may in turn lead to a lack of sophistication in car park charging schemes. The goal of charging
should be to provide for revenue with a commensurate high level of operational efficiency and transparency.
References and Further Reading


CNU (2008), Parking Requirements and Affordable Housing, Congress for the New Urbanism (www.cnu.org); at www.cnu.org/node/2241.


MRSC (2005), Downtown Parking Solutions, Municipal Research and Service Center of Washington

Parking Reform website (www.parkingreform.org) promotes various reforms, particularly parking pricing with revenues returned to local communities and businesses.

PAS (2009), Parking Solutions: Essential Info Packet, Planning Advisory Service, American Planning Association (www.planning.org): at www.planning.org/pas/infopackets. These packets consist of compilation of related documents that provide practical information on various parking management strategies, suitable for use by planners and developers. These include:

- Parking Solutions (130 pages) includes six documents that describe modern approaches to parking management.
- Shared Parking (133 pages) includes more than thirty documents concerning shared parking, parking in-lieu fees, parking requirement reductions and exemptions, and downtown district special parking requirements.
- Green Parking Lot Design (66 pages) includes three documents that describe ways to improve parking lot environmental performance
- Permeable Pavement and Bicycle Parking (38 pages) includes five documents concerning the use of permeable parking lot pavement materials and five documents concerning bicycle parking requirements and design.


San Francisco (2009), On-Street Parking Management and Pricing Study, San Francisco County Transportation Authority (www.sfcta.org); at www.sfcta.org/content/view/303/149.


Todd Litman (2008), Recommendations for Improving LEED Transportation and Parking Credits, VTPI (www.vtpi.org); at www.vtpi.org/leed_rec.pdf.