Tunbridge Wells Borough Council, Kent County Council

TUNBRIDGE WELLS PARK AND RIDE FEASIBILITY STUDY

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Tunbridge Wells Borough Council, Kent County Council

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Background

WSP has been commissioned by Tunbridge Wells Borough Council (TWBC), working with Kent County Council (KCC), to study the feasibility of introducing Park and Ride (P&R) in the town, with particular consideration of the effects and necessary actions related to town centre parking.

WSP's approach is based on recognition of previous studies to consider traffic movements and sustainable transport options for Tunbridge Wells and its own completion of similar studies in other English towns and cities in recent years.

In terms of anticipated outcomes of the study, it should be noted that, in addition to the capital costs of creating P&R sites, P&R schemes in provincial towns and cities in the UK typically require some form of ongoing revenue support in order to provide a high-quality and attractive service.

Policy and Strategy

A review of all relevant borough and county transport policy documents has been undertaken to inform the study, with congestion and town centre parking being the two main subjects present in the local strategic and policy context. For example, a number of these documents indicate a desire for additional parking, such as:

- "Off street parking project" in the 5 year plan;
- objective 7 of the Transport Strategy "Provide suitable parking to support the borough's town centres" or the realisation of a need for extra off-street parking spaces to support anticipated growth of the town over the next 10 years; and
- the potential need for an additional 300 parking spaces in the south of the town in the future, as expressed in the Parking Strategy.

The overall strategic context also clearly highlights the need to differentiate markets such as commuters and shoppers when considering parking policies.

While the implementation of P&R could help tackle parking and congestion problems, and could mainly attract commuters, a P&R study conducted in 2014 concluded that the implementation of P&R would require radical traffic management changes which would likely be very unpopular with local residents and businesses, particularly those directly affected by proposals. Thus the implementation of P&R was not pursued at that time but is still referred to in the Transport Strategy for consideration in the medium term.

Traffic Conditions

Previous studies have identified A26 London Road and A264 Pembury Road as the most congested roads to access the town centre. However recent studies have highlighted a lack of further opportunities to increase capacity on these two main corridors significantly while nevertheless identifying opportunities for smaller-scale improvements.

The daily traffic flow data estimates published by the Department for Transport for 2016 show Pembury Road and Eridge Road as having the busiest daily traffic flows, closely followed by London Road. Implementing P&R along these corridors would therefore present a high chance to intercept major traffic flows.

Traffic surveys show that the vast majority of peak-hour traffic has a final destination in the town centre – this travel pattern is appropriate for P&R.

Interrogation of the census 2011 data reveals that:

- 82.5% of households in Tunbridge Wells own at least one car/van and this number has increased by 27% since 2001.
- Nearly half of the people who work in Tunbridge Wells live in Tunbridge Wells (49%), followed by 15% coming from the south, 14% coming from the north, 11% coming from the east and 7% coming from the west.

Across the town, there are 98 streets identified by TWBC that provide free on-street parking.

Park & Ride Demand

A stated preference survey (carried out in 2011 by TWBC) indicated a potential appetite for P&R service(s), with 54% of workers likely to use the facility if it existed. It also highlighted that increasing parking charges in town would encourage further demand for P&R.

Three sites have been shortlisted to conduct a detailed feasibility on potential demand for P&R targeting the three busiest traffic corridors. These are Tesco Pembury Road (allocated and Call for Sites, 395), land adjacent to Mabledon (Call for Sites, 445) and land adjacent to Eridge Road (Call for Sites, 137). For each potential site, a number of options have been considered in terms of route in the town centre such that the potential demand and number of buses needed to provide a frequency of service to match that demand can be considered and balanced.

It should also be noted that irrespective of route option, P&R is observed to work best where it provides a higher quality service than would typically be offered by the local bus network. Therefore, the following aspects are considered to be part of the quality standards to be set for any services in Tunbridge Wells:

- E-ticketing;
- Wi-fi;
- At-seat charging points;
- Leather seats;
- Enhanced driver training;
- Audio-visual next stop announcements;
- CCTV;
- Customer Charter (e.g. money-back guarantee); and
- Buses meeting at least Euro 5 emission standards.

A spreadsheet-based model, developed by WSP to support a number of P&R assessments in the UK, has been customised to estimate the results for each option. The P&R model splits demand in proportion to the changes in travel costs between different scenarios. The inputs into this are:

- Demand: Estimation of traffic with town centre as final destination;
- Costs: Cost of driving a car (including fuel, parking and time) versus cost of using a P&R service to complete the same journey; and
- Choices: Reflection of different mode perceptions such as convenience, comfort, perception of time.

P&R Model Results

The results of the P&R model, based on the parameters and inputs described in detail in the report, are as follows:

	Peak hour (8am – 9am) car demand for P&R	% of peak hour traffic	Total AM peak car demand (7 am – 10am)	Annual cost of operation	Annual surplus/ deficit	Capital expenditure for P&R facility	Cost per car	Estimated Parking revenue Loss
Pembury Road Route 3: to Rail Station via Council Offices	72	8%	185	£504,650	-£133,494	£ 2,181,147	-£1.17	£325,134
Pembury Road Route 2 : To Council Offices	59	7%	152	£504,650	-£211,923	£ 1,725,932	-£2.34	£258,782
Pembury Road Route 3: with Bus priority to Rail Station via Council Offices	77	9%	198	£504,650	-£124,950	£ 2,251,513	-£1.06	£336,065
Eridge Road Route 3: To Royal Victoria Place Shopping Centre via Council Offices	63	7%	161	£344,650	-£49,458	£ 3,566,171	-£0.54	£264,341

Eridge Road Route 2 : To Council Offices	51	6%	129	£264,650	-£39,707	£ 2,748,689	-£0.56	£204,160
Eridge Road Route 1: to Rail Station	39	4%	99	£264,650	-£104,880	£ 1,990,687	-£2.07	£148,364
London Road Route 4: to Rail Station	56	8%	155	£664,650	-£289,752	£ 4,271,810	-£2.56	£314,586
London Road Route 2: To Council Offices	43	7%	121	£664,650	-£380,167	£ 3,255,943	-£4.41	£239,963
London Road Route 1: to Royal Victoria Place Shopping Centre	30	5%	101	£384,650	-£157,062	£ 2,628,022	-£2.27	£193,987

Parking Demand

Using car parking demand data provided by TWBC and the charging regime information, it has been possible to calculate an estimate of the revenue which TWBC car parks generate on an annual basis and average month. This has been used to develop a simple parking charge elasticity model which considers the impact of a 10% increase on existing tariffs. This analysis considers the impact of such an increase independently of any P&R scheme in order to understand the baseline situation. Of course, if a P&R scheme were to be implemented simultaneously there would be an impact on the revenue generated.

Due to the nature of the data relating to season tickets which does not indicate the length of stay, the calculations made for the parking pricing model part of the study only relate to tickets sold on the basis of the number of hours of parking purchased, thus season tickets are excluded (although they are accounted for in the other sections, such as traffic flows and projected demand for P&R). For the purpose of the model, it has been assumed that all parking is paid for through the RingGo (pay by mobile method) and this is thus a conservative estimation of revenue since Pay and Display and Post Payment are generally more expensive.

Parking Model Results

The theoretical impact on demand for car parking in the town centre caused by a 10% increase in parking charges is set out below:

	Existing Demand	Demand with 10% Price Increase	Resultant Decrease
Annual Commuters	316,167	313,638	2,529
Annual Retail and Leisure	1,626,565	1,577,768	48,797
Average Monthly Commuters	26,347	26,136	211
Average Monthly Retail and Leisure	135,547	131,481	4,066

The revenue impact of the 10% increase with a shift away from parking is as follows:

	With Current Demand	With 100% Increase in Tariffs
Average Monthly Revenue August 2016 - July 2017	£439,505	£680,755
Average Monthly Revenue Increase	n/a	£241,250
Annual Revenue August 2016 - July 2017	£5,274,060	£8,169,064
Annual Revenue Increase	n/a	£2,895,004

It can be seen that a 10% increase would generate additional revenue in the order of £2.9 million per annum, however this does not consider the potential reduction in revenue which would arise if users (additional to those switching due to price increases) were to switch to P&R

Conclusions and Recommendations

Potential P&R sites in the town have been shown to be technically and operationally viable, with the financial viability being a matter of judgement for the funding authorities. In line with most P&R schemes in the UK, the results show that the development of one or more P&R sites would have to be a long-term initiative as part of an integrated approach to the management of the Council's parking estate due to the following key points:

- The peak hour traffic reduction on each of the corridors, could be as high as:
  - Pembury Road: 77 vehicles;
  - Eridge Road: 63 vehicles; and
  - London Road: 56 vehicles.
- The financial case for P&R requires both capital and ongoing revenue funding, with no individual option covering all of its operating costs;
- Assuming future P&R users are existing users of TWBC car parks, there would also be a net loss of car parking income to take account of in any business case;
- P&R can contribute to policy objectives, such as alleviating congestion and improving air quality as well as providing capacity to expand overall parking provision (to meet future needs) without occupying prime town centre space. The latter would be in support of TWBC's 5 Year Plan which includes an "Off street parking project" which consists of *providing additional off-street car parking in Royal Tunbridge Wells to support its economy and ensure visitors […] are able to stay in town as long as they like. Options will also be explored to provide additional off-street car parking within the town to accommodate tourism growth*;
- Indeed, the development of P&R at Eridge Road could help to improve the balance of parking spaces between the north and the south of the town;
- Any P&R facility will depend on the relative charge of car parks within the town centre. There is currently considerable variation in the charging regime across all Council-owned car parks and this could also be reviewed and streamlined as part of proposals to implement P&R facilities;
- Increased town centre parking charges could be used as a way of funding P&R operations, although this may have to be tailored to the car parks which would otherwise be used from the same corridor e.g. Crescent Road multi-storey car park in respect of Pembury Road;
- Options for P&R on Pembury Road and Eridge Road could be pursued further in order to examine key issues in further detail, such as site-specific projection of capital costs and route testing (e.g. running time, physical feasibility).
- As both Pembury Road and Eridge Road would provide P&R services which are more frequent than the existing local bus services (and for Pembury Road would be cheaper than the typical equivalent bus fare), the potential impact of P&R should be explored with relevant operators.

1

INTRODUCTION

INTRODUCTION

WSP has been commissioned by Tunbridge Wells Borough Council (TWBC), working with Kent County Council (KCC), to study the feasibility of introducing Park and Ride (P&R) in the town, with particular consideration of the effects and necessary actions related to town centre parking.

The specific aim of the study is to determine if the combined set of measures for P&R and parking could:

- Decrease single occupancy vehicle car trips into the town solely for rail commuting from Tunbridge Wells Rail Station
- Decrease long stay parking use for commuters in the centre of town/edge of centre
- Decrease long stay parking in the town centre from the local area (define distance in km) when walking, cycling, public transport, P&R provide a comparable or improved alternative in terms of time/cost
- Decrease the volume of traffic in the town centre and on routes into the town
- Direct drivers to car parks with spaces in the town centre to remove space-hunting
- Be a viable option for public transport and parking management in Tunbridge Wells

In particular, two primary corridors have previously been highlighted as being the most likely candidates for P&R – A264 Pembury Road (designated P&R site at Tesco, Pembury) and pre-identified A26 London Road (heading south into the town) at Mabledon. Other principal corridors will be considered in light of the findings for the primary corridors.

WSP's approach is based on recognition of previous studies to consider traffic movements and sustainable transport options for Tunbridge Wells and its own completion of similar studies in other English towns and cities in recent years.

In terms of anticipated outcomes of the study, it should be noted that, in addition to the capital costs of creating P&R sites, P&R schemes in provincial towns and cities in the UK typically require some form of ongoing revenue support in order to provide a high-quality and attractive service.

1 REVIEW OF EXISTING STRATEGY AND POLICIES

1.1.1. In considering longer-term developments and investment in public transport infrastructure, it is important to take account of the policy context, which will shape the likely demand and supply of services over the lifetime of the asset(s). The following policy and strategy documents have therefore been reviewed as part of the P&R feasibility study. The most relevant elements are summarised below.

1.2 KENT LOCAL TRANSPORT PLAN 2016-2031

1.2.1. In this document, KCC identifies the transport priorities and infrastructure requirements for the county to support housing and economic growth in the area for the period between 2016 and 2031. The overall aim of the LTP is to "*deliver safe and effective transport, ensuring that all Kent's communities and businesses benefit, the environment is enhanced and economic growth is supported*" with defined outcomes as follows:

- Economic growth and minimised congestion;
- Affordable and accessible door-to-door journeys;
- Safer travel;
- Enhanced environment; and
- Better health and wellbeing.

1.2.2. The Local Transport Plan recognises that Tunbridge Wells suffers from severe congestion problems *especially at peak times. The traffic congestion mostly impacts:*

- the A26, between Tonbridge and Royal Tunbridge Wells town centre, particularly in Southborough;
- the A264, between Pembury and the town centre; and
- the A228, at Colts Hill.

1.2.3. This congestion is believed to be due to the strength of Tunbridge Wells as a sub-regional employment and service centre, as well as a location of numerous high performing secondary schools that have wide catchment areas.

1.2.4. In terms of proposed schemes to address the transport priorities for Tunbridge Wells, transport improvements would include:

- A264 Pembury Road capacity improvements;
- A228 Colts Hill relief scheme;
- Paddock Wood junction improvements: Badsell Road/Mascalls Court Road and Colts Hill roundabout;
- Dualling of A21 between Kippings Cross and Lamberhurst;
- Further phases of the North Farm Highway Masterplan;
- Tunbridge Wells town centre improvements, including public realm phase 3 (Mount Pleasant to Station);
- Tunbridge Wells Cycling Strategy priority schemes (including A26 cycle route to Tonbridge, 21st CenturyWay, A21 non-motorised user routes and related links);
- 20mph schemes in residential areas, towns and village centres; and
- Enhancement to Medway Valley train services to improve connectivity between Tunbridge Wells and Maidstone.

1.3 KENT ENVIRONMENT STRATEGY

1.3.1. Published in March 2016, the strategy emphasises the need to ensure "*growth is managed intelligently, providing much needed economic benefits, whilst still protecting and enhancing our natural and historic environment to create and sustain communities that are vibrant, healthy and resilient*".

1.3.2. In respect of transport challenges, although the need to invest in transport infrastructure is recognised, more sustainable modes are promoted as "*A shift to active travel, such as walking and cycling, and an increase in use of public transport can help alleviate congestion pressures, improve air quality and extend the capacity of our transport infrastructure over a longer timeframe*". This approach underpins *priority 7: Ensure sustainable access and connectivity for businesses and communities* and in particular *sub-priority 7.2 Support our residents, businesses and communities in being well connected to services, with sustainable and active travel options* and links to other relevant plans and strategies such as the Local Transport Plan (as described above).

1.3.3. The Sustainable Transport and Accessibility targets were under review at the time of the strategy's publication but were expected to focus on monitoring modal shift to sustainable and active travel options, such as:

- School and business travel survey data;
- Rail station footfall;
- Traffic counts; and
- Bus usage and smarter challenge survey.

1.4 KENT ACTIVE TRAVEL STRATEGY

1.4.1. Active travel is defined as meaning walking or cycling as a means of transport in order to get to a particular destination such as work, the shops or to visit friends. It does not cover walking and cycling done purely for pleasure, for health reasons, or simply walking the dog. Active travel can be for complete journeys or parts of a journey and can contribute to improved health, reduced traffic congestion, reduced pollution and financial savings to the individual and businesses.

1.4.2. As the strategy notes, "*Many people use active travel for part-journeys that also use public transport, for example walking or cycling to the station or bus stop. Therefore, transport measures to shift private car journeys to public transport can lead to increases in rates of active travel*".

1.4.3. The beneficial outcomes of active travel are intended to be achieved through the following actions:

- Action 1: Integrate active travel into planning;
- Action 2: Provide and maintain appropriate routes for active travel; and
- Action 3: Support active travel in the community.

The last one of which would also be supported through the promotion of *locally-based programmes to encourage walking and cycling,* and integration of *active travel as part of longer journeys involving public transport*.

1.5 TWBC FIVE YEAR PLAN

1.5.1. The Five Year Plan sets out the vision for Tunbridge Wells borough; its mission is to see an enhanced quality of life for all. This is expected to be delivered through sustainable growth, investing in the local economy via the completion of eight 'big projects' and other activities to be delivered in partnership.

1.5.2. One of the eight 'big projects' relevant to the P&R study is the "**Off street parking project**" which consists of *providing additional off-street car parking in Royal Tunbridge Wells to support its economy and ensure visitors […] are able to stay in town as long as they like. Options will also be explored to provide additional off-street car parking within the town to accommodate tourism growth.*

1.5.3. There are also two activities to be delivered through partnership relevant to the P&R projects as follows:

- **Active travel** *aiming to switch more car journeys to active travel (walking, cycling and public transport) by improving the cycle network in the borough, introducing 20mph schemes to improve the safety of more vulnerable road users and continuing to work with the bus and rail operators to improve services in the borough and provide residents and visitors with a range of travel options*.

- **Advocating further improvements to alleviate congestion** *by continuing to encourage and work with Kent County Council and Highways England to secure further enhancements to the road network. Proposed improvements to roads leading to Royal Tunbridge Wells and those trunk routes going through the town will reduce congestion and tackle air pollution. This may mean reducing road parking and widening the roads in some places.*

1.6 TWBC TRANSPORT STRATEGY 2015 – 2026

1.6.1. The document expresses the vision of Tunbridge Wells Borough in terms of transport as:

- *Tunbridge Wells Borough to benefit from a network of higher quality, better integrated, sustainable transport solutions and infrastructure, that will enable the borough to solve existing and future transport challenges, and enable a vibrant, prosperous economy and inclusive communities.*
- *By 2026, Tunbridge Wells will have a transport network which is less reliant on the private car, with a greater mode share towards walking, cycling and public transport, especially for shorter journeys. However, it is recognised that some journeys will continue to necessitate use of the private car, especially in rural areas.*

- *The borough will have a safer environment for all road users, and its air will be cleaner with more low emission vehicles and bicycles sharing road space.*

1.6.2. The vision is supported by eight objectives to guide the delivery of the Transport Strategy.

- Objective 1 – Provide transport infrastructure to support new development, facilitate growth in the local economy and improve rural accessibility.
- Objective 2 – Improve strategic road and rail links between the borough, London and the wider South East.
- Objective 3 – Reduce congestion on the highway network, particularly on key radial routes into Royal Tunbridge Wells.
- Objective 4 – Improve travel safety across the borough especially for vulnerable road users, including cyclists, pedestrians and equestrians.
- Objective 5 – Improve air quality, particularly within the designated Air Quality Management Area.
- Objective 6 – Increase the use of sustainable transport modes including cycling, walking and public transport.
- Objective 7 – Provide suitable parking to support the borough's town centres.
- Objective 8 – Improve the quality of public spaces within Royal Tunbridge Wells to make the town centre more legible and attractive for pedestrians.

1.6.3. The strategy also defines priority projects, listed below:

- Pembury Road A264 capacity improvements;
- London Road/London Road A26 capacity improvements;
- North Farm infrastructure improvements;
- Royal Tunbridge Wells Town Centre public space improvements;
- A network of key cycling routes as set out in the borough Cycling Strategy;
- Speed reduction projects linked to schools and other priority locations;
- Lobby for the dualling of the A21 from Kippings Cross to Lamberhurst; and
- A228 Colts Hill improvement scheme.

1.6.4. The strategy also provides a range of relevant information to the P&R study:

- Reflecting the rural hinterland, approximately 25 per cent of bus services across the whole of Tunbridge Wells borough are operated on a commercial basis and do not require local authority support. The most frequent routes into and within the town are operated commercially, while the remainder in the borough are either wholly or partly subsided, to provide 'socially necessary' services, particularly in rural areas.
- TWBC and KCC have signed a voluntary Quality Bus Partnership Agreement with the borough's principal commercial bus operator, Arriva, which commits all parties to investing jointly in local bus services and supporting infrastructure.

Car and van ownership, and thus mode share, in the borough is high in comparison to the rest of England, reflecting the relative affluence of West Kent (over 80%) as illustrated in Table 1**:**

Table 1: Annual average daily flow per mode, 2014

Road	Link	Pedal Cycle	Motor Cycle	Car / Taxi	Bus / Coach	Light Goods	Heavy Goods	All Vehicles
A264 Pembury Road	B2023 to Blackhurst Lane	136	149	20,233	279	3,057	950	24,669
	Percent	**0.6%**	**0.6%**	**82.0%**	**1.1%**	**12.4%**	**3.9%**	
A267 Frant Road	B2169 to A26	33	70	11,071	103	1,786	398	13,428
	Percent	**0.2%**	**0.5%**	**82.4%**	**0.8%**	**13.3%**	**3.0%**	
A26 Eridge Road								
	E. Sussex boundary to A267	42	148	19,220	434	2,344	676	22,822
	Percent	**0.2%**	**0.6%**	**84.2%**	**1.9%**	**10.3%**	**3.0%**	
A264 Langton Road	A264 Mt Ephraim to A26	45	35	7,523	14	908	113	8,593
	Percent	**0.5%**	**0.4%**	**87.5%**	**0.2%**	**10.6%**	**1.3%**	
A26 London Road	A26 Mt Ephraim to B'wood Avenue	108	190	14,797	265	2,564	543	18,359
	Percent	**0.6%**	**1.0%**	**80.6%**	**1.4%**	**14.0%**	**3.0%**	
	Total	364	592	72,844	1,095	10,659	2,680	87,871
	Percent	**0.4%**	**0.7%**	**82.9%**	**1.2%**	**12.1%**	**3.0%**	

Source: DfT, Annual Average Daily Flow data, 2014

- The Transport Strategy mentions that Royal Tunbridge Wells has a number of public car parks in the town centre totalling over 4,137 spaces. Most of them are operated by TWBC while a few are privately operated. There are also another 6,677 on-street bays, many of which are subject to waiting time limits. WSP has received data on 15 of the car parks operated by TWBC accounting for 3,819 spaces, and it is on the basis of this data that the study has been conducted.
- TWBC is responsible for parking enforcement within publicly owned car parks and on the highway.
- Around 3,549 new homes are anticipated for the borough as a whole, of which 2,420 new homes will be located in Royal Tunbridge Wells.

1.7 TWBC PARKING STRATEGY 2016 – 2026

1.7.1. The Parking Strategy looks at the role that parking can play in addressing congestion and supporting the vitality of the town. It has four objectives:

- *OB1: To ensure that the quantity and type of on-street parking provision and kerbside space is managed to help meet current and future demands of residents, businesses and visitors.*
- *OB2: To keep under review the effectiveness of restrictions within the Borough, identifying those roads without restrictions where parking causes concern and work with KCC where safety and congestion could be an issue.*
- *OB3: To ensure that car parks are maintained to a high standard, that there is adequate space to meet public demand, aid traffic circulation, and to provide sufficient revenue for future investment to support communities businesses and visitors.*
- *OB4: To invest in navigational, payment and other digital technology now and in the future to improve efficiency and customer service, issuing regular progress reports and establishing policy as necessary*.

1.7.2. Based on public consultation carried out in February 2015 and parking data collection, the strategy proposes a range of implementable proposals to improve, enhance and expand car parking provision, such as:

- Review resident permit zones operation times (prioritising on-street parking for residents and encouraging shoppers into the town's off-street car parks);

- Monitor and enforce existing restrictions and consider possible additional ones;
- Move away from pay and display towards systems that allow people to pay for the length of time they actually stay.

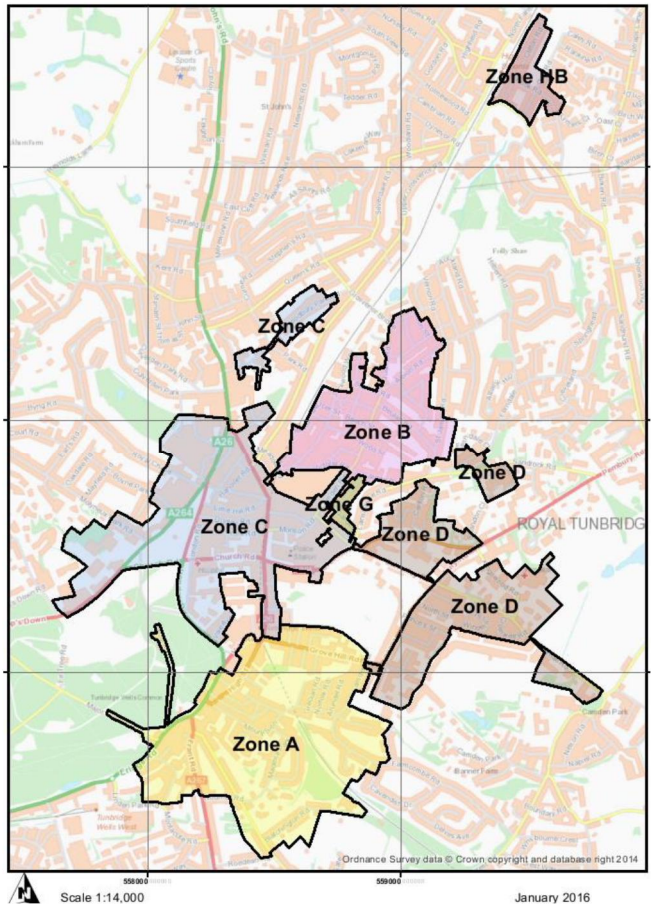
1.7.3. It also notes than extra off-street parking space will be vital for the anticipated growth of the town over the next 10 years and new car park sites are currently being explored, with the strategy highlighting that there is "excessive unrestricted space within residential zones" (page 11). This growth includes around 3,500 new homes in Royal Tunbridge Wells and surrounding areas, which will likely add further pressure to the on-street parking provision. This is particularly important, given a 14.7% increase in cars between 2001 and 2011, whilst the number of households only increased by 10.5%.

1.7.4. An urban study of parking space needs was carried out by consultants in 2010/11 that predicted there would be a need for about an additional 300 parking spaces in the south of the town in the future.

1.7.5. Within the Royal Tunbridge Wells area there are 170 streets and 13 car parks enforced daily by the on-foot Civil Enforcement Officers, operating 7 days a week 7 am to 7 pm, and sometimes overnight. Within this area 30 streets remain either wholly or partly unrestricted. The consultation identified issues around parking or lack of restrictions such as insufficient on-street restrictions, excessive parking on footways, parking on double yellow lines and excessive parking in unrestricted residential streets.

1.7.6. There are a total of 7 residential parking zones in Royal Tunbridge Wells, shown in Figure 1. Each of these areas has an associated Action Plan to deal with the current imbalances in parking provision and address congestion and circulation issues.

Figure 1: Residents' Permit Zones (RPZs)



1.7.7. The Strategy highlights that about half of households eligible for a permit do not have one, this could be due not owning a vehicle, off-road parking, or access to nearby unrestricted areas, but highlights the potential for further pressures should these households utilise permit parking in the future.

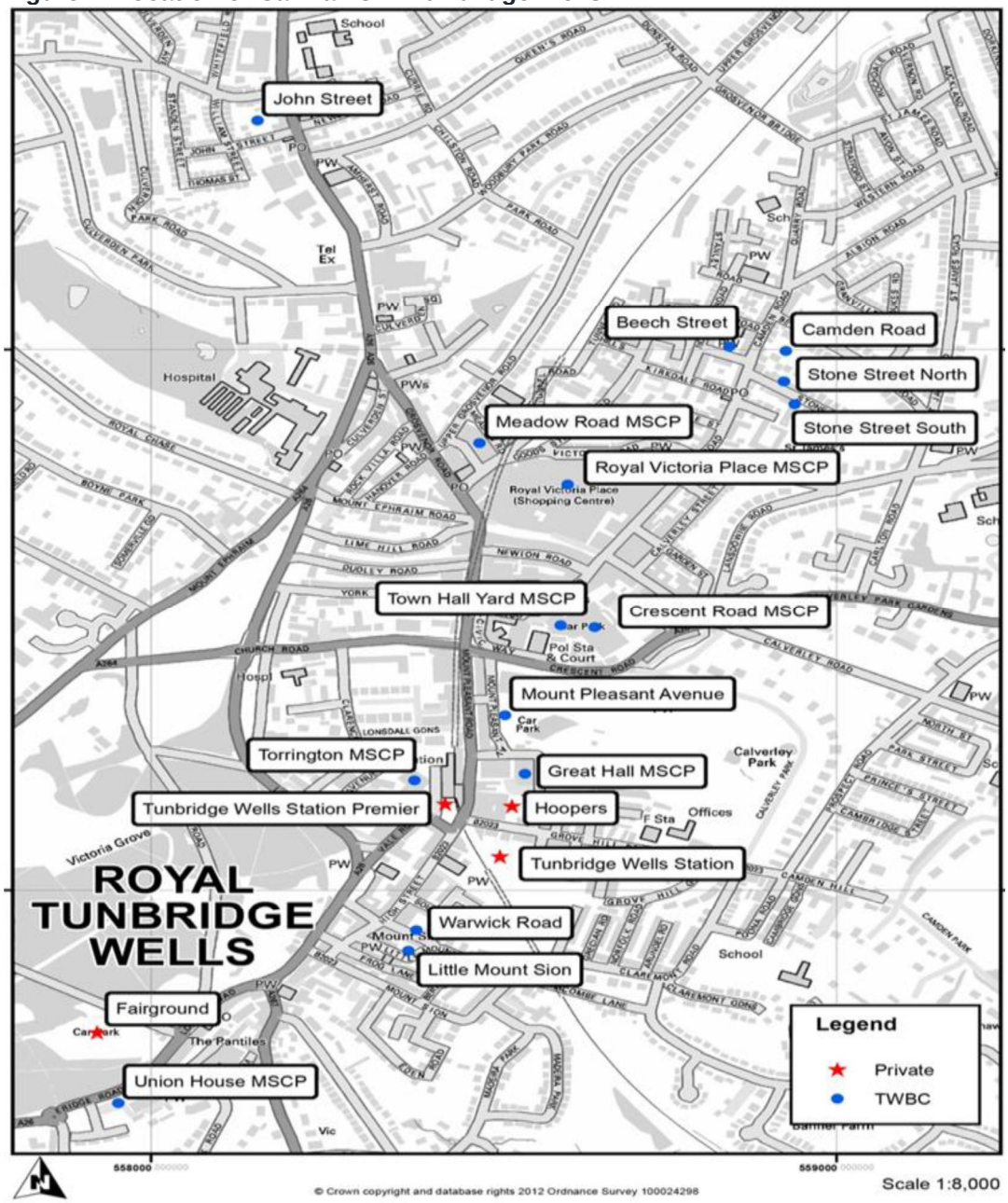
1.7.8. Consideration of new Residents' Parking Zones (RPZs) has been given, although recent attempts have not succeeded due to public opposition.

1.7.9. The main town centre car parks are shown in Figure 2. There is also a handful of privately operated car parks within the town, the main ones of which are:

- The Fairground;
- Hoopers;
- Tunbridge Wells Rail Station, Main; and
- Tunbridge Wells Rail Station, Premier.

1.7.10. These private car parks provide approximately 300 spaces overall and provide a mix of short and long stay parking.

Figure 2: Location of Car Parks in Tunbridge Wells



1.7.11. The strategy outlines walking times from key attractions to their nearest car park, with most attractions being within 5 minutes of a couple of car parks.

1.7.12. Section 11.7 of the Parking Strategy, Car Park Appraisal, highlights that the emerging Development Plan Document for Tunbridge Wells indicates two particular problems with the existing parking space:

- The existing distribution of car parks makes it difficult to access them when travelling into the town from the west; and
- There are more car parks located in the north of the town than the south.

1.7.13. This provides an opportunity as part of this P&R study to consider parking locations and whether a P&R might address this.

1.7.14. A Variable Message System is under review to allow for improved direction to empty parking spaces within the town and reduce circulation time.

1.7.15. There are three different payment methods when using TWBC car parks: Pay and Display, Pay by Phone, and Post Payment. In April 2014 Pay by Phone represented 32% of all car park payments, with around 2,500 new Pay by Phone users per month and over 7,000 users taking advantage of a facility to extend their stay.

1.7.16. The Post Payment system was introduced at the Great Hall car park in July 2015 following a petition from the public, and resulted in a channel shift of 30% from payments by cash. The Strategy proposes further use of the Post Payment system to allow customers to continue staying in the town, without need to rush back before their Pay and Display expires. An immediate plan for Royal Victoria Place car park was approved by Cabinet in February 2016 (and has now been deployed "CiCo - Check in Check out").

1.7.17. Over 2,000,000 car park transactions are made across the borough's car parks each year with over 1,000 season ticket holders taking advantage of the discounted parking offered for regular users.

1.7.18. The Strategy outlines that the car park tariffs and all permit types are reviewed annually, although no specific proposals have been factored into this review.

1.7.19. A pilot car club scheme started in Tunbridge Wells in September 2014, with two cars located in the town centre area. These became self-financing by September 2015, with 90 drivers registered by November 2015. Based on national statistics the report suggests that for each car in use 4 are removed from the town area, reducing pressure on parking. The number of cars provided has expanded since first launched (and there are now 6 vehicles in the Tunbridge Wells fleet, all of which are located in the town centre; furthermore the contract with Co-Wheels was renewed in 2017 for a further 3 years).

1.8 TWBC AIR QUALITY ACTION PLAN

1.8.1. The process of Local Air Quality Management (LAQM) review and assessment is set down in the Environment Act 1995. Of specific relevance to the potential sites for P&R, Detailed Assessment was required for annual mean NO_2 along the A26 London Road between Mount Ephraim and Southborough due to road traffic emissions. The Detailed Assessment concluded that there was a risk of exceedences of the annual mean NO_2 objective and an AQMA along the A26 (with 80m buffer) was declared by the Council in November 2005.

1.8.2. At that time, the measures proposed in the Action Plan included:

- Direct measures being undertaken:
  - *DEFRA air quality grant funding for action planning has been used to support the development of VISUM a transport model being produced by Jacobs on behalf of Tunbridge Wells and KCC. The model will be able to be used to inform the Action Plan and target measures more effectively and enable prioritisation of actions. The VISUM project is due to be completed in August 2010.*
  - *TWBC will continue to support the Quality Bus Partnership for Royal Tunbridge Wells and Southborough and will also consider the opportunities the QBP affords to improving vehicle emissions.*
  - *TWBC are enforcing local parking restrictions in Southborough and Tunbridge Wells (Mount Ephraim Road).*
- Measures proposed as part of LTP2 and existing Borough Transport Strategy:
  - *TWBC will work in partnership with Kent County Council and Tonbridge & Malling Borough Council to implement any proposed traffic management improvements along the A26.*
  - *TWBC will continue to work in partnership with Kent County Council to implement A26 (north) Bus Priority Measures.*
  - *TWBC will continue to support and work with Kent County Council to increase uptake and implementation of School and Workplace Travel Plans; particularly where likely to impact on the A26 AQMA.*

- *TWBC will work in partnership with Kent County Council to review and if appropriate support improvements to Tunbridge Wells and Southborough Local Cycle Network. A cycling strategy is being proposed as part of the Tunbridge Wells Transport Strategy*.

- Further work and research:
  - *During the preparation of the Local Development Framework, TWBC will give further consideration to how to manage and address problems of poor air quality. This could include consideration of seeking financial further contributions as appropriate for developments which, due to increased traffic or general activity, will impact on areas of poor air quality as identified through an air quality assessment.*
  - *TWBC will investigate the feasibility of developing and implementing a Borough Council Travel Plan.*
  - *TWBC is working with KCC to review and develop a new Tunbridge Wells Transport Strategy. Amongst its key objectives the Strategy will also recognise air quality as one of its aims and objectives. Joint working initiatives and reviews will be established to enable action planning to be progressed to develop more specific targeted and cost benefit assessed actions for air quality.*
  - *TWBC will continue to work in partnership with Kent County Council to undertake an initial study, which will assist in establishing a strategy for determining the suitability of an enhanced public transport system for Royal Tunbridge Wells and Tonbridge at a strategic level. The aim of the Action Plan is to support an effective integrated transport strategy which forms part of the Transport Strategy review.*
  - *TWBC as part of the Transport Strategy review will investigate possible partnership work with Kent County Council to assess the feasibility to review freight policies and possible identify a series of specific measures aimed at reducing Heavy Duty Vehicle emissions*; and
- A range of general measures to improve air quality across the whole Borough, working with KCC and other partners, including:
  - *TWBC will continue to work with KCC and other partners to deliver improvements in emissions standards, where practicable*.

1.8.3. Clearly, the potential for P&R to address air quality issues, both as an alternative to other modes and by being operated by low or zero-emission buses, is well matched with the Air Quality Action Plan.

1.9 TWBC NEW LOCAL PLAN

1.9.1. A new Local Plan is being prepared for Tunbridge Wells. As part of this a Call for Sites was issued and a range of sites has been put forward by landowners and others. Work is underway to assess whether these sites should be allocated in the plan but this process has not been completed as yet. The sites illustrated in Figure 3 were put forward in the Call for Sites as location to be investigated during the P&R study.

1.9.2. The Figure 4 presented three potential sites to serve Pembury Road:

- Site 395 - Land at Woodsgate Corner, adjacent to Tesco, Pembury
- Site 136 – Notcutts Garden Centre; and
- Site 444 – adjacent to Tunbridge Wells Hospital.

1.9.3. Site 445, opposite Mabledon was identified by TWBC to potentially accommodate a P&R site to serve London Road, as presented in Figure 5.

1.9.4. The WSP project team has identified a further site (137) which has the potential to intercept traffic originating from south of the town, and is presented in Figure 6.

Figure 3: Call for Site map for the New Local Plan

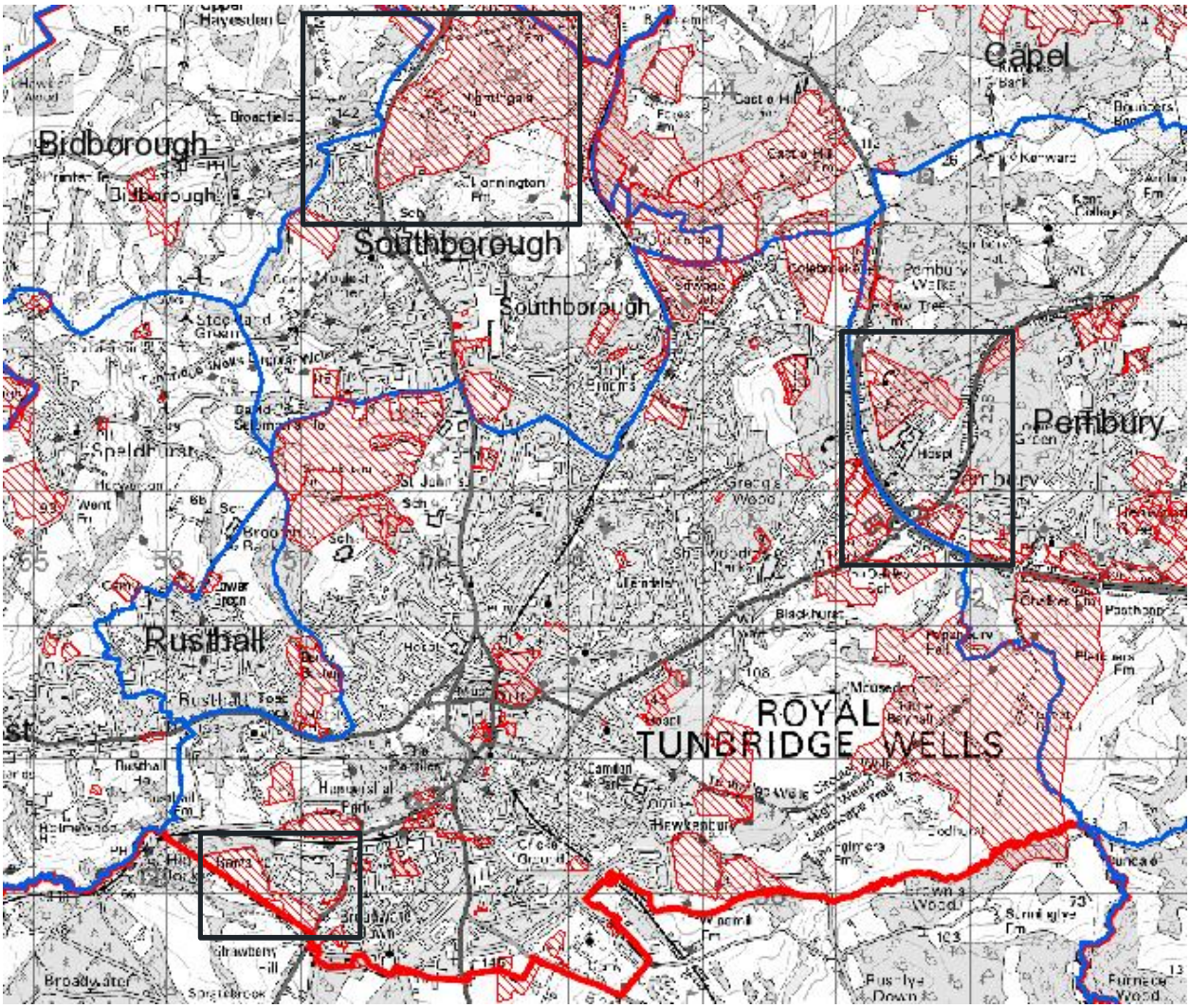


Figure 4: Pembury Road potential P&R sites

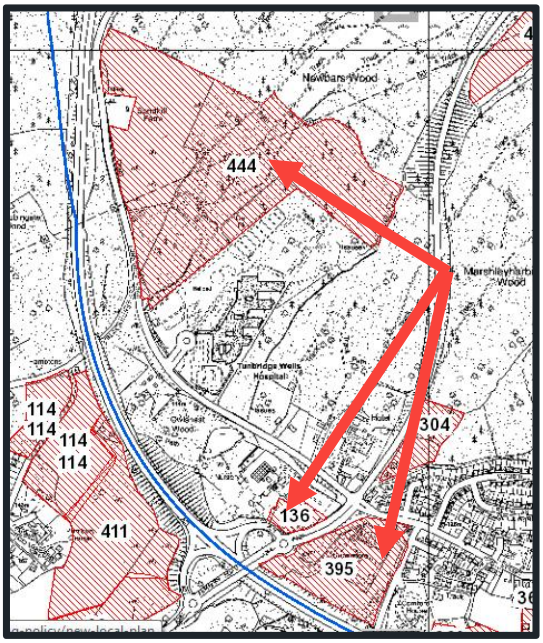


Figure 5: London Road potential P&R site

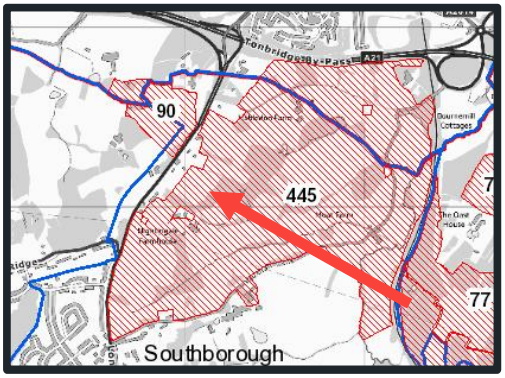
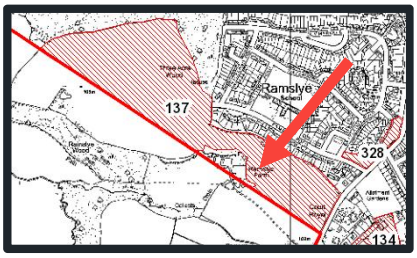


Figure 6: Eridge Road Potential P&R site



2 REVIEW OF RELEVANT PAST STUDIES

2.1 P&R FEASIBILITY STUDY (AMEY, FOR KCC)

2.1.1. The P&R feasibility for Tunbridge Wells was completed in summer 2014. It investigated the feasibility of introducing two P&R sites in Tunbridge Wells:

- *Mabledon Site, on the A26 to the north of the town, adjacent to the A21 junction (200/300 parking spaces);*
- *Pembury Tesco Site, on the A264 to the west of the town centre (250/350 parking spaces).*

2.1.2. The study set out the following factors which were considered to be required to deliver P&R successfully:

- Size of town – ideally greater than 100,000 population (Tunbridge Wells has a population of approximately 75,000);
- Location – adjacent to the strategic highway network;
- Access – safe and easy for all modes;
- Frequency of public transport – in the range of every 10 to 15 minutes;
- Quality of public transport – ideally a dedicated service;
- Speed of journey – seen to be fast, at least in comparison to other modes;
- Price of P&R – competitive with equivalent town centre charges;
- Availability of parking in town centre – ideally constrained; and
- Price of parking in town centre – ideally more expensive than P&R.

2.1.3. The Mabledon site viability study concluded *that this greenfield site would require considerable engineering work to make the site functional to meet the requirements of a P&R facility. This would include the construction of an improved junction (probably signalised), to provide safe left and right turn facilities into and out of the proposed site. Since the land is designated as Green Belt, there would be potentially prohibitive planning issues to overcome. Bus services, assuming use of the existing 7, 77 and 402 services, would provide a good level of service at peak times, though at off-peak the services are less frequent. Buses would need to be brought into the site in order to provide an attractive service with safe and convenient access for users.*

2.1.4. The Pembury Tesco site viability study concluded that the site would readily be able to accommodate a P&R facility. Access would be via an existing roundabout providing access to the store since the site is defined, allocated and currently unused.

2.1.5. *The study has identified a number of significant barriers to the implementation of a successful P&R operation in Tunbridge Wells. In particular, the ability to provide car-competitive bus journey times, and the cost/availability of town centre parking are issues which would need to be addressed to provide a basis for successful P&R operations.*

2.1.6. It concluded that identified issues*, in isolation, were not insurmountable provided the desire for change and political will are in place to implement the required radical changes within the town.* It then suggested a list of changes required:

- *A reduction in existing bus journey times by approximately one third to provide a distinct journey time advantage over cars. To achieve this some significant areas of third party land would be required, particularly along the A26.*
- *Significant reduction in the availability of long stay parking within the town centre. Without a comprehensive baseline, including local authority and privately owned off-street parking and on-street parking (especially free parking) it has not been possible to quantify a required reduction;*
- *Reduction in free on-street parking within walking distance of the town centre. Information supplied by TWBC indicates that there are around 1200 free spaces available within 5-15 minutes' walk. Successful P&R would require the elimination of a significant portion of this free parking, probably through the implementation of new or extended residents' parking zones;*
- *Pricing of the P&R as low as possible, though existing fares on the bus routes likely to be used indicate that a minimum of £2.50 return (equivalent to the hospital fare) would be the best case;*
- *Active promotion of P&R amongst existing and potential town centre employers, backed up by planning policies relating to parking provision and employee travel plans. Over time this would be expected to involve a reduction in the availability of employer-provided free parking, coupled with the provision of incentives for employees to use public transport, P&R or other sustainable travel/work methods.*

2.1.7. The study recommended further work to focus effort on improving public transport levels of service and infrastructure such as bus priorities, rather than introducing P&R. This recommendation was partly based on the understanding that the required changes to implement P&R would likely be unpopular with local residents and businesses.

2.2 A26 CORRIDOR STUDY

STUDY FINDINGS

2.2.1. The A26 corridor route study was published in February 2016. It aims to understand how to reduce traffic congestion on the A26 between Mabledon and Tunbridge Wells**.**

2.2.2. In summary, the A26 corridor suffers from traffic congestion at a number of locations, particularly during peak highway periods but site observations indicate congestion to a lesser extent throughout the day. The key locations where traffic congestion occurs are as follows:

- A26/Yew Tree Road/Speldhurst Road junction;
- A26/Grosvenor Road Roundabout; and
- A26/A267 Frant Road Junction.

2.2.3. Traffic congestion at the above junctions can lead to further traffic congestion at the following locations:

- A26/A264 Church Road; and
- A26/Major York's Road Roundabout.

2.2.4. The corridor encompasses a number of built-up areas, namely Southborough, St. Johns and the town centre; where the flow of traffic is affected by residential side roads and busy frontage accesses.

2.2.5. The existing travel patterns of motorists using the corridor, as derived from the ANPR survey analysis, indicates that a large proportion (89%) of trips entering the cordon across the day are destined for locations within the town and are not passing straight through. This make up of traffic provides a steer as to potential strategies going forward to tackle the issues identified along the corridor.

2.2.6. The fact that traffic is generally not passing through Tunbridge Wells precludes measures such as a bypass of the town as this would not cater for the traffic demand entering the town itself.

2.2.7. Road Safety assessments noted that the accident rate for the route is below the national average.

2.2.8. Bus Facility Provision *is considered adequate to cater for existing patronage levels, however, improvements would need to be made in terms of lighting, passenger information and real time passenger information, seating and mobility access in order to encourage increased bus travel and modal shift away from private car use.*

2.2.9. The provision of facilities for pedestrians is considered to be good.

2.2.10. The current cycle provision requires some investment to;

- improve clarity of signage and markings;
- to provide a greater level of cycle provision and prioritisation;
- to improved junction design to incorporate cycle provision, increase segregation; and
- to provide greater enforcement of existing restrictions.

STUDY CONCLUSIONS

2.2.11. The study concludes that some transport interventions are required on the A26 corridor in order to ease existing and forecast traffic congestion subject to further detailed local studies:

- A26/Yew Tree Road/Speldhurst Road junction, Southborough;
- A26 London Road/Grosvenor Road junction; and
- A26 London Road/Frant Road junction.

2.2.12. The study also reiterated the need to encourage greater use of sustainable transport modes, particularly improve the cycling facilities and bus roadside facilities.

2.2.13. Following further work it has been concluded that no further vehicular capacity can be provided on the A26 without additional land take and changes to the built and natural environment. Therefore it has been concluded that sustainable transport alternatives should be sought for this corridor.

2.2.14. *No opportunities for significant reduction of congestion were found.*

2.3 A264 CORRIDOR STUDY

STUDY FINDINGS

2.3.1. The A264 corridor route study was published in February 2016. It aims to understand how to reduce traffic congestion on the A264 between Pembury and Tunbridge Wells.

2.3.2. The existing A264 corridor suffers from traffic congestion at a number of locations, particularly during peak *highway periods; however, site observations indicate congestion to a lesser extent throughout the day. The key locations where traffic congestion occurs are as follows:*

- *A264/Tonbridge Road/High St junction;*
- *A264/A21(Northbound) On/Off Slip Roundabout – A264 (West) exit bottleneck;*
- *A264/Blackhurst Lane/Halls Hole Road Junction;*
- *Interaction with A26 at A26 London Road/A264 Church Road.*

2.3.3. *The A264/Tonbridge Road/High St junction represents a form of gateway to Tunbridge Wells to/from the east in addition to providing key access routes to Pembury village and Tunbridge Wells Hospital. Peak hour congestion is regularly observed at the junction and the junction closely interacts with the adjacent A264/A21 (Southbound) On/Off Slip/Tesco Access Roundabout which is in very close proximity to the west.*

2.3.4. *The fact that the A264/Tonbridge Road/High St junction is traffic signal controlled whereas the A264/A21 (Southbound) On/Off Slip/Tesco Access Roundabout is a priority junction is considered to be important in terms of how the junctions interact.*

2.3.5. *The existing travel patterns of motorists using the corridor, as derived from the ANPR survey analysis, indicates that a large proportion (86%) of trips entering the cordon across the day are destined for locations within the town and are not passing straight through. This make up of traffic provides a steer as to potential strategies going forward to tackle the issues identified along the corridor.*

2.3.6. *The fact that traffic is generally not passing through Tunbridge Wells precludes measures such as a bypass of the town as this would not cater for the traffic demand entering the town itself.*

2.3.7. Road Safety: The accident rate on the remainder of the route is below the national average.

2.3.8. Bus Facility Provision on the A264 study corridor is in good condition but could benefit from improvements such as real time information and sheltered waiting areas.

2.3.9. The A264 corridor caters for pedestrians very well, in particular on the section between the A21 and Calverley Park Gardens.

2.3.10. The current cycle provision requires some investment to provide greater continuity, better signage and general raising of the current standard of provision.

2.3.11. Traffic volumes aside, Pembury Road is considered a pleasant place to walk or cycle and provides good, direct access from the east to Tunbridge Wells town centre.

STUDY CONCLUSIONS

2.3.12. Some transport interventions are required on the A264 corridor in order to ease existing and forecast traffic congestion and encourage greater use of sustainable transport modes.

2.3.13. Improvements to the existing sustainable transport infrastructure, in particular to cycling facilities, on the corridor would help to encourage mode shift away from the private car

2.3.14. Measures to address the key congestion hotspots on the corridor will be required to improve traffic flow, reduce environmental impacts and increase journey time reliability. The nature of the route suggests that sufficient space is available to provide alternative junctions arrangements where required. It is recommended that further investigation is carried out to identify potential improvements at these key locations:

- A264/Tonbridge Road/High St junction;
- A264/A21(Northbound) On/Off Slip Roundabout – A264 (W) exit bottleneck; and
- A264/Blackhurst Lane/Halls Hole Road Junction.

2.3.15. The potential junction improvements recommended above could help to increase journey time reliability for buses as well as for private cars.

2.3.16. It is however noted that the dualling of the A21 has now been completed and this is anticipated to result in some changes in flows between the A26 and A264.

3 REVIEW OF GENERAL EXISTING DATA AND SITE VISITS

3.1 TRAFFIC VOLUMES AND ANPR DATA

3.1.1. The Local Transport Plan recognises that Tunbridge Wells suffers from severe congestion problems especially at peak times. The traffic congestion mostly impacts:

- the A26, between Tonbridge and Tunbridge Wells town centre, particularly in Southborough;
- the A264, between Pembury and the town centre; and
- the A228, at Colts Hill.

3.1.2. It is also important to understand traffic volumes on the major roads which provide access to Tunbridge Wells.

TRAFFIC FLOW DATA

3.1.3. Estimated traffic flow figures were extracted from the Department for Transport traffic counts database (https://www.dft.gov.uk/traffic-counts/cp.php?la=Kent#26859). The most recent data available is estimate for 2016.

3.1.4. For consistency, and where available, the counts are retrieved for the same links that were published in the TWBC Transport Strategy.

3.1.5. The results are presented in Figure 7 and Table 2:

Figure 7: DfT, Estimated Daily Traffic Flow data, 2016

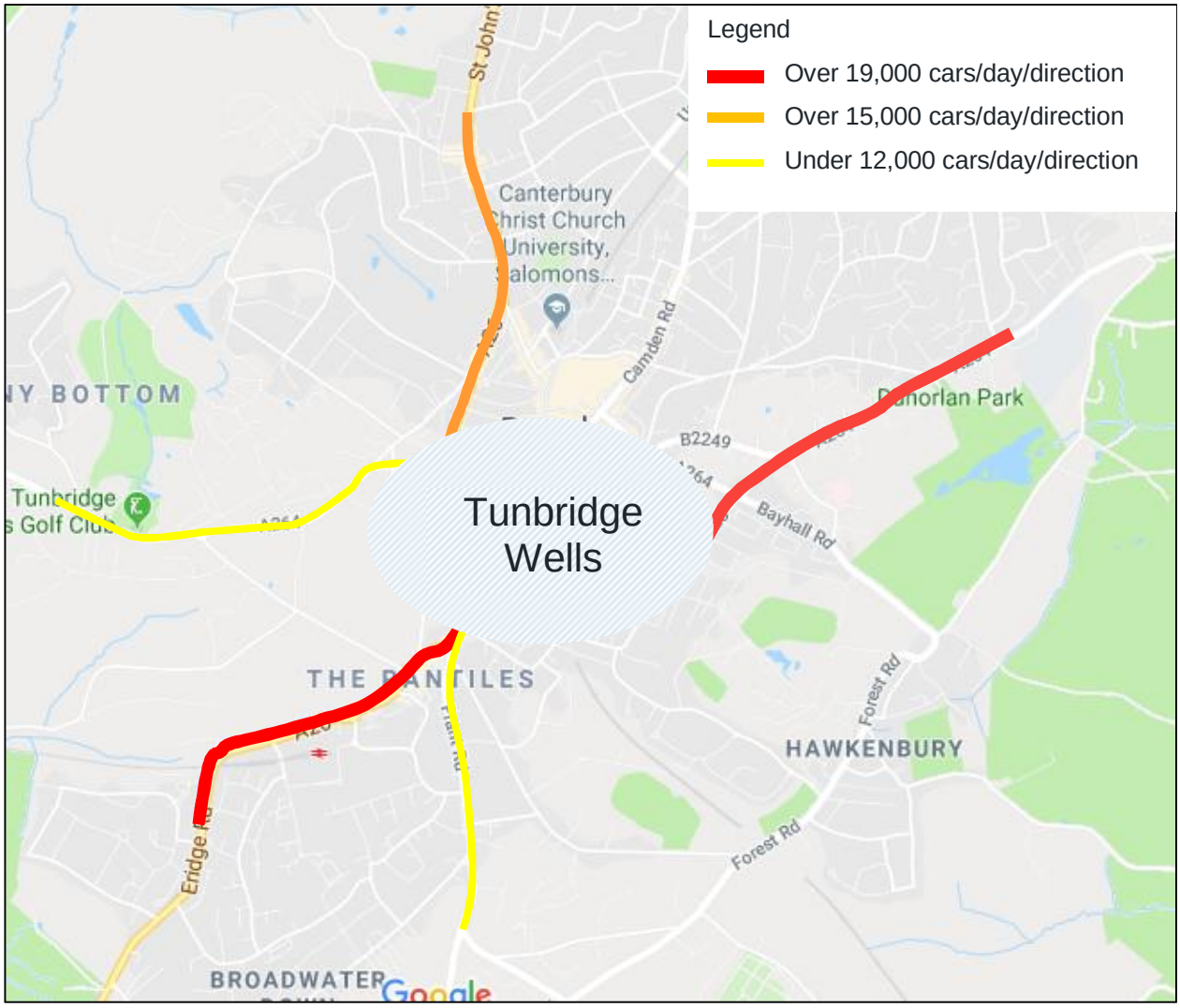


Table 2: DfT Estimated Daily Traffic Flows, 2016

Road	Link	Cars, Taxis	All Motor Vehicles
A264 Pembury Road	B2023 to Blackhurst Lane	19,408	24,215
A267 Frant Road	B2169 to A26	11,560	14,138
A26 Eridge Road	LA Boundary to A267	19,746	23,496
A264 Langton Road	A264 Mount Ephraim to A26	7,855	9,034
A26 London Road	A26 Mount Ephraim to Birchwood Avenue, Southborough	15,450	19,330

3.1.18. Based on the DfT estimated traffic flow data (2016), the highest daily car traffic flows are on Pembury Road and Eridge Road, closely followed by London Road. Based on experience of previous studies, it was considered that if a case could not be made for P&R on the roads with the highest traffic flows, it would be impossible to create a case for P&R on the roads with lower flows.

3.1.19. The estimated flows in 2016 represent a 2% decrease on Pembury Road and Eridge Road, and an increase of 5% on Langton Road, London Road and Frant Road when compared to the flows published in 2014. It is expected that the flows in 2017 will show a switch in traffic from London Road to Pembury Road, due to the benefit of dualling the A21 which has recently been implemented.

3.1.20. In the longer term, development in the borough, such as residential and other developments at Paddock Wood which are expected to lead to it doubling in size, will of course affect the total volume of vehicles on each corridor but would not of itself affect the relative attractiveness of P&R compared to travelling by car.

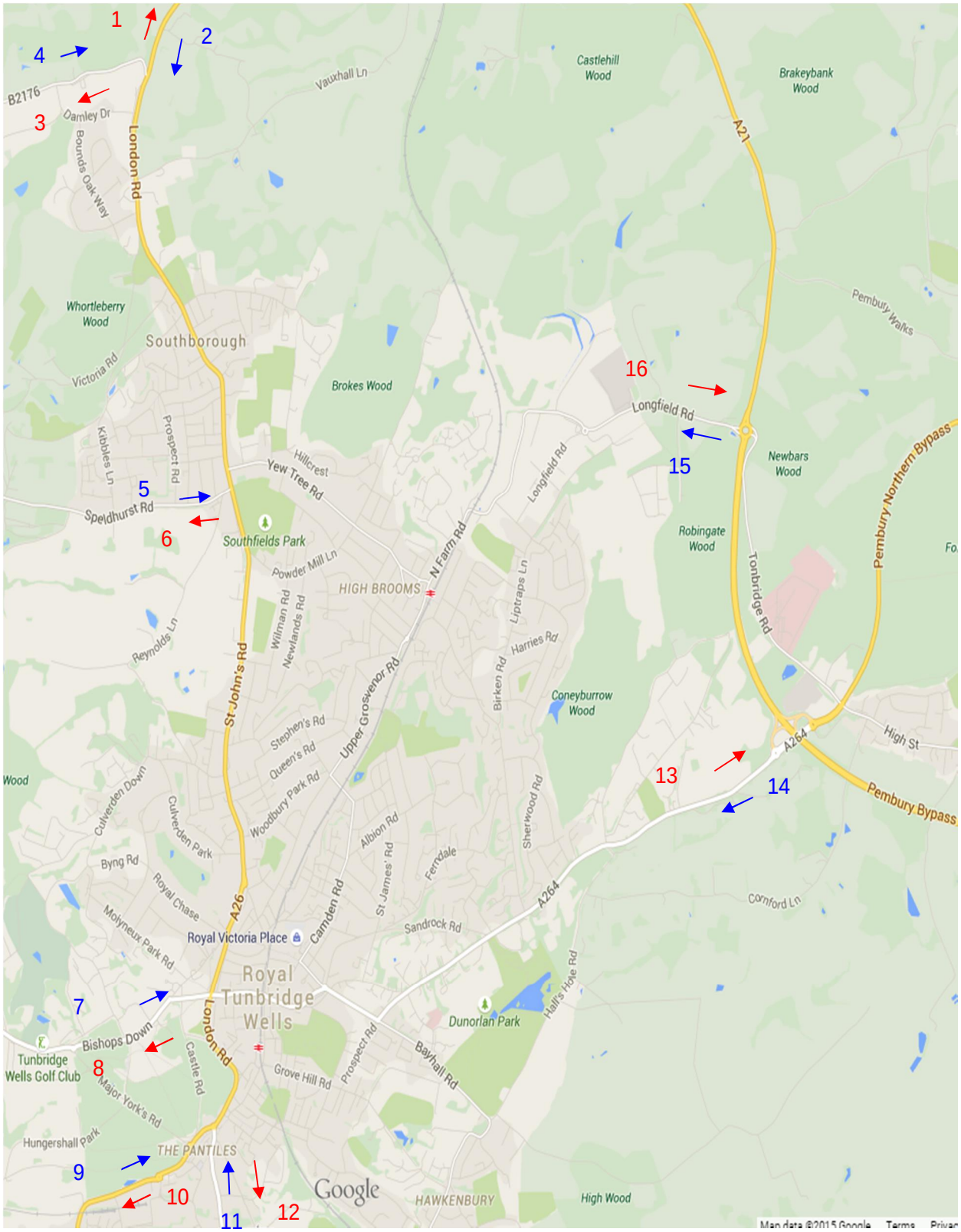
3.1.21. Based on this information, as the success of P&R depends on being able to gain a sufficient high share of car drivers on any given corridor, the WSP project team focussed the study on the three busiest corridors:

- Pembury Road;
- Eridge Road; and
- London Road.

ANPR SURVEYS

3.1.22. Automatic Number Plate Surveys (ANPR) surveys were carried out on 20th May 2015 with the aim of capturing and analysing main vehicle movements into and through Tunbridge Wells at eight key locations on the key radial routes. These ANPR surveys were carried out for Kent County Council's A26 Route Study through Tunbridge Wells, with analysis and reporting by Amey. The location of cameras is shown in Figure 8.

Figure 8: Location of ANPR cameras (July 2015)



3.1.23. WSP has conducted further ANPR analysis to consider strategic through movements on the three key routes into the town:

- A264: Pembury Road from the East (considering entries from Camera 14)
- A26: Eridge Road from the South West (considering entries from Camera 9)
- A26: London Road from the North (considering entries from Cameras 2 and 4, although excluding movements from Camera 4 to Camera 1)

3.1.24. The ANPR data has been processed to calculate the length of time a car travels through Tunbridge Wells (based on where a match is found of the same vehicle on two different corridors). This analysis considers vehicles recorded as Light Vehicles only, the vast majority of which are cars. Vehicles have been considered if they enter the cordon area within a specified time period, either the AM peak period (7 am – 10 am) or the period from 10 am until 3 pm, as presented in Table 3 and Table 4. This is in contrast to the Amey analysis which considered the peak hours. This analysis does not constrain the time of exiting the cordon.

Table 3: Proportion of Vehicles Completing their Journey between 7 am and 10 am

Entries from ANPR camera locations	A264 Pembury Road from the East	A26 Eridge Road from the South West	A26 London Road from the North
Under 15 minutes	14%	15%	19%
Under 30 minutes	19%	33%	31%
Under 40 minutes	20%	35%	35%
Under 1 hour	23%	39%	38%
Under 2 hours	32%	44%	47%
Under 3 hours	38%	50%	52%
Under 4 hours	44%	53%	56%
Under 5 hours	48%	56%	61%
Under 6 hours	53%	59%	66%
Under 12 hours	100%	100%	100%

Table 4: Proportion of Vehicles Completing their Journey between 10 am and 3 pm

Entries from ANPR camera locations	A264 Pembury Road from the East	A26 Eridge Road from the South West	A26 London Road from the North
Under 15 minutes	21%	26%	29%
Under 30 minutes	29%	42%	44%
Under 40 minutes	33%	48%	49%
Under 1 hour	41%	55%	55%
Under 2 hours	63%	72%	71%
Under 3 hours	79%	83%	83%

Under 4 hours	88%	91%	89%
Under 5 hours	93%	95%	94%
Under 6 hours	97%	97%	97%
Under 12 hours	100%	100%	100%

3.1.25. This ANPR analysis shows that there is some degree of variation in the proportion of through trips by arterial route and between peak and off-peak. While specifying a threshold (in number of minutes) for the assumption of through trips would influence interpretation of more general traffic behaviour, for the use of P&R it is considered that 4 hours is an appropriate minimum threshold. This threshold is not only reflective of all-day commuting (i.e. a commuter would not park for fewer than 4 hours), but is also in line with the likely P&R fare and the equivalent cost of parking. Accordingly, Table 3 shows that up to 56% of car trips in the peak period stop in the town centre for more than 4 hours and would thus, under the right circumstances, be a potential market for the use of P&R facilities.

3.1.26. The result of this analysis therefore informs the parameters of the P&R model (described in Chapter 4).

3.2 ORIGIN DESTINATION DATA

ORIGIN OF PLACE OF WORK FROM CENSUS

3.2.1. Origin of place of work with a destination of Tunbridge Wells was extracted from the 2011 Census and demonstrates that almost half of the people who work in Tunbridge Wells also live in the town (49%), followed by 15% coming from the southerly direction, 14% coming from the northerly direction, 11% coming from the easterly direction and 7% coming from the westerly direction, as demonstrated in Table 5.

Table 5: 2011 Census, origin of place of work (TW)

Address whilst working : 2011 Census merged local authority district	Place of work (TW) %	Allocated Direction
Tunbridge Wells	49%	Internal to TW
Tonbridge and Malling	9%	N
Wealden	9%	S
Maidstone	6%	E
Rother	3%	S (SE)
Sevenoaks	3%	N
Ashford	3%	E
Medway	1%	E (NE)
Hastings	1%	S (SE)
Bromley	1%	N
Gravesham	1%	E (NE)
Mid Sussex	1%	W
Other/West	3%	W

3.2.2. It is noted that a number of North East and South East origins can easily reach Tunbridge Wells via Pembury Road.

3.2.3. AXA PPP healthcare is a major employer in the town and the Transport Assessment was based on a staff survey carried out in 2012.

3.2.4. 550 were employed by AXA in Tunbridge Wells in 2012, with the intention to recruit up to 200 more staff in the then coming few years.

3.2.5. Most of the employees work from 08:00 to 17:00 Monday to Fridays, while 120 work until 20:00 in shifts. On Saturdays all working employees finish at 17:00.

3.2.6. 79% of the employees travel by car (or are as passenger) while 12% walk to the site and others mainly use public transport as presented in Table 6 (extracted from the travel plan):

Table 6: AXA employee travel to work mode split

Mode of Travel	Proportion
Bus	3%
Bike	1.5%
Car driver & passenger	72% & 7%
Motorbike	0.5%
Train	4%
Walk	12%

3.2.7. Staff postcode survey data indicates that 35% of the employees travelled from areas within Tunbridge Wells, while 65% are coming from further afield (See Table 7).

Table 7: AXA employee postcodes

Postcode Districts	Proportion
Tunbridge Wells (TN1,TN2,TN3,TN4)	35%
Tonbridge (TN9, TN10, TN11)	5%
Sevenoaks Area (TN13,TN14,TN15,TN26)	1%
Maidstone & Medway (ME codes)	4%
Paddock Wood area (TN12)	6%
Crowborough area (TN6, TN20)	13%
Wadhurst/Hawkshurst area (TN5,TN18)	6%
Other TN Codes (part of Kent and Sussex)	18%
South Coast (BN codes)	5%
Crawley area (RH codes)	3%
South London	3%

3.2.8. The analysis of post code data indicated that the geographic distribution of staff travel was roughly split as below:

- 35% internal to Tunbridge Wells;
- 9% travelling from the north;
- 10% travelling from the east;
- 24% travelling from the south;
- 3% traveling from the west, and;
- 19% travelling from further afield.

3.2.9. The study highlighted that the travel pattern of AXA employees was different from the Census origin of workplace trips (2011) presented in Table 5.

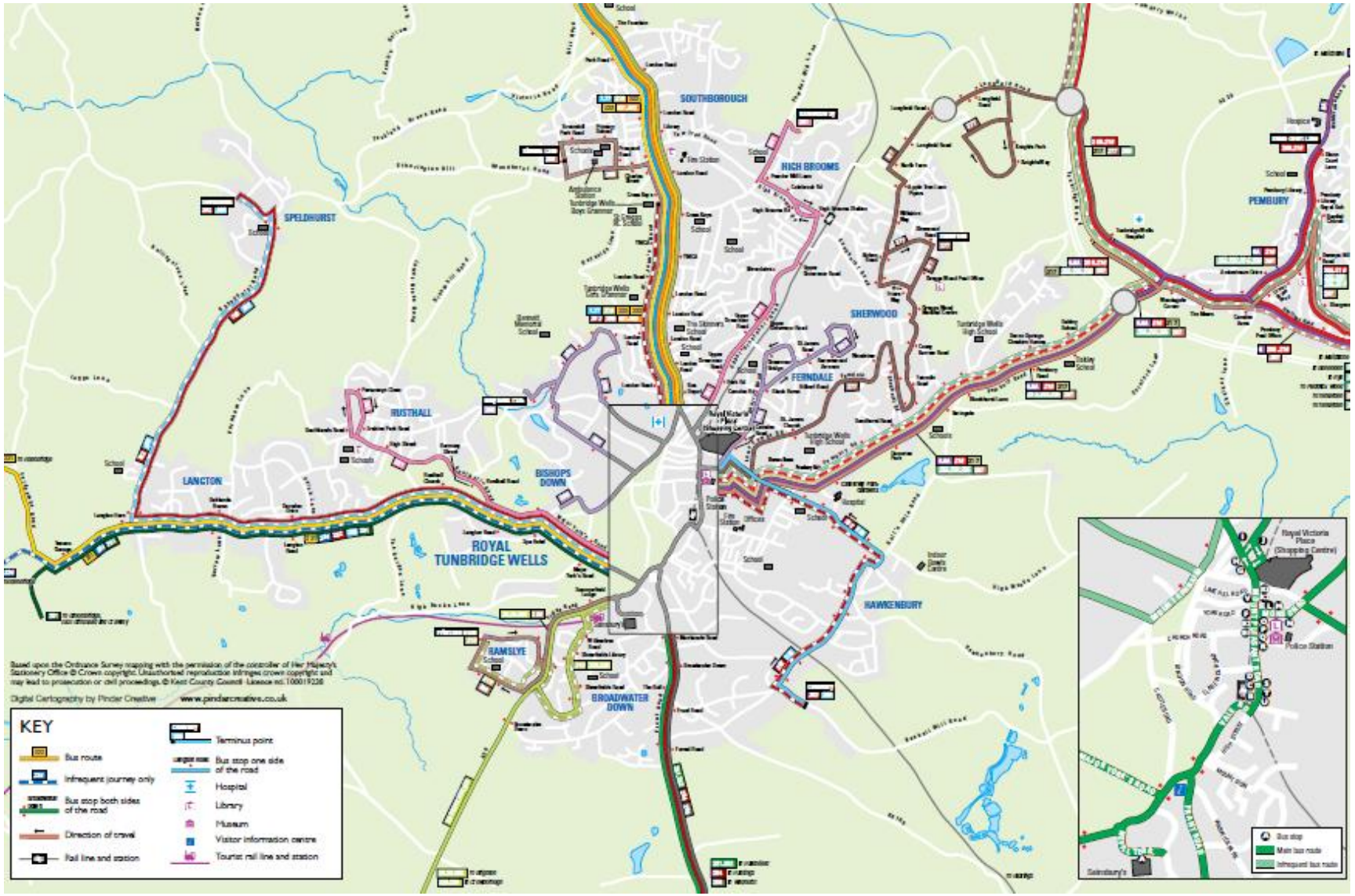
3.2.10. Overall, 59% of the employees who travel by car are using the parking spaces available on site, while 41% are utilising off-street parking or public parking.

3.2.11. A large proportion of employees (87%) stated that they may be encouraged to use public transport to reach the AXA site if buses were more direct, more frequent and better value from money, while 11% stated that a better connection to the train station would encourage them to use public transport.

3.3 EXISTING BUS SERVICES

3.3.1. The bus network around Tunbridge Wells is formed of 31 routes operated by multiple operators, the most significant of which is Arriva. A large number of the routes provided by other operators provide a relatively low frequency or only a few journeys per day (see network map Figure 9).

Figure 9: Local bus network in Tunbridge Wells (extract from KCC local bus map)



3.3.2. The most frequent services are listed in Table 8:

Table 8: Bus Service Frequency

Routes	Frequency (buses per hour)	Route	Operator
6/6a	1 bph in peaks	Tunbridge Wells - Pembury	Arriva
7	3 bph in peaks	Tunbridge Wells - Tonbridge	Arriva
28/29/29X	2 bph in peaks	Tunbridge Wells - Brighton	Brighton and Hove
281	5 bph in peaks	Rusthall – Tunbridge Wells – High Brooms	Arriva
402	2 bph in peaks	Tunbridge Wells – Tonbridge	Arriva

3.3.3. Based on the capacity provided it appears that they are three strong bus corridors, with a combined frequency of around 5 buses per hour between:

- Tunbridge Wells – Tonbridge via London Road;
- Tunbridge Wells – Rusthall via Mayor York's Road; and
- Tunbridge Wells – High Brooms via Upper Grosvenor Road.

3.3.4. The development of public transport in the borough, including cashless 'smart' ticketing, has been identified as a countywide and cross-district priority in the Local Transport Plan.

3.3.5. As part of this study, discussions have taken place with Arriva to understand their current views on the potential development of P&R in Tunbridge Wells, as it is evident that P&R services would have the potential to compete directly with parallel commercial services, particularly if the P&R fare is lower than that on the commercial services and/or P&R offers significantly better frequency.

3.3.6. Arriva indicated a preference for enhancing existing services (e.g. possible transformation of a route into an Express or Limited Stop service) with network ticketing alongside P&R specific products so as to encourage greater use of bus overall, given that walking and cycling is not attractive to some residents due to the town's topography. In order to support sustainability of bus services in the long term, Arriva consider such an approach to be 'complementary' rather than 'competitive' and one which would help to maintain the existing wider bus network (irrespective of operator). Bus priority measures were also endorsed as a means of encouraging mode shift from car.

3.4 OTHER RELEVANT DATA

P&R STATED PREFERENCE SURVEYS

3.4.1. TWBC carried out stated preference surveys in 2011 to understand potential demand for P&R services. 240 responses from the on-street survey and the web survey were received and people were asked whether they would use a P&R facility under different scenarios presented in Table 9 below:

Table 9: P&R Stated Preference Survey Results

Responses	Existing level of Congestion	Increased Congestion	Increased Fuel Cost	Increased Parking Cost
Yes	63%	68%	66%	72%
No	37%	32%	36%	28%

3.4.2. An high number of positive answers were obtained for all scenarios:

- 63% of respondents would be willing to use P&R now, if such a facility existed, rising to 72% of respondents if parking costs increased;
- A further 5% would be tempted if congestion increased (68%);

- A further 3% would be tempted if fuel costs increased (66%); and
- A further 9% would be tempted if parking costs increased (72%).

3.4.3. These results emphasise the impact of parking charge policy on potential P&R demand, although around 20% of respondents answered negatively for all scenarios. The results were also broken down by trip purpose and indicated that over 54% of workers would potentially use P&R if it existed.

3.4.4. Although this data is now more than 6 years old, the findings are not considered to be untypical of general attitudes towards P&R.

CAR OCCUPANCY RATIO

3.4.5. The national car occupancy ratio issued from the National Travel Survey 2016, shows 1.17 passengers per vehicle for the purpose of commuting, and 1.59 passenger per vehicle for the purpose of Leisure, Shopping and personal trips. No further detailed was found specifically for Tunbridge Wells or Kent.

3.5 REVIEW OF PARKING DATA

3.5.1. Data on the number of tickets bought at each of the car parks listed in Table 10 has been received from TWBC and reviewed. The data covers the period April 2016 – July 2017 and provides information on the number of spaces, the number of season tickets, number of disabled spaces, and the number of tickets bought. The number of tickets bought are split into: up to 1 hour, up to 2 hours, up to 3 hours, up to 4 hours, up to 5 hours, up to 6 hours, All Day and Overnight.

3.5.2. Based on the number of spaces and tickets sold it is possible to calculate utilisation figures for each of the car parks, although this does not indicate actual duration of stay or arrival time. The analysis of the utilisation data is presented in Table 10.

Table 10: **Car Parks – Spaces and Average Utilisation**

Car Park	Spaces	Season Tickets	Disabled	Average Utilisation (August 2016 - July 2017)
Crescent Road	1,061	800	24	132%
Great Hall	199	50	6	58%
Meadow Road	440	70	10	34%
Torrington	230	0	13	79%
Royal Victoria Place	1,198		36	45%
Town Hall Yard (w/e)	100	0	3	16%
Linden Park Road	52	0	2	63%
Union House	114	30	0	47%
Beech St	38	23	0	100%
Little Mount Sion	18	0	0	98%
Camden Road	62	22	3	99%
Mount Pleasant (w/e)	60	0	0	6%

3.5.3. It can be seen that Crescent Road has a utilisation figure above 100%, which indicates that more parking hours are purchased than could physically be accommodated. Crescent Road is also one of the largest car parks in the town, and has by far the highest number of season ticket holders. Given the high number of season tickets this would suggest that most of the users of Crescent Road are likely to be commuters working

within Tunbridge Wells Town Centre. With the right alternative, these 800 season ticket holders are potential candidates for converting to P&R provision.

3.5.4. The utilisation data also provides an insight into likely usage of the car parks and, given a number have average utilisation figures below 50%, there may be a case to consider whether these car parks can be repurposed, particularly as the average utilisation is (only) 65%. The average utilisation when Crescent Road is excluded from the analysis is 59%, further confirming that considerably more car park provision is provided than hours bought, although this may be due to high availability of on-street parking. More detailed accumulation and duration of stay data would provide greater insight into the usage of the various car parks.

CAR PARK CHARGING REGIME

3.5.5. The car parks in Tunbridge Wells operate three different payment methods: RingGo (pay by phone), Pay and Display, and Post Payment. The pricing varies by method and car park.

3.5.6. The RingGo (Pay by Phone) charges are presented in Table 11.

Table 11: RingGo Parking Charges

Car Park	RingGo Up to 1 hour	RingGo Up to 2 hours	RingGo Up to 3 hours	RingGo Up to 4 hours	RingGo Up to 5 hours	RingGo Up to 6 Hours	RingGo All Day	RingGo Night
Crescent Road	£1.30	£2.40	£3.40	£4.40	£5.20		£5.90	£1.50
Great Hall	£1.30	£2.40	£3.40	£4.40	£5.20	£5.90	£10.20	£1.50
Meadow Road	£1.30	£2.40	£3.40	£4.40	£5.20	£5.90	£10.20	£1.50
Torrington	£0.50	£1.00	£3.40	£4.30	£5.60		£10.20	£1.50
Royal Victoria Place	£1.30	£2.40	£3.40	£4.40	£5.20	£5.90		£1.50
RVP (Levels 1-8)	£1.30	£2.40	£3.40	£4.40	£5.20	£5.90	£10.20	£1.50
RVP (Levels 8 +)	£1.30	£2.40	£3.40	£4.40	£5.20	£5.90	£5.90	£1.50
Town Hall Yard (w/e)	£1.30	£2.40	£3.40	£4.40	£5.20		£5.90	£1.50
Linden Park Road	£1.30	£2.40	£3.40	£4.40	£5.20	£5.90	£10.20	
Union House	£1.10	£1.90	£2.60	£3.40	£4.20		£4.90	
Beech St	£1.10	£1.90	£2.60	£3.40	£4.20		£4.90	
Little Mount Sion	£1.30	£2.40	£3.40	£4.40	£5.20		£5.90	
Camden Road	£1.10	£1.90	£2.60	£3.40	£4.20		£4.90	
Mount Pleasant (w/e)	£1.30	£2.40	£3.40	£4.40	£5.20		£5.90	

3.5.7. The Pay and Display charges are presented in Table 12.

Table 12: Pay and Display Parking Charges

Car Park	Up to 1 hour	Up to 2 hours	Up to 3 hours	Up to 4 hours	Up to 5 hours	Up to 6 Hours	All Day	P&D Night
Crescent Road	£1.60	£2.80	£3.80	£4.80	£5.60		£6.30	£1.50

Great Hall	£1.60	£2.80	£3.80	£4.80	£5.60	£6.30	£10.40	£1.50
Meadow Road	£1.60	£2.80	£3.80	£4.80	£5.60	£6.30	£10.40	£1.50
Torrington	£0.80	£1.40	£3.80	£4.70	£6.00		£10.40	£1.50
Royal Victoria Place	£1.60	£2.80	£3.80	£4.80	£5.60	£6.30		£1.50
RVP (Levels 1-8)	£1.60	£2.80	£3.80	£4.80	£5.60	£6.30	£10.40	£1.50
RVP (Levels 8 +)	£1.60	£2.80	£3.80	£4.80	£5.60	£6.30	£6.30	£1.50
Town Hall Yard (w/e)	£1.60	£2.80	£3.80	£4.80	£5.60		£6.30	£1.50
Linden Park Road	£1.60	£2.80	£3.80	£4.80	£5.60	£6.30	£10.40	
Union House	£1.40	£2.30	£3.00	£3.80	£4.60		£5.30	
Beech St	£1.40	£2.30	£3.00	£3.80	£4.60		£5.30	
Little Mount Sion	£1.60	£2.80	£3.80	£4.80	£5.60		£6.30	
Camden Road	£1.40	£2.30	£3.00	£3.80	£4.60		£5.30	
Mount Pleasant (w/e)	£1.60	£2.80	£3.80	£4.80	£5.60		£6.30	

3.5.8. Post Payment is currently is used at Great Hall, with the charges presented in Table 13.

Table 13: Post Payment Parking Charges

Car Park	Up to 1 hour	Up to 2 hours	Up to 3 hours	Up to 4 hours	Up to 5 hours	Up to 6 Hours	All Day	PP Night
Great Hall	£1.60	£2.80	£3.80	£4.80	£5.60	£6.30	£10.40	£1.50

3.5.9. There are several different season ticket charging regimes deployed across Tunbridge Wells.

3.5.10. The regime outlined in Table 14 is deployed at Beach Street and Camden Road.

Table 14: Season Ticket Parking Charge Regime

Months	Full time	Part time
1	£113	£68
2	£201	£121
3	£289	£173
4	£385	£231
5	£482	£289
6	£573	£344
7	£668	£401
8	£764	£458
9	£852	£511

10	£946	£568
11	£981	£589
12	£1,005	£603

3.5.11. A second parking charging regime, presented in

3.5.12. Table 15, introduces a resident rate and an overnight rate.

Table 15: Season Ticket Charging Regime 2

Months	Full time	Part time	Resident Rate	Overnight
1	£118	£71	£70	N/A
2	£210	£126	£115	N/A
3	£302	£181	£161	N/A
4	£403	£242	£212	N/A
5	£503	£302	£262	N/A
6	£599	£359	£310	N/A
7	£698	£419	£359	N/A
8	£798	£479	£409	N/A
9	£890	£534	£455	N/A
10	£989	£594	£505	N/A
11	£1,025	£615	£523	N/A
12	£1,050	£630	£535	£60

3.5.13. This second regime is used at the following car parks, although is not applied fully:

- Crescent Road, all rates;
- Great Hall, full time rate only;
- Meadow Road, full time and part time rates only; and
- Mount Pleasant Road, full time, part time and resident rates.

3.5.14. A third parking charging regime is applied at Warwick Avenue, as outlined in Table 16.

Table 16: Warwick Avenue Parking Charge Regime

Months	Full time
1	£53
2	£94
3	£135
4	£180
5	£225
6	£268
7	£313
8	£357
9	£398

10	£443
11	£459
12	£470

3.5.15. The remaining car parks apply the following season ticket charging regimes (Table 17).

Table 17: Season Ticket Parking Charges

	Months	Full Time	Local Employee Rate	Resident Rate	Overnight	Entry Fob deposit
Calverley Terrace	12	£1,160				£30
High Brooms	12	£125				
Royal Victoria Place	12				£60	
Stone Street	12			£120		
Torrington	12				£60	
Town Hall Yard	12				£60	

3.5.16. As a concept, the successful operation of any P&R facility depends on the relative charge of car parks within the town centre i.e. the more expensive car parking becomes, the more attractive P&R becomes as an alternative. As demonstrated above, there is considerable variation in the existing charging regime and this could be reviewed and streamlined as part of a coordinated approach to the creation of one or more P&R facilities.

PARKING NOT CONTROLLED BY TWBC/KCC

3.5.17. As outlined in the Parking Strategy, there are a number of car parks that are not controlled by Tunbridge Wells Borough Council or Kent County Council. No data on usage or revenue from these car parks has been available for review in this study.

FREE ON-STREET PARKING

3.5.18. According to information from TWBC, there are a considerable number of roads (98) that are believed to be used by commuters, as the on-street parking (formal or informal) is free. These roads are listed in Table 18.

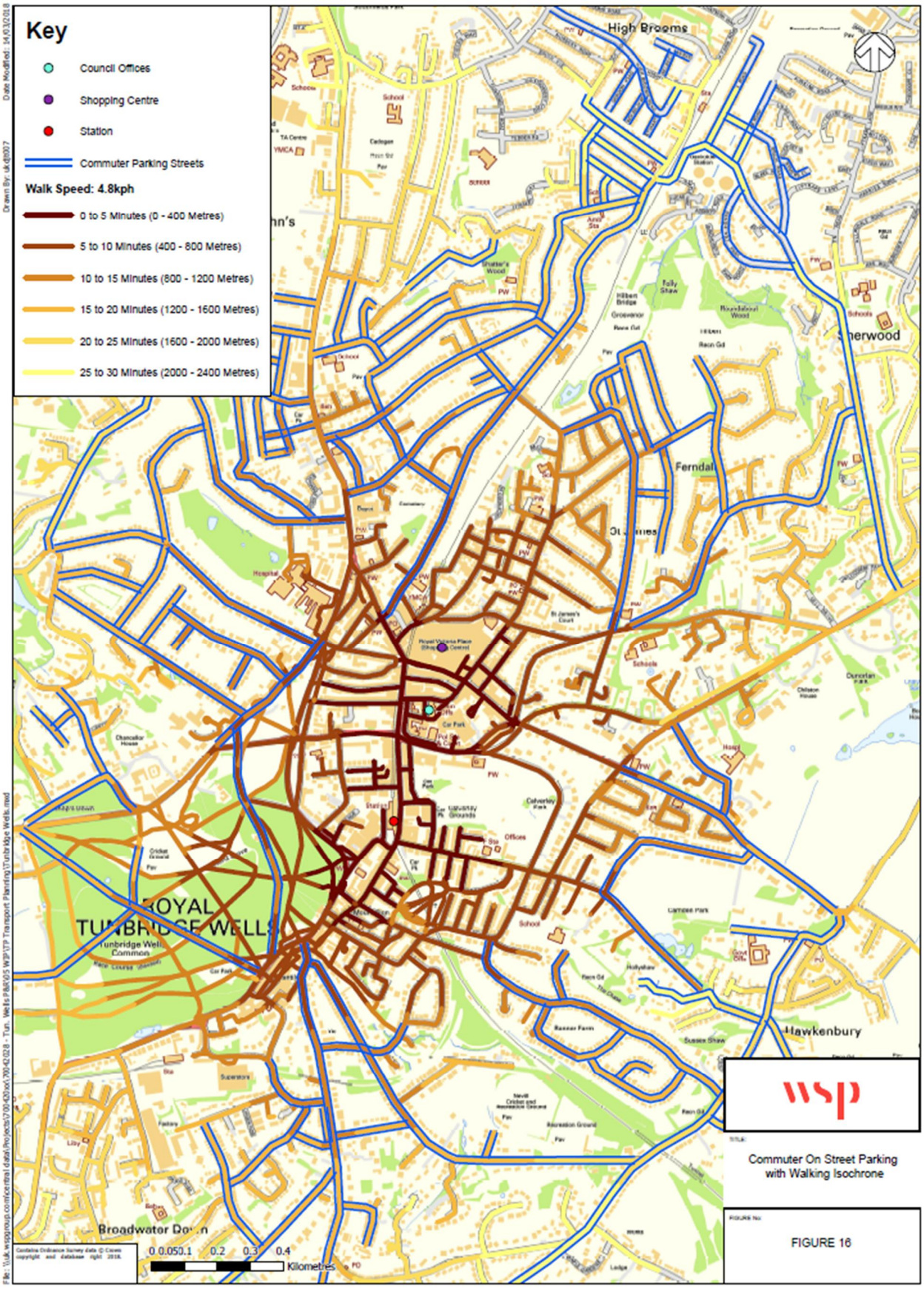
Table 18: Free On-Street Commuter Parking

Streets		
All Saints Road	Dunstan Grove	Oakdale Road
Amherst Road	Dunstan Road	Park Road
Auckland Road	Dynevor Road	Queens Road
Banner Farm Road	Earls Road	Rochdale Road
Bayhall Road	Farmcombe Road	Rodmell Road
Beltring Road	Ferndale	Roedean Road
Birling Drive	Fir Tree Road	Royal Chase
Bishops Down Road	Forest Road	Rymers Close
Boundary Road	Forest Way	St James' Park
Boyne Park	Frant Road	St James' Road
Broadwater Down	Gordon Road	Sandhurst Park
Broadwater Rise	Hawkenbury Road	Sandhurst Road
Brook Road	High Brooms Road	Silverdale Road
Byng Road	Hilbert Road	Somerset Road
Cambrian Road	Holmewood Road	Somerville Gardens
Campbell Road	Hopwood Gardens	Southfield Road
Camden Park	Hungershall Park	Southwood Avenue
Castle Road	Hurstwood Lane	Standen Street
Cavendish Drive	John Street	Stephens Road
Chilston Road	Kent Road	Stewart Road
Clarendon Gardens	King George V Hill	Sussex Close
Clarendon Way	Kingswood Road	Thomas Street
Clifton Road	Major York's Road	Upper Grosvenor Road
Connaught Way	Manor Close	Vernon Road
Court Road	Maple Close	Warwick Park
Culverden Avenue	Maryland Road	Welbeck Avenue

Culverden Down	Mayfield Road	Whitefield Road
Culverden Park	Mereworth Road	Whybourne Crest
Culverden Park Road	Molyneux Park Road	William Street
Currie Road	Montacute Road	Wolseley Road
Delves Avenue	Mount Ephraim	Woodbury Park Road
Denbigh Road	Nevill Gate	Woodland Road
Dorking Road	Oak Road	

3.5.19. These have been mapped in Figure 10, alongside walking isochrones to the Council offices, Royal Victoria Shopping Centre and the Rail Station.

Figure 10: Location of Free On-Street Parking with Walking Isochrones



3.5.20. Figure 10 shows that much of the free on-street parking is within 10 minutes' walk of key town centre locations and is therefore in an attractive location. The southern end of Upper Grosvenor Road is just within the 5 minute isochrone area although this is minimal. There is currently no data on how well these streets are used or the origins and length of stay of the users to determine potential alternative parking locations for these commuters.

3.5.21. This context will nevertheless inform the P&R model to estimate the percentage of free parking available in town centre.

3.6 SITE VISITS

3.6.1. Site visits were conducted on 31st January and 13th February 2018. Table 19 summarises the observations.

Table 19: Summary of site visits

Item	Observations
Tesco parking, capacity, occupancy and facilities (Call for Sites, 395)	The existing car park often seems under-utilised. The area next to it (already allocated for P&R) is largely scrub land and relatively flat already.
Mabledon site (Call for Sites, 445)	Large site which requires surfacing as well as access to A26 to enable a P&R site.
Notcutts Garden Centre (Call for Sites, 136)	The existing car park would require levelling and improved access to Pembury Road to enable a P&R site.
Adjacent Pembury Hospital (Call for Sites, 444)	Large site which would require surfacing as well as access to Tonbridge Road to enable a P&R site – this site would potentially mainly attract users from north of Tunbridge Wells, and to a lesser extent traffic from the east, but not from the south.
Use of Cornford Lane for bus services (in order to avoid congestion on Pembury Road)	There is a man-made narrowing toward the north-eastern end although that would be by-passed by a direct exit (buses only) from the P&R site. The road is sign-posted as a 6'6" width restriction 1.5 miles from the Pembury High Street end as it is very narrow in places. Potentially feasible if using smaller vehicles (16-seat minibuses) subject to tree-cutting and foliage trimming.
Potential bus terminus in the town centre, arriving from Victoria Road	It is feasible to terminate buses around this location.
Suitability of running buses in Garden Road and Victoria Road from the A264 in both directions	Existing bus services already use this route.
Land adjacent Eridge Road (Call for Sites, 137)	The site has been identified as a potential site for P&R services in Eridge Road. It would however require an access road to be built to enable a P&R site.

3.7 SITE SELECTION

3.7.1. Based on desktop analysis and site visits, the WSP project team considered that the following three sites are the most suitable locations for a potential P&R:

- Tesco Pembury Road which intercepts traffic coming in both directions from the A21 and A228 towards TW via Pembury Road. The other sites in the area (Call for Sites, 136 and 444) would require significant capital expenditure to be transformed into a P&R facility and would not intercept as many trips due to their respective locations and site accesses.
- Call for Sites, 445, Mabledon to intercept traffic using London Road corridor to reach TW.
- Call for Sites, 137 to intercept traffic using Eridge Road to reach TW.

3.8 SUMMARY OF BACKGROUND (CHAPTERS 2 AND 3)

3.8.1. Congestion and town centre parking are the two main subjects present in the local strategic and policy context.

3.8.2. A number of these documents indicate a desire for additional parking, such as:

- "Off street parking project" in the 5 year plan;
- objective 7 of the Transport Strategy "Provide suitable parking to support the borough's town centres" or the realisation of a need for extra off-street parking spaces to support anticipated growth of the town over the next 10 years; and
- the potential need for an additional 300 parking spaces in the south of the town in the future, as expressed in the Parking Strategy.

3.8.3. There is also an understanding that in order to reduce congestion on the trunk routes, a reduction in on-street parking spaces in TW town centre and junction improvements (where possible) may be required.

3.8.4. The overall strategic context clearly highlights the need to differentiate markets such as commuters and shoppers when considering parking policies.

3.8.5. While the implementation of P&R could help tackle parking and congestion problems, and could mainly attract commuters, the P&R study conducted in 2014 concluded that the implementation of P&R would require radical changes which would likely be very unpopular with local residents and businesses, particularly those directly affected by proposals. Thus the implementation of P&R was not pursued at that time but is still referred to in the Transport Strategy for consideration in the medium term.

3.8.6. Previous studies have identified A26 London Road and A264 Pembury Road as the most congested roads to access the town centre. However recent studies on both of these corridors have highlighted a lack of further opportunities to increase capacity on these two main corridors significantly while nevertheless identifying opportunities for small improvements.

3.8.7. The daily traffic flow data estimates published by DfT for 2016 show Pembury Road and Eridge Road as the busiest daily traffic flows, closely followed by London Road. Implementing P&R along these corridors could therefore present a high chance to intercept major traffic flows.

3.8.8. The ANPR surveys show that only between 8 and 11% of traffic goes through Tunbridge Wells, leaving up to 89% of the traffic final destination to be in the town centre. This travel pattern is appropriate for P&R.

3.8.9. Interrogation of the census 2011 data reveals that:

- 82.5% of households in Tunbridge Wells own at least one car/van and this number has increased by 27% since 2001.
- Nearly half of the people who work in Tunbridge Wells live in Tunbridge Wells (49%), followed by 15% coming from the south, 14% coming from the north, 11% coming from the east and 7% coming from the west.

3.8.10. Pembury Road was identified as a good alternative access to Tunbridge Wells from origins such as the South East or North East, as well as the best access from the East.

3.8.11. The bus network around Tunbridge Wells operates mostly low frequency bus routes, except for 3 strong corridors listed below. These will be reviewed in line with the potential P&R models.

- Tunbridge Wells – Tonbridge via London Road;
- Tunbridge Wells – Rusthall via Major York Road ; and
- Tunbridge Wells – High Brooms via Upper Grosvenor Road.

3.8.12. Data on 15 car parks within the town centre has been received from Tunbridge Wells and analysed. These car parks provide 3,819 spaces across the town. The data provided enables a utilisation figure to be calculated, that being the ratio of hours of parking bought compared against the theoretical available parking hours. Crescent Road has a utilisation ratio of 132%, whilst the average across all car parks is 65%, dropping to 59% if Crescent Road is excluded. Across the town there are 98 streets identified by TWBC that provide free on-street parking, although with the exception of the very southern end Upper Grosvenor Road, all are outside the 5 minute walking isochrone area.

3.8.13. Site visits concluded that only small vehicles could access an alternative routing (Cornford Lane) for a potential site on Pembury Road.

3.8.14. The P&R stated preference survey (carried out in 2011) indicated a potential appetite for P&R service, with 54% of workers likely to use the facility if it existed. It also highlighted that increasing parking charges in town would encourage further demand for P&R.

3.8.15. Three sites have been shortlisted to conduct a detailed feasibility on potential demand for P&R targeting the three busiest traffic corridors. These are Tesco Pembury Road, land adjacent Mabledon (Call for Sites, 445) and land adjacent Eridge Road (Call for Sites, 137).

3.8.16. It is also noted that the Section 106 agreement put in place in relation to the proposed Tesco store expansion remains valid and gives planning permission for 320 parking spaces, although it is understood that it will not be triggered because no further development of the store is planned by Tesco. Therefore, in order to deliver the P&R, the site would have to be acquired from Tesco.

4 P&R EVALUATION

4.1 POTENTIAL ROUTES FROM PEMBURY ROAD

4.1.1. From the Tesco site, four different routes have been investigated:

- Route 1 (any vehicle size): A264 Pembury Road, Sandrock Road, Garden Road, Victoria Road, Goods Station Road, Grosvenor Road, Upper Grosvenor Road, Meadow Road, Goods Station Road, Victoria Road, Garden Road, Sandrock Road, A264 Pembury Road;
- Route 2 (any vehicle size): A264 Pembury Road, B2249 Calverley Park Gardens, Calverley Road, Monson Road, Mount Pleasant Road, Crescent Road, B2249 Calverley Park Gardens, A264 Pembury Road;
- Route 3 (minibus only): A264 Pembury Road, B2249 Calverley Park Gardens, Calverley Road, Monson Road, Mount Pleasant Road, u-turn at B2023 Grove Hill Road, Mount Pleasant Road, Crescent Road, B2249 Calverley Park Gardens A264 Pembury Road; and
- Route 4 (any vehicle size): A264 Pembury Road, B2249 Calverley Park Gardens, Calverley Road, Monson Road, Mount Pleasant Road, B2023 Grove Hill Road, A264 Pembury Road.

The proposed routeings are illustrated in Figure 11 below, while Table 20 presents the expected characteristics of each route.

As set out in the P&R Feasibility Study in 2014, a journey time advantage for P&R over private car traffic is an important consideration and, as the A264 corridor has the greatest scope for bus priority (in terms of highway width), it is therefore appropriate to test a scenario with bus priority on the route presenting the highest demand: in this case routes 3 or 4 which serve the highest number of traffic generators.

Figure 11: Potential P&R routes from Tesco Pembury Road site

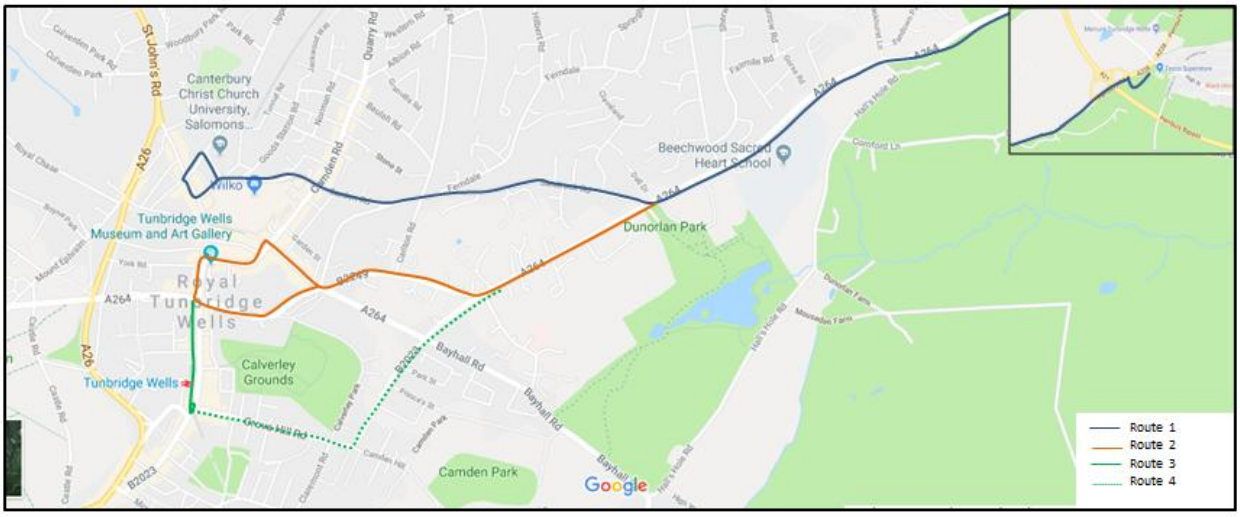


Table 20: Route details – Pembury Road

	Route 1	Route 2	Route 3/4	Route 3/4 bus priority
Vehicle type	Any size	Any size	Minibus / Any size	Minibus / Any size
Frequency (every '*x*' minutes)	15	15	15	15
Estimated peak running time Direction 1	15	13	16	14
Estimated peak running time Direction 2	17	13	16	15

	Route 1	Route 2	Route 3/4	Route 3/4 bus priority
Estimated layover – town centre	5	5	5	5
Estimated layover – P&R site	5	5	5	5
Total round-trip time	42	36	42	39
Estimated number of buses required	2.8	2.4	2.8	2.6
Distance to TW (km)	3.7	3.7	4	4
Distance to P&R (km)	3.9	4.1	4.5	4.5
Comment	Although it doesn't go as far into the town centre, it is estimated to take longer than Route 2			Extensive physical bus priority may not be achievable, as described below

4.1.2. The assumptions below were used to calculate the vehicle requirements:

- The running time estimates are based on existing bus schedules around 8 am on weekdays (where available) and compared with online traffic estimates;
- The existing bus running times were reduced by 2 minutes to estimate a direct P&R service rather than multiple bus service stops; and
- Each bus route includes 5 minutes layover at each end and operates every 15 minutes unless demand requires greater frequency.

4.1.3. As reviewed in section 2.3, traffic flows on the A264 Pembury Road were considered in detail by KCC's highways consultant Amey in February 2016. Although this study considered traffic congestion and bus stop infrastructure, it did not make any specific proposals regarding bus priority measures. The key junction on the line of route of a P&R service from Tesco would be the signalised A264/Blackhurst Lane/Halls Hole Road Junction, although the interaction between the consecutive junctions of A264/Tonbridge Road/High St junction and A264/A21 (NB) On/Off Slip Roundabout – A264 (W) exit bottleneck would also be relevant.

4.1.4. In principle, the existing signalised junction could ease the implementation of Selective Vehicle Detection (SVD) as a means of getting buses through the A264/Blackhurst Lane/Halls Hole Road junction, however the report infers that queues are common in both directions at peak times and therefore any change to the timing and sequence of the traffic light cycle in one direction may not bring any benefit to the overall round-trip time. Therefore, physical bus priority measures would be necessary to provide more predictable bus journey times and, if possible, a journey time advantage over other traffic. In terms of inbound bus priority, the observed highway width is constrained between Tree Lane and the junction and consequently an alternative option would be to explore queue relocation between, say, the entrance to Oakley School and Tree Lane in order to get buses ahead of other traffic in the queue. The highway width between Oakley School and the A21 slip-road roundabout (to the west of the A21) could potentially facilitate some physical bus priority but would only be likely to affect journey times when queues are at their worst.

4.1.5. For outbound buses, the section of Pembury Road between the Sandhurst Road junction and the A264/Blackhurst Lane/Halls Hole Road junction is wider than a standard two-lane carriageway, as it includes a hatched central reservation and verges on both sides of the road. Accordingly, Pembury Road could in theory accommodate a bus lane (outbound), although there would be challenges related to statutory services (e.g. electricity and telecommunications), in addition to road sign relocation, as well as the need for some amount of tree clearance.

4.1.6. Assuming that significant priority measures were achievable, the round-trip time for buses has been estimated to be reduced by potentially 3 minutes, which would have a positive impact on the projected viability of the P&R service as set out in Table 25.

4.1.7. As the measures identified above have been determined from a visual inspection of the route, aided by a map-based desktop review, more detailed assessment of the potential for these measures would need to be made before they could be included in the 'base case' for all P&R options for Pembury Road. As such, the cost of introducing such bus priority measures is not included in Table 25, as the capital costs shown are for the sites themselves.

4.1.8. The other junctions on the route proposed for the P&R are indicated by the A264 Corridor Route Study to be operating within design limits and as un-signalised junctions, SVD would not be applicable. Equally, as 'within capacity' junctions, it would be unlikely that an investment case could be made for extensive physical bus priority at these locations and therefore no further measures have been considered.

Conclusions:

4.1.9. Route 1 running time is longer than Route 2, based on existing bus schedules (267 and 297), while online traffic estimates show similar timing for both routes. Considering that Route 1 routing will not directly serve the main employment locations in the town centre, Route 1 was not taken forward for further analysis.

4.1.10. Serving the Rail Station is estimated to take 3 more minutes than Route 2 and the journey time between Routes 3 or 4 on the return journey is estimated to be equal. Therefore serving the Rail Station would be possible within the resource of 3 buses.

4.1.11. As part of initial scenario development, the use of Cornford Lane was considered with the journey time estimated to be 6 minutes compared to 8 minutes on Pembury Road at peak times, but this is on the basis of it only being a feasible route for small buses (of between 16 and 20 seats). It is also noted that Cornford Lane could only reasonably be used in one direction and could be subject to long delays if, for example, a vehicle larger than a car is parked in the narrower sections of the lane. Moreover, the signal timings at the Pembury Road/Blackhurst Lane/Halls Hole Road junction are set to deter 'rat-running' along Cornford Lane and therefore this option will not be pursued.

4.1.12. The following options were tested (with results presented in section 4.7):

- Route 3/4 at every 15 minutes with small vehicles;
- Route 2 at every 15 minutes with small vehicles; and
- Route 3/4 with bus priority.

4.1.13. In the event of one of these options being selected to be taken forward, a journey time test with appropriate-sized vehicles should be carried out in the refinement stage.

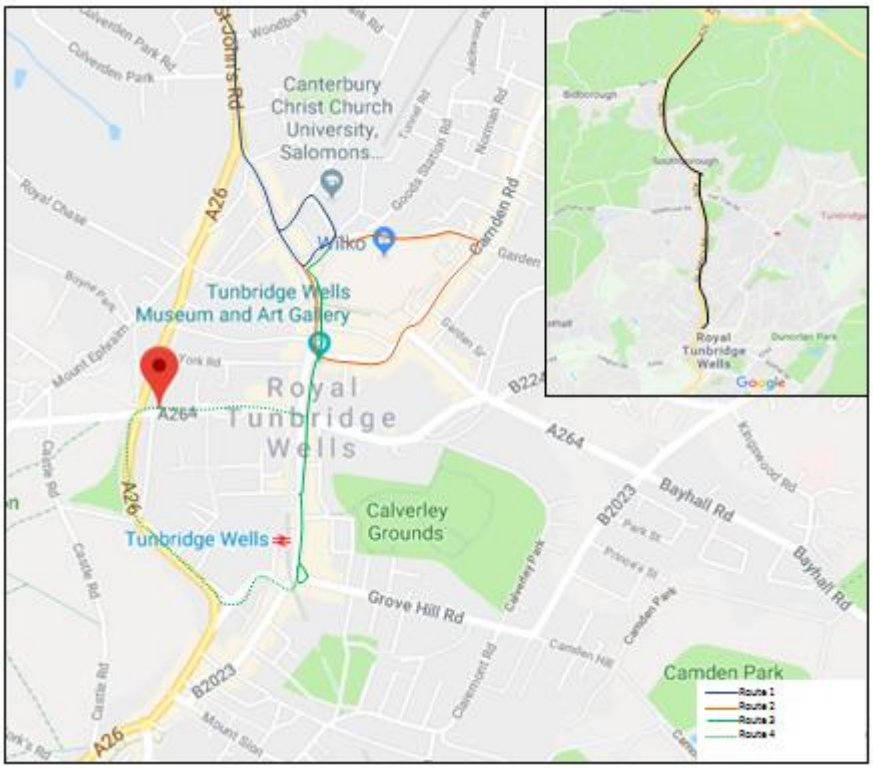
4.2 POTENTIAL ROUTES FROM LONDON ROAD

4.2.1. From the Mabledon site, four different routes have been investigated:

- Route 1 (any vehicle size): A26 London Road, Grosvenor Road, Upper Grosvenor Road, Meadow Road, Goods Station Road, Grosvenor Road, A26 London Road;
- Route 2 (any vehicle size): A26 London Road, Grosvenor Road, Upper Grosvenor Road, Meadow Road, Goods Station Road, Grosvenor Road, Mount Pleasant Road, Monson Road, Camden Road, Victoria Road, Goods Station Road, Grosvenor Road, A26 London Road;
- Route 3 (minibus only): A26 London Road, Grosvenor Road, Upper Grosvenor Road, Meadow Road, Goods Station Road, Grosvenor Road, Mount Pleasant Road, u-turn at B2023 Grove Hill Road, Mount Pleasant Road, Grosvenor Road, A26 London Road; and
- Route 4 (any vehicle size): A26 London Road, Grosvenor Road, Upper Grosvenor Road, Meadow Road, Goods Station Road, Grosvenor Road, Mount Pleasant Road, Church Road, A26 London Road, Vale Road, B2023 High Street, Mount Pleasant Road, Grosvenor Road, A26 London Road.

These routes are illustrated in Figure 12.

Figure 12: Potential P&R routes from Mabledon Site



4.2.2. The assumptions below were used to calculate the vehicle requirements:

- The running time estimates are based on existing bus schedules around 8 am on weekdays (where available) and compared with online traffic estimates;
- The existing bus running times were reduced by 2 minutes to estimate a direct P&R service rather than multiple bus service stops;
- Each route includes 5 minutes layover at each end and operates every 15 minutes unless demand requires greater frequency; and
- No potential for significant bus priority measures was highlighted in the A26 corridor study and thus it is unlikely that transformational journey time savings can be introduced on this corridor. This view was supported by the observations made during the project site visit which WSP conducted with TWBC.

4.2.3. Table 21 summarises the proposed routes and corresponding vehicle requirements.

Table 21: Route details – London Road

	Route 1	Route 2	Route 3	Route 4
Vehicle type	Any size	Any size	Minibus only	Any size
Frequency (every '*x*' minutes)	15	15	15	15
Estimated peak running time Direction 1	17	19	21	23
Estimated peak running time Direction 2	17	19	21	23
Estimated layover – town centre	5	5	5	5
Estimated layover – P&R site	5	5	5	5
Total round-trip time	44	48	52	56

Estimated number of buses required	2.9	3.2	3.5	3.7
Distance to TW (km)	5.1	5.7	6.2	7
Distance to P&R (km)	5.1	5.7	6.2	6.2
Comment		Needs 1 more bus than Route 1	Needs 1 more bus than Route 1	Needs 1 more bus than Route 1

Conclusions:

4.2.4. Route 1 requires only 3 vehicles to operate a frequency of every 15 minutes in the morning peak while all other routes require 4 vehicles.

4.2.5. The following options were tested (with results presented in section 4.7):

- Route 4 at every 15 minutes with small vehicles;
- Route 2 at every 15 minutes with small vehicles; and
- Route 1 at every 15 minutes with small vehicles.

4.2.6. In the event of one of these options being selected to be taken forward, a journey time test should be carried out in the refinement stage.

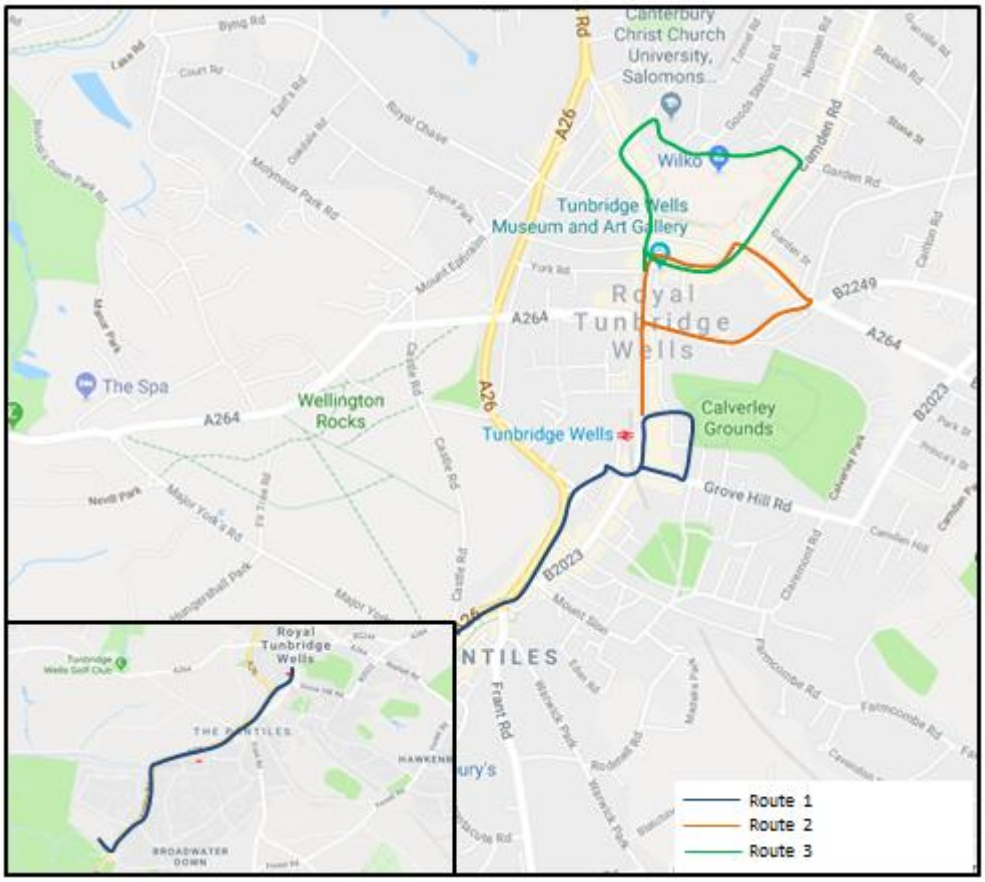
4.3 POTENTIAL ROUTES FROM ERIDGE ROAD

4.3.1. From Eridge Road, three different routes have been investigated:

- Route 1 (small vehicle): Eridge Road, London Road, Vale Road, B2023, Mount Pleasant Road, Mount Pleasant Avenue, B2023, Vale road, London road, Eridge Road;
- Route 2 (any size vehicle): Eridge Road, London Road, Vale Road, B2023, Mount Pleasant Road, Monson Road, Calverley Road, Crescent Road, Mount pleasant, B2023, Vale Road , London Road, Eridge Road; and
- Route 3 (any size Vehicle): Eridge Road, London Road, Vale Road, B2023, Mount Pleasant Road, Grosnevor Road, Victoria road, Camden Road, Monson Road, Mount pleasant, B2023, Vale Road, London Road, Eridge Road.

4.3.2. These routes are illustrated in Figure 13.

Figure 13: Potential P&R routes from Eridge Road site



4.3.3. The assumptions below were used to calculate the vehicle requirements:

- The running time estimates are based on existing bus schedules around 8 am on weekdays (where available) and compared with online traffic estimates;
- The existing bus running times were reduced by 2 minutes to estimate a direct P&R service rather than multiple bus service stops;
- Each route includes 5 minutes layover at each end and operates every 15 minutes unless demand requires greater frequency.
- Considering the relatively short running time on these route options, it is unlikely that the introduction of bus priority measures would make a significant impact on total round-trip journey time.

4.3.4. Table 22 summarises the proposed routes and corresponding vehicle requirements.

Table 22: Route details – Eridge Road

	Route 1	Route 2	Route 3
Vehicle type	Any size	Any size	Any size
Frequency (every '*x*' minutes)	15	15	15
Estimated peak running time Direction 1	8	9	11
Estimated peak running time Direction 2	7	8	10
Estimated layover – town centre	5	5	4*
Estimated layover – P&R site	5	5	5

Total round-trip time	25	27	30
Estimated number of buses required	1.7	1.8	2.0
Distance to TW (km)	2.6	3	3.4
Distance to P&R (km)	2.6	3	3.9
Comment			*Town Centre layover reduced by 1 minute to avoid the need for another vehicle

Conclusions

4.3.5. Only 2 vehicles are required to create a P&R service from the Eridge Road site.

4.3.6. The following options were tested (with results presented in section 4.7):

- Route 3 at every 15 minutes with small vehicles;
- Route 2 at every 15 minutes with small vehicles; and
- Route 1 at every 15 minutes with small vehicles.

4.3.7. In the event of one of these options being selected to be taken forward, a journey time test should be carried out in the refinement stage.

4.4 P&R MODEL

4.4.1. The spreadsheet-based model used for estimating the results for each option has been developed by WSP to support a number of P&R assessments in the UK. Originally created in 2005, and supported by the development of a full transport model for Doncaster, the model has been refined and tailored to each subsequent scheme, taking into account the particular requirements of each scheme and the availability of background data.

4.4.2. The model aims to estimate the potential traffic demand which could switch from car to a P&R service, based on:

- The volume of observed traffic on the targeted corridor;
- Car users end destinations;
- The availability and cost of parking;
- The generalised travel time for a door to door trip by car and by using a P&R service;
- The generalised cost associated with the journey; and
- Other parameters required to implement a logit model (Lambda and mode constant).

4.4.3. The P&R model uses an incremental logit in which demand is split in proportion to the changes in travel costs between different scenarios. The inputs into this are:

- Demand: Estimation of traffic with town centre as final destination;
- Costs: Cost of driving a car (including fuel, parking and time) versus cost of using a P&R service to complete the same journey; and
- Choices: Reflection of different mode perceptions such as convenience, comfort, perception of time.

4.4.4. The use and refinement of the model during the course of multiple projects by WSP has allowed the development of a strong understanding of some parameters specific to P&R such as Lambda (P&R Choice Sensitivity Values) and mode constant.

4.4.5. In respect of Lambda, the P&R choice sensitivity values used in models across the country typically lie between 0.04 and 0.06, and thus was set as an average value of 0.05 for Tunbridge Wells.

4.4.6. The mode constant represents the immeasurable and usually negative perceptions of a public transport journey concerning aspects such as reliability, convenience, comfort, passenger wait time and image that are not accounted for by empirical factors like travel time and fare attributes alone. This approach is necessary to account for the observed reality that even if journey time and cost is the same for P&R as for the car journey, the majority of mode share will still remain with car trips due to the attraction of continuity of journey and

greater flexibility for the time of the return journey. A car journey is given zero mode 'penalty' while public transport is given a positive mode 'penalty' in the form of additional journey time. Based on previous models and surveys, this number ranges between 25 and 35 minutes. An average of 30 minutes was set for the TW P&R model, reflecting in major part a weighting of 2.5 for perception of waiting time for a P&R service running at 4 buses per hour.

4.4.7. Based on these inputs, the model estimates expected P&R demand, revenue and operational cost. All are then analysed together to assess the viability of the modelled P&R scheme.

4.4.8. The model was calibrated to reflect the specific conditions of Tunbridge Wells, based on either local survey where available, neighbouring cities parameters when relevant or otherwise on national averages, based on previous studies. A list of model parameters and their source is provided in Table 23.

Table 23: P&R model parameters

Parameters	Am peak	Off peak	Source
% of Traffic Without Free Car Parking	15.0%	15.0%	Estimated from TW Data
% of Traffic with destinations in City Centre	Between 43% and 69%		Estimated from TW ANPR data per corridor and time period for 4 hours
Average parking fare per hour	55p	90p	Estimated from TW Parking data occupancy and fares (season ticket in peak, Ringo off-peak)
Car Occupancy	1.17	1.59	National Travel Survey 2016, commuting for peak hour, and Leisure, shopping and personal
Mode Choice Sensitivity Parameter (Lambda)	0.05	0.05	Average value from previous projects
Mode Constant	30 minutes	30 minutes	Average value from previous projects, considering waiting time perception weight by a factor of 2.5, which reduces as frequency increases
Fuel cost (pence/km)	8.9	8.9	WebTAG
Value of Time (pence/min)	12.92	12.92	WebTAG
Annualisation factor	255 days		Typical Mon-Friday service
Small size vehicle cost	£120,000 per annum		As per industry experience
Medium Size vehicle cost	£160,000 per annum		As per industry experience
Capital cost of P&R site	£10,000 per space		Based on experience

4.5 P&R SERVICE DESIGN REQUIREMENT

4.5.1. All scenarios have been tested at 4 buses per hour initially as the experience of the WSP project team and literature recommends minimum frequency of 15 minutes in order to provide an attractive P&R service. Where demand exceeded the bus capacity in peak, the frequency was increased to match the demand and the model re-run iteratively to account for the impact on demand of the consequent waiting time reduction until equilibrium was found.

4.5.2. The vehicle type (small/medium) has been chosen based on the estimated demand per hour and the physical ability to operate the required vehicle on any particular route.

4.5.3. The default charging regime is for P&R users to pay for the service (per passenger), rather than the parking (per vehicle), as this is the most common way to operate P&R services in UK, as no VAT applies to the bus fare, unlike car parking.

4.5.4. At this stage, the bus fare has been set at £2.60 return all day. This is the same peak fare for Maidstone's P&R services and is similar to the assumption of the previous P&R study in 2014 (which used a return fare of

£2.50) although it is lower than the current equivalent bus fare for all sites and is less than half the price for both Pembury Road and London Road. In the model, the fare is reduced by 10% to account for season tickets which are generally made available for regular users of P&R services.

4.5.5. As a public bus service, it is expected that English National Concession Travel Scheme (ENCTS) which provides free off-peak bus travel for the elderly and disable would be valid on a P&R service. At this stage, the demand from this market segment has not been projected as the principal aim of P&R is to attract peak users, typically commuters.

4.5.6. While usage would be expected to be noticeably higher with ENCTS passes being valid, and may even require larger vehicles or a higher frequency to accommodate such demand, the underlying principle of the reimbursement mechanism is that the operator (either the bus company or TWBC) should be 'no better or worse off' than in the absence of the scheme. Therefore, although reimbursement would have to be made by KCC (as the authority responsible for ENTCS), the net financial effect for the operator should in principal be neutral. As noted, there may however be a need to manage capacity carefully, particularly if additional vehicles are required, such that the overall financial result is not worse than projected.

4.5.7. The annualisation factor used to convert average daily usage to annual usage is 255, reflecting a Monday to Friday service only. If the service is offered on Saturdays, the demand profile is likely to be lower and shorter compared to weekdays and may thus warrant a reduced frequency and/or shorter operating day.

4.5.8. Access and egress walking times are estimated based on the relevant bus stop location and final destination based on three main destinations: Rail Station, TWBC offices (as a mid-way point) and Royal Victoria Shopping Centre. Bus operating journey time and mileage has been estimated as described in sections 4.1, 4.2 and 4.3.

4.5.9. The potential maximum demand for a corridor is estimated based on the number of vehicles using that corridor whose final trip destination is Tunbridge Wells Town Centre and the proportion which may be attracted by a P&R service, considering the number of free parking spaces available, the final destination (of the motorised trip), and the cost difference between modes.

4.5.10. To estimate the potential demand difference on each variant of a corridor, it was estimated that a route serving all the main areas of the Town Centre (Royal Victoria Shopping Centre, Town Hall and rail station) would attract 100% of the potential maximum demand, but 90% if one area is missed, and only 70% if two areas are missed. This is on the basis that the service would be slightly less attractive overall but that most of the P&R passengers would still walk to their final destination.

4.5.11. In terms of the impact of future growth in the Town Centre (either related to population or economic developments) on projected P&R demand, it is not expected that a larger quantum of traffic flows would of itself result in a larger share using P&R, unless any additional congestion created by the growth in traffic flows were to result in comparatively beneficial journey times between P&R and private cars (e.g. in the case of bus priority on Pembury Road).

4.5.12. It should also be noted that irrespective of route option, P&R is observed to work best where it provides a higher quality service than would typically be offered by the local bus network. Therefore, the following aspects are considered to be part of the quality standards to be set for any services in Tunbridge Wells:

- E-ticketing;
- Wi-fi;
- At-seat charging points;
- Leather seats;
- Enhanced driver training;
- Audio-visual next stop announcements;
- CCTV;
- Customer Charter (e.g. money-back guarantee); and
- Buses meeting at least Euro 5 emission standards.

4.6 SCENARIOS TESTED

4.6.1. The scenarios identified as relevant for testing from the proposed routes described in sections 4.1, 4.2 and 4.3 are summarised in Table 24.

Table 24: Routes selected for testing per corridor

Corridor	Routes tested	Frequency and Vehicle type
Tesco Pembury Road	Pembury Road Route 3: to Rail Station	Every 15 minutes, Medium vehicles
	Pembury Road Route 2: to Council Offices Hall	Every 15 minutes, Medium vehicles
	Pembury Road Route 3: with Bus Priority	Every 15 minutes, Medium vehicles
London Road	Eridge Road Route 3: to Royal Victoria Place Shopping Centre	Every 15 minutes, Medium vehicles
	Eridge Road Route 2 : to Council Offices	Every 15 minutes, Small vehicles
	Eridge Road Route 1: to Rail Station	Every 15 minutes, Small vehicles
Eridge Road	London Road Route 4: to Rail Station	Every 15 minutes, Medium vehicles
	London Road Route 2 : to Council Offices	Every 15 minutes, Medium vehicles
	London Road Route 1: to Royal Victoria Place Shopping Centre	Every 15 minutes, Small vehicles

4.7 MODEL RESULTS OVERVIEW

4.7.1. Table 25: Model results per corridor presents the results of the 9 routes tested.

4.7.2. Baseline results demonstrate that up to 4 buses will be required to serve variants of London Road, 3 buses to serve variants of Pembury Road and 2 buses to serve variants of Eridge Road.

4.7.3. The likelihood of attracting car users to P&R depends on the total cost in terms of both price and the total journey time of the bus route compared to the same journey by car. Any significant journey time savings in favour of buses (for example, by means of bus priority measures) would contribute to increasing the attractiveness of P&R and consequently, according to the model, the Pembury Road site, running to the Rail Station, with bus priority is the option able to attract the largest number of cars. In this scenario, 77 cars are expected to use P&R in the morning peak hour between 8:00 and 9:00, corresponding to 9% of traffic on Pembury Road.

4.7.4. It appears that none of the routes would be able to recover their operational cost fully, but are expected to experience a deficit ranging from £40,000 for Eridge Road Route 2, serving the Council offices to £380,000 per year for London Road Route 2 to the Council offices via Royal Victoria Place Shopping Centre. The least ongoing annual cost option for each corridor is reviewed further in section 4.8.

4.7.5. A broader judgement about which option is 'best' overall depends on exactly which measure is chosen; for example, Eridge Route 3 (to Royal Victoria Place Shopping Centre via the Rail Station and the Council Offices) is the route which is expected to require the smallest subsidy per car journey, at £0.54.

4.7.6. All of the sites are confirmed to be large enough for the number of car parking spaces required. While the Eridge Road and London Road sites would need to have highway access built in addition to the parking area, the Tesco Pembury site already benefits from a roundabout and partial existing car parking, thus reducing significantly the capital investment required to convert the site to a P&R facility, although the site itself would need to be purchased (or leased) from Tesco.

Table 25: Model results per corridor

	Peak hour (8am – 9am) car demand for P&R	% of peak hour traffic	Total AM peak car demand (7 am – 10am)	Car park spaces required	Buses needed	Annual cost of operation	Annual surplus/ deficit	Capital expenditure for P&R facility	Cost per car	Estimated Parking revenue Loss
Pembury Road Route 3: to Rail Station via Council Offices	72	8%	185	383	3	£504,650	-£133,494	£ 2,181,147*	-£1.17	£325,134
Pembury Road Route 2 : To Council Offices	59	7%	152	303	3	£504,650	-£211,923	£ 1,725,932*	-£2.34	£258,782
Pembury Road Route 3: with Bus priority to Rail Station via Council Offices	77	9%	198	393	3	£504,650	-£124,950	£ 2,251,513*	-£1.06	£336,065
Eridge Road Route 3: To Royal Victoria Place Shopping Centre via Council Offices	63	7%	161	307	2	£344,650	-£49,458	£ 3,566,171**	-£0.54	£264,341
Eridge Road Route 2 : To Council Offices	51	6%	129	236	2	£264,650	-£39,707	£ 2,748,689**	-£0.56	£204,160
Eridge Road Route 1: to Rail Station	39	4%	99	169	2	£264,650	-£104,880	£ 1,990,687**	-£2.07	£148,364
London Road Route 4: to Rail Station	56	8%	155	379	4	£664,650	-£289,752	£ 4,271,810**	-£2.56	£314,586
London Road Route 2: To Council Offices	43	7%	121	288	4	£664,650	-£380,167	£ 3,255,943**	-£4.41	£239,963
London Road Route 1: to Royal Victoria Place Shopping Centre	30	5%	101	232	3	£384,650	-£157,062	£ 2,628,022**	-£2.27	£193,987

**Estimated £5,000 per parking space, because there is a number of parking spaces already present on this site*

***Estimated £10,000 per parking space + road access required*

4.7.7. In addition to the cost and revenue attributable to the P&R services, Table 25 also includes in the final column an estimation of the loss of current car parking income, assuming that future P&R users transfer their parking to the site from existing TWBC car parks. Given the availability of parking presented in section 3.5, it is likely that any transfer of users would result in a net loss of parking revenue in the TWBC car parks, rather than freeing up capacity to cater for existing suppressed demand.

4.7.8. A further projection of the scale of this potential loss of income would need to rely on more detailed data regarding the duration of parking but the figures in Table 25 are based on an average duration of peak users (commuters) of 7 hours and of off-peak users of 3 hours.

4.8 MODEL RESULTS PER CORRIDOR

4.8.1. The least ongoing annual cost option for Pembury Road is to provide a P&R service between Tesco and the Rail Station, via the Council offices, with pus priority at the A264/Blackhurst Lane/Halls Hole Road junction. This option is likely to attract 77 vehicles, which represents 9% of the AM peak hour flow. The projected success of this option is due to a more attractive journey time, achieved through the bus priority. This option would require 3 medium-sized vehicles and operate at a frequency of every 15 minutes. The annual cost of this option is estimated to be £505k, of which £125k would need to be subsidised (approx. 25%), corresponding to £1.06 subsidy per car. This option nevertheless presents some challenges such as implementing bus priority to achieve the estimated 3 minutes journey time saving, and may result is a loss in parking revenue of around £336k per annum. Overall, the advantage of this site, as well as being the most attractive to car users, is that a number of parking spaces are already built at the identified Tesco site and the highway access is also already present, both of which minimise the capital cost required to implement a P&R service.

4.8.2. The least ongoing annual cost option for Eridge Road is to provide a P&R service to the Council Offices (via the Rail Station). This option is projected to attract 51 vehicles, which represents 6% of the AM peak hour flow. The success of this option is due the ability to serve the two main destinations of the town centre utilising only 2 buses to operate a service every 15 minutes, using small vehicles. The annual cost of this option is estimated to be £265k, of which £40k would need to be subsidised (approx. 15%), corresponding to £0.56 subsidy per car. The advantage of this option, as well as being the least costly to TWBC on an ongoing basis, is that it could possibly also cater for the growing demand for parking in the south of the town and contribute to resolving the imbalance in parking spaces between the north and south of the town. However, there would be significant capital cost required to implement the P&R service at the suggested location (site 137), in addition to securing planning permission for what is currently a ‘green field’ site.

4.8.1. The least ongoing annual cost option for London Road is to provide a P&R service between Mabledon (site 445) to Royal Victoria Place Shopping Centre. This option is likely to attract 30 vehicles, which represents 6% of the AM peak flow into the town centre. This option is the most favourable of the otherwise rather poor options, due to the number of buses required to operate a frequency of every 15 minutes (4 vehicles) and the relatively long running time to reach the town centre, which projects the relatively low demand in the model. The annual cost of this option is estimated to be £385k, of which £157k would need to be subsidised (approx. 41%), corresponding to £2.27 subsidy per car. There would also be significant capital cost required to implement the P&R service at the suggested location (site 445), in addition to securing planning permission for what is currently a ‘green field’ site.

4.8.2. In conclusion, it is proposed that none of the options for London Road should be pursued at this stage. Ways to reduce operating costs for Pembury Road (described in section 4.10) and the potential for operating Pembury Road and Eridge Road sites as a single P&R route (described in section 4.11) have however been investigated as both sites present some promising options.

4.9 SENSITIVITY ANALYSIS

4.9.1. Two further scenarios were modelled to understand if a change in parking charges and free parking could significantly improve the case for P&R.

4.9.2. An increase in parking charges of 10% is predicted to increase the P&R demand by around 7.5% for all options, with consequent reduced annual deficits, however even for the least ongoing annual cost option (Eridge Road, Route 2) this would not be sufficient to result in an annual surplus and thus would not significantly change the conclusions for each corridor.

4.9.3. By contrast, the complete removal of free parking is projected to increase P&R usage by 18%, improving the case for all scenarios, and could enable Eridge Road Routes 2 and 3 to cover its annual operating cost.

4.9.4. This sensitivity analysis indicates how P&R can operate successfully as part of a parking system which uses both 'carrots' and 'sticks' to achieve wider sustainable transport policy objectives.

4.10 ALTERNATIVE SERVICE FOR PEMBURY ROAD

4.10.1. Focusing on the Pembury Road site as the site with the potential to attract the most P&R users, thus achieving the objective of reducing congestion, consideration has been given to whether the P&R service cost could be reduced so as to improve the viability of the scheme.

4.10.2. To do so, the possibility of combining existing scheduled public bus services which serve Pembury Road with additional P&R resources has been examined to see if this could result in a more comprehensive P&R service and an overall saving in the cost of provision.

4.10.3. Table 26 below presents the combined existing public bus services serving Pembury Road (shown in black) and the additional services required to provide a full timetable of 4 buses per hour in at peak times (shown in red).

Table 26: Bus services serving Pembury Road and P&R requirements

Hour	Departure	Arrival	Journey time	Route	Gap to previous bus
6 am to 7 am	06:46	06:54	00:08	297	
	06:45	07:00	00:15	6/6A	00:01
7 am to 8 am	07:00			P&R	00:15
	07:15			P&R	00:15
	07:30			P&R	00:15
	07:48	08:00	00:12	6/6A	00:18
	07:51	08:07	00:16	297	00:03
8 am to 9 am	08:02	08:15	00:13	297	00:11
	08:15			P&R	00:13
	08:32	09:01	00:29	6/6A	00:17
	08:45			P&R	00:13
9 am to 10 am	09:08	09:23	00:15	6/6A	00:23
	09:23			P&R	00:15
	09:38	09:53	00:15	6/6A	00:15
	09:53			P&R	00:15
10 am to 11 am	10:08	10:23	00:15	6/6A	00:15
	10:17	10:27	00:10	297	00:09
	10:38	10:53	00:15	6/6A	00:21
	10:53			P&R	00:15
11 am to 12 am	11:08	11:23	00:15	6/6A	00:15

Hour	Departure	Arrival	Journey time	Route	Gap to previous bus
	11:23			P&R	00:15
	11:38	11:53	00:15	6/6A	00:15
	11:44	11:54		297	00:06
	11:53			P&R	00:15
12 am to 1 pm	12:08	12:23	00:15	6/6A	00:15
	12:23			P&R	00:15
	12:38	12:53	00:15	6/6A	00:15
	12:53			P&R	00:15
1 pm to 2 pm	13:08	13:23	00:15	6/6A	00:15
	13:23			P&R	00:15
	13:38	13:53	00:15	6/6a	00:15
	13:44	13:54	00:10	297	00:06
	13:53			P&R	00:09
2 pm to 3 pm	14:08	14:23	00:15	6/6A	00:15
	14:23			P&R	00:15
	14:38	14:53	00:15	6/6A	00:15
	14:53			P&R	00:15

4.10.4. The existing services call at the bus stop adjacent to the entrance to Tesco on Pembury Road, heading towards the town centre. However, the bus stop in the other direction is located in front of the Mercure Hotel in Tonbridge Road, which is around 5 minutes' walk from the Tesco car park. During the study in 2014, the issue of public buses calling within the Tesco was a key point discussed with Arriva, as it is adjudged unlikely that a new bus stop could be sited on the opposite side of the carriageway.

4.10.5. Although the use of public bus services was advocated in the 2014 study, timetable changes in the meantime show that the current service is quite infrequent in the morning as between 6 am and 7 am and 7 am and 8 am there are only two buses, operating at irregular intervals in each of these hours, with a further two buses between 8 am and 9 am.

4.10.6. 3 additional journeys, representing 3 additional buses, would therefore be required to complement the existing bus services between 7am and 8am, in order to maintain a regular gap.

4.10.7. As a dedicated P&R service from Pembury Road is estimated to require 3 buses as well, it is unlikely that explicitly trying to build upon existing public bus services will improve the financial sustainability of the P&R service for Pembury Road significantly and would also result in a less comprehensive service to passengers in terms of stopping arrangements. Therefore, for this site, the option of combining the P&R service with existing public bus services is not recommended.

4.10.8. This analysis also highlights the existence of parallel services operating along Pembury Road, raising the question of potential competition if a P&R service were to be introduced. Analysis of the timetable schedule highlights that direct competition in peak hours is rather unlikely since there is a large gap in services between 06:45 and 07:48, and only two buses per hour after this gap. As the bus network is operated primarily on a commercial basis, it is anticipated that existing services would be more frequent if a larger demand for public transport already existed on this corridor.

4.10.9. Nevertheless, it is possible that the relative lack of bus services in the morning peak encourages car use and contributes to suppressed demand for public transport in all forms, which could be alleviated (at least for part of the journey) by a P&R service.

4.11 MERGING PEMBURY ROAD AND ERIDGE ROAD P&R ROUTES

4.11.1. The three corridors evaluated independently demonstrate that two corridors (Pembury Road and Eridge Road) could potentially benefit from and sustain a P&R service. However, as in keeping with most provincial P&R services in the UK, none of the stand-alone options cover their annual operating costs fully.

4.11.2. A single service, which removes some of the town centre route which would be duplicated if both services were to operate separately, has been evaluated as a further option. The estimated end to end journey time of a merged service would be around 25 minutes in each direction, and a 15-minute frequency could be achieved with 4 vehicles rather than 5 vehicles required to operate the services independently. This would therefore reduce the total vehicle resource required to operate both sites by 20%, thus improving the potential viability to a material degree.

4.11.3. An impediment to merging the two routes is however that the Pembury Road route (all options) is modelled to require medium-sized buses, while Eridge Road (route 2) would operate with small buses. Clearly, in order to merge the routes, Eridge Road would need to change to medium-sized buses, which would reduce, but not eliminate, the benefit of merging the routes.

Table 27: Merged Pembury Road and Eridge Road bus saving

	Pembury Road, all options		Eridge Road, route2		Total
Separate routes	3 medium buses	£504,650	2 small buses	£264,650	£769,300
Merged routes	2.5 medium buses	£420,542	1.5 medium buses	£252,325	£672,867
Saving		£84,108		£12,325	£96,433

4.11.4. While Eridge Road (route 3) would operate with medium-size buses anyway, the route is not appropriate to merge with Pembury Road (all modelled options), as it would serve Royal Victoria Place Shopping Centre and would therefore involve a de-tour which would make a through service impractical

4.11.5. As with all options, this estimation is subject to a running time survey and it is further noted that a merged service may operate less reliably as any traffic disruption would impact both services, even when any delays only occur on one corridor.

5 PARKING EVALUATION

5.1.1. Using the data outlined in Chapter 3, the P&R model has been populated with total number of parking spaces numbers, proportion of free parking spaces, and an average charge value has been calculated. The P&R model indicates that irrespective of the options tested, none of the potential sites covered their operational costs on an annual basis.

5.1.2. The aim of this section is to understand if the deficit could be cross-subsidised by an increase in parking charges, specifically in relation to commuters. Any increase in parking charge would of course make P&R comparatively cheaper and thus potentially increase the attractiveness of, and demand for, P&R.

5.2 PARKING CHARGE ELASTICITY MODEL

5.2.1. Using the demand data provided and the charging regime information, it has been possible to calculate an estimate of the revenue the 12 car parks outlined in Section 3 generate on an annual basis and average month, for the period August 2016 – July 2017. This has then been used to develop a simple parking charge elasticity model. A number of options could be tested, although this would form a parking study in its own right. Such potential options could include:

- Flat 10p increase on all charges – would require calculating the percentage increase on each car park;
- Rationalising the charging regimes to simplify tariffs;
- A percentage increase in hourly charges such as 1%, 5% or 10%;
- A percentage increase in season ticket charges such as 1%, 5% or 10%.

5.2.2. As agreed with TWBC, this parking charge elasticity model specifically considers the theoretical impact of a 10% increase on existing tariffs, an increase of 100% on existing tariffs, and an indication of the impact of a 10p increase on tariffs. This analysis considers the impact of such an increase independently of any P&R scheme in order to understand the baseline situation. Of course, if a P&R scheme were to be implemented simultaneously there would be an impact on the revenue generated.

5.2.3. Due to the nature of the data relating to season tickets which does not indicate the length of stay, the calculations made for this part of the study only relate to tickets sold on the basis of the number of hours of parking purchased, thus season tickets are excluded (although they are accounted for in the other sections of the study, such as traffic flows and projected demand for P&R). For the purpose of the model, it has been assumed that all parking is paid for through the RingGo (pay by mobile method) and this is thus a conservative estimation of revenue since Pay and Display and Post Payment are generally more expensive.

Table 28: Current Estimated Revenue

	Based on Current Demand
Average Monthly Revenue (August 2016 - July 2017)	£439,505
Annual Revenue (August 2016 - July 2017)	£5,274,060

5.2.4. To understand the effect that increasing parking tariffs may have on the attractiveness of parking in the town centre and revenue generation, reference has been made to 'TRACE, Hague et al, 1999' which presents the results of a comprehensive study into the elasticity of car parking charging and demand. This found that a 10% increase in car parking charges would result in the following changes in travel by car and other modes.

Table 29: Car Parking Charging Elasticity

	Commuting	Retail & Leisure
Car Driver	-0.8%	-3.0%
Car Passenger	0.2%	0.4%
Public Transport	0.2%	0.4%
Foot & Cycle	0.2%	0.5%

IMPACT OF A 10% INCREASE

5.2.5. On the assumption that anyone parking for 4 hours or less is parking for retail and leisure while anyone parking for more than 4 hours is parking for work, this gives rise to the following potential displacement to demand for travel by car to the town centre arising from a 10% increase in parking charges. This 10% charging increase has been applied across all car parks for which data has been received and has been applied equally, irrespective of the location or the base charge. For Crescent Road Car Park, a 10% increase is the equivalent of 13p for a 1 hour stay

5.2.6. The theoretical impact on demand in the town centre caused by a 10% increase in parking charges and this elasticity is set out in Table 30.

Table 30: Demand Impact as a result of a 10% Increase in Parking Charges

	Existing Demand	Demand with 10% Price Increase	Resultant Decrease
Annual Commuters	316,167	313,638	2,529
Annual Retail and Leisure	1,626,565	1,577,768	48,797
Average Monthly Commuters	26,347	26,136	211
Average Monthly Retail and Leisure	135,547	131,481	4,066

5.2.7. The revenue impact of the 10% increase with a shift away from parking is shown in Table 31.

Table 31: Revenue Impact of a 10% tariff increase

	With Current Demand	With 10% Increase in Tariffs
Average Monthly Revenue August 2016 - July 2017	£439,505	£472,552
Average Monthly Revenue Increase	n/a	£33,046
Annual Revenue August 2016 - July 2017	£5,274,060	£5,670,618
Annual Revenue Increase	n/a	£396,558

5.2.8. It can be seen that a 10% increase would generate additional revenue in the order of £400,000 per annum, however this does not consider the potential reduction in revenue which would arise if users (additional to those switching due to price increases) were to switch to P&R.

IMPACT OF A 100% INCREASE

5.2.9. Again, on the assumption that anyone parking for 4 hours or less is parking for retail and leisure while anyone parking for more than 4 hours is parking for work, this gives rise to the following potential displacement to demand for travel by car to the town centre arising from a 100% increase in parking charges. This 100% charging increase has been applied across all car parks for which data has been received and has been applied equally, irrespective of the location or the base charge. For Crescent Road Car Park, a 100% increase is the equivalent of £1.30 for a 1 hour stay.

5.2.10. The theoretical impact on demand in the town centre caused by a 100% increase in parking charges and this elasticity is set out in Table 32.

Table 32: Demand Impact as a result of a 100% Increase in Parking Charges

	Existing Demand	Demand with 100% Price Increase	Resultant Decrease
Annual Commuters	316,167	290,874	25,293
Annual Retail and Leisure	1,626,565	1,138,596	487,970
Average Monthly Commuters	26,347	24,239	2,108
Average Monthly Retail and Leisure	135,547	94,883	40,664

5.2.11. The revenue impact of the 100% increase with a shift away from parking is shown in Table 33.

Table 33: Revenue Impact of a 100% tariff increase

	With Current Demand	With 100% Increase in Tariffs
Average Monthly Revenue August 2016 - July 2017	£439,505	£680,755
Average Monthly Revenue Increase	n/a	£241,250
Annual Revenue August 2016 - July 2017	£5,274,060	£8,169,064
Annual Revenue Increase	n/a	£2,895,004

5.2.12. It can be seen that a 100% increase would generate additional revenue in the order of £2.9 million per annum, however this does not consider the potential reduction in revenue which would arise if users (additional to those switching due to price increases) were to switch to P&R.

IMPACT OF A 10p INCREASE

5.2.13. Given the varying tariff regimes across the Council's parking estate, it would be a complex task to calculate the shift away from parking at each of the car parks if a 10p increase were to be applied. This is due to the need to calculate the percentage increase in revenue, and thus consequent demand elasticity, for each car park separately. Applying a 10p increase to all parking charges with an assumption that there is no shift away from parking has been calculated as generating £5,457,752 annually, which is an increase of £193,691. However, if the shift is equivalent to the 10% increase, then total annual revenue is £5,343,683, an increase of £69,623. This calculation is not entirely reflective of the likely 'real-world' outcomes, as currently more expensive car parks will see lower reductions in demand, but nevertheless provides an indication of potential additional revenue.

SUMMARY OF DEMAND AND REVENUE IMPACTS

5.2.14. This section has outlined the potential impact on demand and revenue of a 10%, 100% and 10p increase in car park charges. It should however be treated purely as an estimate. Further and more detailed scenarios could be tested with both more data and policy direction.

CONCLUSIONS AND RECOMMENDATIONS

TWBC commissioned WSP to advise on the technical and operational viability of potential P&R sites in the town. In line with most P&R schemes in the UK, the results show that the development of one or more P&R sites would have to be a long-term initiative as part of an integrated approach to the management of the Council's parking estate due to the following key points:

- The peak hour traffic reduction on each of the corridors, could be as high as:
  - Pembury Road: 77 vehicles;
  - Eridge Road: 63 vehicles; and
  - London Road: 56 vehicles.
- The financial case for P&R requires both capital and ongoing revenue funding, with no individual option covering all of its operating costs;
- Assuming future P&R users are existing users of TWBC car parks, there would also be a net loss of car parking income to include in any business case;
- P&R can contribute to policy objectives, such as alleviating congestion and improving air quality as well as providing capacity to expand overall parking provision (to meet future needs) without occupying prime town centre space. The latter would be in support of TWBC's 5 Year Plan which includes an "Off street parking project" which consists of *providing additional off-street car parking in Royal Tunbridge Wells to support its economy and ensure visitors […] are able to stay in town as long as they like. Options will also be explored to provide additional off-street car parking within the town to accommodate tourism growth*;
- Indeed, the development of P&R at Eridge Road could help to improve the balance of parking spaces between the north and the south of the town;
- Any P&R facility will depend on the relative charge of car parks within the town centre. There is currently considerable variation in the charging regime across all Council-owned car parks and this could also be reviewed and streamlined as part of proposals to implement P&R facilities;
- Increased town centre parking charges could be used as a way of funding P&R operations, although this may have to be tailored to the car parks which would otherwise be used from the same corridor e.g. Crescent Road multi-storey car park in respect of Pembury Road;
- Options for P&R on Pembury Road and Eridge Road could be pursued further in order to examine key issues in further detail, such as site-specific projection of capital costs and route testing (e.g. running time, physical feasibility).
- As both Pembury Road and Eridge Road would provide P&R services which are more frequent than the existing local bus services (and for Pembury Road would be cheaper than the typical equivalent bus fare), the potential impact of P&R should be explored with relevant operators.

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