PARKING STUDY FOR KINGSTON TOWN CENTRE

Final Report

April 2022

Royal Borough of Kingston

70087303

Introduction

WSP were commissioned by the Royal Borough of Kingston upon Thames to investigate the car parking situation within Kingston town centre.

The extent of the study area is shown on the plan to the right (Figure 1).

The report includes the following sections:

- Section 1: Policy context and baselining
- Section 2: Survey results
- Section 3: Supply and demand modelling
- Section 4: Conclusions and recommendations
- Appendix A: Survey results.

This project will provide the Council with an understanding of the current parking situation across on- and off-street parking provision, both publicly and privately operated. It will also determine how supply and demand for parking within the area will change in the future.

Studies were previously carried out in 2014 and 2016. This report provides an update, taking into account changes in behaviours and travel patterns brought about by the Covid-19 pandemic, the evolving nature of retail, as well as new policies to address the climate emergency.

Car parking utilisation surveys were carried out across all of the town centre's car parks, and the results analysed to understand occupancy trends throughout the day, week and year. This data formed the basis of modelling to forecast car park demand over the next ten years.

Baselining was carried out, which compared parking provision in Kingston with the nearby regional town centres of Wimbledon, Guildford and Croydon.

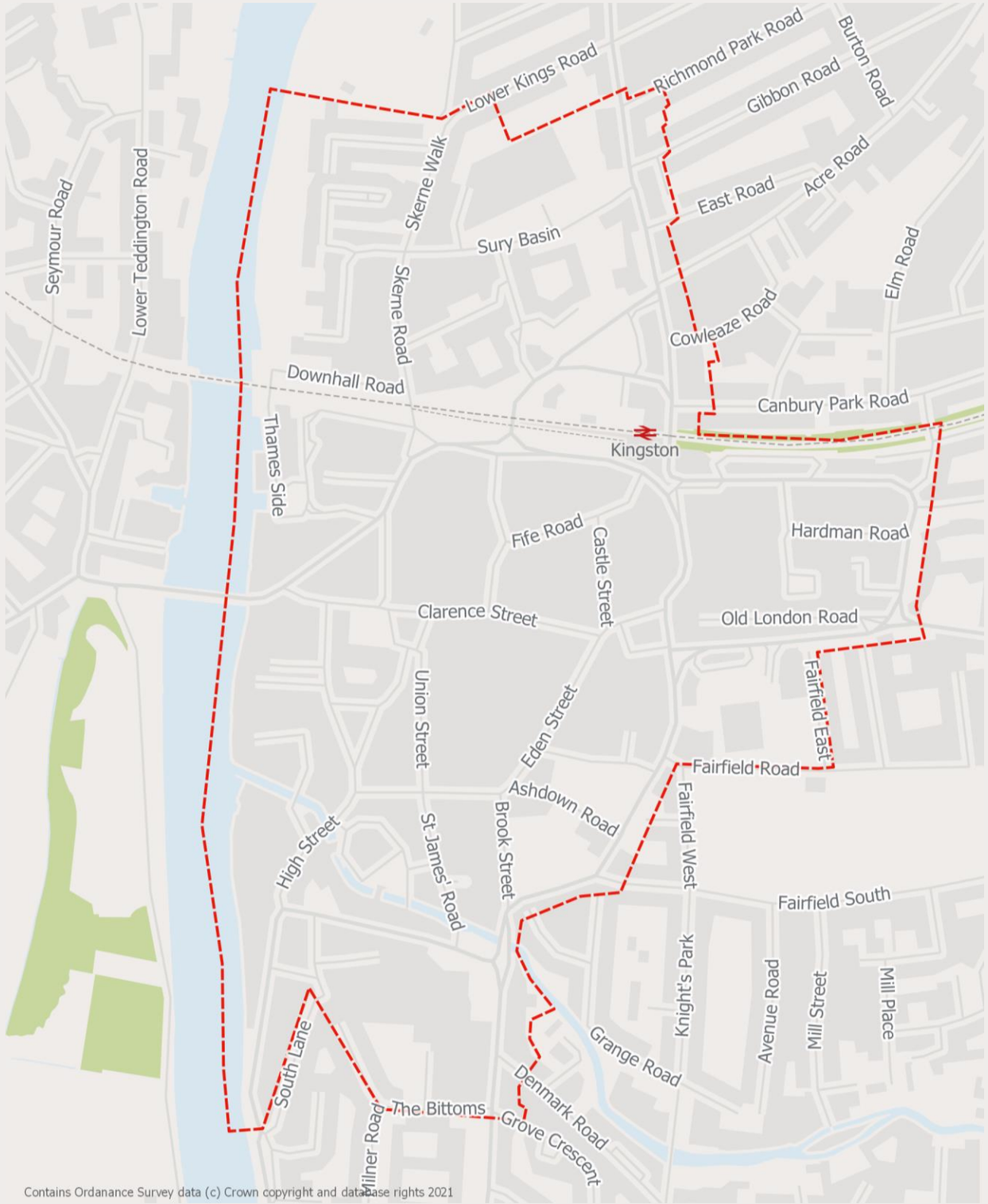
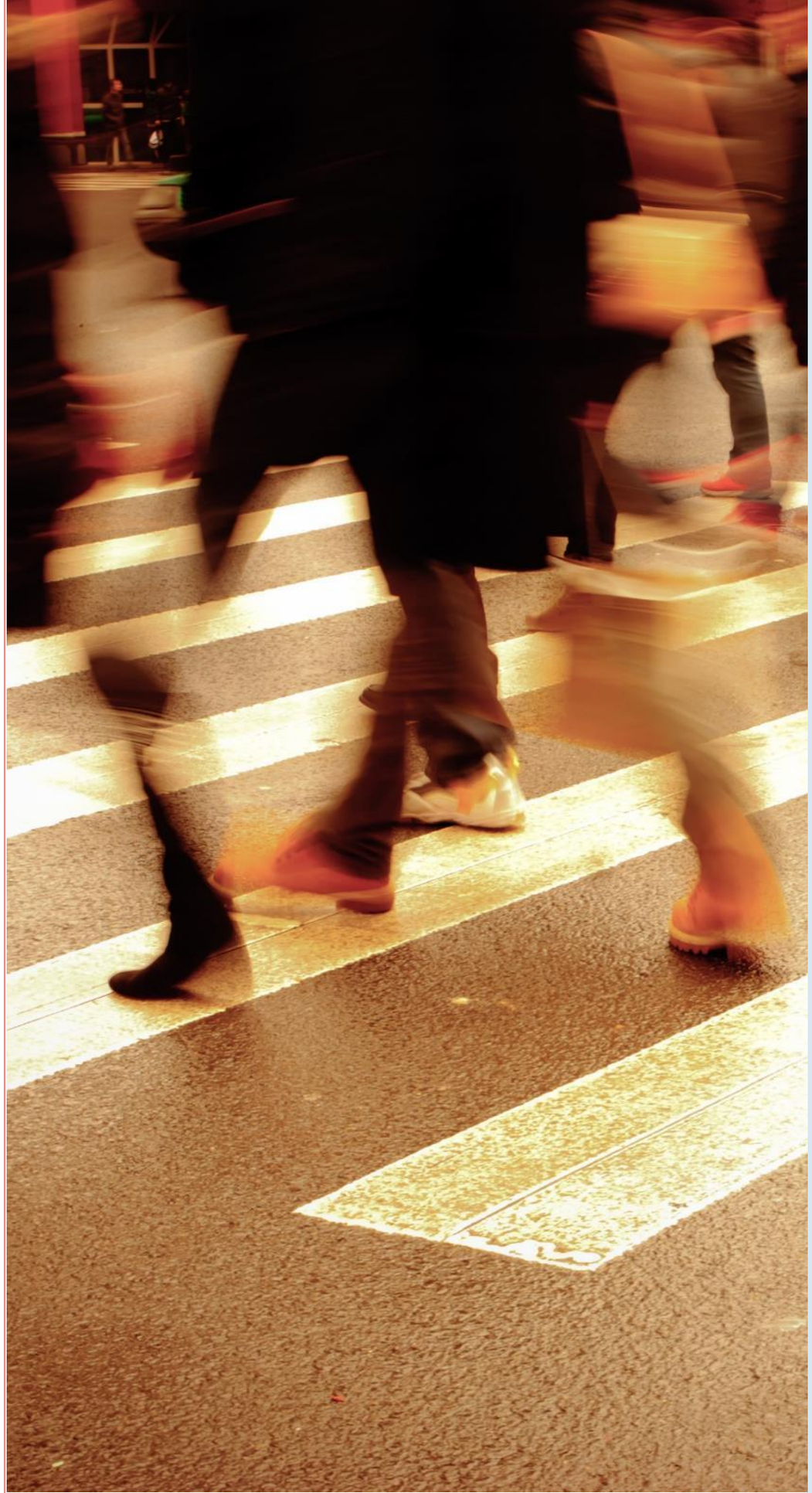


Figure 1 Study area



SECTION 1

Policy context and baselining

Review Policy Context

A thorough review of the relevant policies and strategies which might impact parking and travel behaviour in Kingston town centre has been conducted. This includes transport, air quality, climate emergency and planning/regeneration at the local, regional and national scale. Specific reports include:

- Transport Decarbonisation Plan 2021
- The Mayor's Transport Strategy
- London Net Zero 2030: An Updated Pathway
- The Kingston Local Plan (including Core Strategy, Direction of Travel for Kingston, evidence base and supporting information, and relevant SPDs)
- Kingston Town Centre Area Action Plan
- Kingston Town Centre Movement Strategy
- Development Plans, previous town centre parking reports.

TRANSPORT DECARBONISATION PLAN 2021

This plan outlines the Government's approach to decarbonising the transport sector. Key points of the plan includes:

- Banning the sale of new petrol and diesel HGVs and buses by 2027 instead of 2030.
- Invest £15 million in 2021/22 to help address the backlog in traffic signal maintenance to improve traffic flow and reduce emissions.
- A focus on ensuring electric vehicle charging infrastructure meets the needs of its users.
- Plans for new regulations which will require all new build residential and non-residential buildings with an associated parking space to have a charge point.

RBK will need to work with TfL and other stakeholders to ensure that the required electric vehicle charging infrastructure is in place to facilitate this shift.

THE MAYOR'S TRANSPORT STRATEGY, 2018

The Mayor's Transport Strategy outlines the Mayor's policies and proposals relating to transport in the Capital over the next two decades. The strategy adopts a Healthy Streets approach to deliver a healthier, more inclusive city where people choose to walk, cycle and use public transport. This aims to improve air quality, reduce congestion and physical inactivity. Policies relevant to parking include:

- Support the provision of car club parking spaces.
- Support local workplace parking levy schemes.
- Consider higher parking charges for most polluting cars.
- Explore converting low-density land uses such as parking to high-density mixed use development.
- Restrict car parking in new development and encourage car-free development particularly in accessible locations.

Since the publication of this Strategy the Mayor has committed to bring forward London's net zero target from 2050 to 2030, whilst ensuring those on low incomes are protected from the costs of this transition.

RBK will need to provide infrastructure to accommodate an increase in the mode share of active and sustainable travel and a reduction in private car travel in and to Kingston Town Centre. RBK will need to promote active behaviour modes and implement planning policies to enable people to make these healthier choices.

LONDON NET ZERO 2030: AN UPDATED PATHWAY

The Mayor of London, has set a target for London to be net zero carbon by 2030 and developed a number of pathways for how this can be achieved. The preferred pathway 'accelerated green' will require ambitious levels of change across transport, housing and energy to achieve the desired fall in emissions.

There is a requirement for 27% reduction in car vehicle km travelled by 2030. This would require existing policies to be accelerated. The report suggests the following policy interventions:

- Introduce London-wide road user charging by the mid-late 2020s
- Traffic and parking control measures, such as changes to parking supply and pricing, in line with MTS but accelerated by 10 years – meeting the majority of MTS aims by 2030
- Measures meeting MTS aims for road space reallocation to public, shared and active travel infrastructure, accelerated by 10 years
- Significant improvement in public transport.

This needs to be achieved in parallel to an accelerated shift to electric vehicles, with 46% of car miles being zero emissions by 2030. RBK will need to provide electric vehicle charging infrastructure to support this change.

CORE STRATEGY DEVELOPMENT PLAN 2012

This document guides future development in the Borough up to 2027. Key policies relevant to town centre parking include: promoting Park and Ride facilities, expanding on street car clubs bays, reducing commuter parking on residential streets near the town centre and ensuring current and future car parks are well maintained. This should be coupled with ensuring the town centre remains an attractive destination.

The document states that the existing public parking supply within Kingston Town Centre is considered to be adequate to meet demand and maintain economic viability. However, even though the core principles of this plan are still relevant today, with a climate emergency and the shift to EVs. it has been ten years since this plan was developed, the outlook may have may have changed with COVID-19, demographic changes and changes in subsequent travel patterns and policies.

Review Policy Context

KINGSTON LOCAL PLAN

The first draft of the Kingston Local Plan is being prepared following engagement with the public over the summer of 2021. This plan will set the vision for future developments within the Borough over the next 20 years, replacing the Core Strategy of 2012. The draft Local Plan will be published for community consultation in the Summer of 2022.

DIRECTION OF TRAVEL FOR KINGSTON, 2016

This document marks the start of the development of a new Kingston Local Plan. It identifies potential opportunities for growth, infrastructure and investment in borough, seeking to direct development and intensification to town centres and other areas with good public transport accessibility.

It notes that Kingston Town Centre is identified in the London Plan as an 'Emerging Opportunity Area' for development. Such development could result in a new train station with a new a mix use quarter. New homes and offices will be built and there will be an expansion of the retail leisure and cultural offer in the town centre.

These developments will increase the attractiveness of the town centre meaning the future parking impact will need to be modelled. New homes in the town centre will mean a higher density development, a stronger public realm with improved active travel accessibility to local businesses.

ROYAL BOROUGH OF KINGSTON THIRD LOCAL IMPLEMENTATION PLAN, 2019

The LIP3 identifies how the Council will work towards achieving Healthy Streets, a good public transport experience and facilitating new homes and jobs. The plan notes the effectiveness of parking policies in managing traffic levels and the associated congestion and pollution, and that the availability of a parking space at a destination is a key determinant in the decision whether to use a car.

The plan states that **parking will be managed to support modal shift, reduce the attractiveness of car travel**, improve road safety for vulnerable users and retain the economic vitality of town centres. **This plan would lead to a reduction in demand for private car parking in the town centre** and increase the need of bicycle and car club parking infrastructure.

KINGSTON TRANSPORT STUDY, 2018

The study found that continued road space reallocation and capacity reduction when coupled with rising demand could lead to increased delays in Kingston Town Centre, causing vehicles to reroute onto routes not suited to high traffic flows. It showed that measures which reduced travel demand, including Workplace Parking Levy, bus service improvements/priority, sustainable freight policies and further public transport investment could reduce the impact of congestion on new developments. Improving the ease of access to the town centre without a car will greatly encourage mode shift away from the car.

Reducing parking capacity needs to be coupled with other solutions to ensure minimal congestion and consistent footfall in the town centre.

KINGSTON TOWN CENTRE AREA ACTION PLAN 2008

The Kingston Town Centre Area Action Plan (AAP) was adopted in 2008 and provided the framework for future development in the town centre until 2020. It is currently in the process of being replaced with Kingston Local Plan 2019-2041. The AAP seeks to diversify the uses within Kingston Town Centre and set two main objectives for achieving this. These are:

- Maintain a diverse economy, meeting employment needs with employment opportunities.
- Enhance quality and range of town centre uses and provide more housing, including affordable housing.

This diversification of land uses would impact demand for parking. Shopping trips are more likely to be made by car than trips for other purposes, so **diversification away from retail would likely reduce parking demand**. Promotion of town centre mixed-use developments in particular would reduce the travel time to shopping and leisure destinations and reduce car use. This action plan outlines the actions the borough intends to take to improve air quality as part of its duty to London Local Air Quality Management. It noted that road transport is the main source of air pollution in London, and that action is needed to incentivise a shift to active, sustainable and ultra-low emission modes. Policies included introducing EV charging points, car free days and introducing a surcharge on high polluting vehicles for CPZs. Extensive EV charging points are essential for promoting EV use and low carbon travel to Kingston town centre in the coming years. Published in 2008, a reduction in air pollution is still a key target. The Council has since declared a climate emergency, while the need for a strong public realm is even more important since the onset of COVID-19. This is still supported now through the *Mayor's Transport Strategy of 2018* and subsequent local policies.

Review Policy Context

KINGSTON TOWN CENTRE OFF-STREET CAR PARKING STRATEGY, 2016

This document provides a strategy for off-street car parking in Kingston town centre to 2030, focusing on how to deal with changes to parking supply and demand which are expected to result from planned development in the town centre area.

The strategy identifies a number of key parking issues in Kingston Town Centre, including the **poor quality and signage of car parks**, lack of pedestrian access, the impact car parks have on the public realm and the **high quantity of car trips from Surrey which makes mode shift difficult**.

The strategy outlines measures to address these problems:.

- Dynamic pricing
- Real-time information on Variable Message Signs

These policies will help to manage parking demand across the town centre, although **most of Kingston's car parks are privately owned so collaboration is needed to ensure this is a success**.

CONCLUSION

These plans and strategies will encourage a shift in the way people access and travel to Kingston town centre. There is a strong focus on promoting a shift to active travel, public transport and in more environmentally friendly electric vehicles or car club cars.

This will reduce the demand for car parking spaces. Although it will require investment in active travel infrastructure. Existing town centre car parks will need to provide comprehensive EV charging facilities in order for Kingston Town Centre to remain a key local destination.

BENCHMARKING

Kingston Town Centre does not exist in isolation and is impacted by its neighbours and competitors. We conducted benchmarking of three comparable town centres and shopping destinations: Guildford, Croydon & Wimbledon, to understand how accessible they are relative to Kingston town centre. The analysis compares parking provision and accessibility in the other regional town centres with Kingston Town Centre.

LEVEL OF PARKING PROVISION

The level of parking provision for each town centre location was assessed against the following indicators:

- Capacity: how many spaces serve the town centre
- Location: where are the car parks relative to the main retail areas
- Charges: what is the average parking cost for different durations of stay
- Whether on-street parking is also available in the catchment and how is it restricted
- How much land area the car parks occupy
- Ownership: whether car parks are operated publicly or privately.

For each of the benchmarking locations, a study area was defined that included the retail centres and the key car parking locations that served the centre. The following documents were used to define the study area boundaries:

- Kingston Town Centre Off Street Parking Strategy 2016
- Merton Character Study 2021
- Guildford Town Centre Masterplan 2015
- Croydon Opportunity Area 2015

The findings of the benchmarking analysis are summarised in *Table 5* (page 9).

Overall parking **capacity** is greatest in Croydon with 5,813 spaces identified that serve the town centre. This is a similar level to Kingston, which has 5,970 spaces and Guildford with 4,757. Capacity is significantly lower in Wimbledon, with only 1,351 spaces identified.

The **land area** dedicated to car parking is highest in Guildford at 75,043m^2. This is a similar level to Kingston where is 65,055m^2 of car parking space. This figure is lower for Croydon and Wimbledon where 40,833m^2 and 25,845m^2 is occupied respectively. When considered as a proportion of town centre land area, Guildford sees the greatest proportion assigned to parking at 11%. this is followed by Kingston at 8% then Wimbledon and Croydon at 3% and 2% respectively.

There is significant variation in the **average cost** of parking between the different locations. The cheapest short stay parking (1 hour weekday) was at Kingston with £1.71. Short stay parking was most expensive in Guildford and Croydon at £2.14. Long stay parking (8 hour weekday) was most expensive in Kingston at £15.09, and cheapest in Guildford at £11.88. Off-peak parking (3 hour Sunday) was most expensive in Croydon at £7.97, and cheapest in Wimbledon at £3.09.

A desktop study was carried out to review the level of on-street parking provision in each town centre.

High level of provision includes areas with parking on both sides of the road, which are often residential or low-traffic streets. This also includes areas with perpendicular on-street parking.

Medium level of provision includes areas with parking along one side of the road, or with sparse parking along sections of the road.

Low level of provision includes areas with no on-street parking. These are often high-traffic main roads.

It was found that Kingston town centre had low provision of visitor parking on-street, with surrounding streets dedicated to residents parking. This was a similar case to Wimbledon. Croydon had medium provision of on street parking while Guildford had a high levels of provision.

Benchmarking

KINGSTON

Table 1 below shows that in Kingston 1,886 (32%) of car park spaces are publicly owned, with the remaining 4,084 spaces (68%) operated privately. This public provision generated the Council £4.4m in revenue in the 2018/19 financial year.

Figure 2 shows vast majority of car parks can be accessed within 250m of the main retail area, with the majority accessible within 500m. The exception is Penrhyn Campus car park which serves the University.

Table 1 Parking Provision in Kingston Town Centre

	Spaces	% Spaces
Public	1,886	32%
Private	4,084	68%

WIMBLEDON

Table 2 below shows that in Wimbledon 487 (36%) are publicly owned, with the remaining 864 spaces (64%) operated privately. Note this excludes The Bridge, a privately operated multi-story car park for which capacity information could not be obtained.

Figure 3 shows that all the car parks are accessible within 250m of Wimbledon's main retail area.

Table 2 Parking Provision in Wimbledon Town Centre

	Spaces	% Spaces
Public	487	36%
Private	864	64%

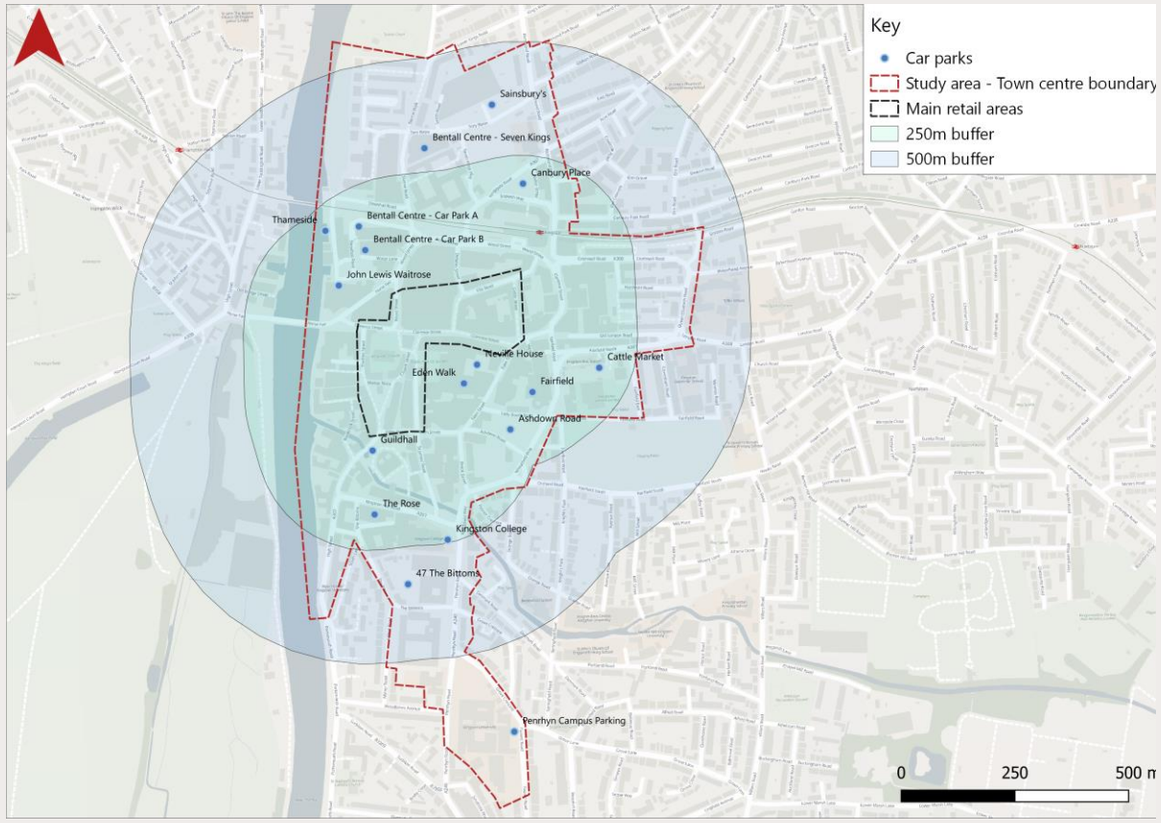


Figure 2 Kingston Town Centre car parks in relation to the main retail areas

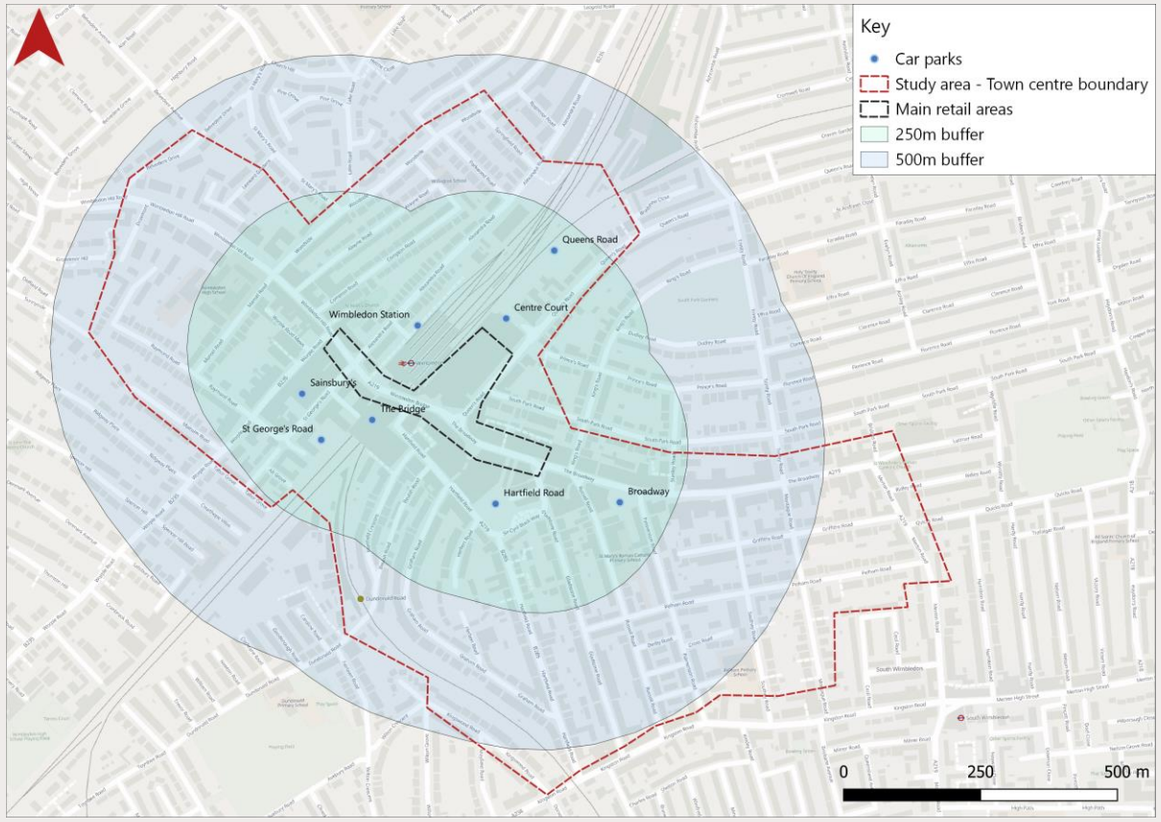


Figure 3 Wimbledon Town Centre car parks in relation to the main retail areas

Benchmarking

CROYDON

Table 3 below shows that in Croydon 483 spaces (8%) are publicly owned, with the remaining 5,330 spaces (92%) operated privately. The vast majority of this private provision takes the form of shopping centre car parks. This public provision combined with council car parks outside of the town centre generated the council £1.1m in revenue in the 2018/19 financial year.

Figure 4 shows that all the car parks are within 250m of Croydon's main retail area.

Table 3 Parking Provision in Croydon Town Centre

	Spaces	% Spaces
Public	483	8
Private	5,330	92%

GUILDFORD

Table 4 below shows that in Guildford the vast majority of spaces 4,461(96%) are publicly owned, with the remaining 296 spaces (6%) operated privately. This extensive public provision generated the council £8.2m in revenue in the 2018/19 financial year.

Figure 5 shows that majority of car parks can be accessed within 250m of Guildford's main retail area, with the rest accessible within 500m.

Table 4 Parking Provision in Guildford Town Centre

	Spaces	% Spaces
Public	4,461	94%
Private	296	6%

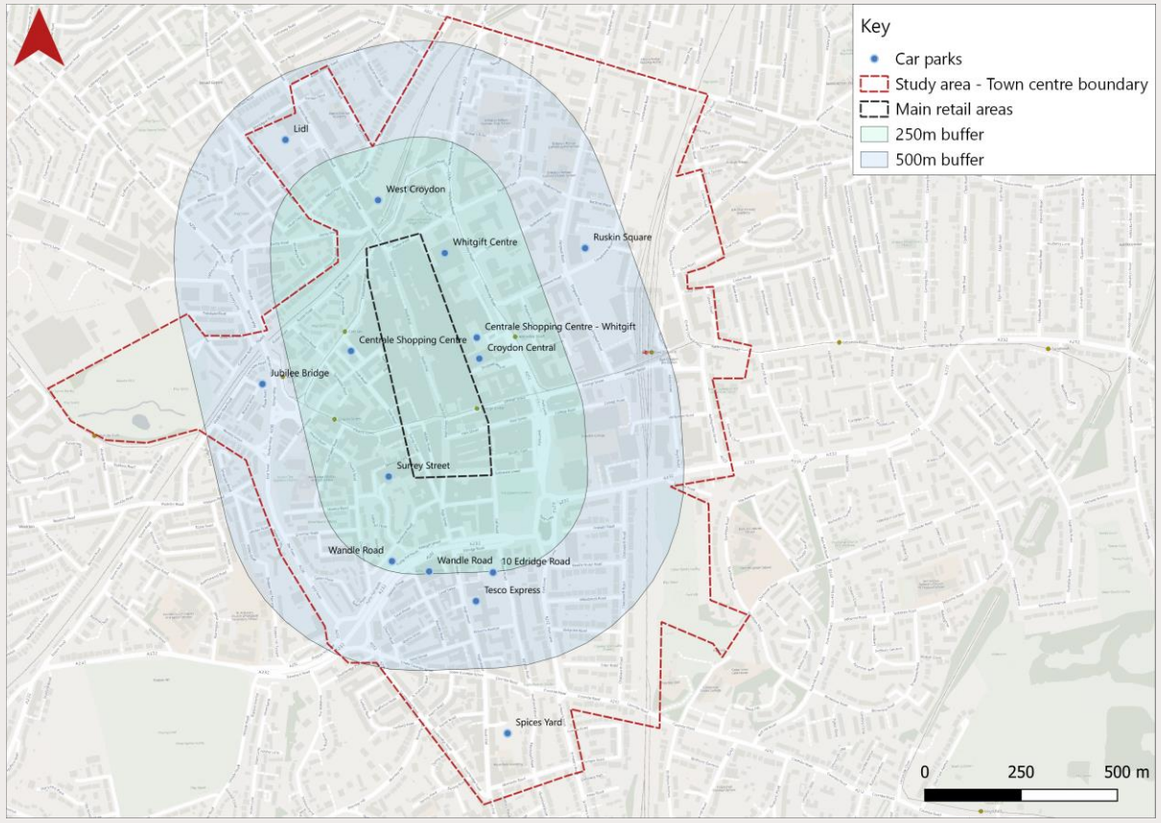


Figure 4 Croydon Town Centre car parks in relation to the main retail areas

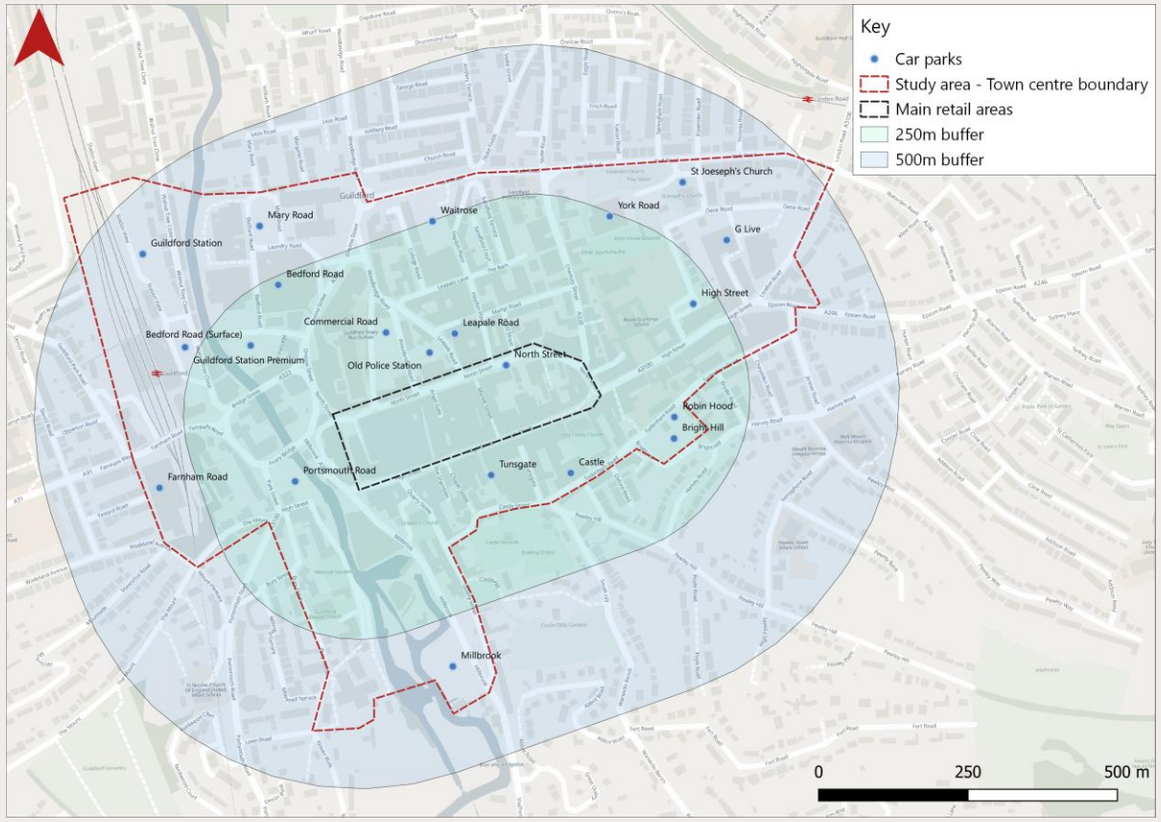


Figure 5 Guildford Town Centre car parks in relation to the main retail areas

Benchmarking

TOWN CENTRE PARKING ANALYSIS

Benchmarking the Kingston town centre to Croydon and Wimbledon in Outer London, it has the:

- Second highest parking capacity and area dedicated to parking
- The largest percentage of the town centre dedicated to parking
- Cheapest short stay parking and weekend parking, while the long stay parking is higher.

Compared to Guildford, Kingston has:

- More total parking spaces, and a lower proportion that is publicly owned – resulting in half the amount of revenue
- Cheaper short stay parking, but more expensive long stay and weekend parking.

Overall, Kingston provides competitive short stay weekday parking costs at £1.71, compared to £2.14 for Guildford and Croydon and £1.93 for Wimbledon, but more expensive long stay parking – which encourages visitors and discourages commuters.

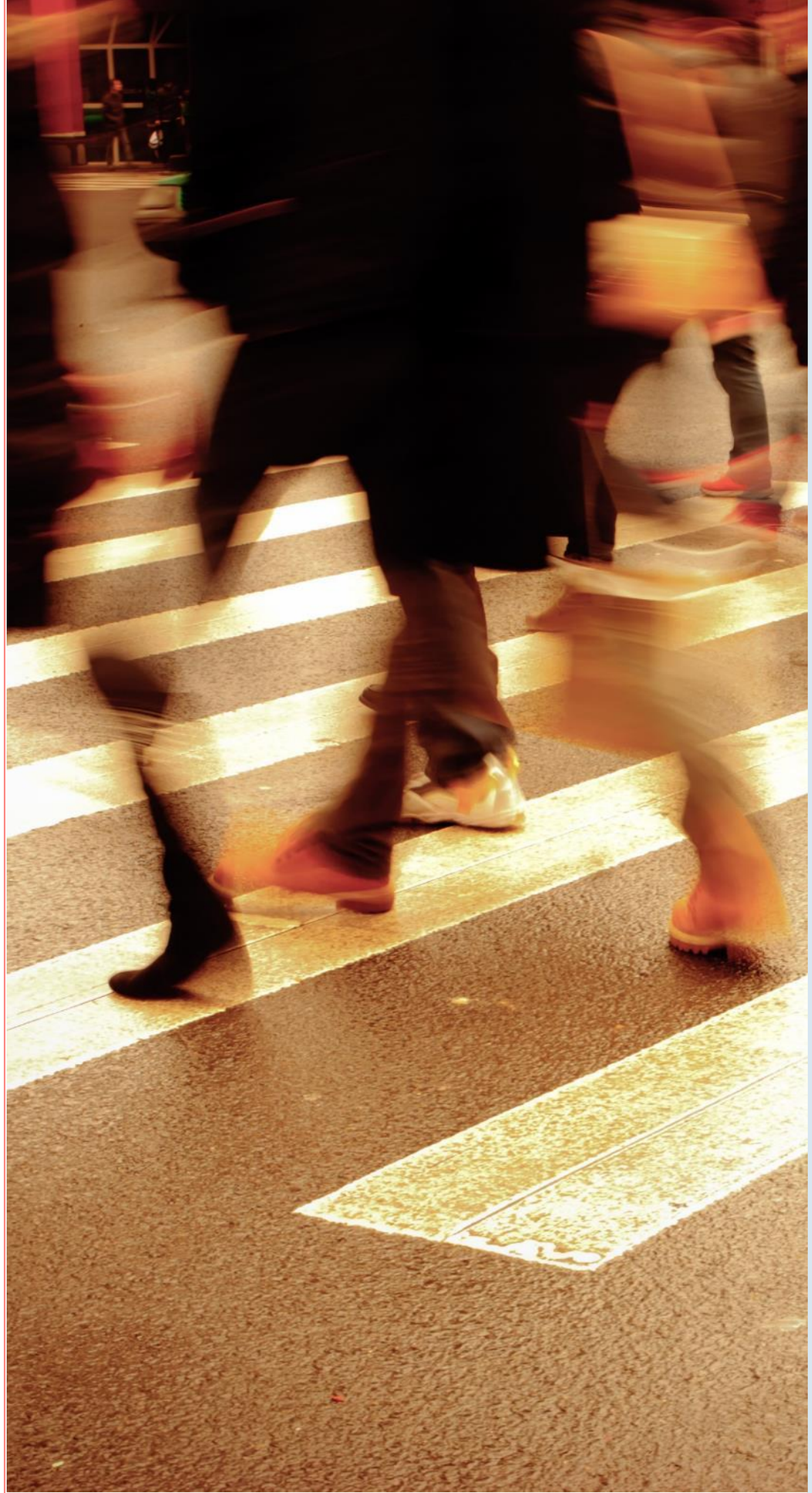
Across the four town centres, the majority of car parks lie within 500 metres of the main retail area, except Kingston College and one car park in Croydon.

Over 83% of its parking spaces are privately owned compared to only 6% of Guildford, 92% for Croydon and 64% for Wimbledon.

Kingston Council has less control over its car parking provision and pricing than some of its competitors.

Table 5 Car Park Benchmarking Matrix

		Kingston	Croydon	Wimbledon	Guildford
	Capacity	5,970	5,813	1,351	4,757
Ownership	% Parking Spaces Privately Owned	83%	92%	64%	6%
	% Parking Spaces Publicly Owned	17%	8%	36%	94%
Car Park Area	Car Park Area (m^2)	65,055	40,833	25,845	75,043
	% of Town Centre Area	8%	2%	3%	11%
Average cost	1 hour Parking (Weekday)	£1.71	£2.14	£1.93	£2.14
	8 hours Parking (Weekday)	£15.09	£12.85	£13.26	£11.63
	3 hours Parking (Sunday)	£5.24	£7.97	£3.09	£1.88
Parking Provision	On Street Visitor Parking Provision	Low	Medium	Low	High
Location	% Car Parks within 500 metres of Main Retail Area	94%	93%	100	100%
Revenue	2018/19 Financial Year Revenue	£4.4 million	£1.1 million	Unknown	£8.2 Million



SECTION 2

Survey Results

Survey Results

Parking surveys were commissioned in the Kingston town centre to provide an understanding of the current car park capacity constraints and utilisation.

The survey was conducted during from the 22-28 November 2021. Cameras were used for 24 hour surveys to analyse the changes in demand over time.

In addition, snap shot beat surveys were carried out on three days:

- Tuesday (23rd Nov)
- Thursday (25th Nov), and
- Saturday (27th Nov).

The snap surveys were undertaken over the following three time periods:

- AM (9-11am)
- PM (2-4pm), and
- Evening (7-9pm).

See Appendix 1 for full details.

KEY FINDINGS – OFF-STREET PARKING

- Across Kingston Town Centre there are 17 car parks with a capacity of 5,970 spaces. In total, 10 car parks are privately owned with the remaining seven managed publicly by RBK. Publicly owned car parks account for 1,886 spaces or 32% of the total spaces.
- From Figure 8 (page 13) it can be seen that across all of the days of the week, total car park occupancy increased in the morning, reached a peak in the afternoon and then fell back in the evening.
- Peak daily demand increased across the week, from 53% on Monday and Tuesday, to 75% and 74% on Friday and Saturday respectively. The daily peak later on in the week occurred later in the day. Monday and Tuesday's peak was around midday while the peak on Saturday lasted longer, occurring at around 3-4pm. This would likely reflect leisure patterns on the respective days.
- Peak demand recorded across all car parks was in a 15 minute period on Friday at 12:45, with a utilisation rate of 75%.
- In terms of individual car parks, the car park with the highest sustained peak period was Canbury Place, which recorded 107% occupancy during Saturday afternoon, while Thamesside did not exceed 75% occupancy throughout the week. Bentall A&B car park and the Rose also recorded occupancy rates of over 90%.
- During the week the busiest car parks were Kingston College, Caversham Road and Neville House. This would be reflective of commuter patterns, particularly for the college.
- On Monday – Wednesday, even at peak occupancy there remains an average of 2,760 unoccupied spaces, dropping to an average of 1,550 on Saturday.
- To understand spatial distribution, the town centre was divided into five sectors (Figure 6, page 12). Peak occupancy occurs during the Saturday PM period for four of the five sectors, except the Eastern Sector which records 11% during this time and peaks during the Thursday evening period at 50%.
- The Western Sector, which includes John Lewis and the Bentall Centre has a small number of spaces available on a Saturday but a lower occupancy during other periods.
- The Southern Sector had the most unoccupied spaces with 937, with occupancy remaining below 34% across all survey periods.

KEY FINDINGS - DISABLED PARKING

- Across the town centre 257 disabled bays, of which 48 are on street bays. Bentall Car Park B has the most number of disabled bays.
- Peak demand across both on and off-street disabled bays occurred on Saturday PM period with a utilisation rate of 51%. This means that at the busiest times there are 127 unoccupied spaces.
- The lowest disabled bay occupancy rate was recorded during the Tuesday Evening period at 16%. .
- In general on-street disabled bays were highly utilised, always above 50%, with some recording 90%+ occupancy rates. However the off street disabled bays in car parks represent the majority of disabled bays, never exceeded 42% occupancy.
- Ashdown Road had the highest occupancy with all eight spaces full during the three survey spaces.
- Bentall Car Park B had the highest number of disabled spaces (36) , but there was never more than 8 spaces occupied.

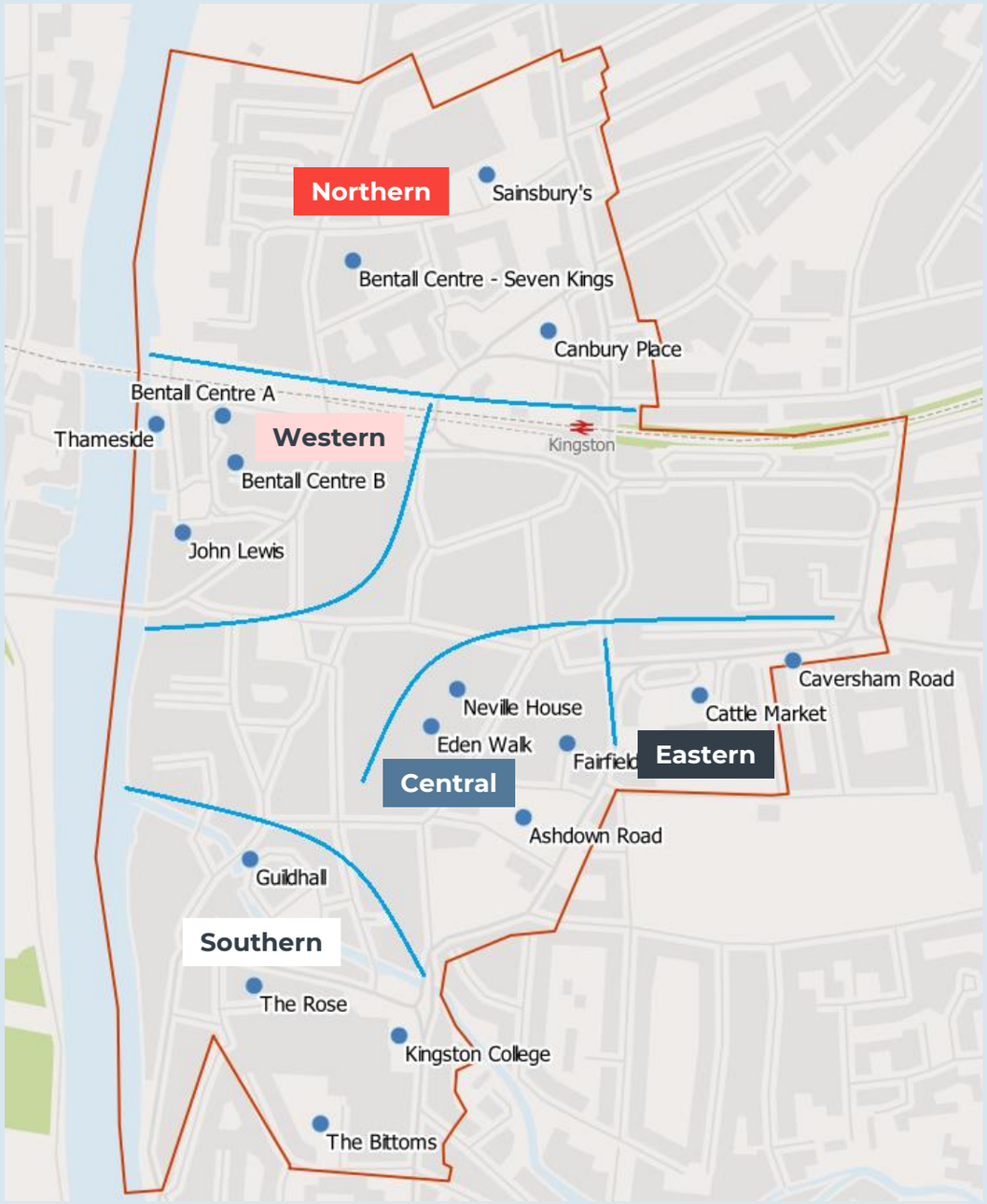


Figure 6 Car park sectors

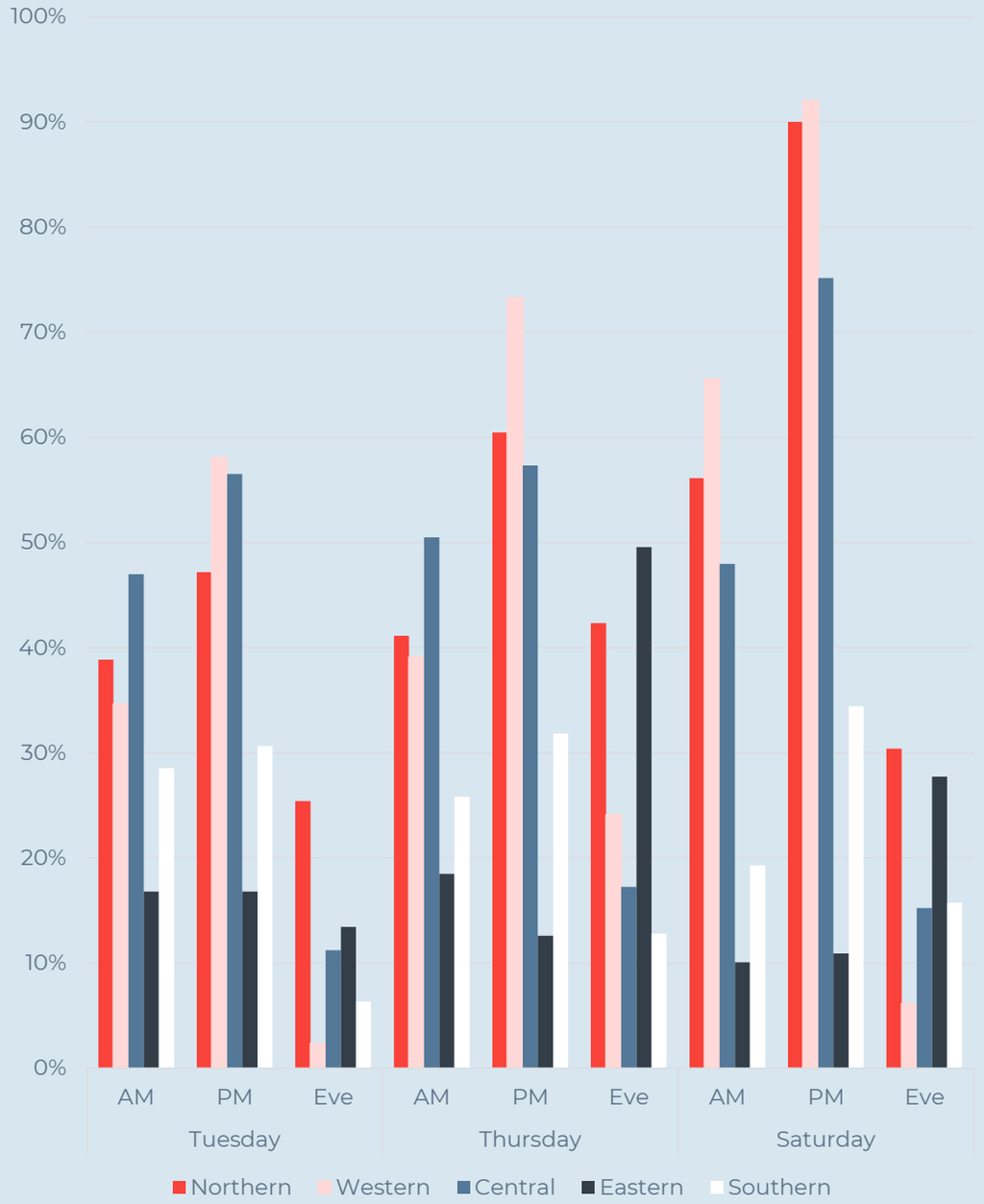


Figure 7 Overall car park occupancy by sector

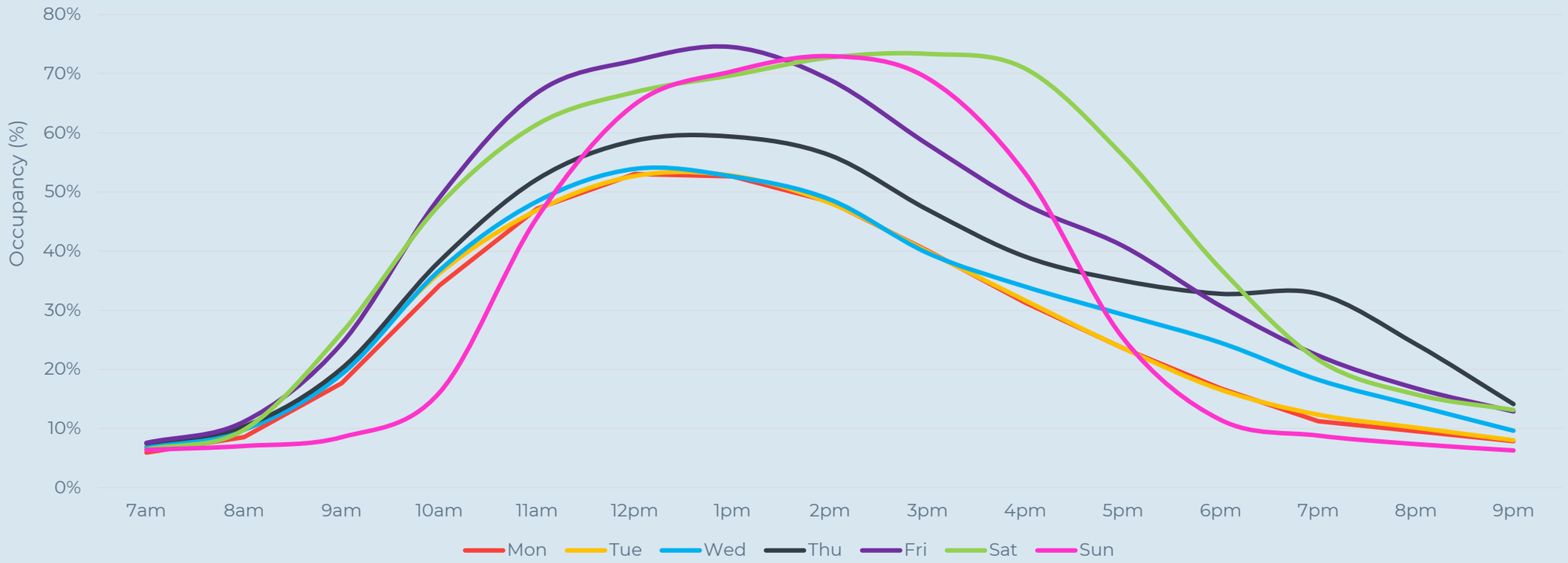
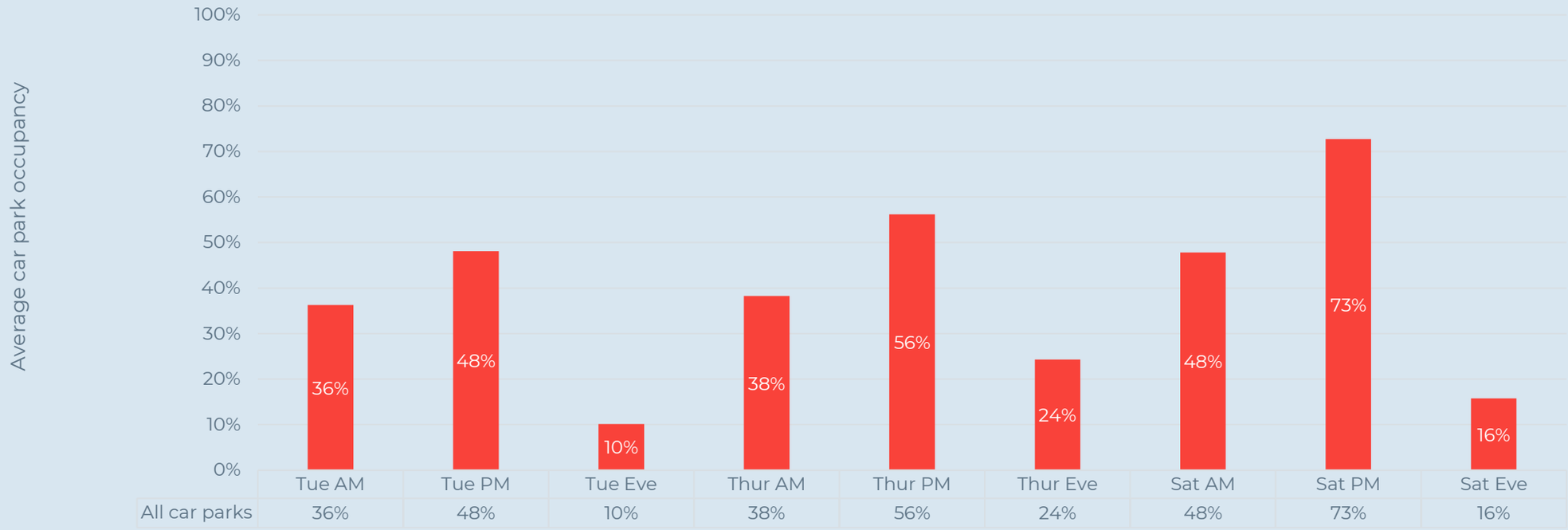


Figure 8 Total car parking occupancy throughout the week (%)



	Tue AM	Tue PM	Tue Eve	Thur AM	Thur PM	Thur Eve	Sat AM	Sat PM	Sat Eve
All car parks	36%	48%	10%	38%	56%	24%	48%	73%	16%

Figure 9 Overall car park occupancy

COMPARISON TO LONG TERM DATA

Comparison to previous studies

When compared to previous surveys of Kingston Town Centre parking, Figure 12 shows that peak occupancy on weekdays was 6% higher and at weekdays was 17% higher. However it should be noted that in 2014 there were two additional car parks in operation (NCP St. James and Cattle Market Basement) which provided a total of 790 additional spaces.

When comparing peak weekend occupancy across selected car parks between the 2014 and 2021 survey dates (Figure 11) there is more of a varied picture. Eden Walk, Neville House and Cattle Market had greater occupancy in 2014 while Ashdown Road and Canbury Place was higher in 2021.

Impacts of Covid

The survey was carried out during a period of disruption, caused by the Covid pandemic and lockdown restrictions. For these reasons the normal patterns of occupancy, were not experienced.

Figure 10 shows the number of payment transactions recorded in a subset of Council car parks (Cattle surface, Rose, Bittoms, Ashdown, Neville House, Thameside, Canbury Place) from June 2020 through to December 2021.
Parking sessions rose steeply from June 2020 as lockdown was eased but fell sharply in November 2020 and again in January 2021, following further COVID-19 related lockdowns. Parking sessions rose sharply again in March 2021 and this continued on an upward trend throughout the year.

Comparison to pre-Covid trends

The survey data provides a snapshot of parking occupancy during the last week of November. However, levels of occupancy fluctuate seasonally. To account for this, the survey data was compared to an annual time series.

Figure 13 shows Ringo Pay by Phone transaction in 2019, which provides a proxy for car park occupancy across the year. Travel patterns were disrupted in 2020 and 2021 due to Covid, so 2019 is used to represent a typical pre-Covid year.

The data shows that peak annual car park occupancy occurs in the second week of December (blue line on graph). This coincides with the Christmas shopping season. The surveys were carried out during the last week of November, when occupancy was recorded to be 96% of that peak (green line on graph).

The ratio between occupancy on the week of the survey (green line on graph). and the peak occupancy week (blue line on graph), can be used to scale up the results of the survey. Using this method, it can be inferred that peak annual occupancy would have been 76% during the Saturday PM peak, as compared to 73% during the survey.

It is also possible to calculate an average annual occupancy value. On an average week the town centre car parks are projected to have a peak occupancy of 59%, excluding periods of abnormally low demand during easter and summer holidays.

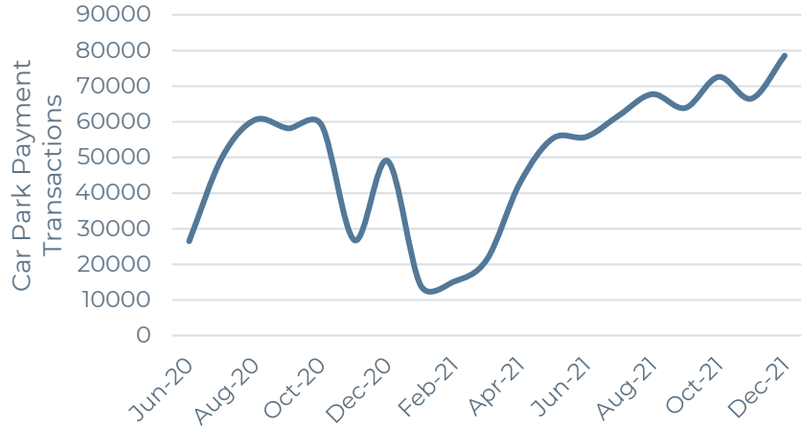


Figure 10 Car park transactions

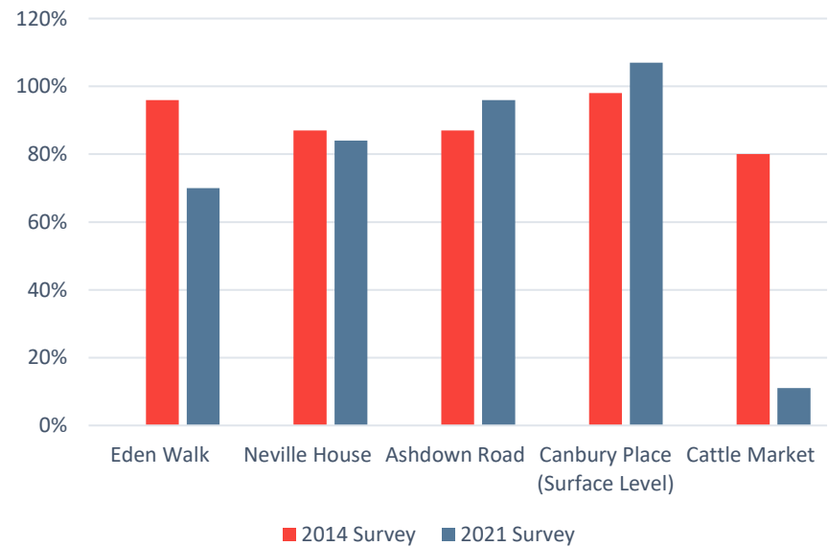


Figure 11 Weekend peak occupancy among selected car parks

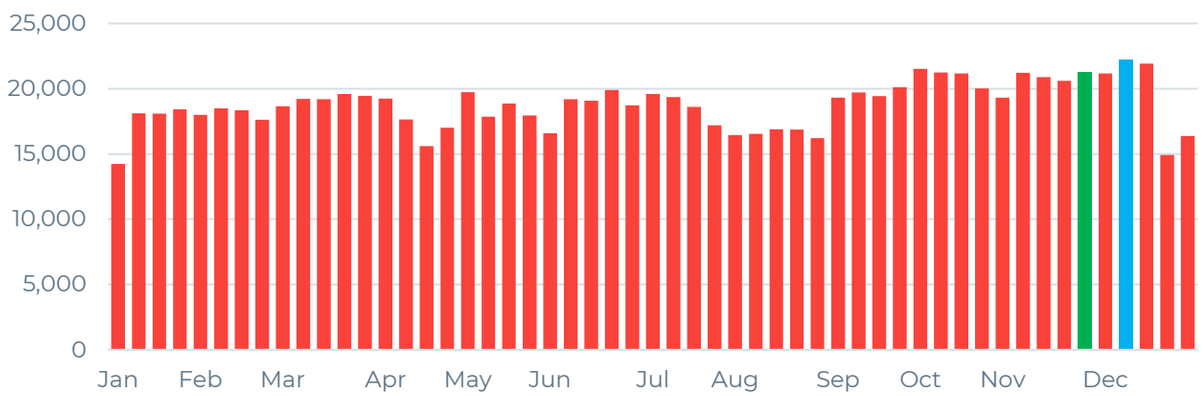


Figure 13 Ringo Car Park Transactions in 2019

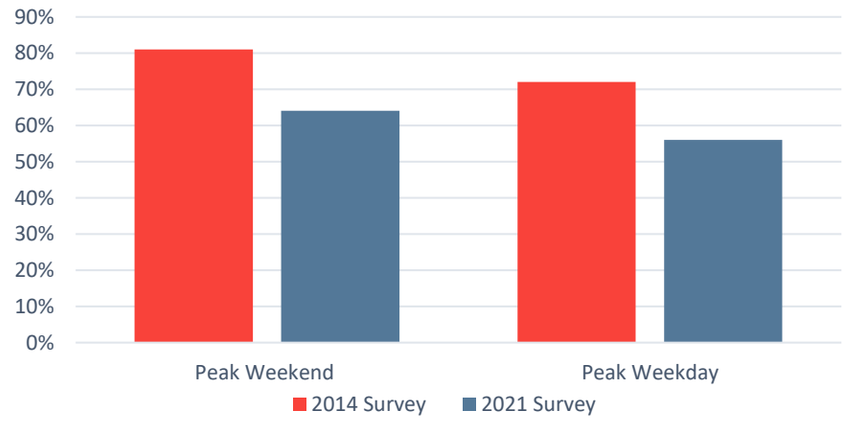


Figure 12 Peak occupancy across all car parks

IMPACT OF DISPOSALS

If a car park was to be lost to redevelopment then then it must be considered whether there is capacity within the network of town centre car parks to absorb displaced vehicles. The surveys indicated that 1,507 spaces were unoccupied during the period of peak occupancy, so there is currently capacity to accommodate loss of parking capacity.

To understand the impact of possible disposals, four parking supply scenarios were tested. Each representing a loss of between 5% and 20% of the current total parking spaces. Note that 5% of spaces is equivalent to 300 parking spaces.

Figure 14 shows that for all scenarios, up to -20%, there would still be available parking spaces across the town centre. However in the -10% scenario and above the Saturday AM period exceeds 80% occupancy. Above 80% occupancy car parks can sometimes struggle to operate efficiently, generating congestion in the surrounding areas.

However the impact of disposal, for each car park, does vary depending on its location, its users and the surrounding parking stock. If a car park was to be redeveloped then the majority of displaced vehicles would migrate to other car parks within the same sector.

Figures 14 and 15 show the same future supply scenarios, applied to each of the five sectors, during the period of peak occupancy – Saturday PM. The southern sector is shown to have sufficient capacity to sustain a 20% or greater loss in spaces.

However the northern and western sectors, are already at 90% and 92% respectively in the BAU scenario and therefore have limited capacity to sustain a loss of parking spaces., without some displacement to parking sites in other sectors, which may lead to additional congestion on town centre highway network at peak times,

In the -10, -15% and -20% scenarios they would not have capacity to meet demand. This could mean some element of displacement to other sectors at peak times, and a consequent possible increase in circulatory movements around the town centre highway network as people seek to access other car parks.

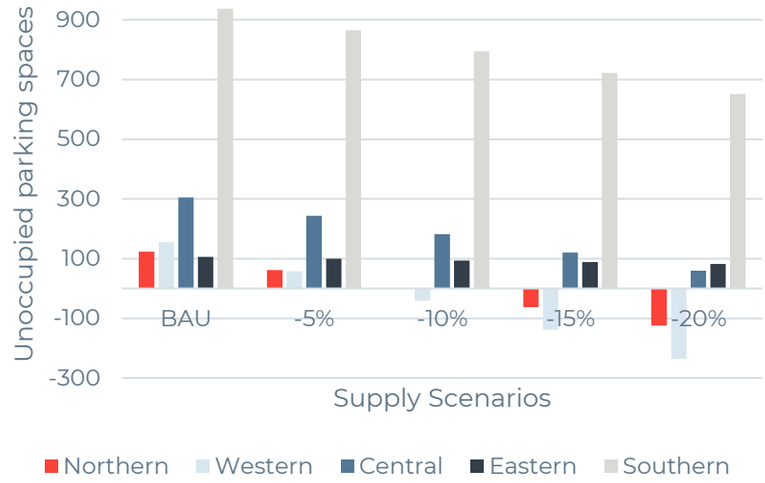


Figure 14 Future parking supply scenarios – Sat PM

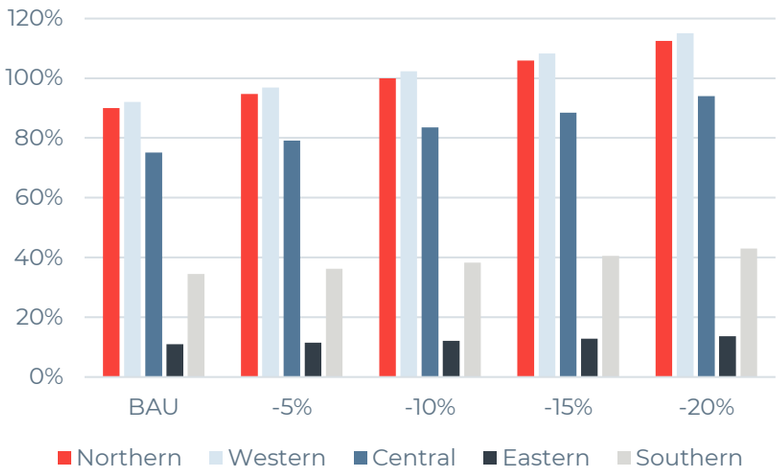
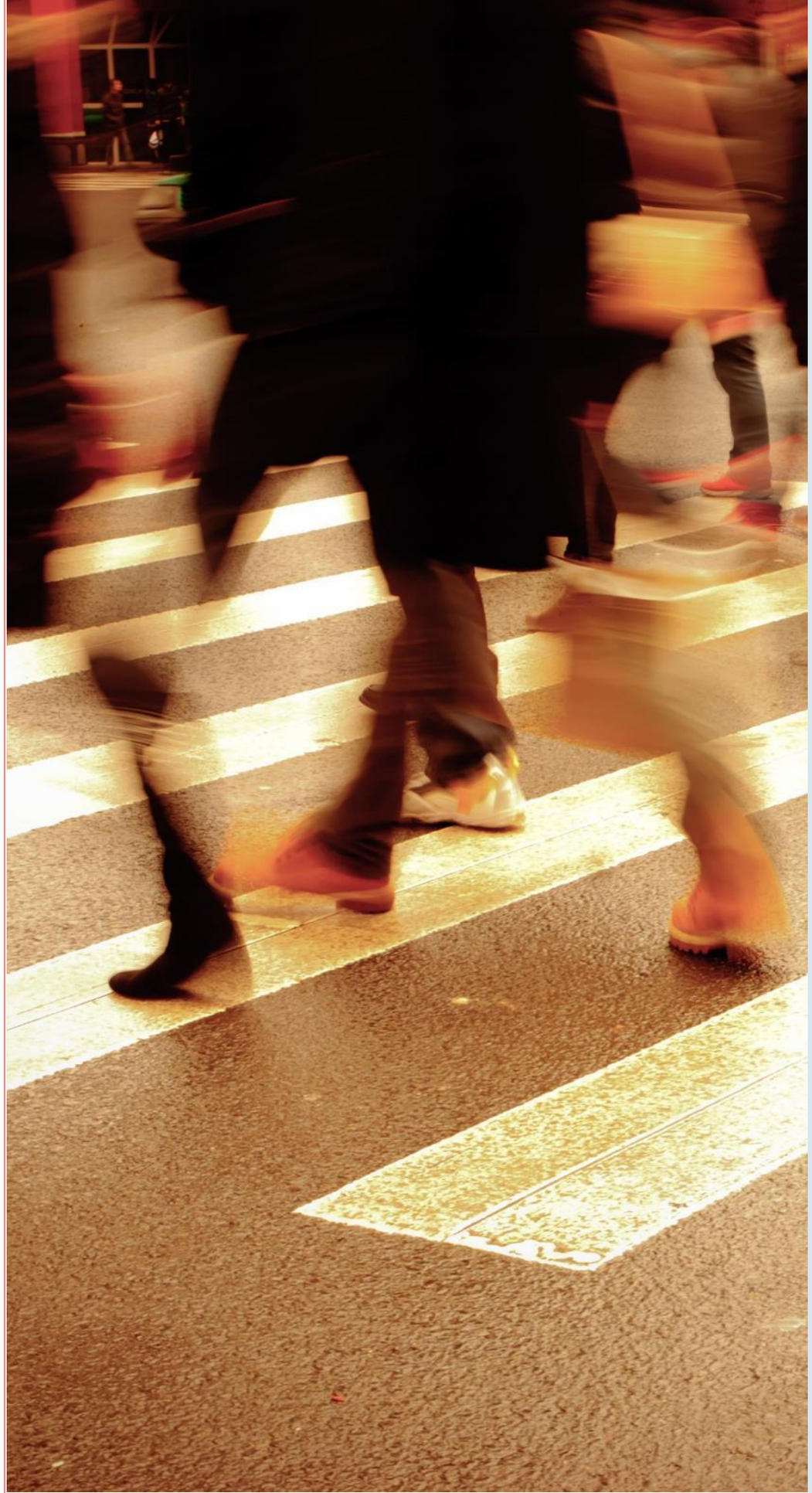


Figure 15 Future parking supply scenarios – Sat PM

Supply Scenario	Total spaces	Available parking spaces								
		Tuesday			Thursday			Saturday		
		AM	PM	Eve	AM	PM	Eve	AM	PM	Eve
BAU	5,970	3,806	3,098	5,364	3,685	2,614	4,520	3,116	1,627	5,028
-5%	5,672	3,508	2,800	5,066	3,387	2,316	4,222	2,818	1,329	4,730
-10%	5,373	3,209	2,501	4,767	3,088	2,017	3,923	2,519	1,030	4,431
-15%	5,075	2,911	2,203	4,469	2,790	1,719	3,625	2,221	732	4,133
-20%	4,776	2,612	1,904	4,170	2,491	1,420	3,326	1,922	433	3,834

Table 6 Future supply scenarios



SECTION 3

Supply and Demand Modelling

Modelling Approach

A spreadsheet modelling exercise has been undertaken which tested the sensitivities of parking supply and demand, under a number of future scenarios. Table 7 shows a high level summary of the methodology.

PARKING SUPPLY SCENARIOS

RBK have provided information on the potential of each car park to be redeveloped, based upon active planning applications and data from the Local Plan. From this information four car park supply scenarios have been developed:

- Business as usual (i.e. no change to parking capacity)
- High supply (Eden Walk, Canbury Place and Neville House lost)
- Mid supply (mid-point between high and low supply), and
- Low supply (loss of 10 car parks as per Table 9).

The **high supply** scenario is based on the redevelopment of Eden Walk, Canbury Place and Neville House going ahead, which all either have planning applications approved or under consideration.

The **low supply** scenario assumes that a further seven car parks are redeveloped. In the Local Plan all of these sites were identified as having potential for redevelopment in the next ten years. The **mid scenario** assumes a loss of parking spaces half way between high and low.

It is assumed that most car park sites will be redeveloped into residential units and there will be no reprovision of parking spaces. The Eden Walk site will be an exception where the redevelopment is retail led and 59% of parking spaces will be reprovisioned, as per planning permission.

The high supply scenario results in a loss of 430 spaces (or 7% of the total) and the low supply scenario results in a loss of 3,569 spaces (60%).

The loss of parking spaces is not distributed evenly across the sectors of the town centre, particularly in the high scenario. See Table 8 and Table 9 (page 18).

Table 7 Forecast parking surplus / deficit methodology

Parking Supply		Parking Demand				Parking Surplus / Deficit
		Current Demand (survey data) normalised against longitudinal data				
Inventory surveys	-	x			=	Forecast Surplus / Deficit
+/-		Impact of new developments (RBK development quantums)	+ Future travel patterns (TfL post-covid scenarios modelling)	+ Change in mode share (TfL and RBK assumptions)		
Planned changes						Forecast Surplus / Deficit split into town centre sectors

Table 8 Parking supply scenarios

Sector	BAU	Change in parking supply from BAU		
		High parking	Mid parking	Low parking
Northern	1,240	-106	-458	-809
Southern	1,429	0	-480	-959
Eastern	119	0	-55	-109
Central	1,228	-324	-408	-492
Western	1,954	0	-600	-1200
Total	**5,970**	**-430**	**-2,000**	**-3,569**
Change	-	**-7%**	**-33%**	**-60%**

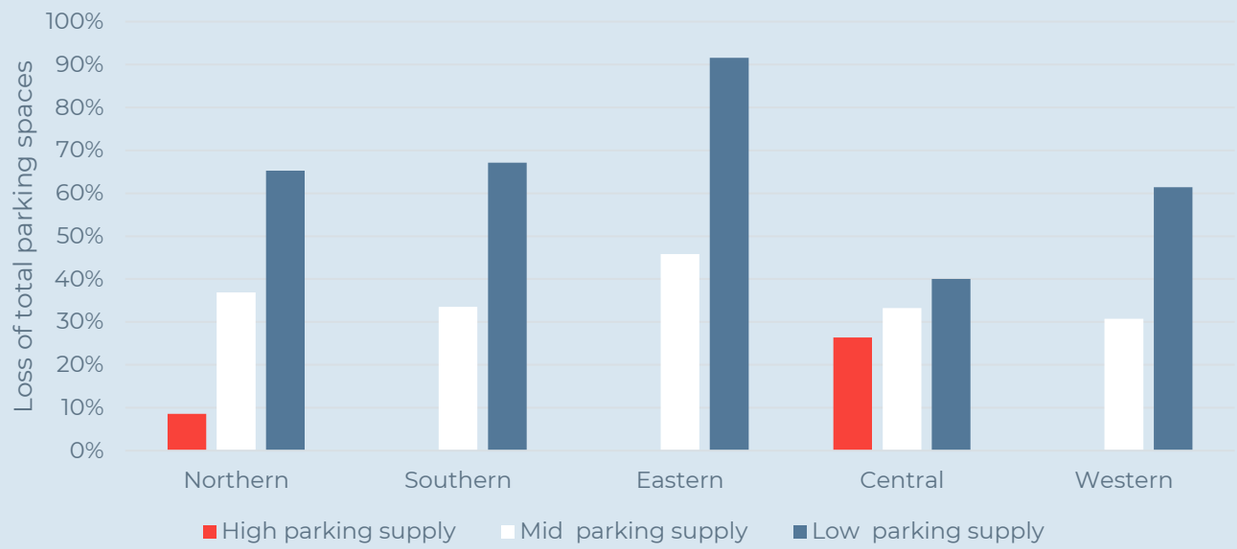


Figure 16 Parking supply scenarios - % decrease in capacity

Table 9 Parking supply scenarios – per individual car park

Car Park	Sector	Likelihood of redevelopment going ahead	Supply scenario (parking spaces)			
			BAU	High parking (only currently planned redevelopments go ahead)	Mid parking	Low parking (all planned redevelopments and those identified in the New Local Plan go ahead)
Neville House	Central	Planned	32	0	0	0
Q Park Eden Walk	Central	Planned	700	408	408	408
Ashdown Road	Central	Potential	168	168	84	0
NCP Kingston Fairfield	Central	No plans	328	328	328	328
Canbury Place	Northern	Planned	106	0	0	0
Bentall Centre - Seven Kings	Northern	Potential	703	703	352	0
Sainsbury's	Northern	No plans	431	431	431	431
Cattle Market - Surface	Eastern	Potential	109	109	55	0
Caversham Road (Permit holders only)	Eastern	No plans	10	10	10	10
Bentall Centre A	Western	Potential	600	600	300	0
Bentall Centre B	Western	Potential	600	600	300	0
Thames side	Western	No plans	32	32	32	32
John Lewis	Western	No plans	722	722	722	722
Guildhall (Saturdays only)	Southern	Potential	84	84	42	0
The Bittoms	Southern	Potential	875	875	438	0
Kingston College	Southern	No plans	53	53	53	53
Rose	Southern	No plans	417	417	417	417
		Total	5970	5540	3971	2401
		Change (spaces)	-	-430	-2000	-3569
		Change (%)	-	-7%	-33%	-60%

Modelling Approach

TFL POST-COVID SCENARIOS

The COVID-19 pandemic has created a high degree of uncertainty surrounding future travel patterns in London. As a result, TfL have developed five scenarios reflecting the differing directions that London's recovery could take up to 2031.

These scenarios consider population, employment, rates disposable income, home working, changes in office use, car ownership among many factors. A core assumption of TfL's forecasting is localism, People will be less inclined to travel long distances to shop than they were before.

- **Return to Nearly Normal (or business as usual)** – London bounces back quickly from the crisis.
- **London Declines** – Lower Growth, with London struggling to cope from the impact of the virus.
- **Low Carbon Localism** - a smaller more sustainable London, which becomes more local as a result of the virus.
- **Remote Revolution** - technology changes how people live, work and travel.
- **Agglomeration** - expanding but unequal London, virus related changes enhance its global competitive advantage.

TfL's latest modelling indicates that the more central scenarios; **'Return to Nearly Normal', 'Remote Revolution' and 'Low Carbon Localism'** are most likely to transpire. Whereas 'London Declines' and 'Agglomeration' are shown to be less likely.

The latest forecast suggests total travel demand will remain 4% below pre pandemic demand in 2026, 3% below in 2031 and finally return to pre pandemic levels by 2041. These forecasts are well below the growth predicted pre-Covid:

- Walking and cycling is expected to fall 1% from pre-Covid levels by 2041.
- Rail demand is expected is expected to rise by 7% by 2041.
- Bus demand is expected to rise 3% under the latest forecast by 2041.
- Car/Taxi /PHV use is expected to fall 4% by 2021 in the latest forecast.

FACTORS AFFECTING PARKING DEMAND

The parking demand in the town centre is expected to change in the future, as societal and policy changes take place, which include:

- **Impact of new developments** – as the town centre sees a reduction in retail, and an increase in commercial and residential land uses. The impact of new developments is dependent upon the parking supply scenario.
- **Changing travel patterns** – as the demand for trips decreases with the growth of online shopping, working from and longer term post-Covid habits
- **Mode shift** – brought on by a London and Council led promotion of active and sustainable travel over driving and the Mayor's Transport Strategy targets.

PARKING DEMAND SCENARIOS

For the purposes of this study, four scenarios have been developed to account for the multiple factors at play and a range of uncertainties.

- **A return to business as usual** assumes no change to the levels of parking demand observed during the surveys, trips rates and car mode share. This is essentially the reference case.

Two of the TfL post-covid travel scenarios were chosen, as the basis for scenarios, which reflected the most likely outcomes for Kingston:

- **Remote Revolution** describes a city where technology has changed how people live, work and travel. Technological changes that allow for remote working and online shopping, results in the greatest fall in trip rates of the four scenarios. It also assumes a mode shift away from car trips. The trip rate change and mode shift is expected to occur in the near term and hold over time.
- **Low Carbon Localism** describes a smaller and more sustainable London, which has been significantly impacted by the virus and is smaller as a result. The impact will be a reduction in the length of trips people make, particularly commutes but an increase in short distance trips within their local areas – resulting in a modest increase in trip rates. It also assumed a medium shift towards active travel. Trips into London for leisure and specialist shopping will continue. Low Carbon Localism will gradually increase into the longer term in response to improving technology.
- Finally, the **Achieving MTS outcomes** scenario represents the travel patterns predicted by the Mayor's Transport Strategy. There is expected to be no overall change in trip rate, but a mode shift away from car trips.

Parking Demand Scenarios

IMPACT OF NEW DEVELOPMENTS

Redevelopment within the town centre both of existing car parks and other land will have an impact on trip generation. There is expected to be an overall shift away from retail, with a decrease of 6,647 m² of retail space and an increase of 15,300 m² in offices and other commercial land use. There is also expected to be an additional 1,277 residential units will be built. New residential units are expected to be car constrained, either car free or have parking provided within the developments. As such they are expected to generate relatively few trips to the town centre. RBK policy is not to provide visitor parking for new developments. This will result in a small number of visitors using the town centre car parks.

Retail space constitutes the majority of the land use within the town centre. Where possible this is expected to be retained. A modest decrease in floorspace of 6,647 m² or 2.6% of the total is forecast. For the purposes of the model there is assumed to be no change in trip rates. Office and other commercial space is forecast to increase. Assuming known average employees per m/2 values, it is possible to calculate an expected number of employees who will commute to work.

Overall, the change in land use will result in a **1.6%** increase in trips into the town centre. However as these are driven by office and commercial space the parking demand will occur during the weekday AM and PM periods when overall occupancy is lower and there is available capacity. This will make more efficient use of the available spaces, whilst not raising the peak occupancy levels.

For the purposes of this study, we have assumed the following change in parking demand, which is driven by the parking supply scenarios and land use change:

- **Business as usual** – no change in demand
- **High parking supply** – 0.6% increase in demand
- **Mid parking supply** – 1.1% increase in demand
- **Low parking supply** – 1.6% increase in demand.

Table 10 Development quantums

Landuse Category			Existing quantum (m²)	Planned quantum (m²) increase	
Retail	A1	Shops	231,000	-5,502	-6,647
	A2	Financial and professional services		-689	
	A3	Restaurants and Cafes	29,000	1,570	
	A4	Drinking establishments		-3,172	
	A5	Hot food takeaways		1,146	
Commercial	B1 (a)	Offices	93,000	15,300	15,300
	B1 (b)	Tech and science			
	B1 (c)	Light Industry			
	B2	General Industry	10,000	0	
	B8	Storage and distribution			
Residential		NSC Accommodation	N/A	202 Units	1,277 Units
	C3	Dwellings	5,050 units	1,075 Units	

Table 11 Development quantums – employees per sq. m

Landuse Category			People per m/2	Employees (Existing quantum)	Employees (Planned quantum)
Retail	A1	Shops	0.05	14,091	13,713
	A2	Financial and professional services	0.07		
	A3	Restaurants and Cafes	0.07	1,866	1,836
	A4	Drinking establishments	0.06		
	A5	Hot food takeaways	0.06		
Commercial	B1 (a)	Offices	0.07	4,573	5,325
	B1 (b)	Tech and science	0.06		
	B1 (c)	Light Industry	0.02		
	B2	General Industry	0.03	218	218
	B8	Storage and distribution	0.02		
Residential		NSC Accommodation	-	-	-
	C3	Dwellings	-	-	-
				20,747	21,092 (1.6% increase)

Table 12 Impact of new developments on parking demand

Scenario	BAU	High parking (only currently planned redevelopments go ahead)	Mid parking	Low parking (all planned redevelopments and those identified in the New Local Plan go ahead)
Parking demand	0%	+0.6%	+1.1%	+1.6%

Parking Demand Scenarios

IMPACT OF POLICIES IN THE TOWN CENTRE

Local and regional policies aims to promote healthy lifestyles, reduce pollution, and achieve net zero. Kingston Council have declared a climate emergency and have been working on a number of related initiatives.

Policies such as *The Third Local Implementation Plan 2019* and the *Kingston Area Action Plan* support a modal shift to meet climate targets, creating higher density developments, providing active travel and EV charging infrastructure in the town centre as well as encouraging car sharing through car club schemes in order to encourage a shift away from the private car. This will mean a reduced demand for car parking space in the town centre.

Kingston Town Centre Off-Street Car Parking Strategy, 2016 aims to dynamically manage parking demand while *Direction of Travel for Kingston , 2016* seeks to direct development to the town centre connecting new schemes with leisure and shopping facilities, reducing the chance of creating car dependent housing developments.

At a regional level, the *Mayor's Transport Strategy* sets ambitious targets that by 2041:

- 80% of trips will be made by walking, cycling and public transport
- 70% of Londoners will be doing at least 20 minutes of activity through travel
- There will be a 65% reduction in KSIs by 2022 and 70% by 2030
- There will be 3 million fewer daily car trips and one quarter of a million fewer cars
- There will be a 10-15% reduction in overall traffic levels.

CHANGING TRAVEL PATTERNS

Online shopping

Since the previous parking studies were undertaken in 2014 and 2016, the use of online shopping and deliveries have rapidly increased, at the expense of high street shopping. This has been exacerbated by the COVID-19 pandemic, due to retail closures and people preferring to avoid busy places. As a result town centres across the UK, are expected to shift from being shopping destinations to a focus on lifestyle, leisure and entertainment, such as bars and restaurants.

Working from home

The COVID-19 pandemic resulted in a shift to working from home. As we begin to move out of the pandemic, many companies are moving towards a hybrid working model, where employees work from home 2-3 days per week. This will be attractive for residents of outer London boroughs like Kingston, where there may be more expensive and longer commuting times into Central London. As a result, workers will continue to spend more time in their local town centres, maybe requiring hybrid work spaces. It is likely that they will reach Kingston Town Centre by more active means via active travel. As Kingston Council has declared a climate emergency, encouraging local shopping and leisure during the week should be a priority.

Kingston town centre currently has a strong focus on retail. So it will feel the effects of this shift heavily. This change in land use will alter travel patterns into the town centre. If less retail space is required then it will likely be redeveloped into leisure, home and office spaces, resulting in a higher density town centre.

Post-Covid behaviour changes

The COVID-19 pandemic has created a shift in people's behaviour and their relationship with public space, their travel, work, retail and leisure patterns. The pandemic has highlighted the importance of public space. People want to interact with others in public spaces with high levels of ventilation, using streets for outdoor dining, interaction and recreation. This has also caused a shift to active travel modes with the local council completing its mini-Holland scheme. This will improve infrastructure and safety for cyclists travelling to Kingston Town Centre, reducing the attractiveness of the private car.

There has been a return to driving at the expense of public transport, with the perception that public transport use increases the risk of catching COVID. People are more aware of their health and future winter COVID or flu surges, they may continue to use private cars to protect themselves.

For the purposes of this study, we have made the following assumptions with regards to changing travel patterns (or trip rates) for the parking demand scenarios:

- **A return to business as usual** – no change in trip rates
- **Remove revolution** – a 16% decrease in trip rates reflecting increasing remote working and online shopping – which is greater than the long-term decline in trip rates
- **Low carbon localism** – a 2% increase in trip rates as people make more but shorter local trips within their local area
- **Achieving MTS outcomes** – no change in trip rates.

Parking Demand Scenarios

MODE SHIFT

Local and regional policies aims to promote healthy lifestyles, reduce pollution, and achieve net zero. Kingston Council have declared a climate emergency and have been working on a number of related initiatives.

The Council's mini-Holland programme aims to improve active travel options to the town centre from across Kingston, and drive mode shift from cars to active and sustainable modes.

At a regional level, the *Mayor's Transport Strategy* has set the following mode share targets for Outer London (which includes Kingston) by 2041:

- Walk - increase from 33% to 40%
- Cycle – increase from 4% to 15%
- Rail / Underground – increase from 8% to 10%
- Bus – increase from 12% to 15%
- Taxi – remain at 1%
- Car – decrease from 41% to 30%.

In order to achieve the MTS mode share target for cars, a 29% mode shift is required (in order to reduce the mode share from 41% to 30%).

For the purposes of this study, we have made the following mode shift (change in mode share) assumptions.

- **A return to business as usual** – no mode shift
- **Achieving MTS outcomes** – a 29% mode shift away from car
- **Remote revolution** – a lower 10% mode shift away from car
- **Low carbon localism** – a medium 19% mode shift away from car.

Table 13 shows how the impact of new developments, changing travel patterns and change in mode share assumptions have impacted the four parking demand scenarios.

Table 13 Parking demand scenarios assumptions

	A return to business as usual	Remote revolution	Low carbon localism	Achieving MTS outcomes
Parking demand scenario	No change in parking demand, trip rates or mode share	Existing trends are accelerated by technological changes that allow for remote working and online shopping. Reduction in trip rates and car trips – resulting demand being 74% of BAU	A smaller but more sustainable London, where more trips made but they are shorter and within local area Slight increase in trip rates, but a reduction in car trips – resulting demand being 83% of BAU	A return to pre-Covid travel patterns and a declining long term trip rate. Mode share changes but total trips do not compared to BAU No change in trip rates, but a reduction in car trips – resulting in demand being 71% of BAU
Impact of new developments	Dependent on parking supply scenario (ranges from 0%, +1.1% and +1.6%)			
Changing travel patterns (change in trip rates)	0%	-16%	2%	0%
Change in mode share (away from car)	0%	-10%	-19%	-29%
Resulting parking demand (compared to current)	100%	74%	83%	71%

Modelling Results

The result of the modelling is a range of sixteen forecasts, representing different combinations of future supply and demand changes. Analysis has been carried out to understand how the changes to supply and demand forecast by the modelling will affect the occupancy of car parks across the town centre.

The three key factors impacting parking demand; impact of new developments on trip rates, changing travel patterns and mode shift, were combined to create the four demand scenarios used in the modelling. The impact of each element was summed together to create a demand factor, representing the level of change in parking demand expected to occur. These were combined with the high, mid and low parking supply scenarios created using information on car park redevelopments from RBK.

Four model runs were completed, each using different input data for the BAU parking demand values. These values were derived by normalising the survey results against longitudinal trends.

Firstly the 'Peak annual occupancy' was modelled which represents the highest levels of occupancy observed across a year (second week in December).

Secondly the 'Average annual occupancy' was modelled which represents the peak occupancy which would be observed during an average week.

In both cases a weekend and weekday forecast was generated.

Table 14 compares the level of BAU parking occupancy, input into the model for each run.

Table 14 Modelling runs

Modelling run		Input parking occupancy
Peak annual occupancy	Weekends	76%
Peak annual occupancy	Weekdays	58%
Average annual occupancy	Weekends	59%
Average annual occupancy	Weekdays	46%

Modelling Results

Peak annual occupancy - weekends

Table 16 and Figure 17 show the results of the forecasts for the peak annual occupancy period - Saturday PM, when the highest occupancy in the town centre, throughout a year is recorded.

In all of the 'BAU' and 'High' parking supply scenarios there are 1,034 available spaces (19%) or more.

The cells highlighted light red in Table 15, indicate scenarios where car parks exceed 80% occupancy and are unlikely to be operating efficiently. There would likely be difficulty locating a space, displacement and potential congestion issues.

Cells highlighted dark red show scenarios where there are insufficient parking spaces to meet demand. In the low supply scenarios there is a significant deficit of parking spaces, up to -2,150 spaces.

Figure 18 shows unoccupied parking spaces by sector, for each of the mid supply scenarios. This represents the unequal distribution of parking demand across the town centre.

In the Northern and Western sectors there is a deficit of parking spaces under all demand scenarios (mid supply scenario). The Central sector has a deficit under the BAU scenario, where there are 12% of spaces unoccupied (142 spaces).

By contrast the Southern and Eastern sectors are forecast to have a surplus of parking spaces across all scenarios, although the Eastern sector will have significantly fewer spaces available in comparison to the Southern Sector.

Table 15 Modelling results – unoccupied parking spaces during peak annual occupancy (Sat PM)

Scenarios		Demand scenario: Return to BAU	Remote revolution	Low carbon localism	Achieving MTS outcomes
Supply scenario	BAU	1491 (25%)	2634 (44%)	2255 (38%)	2771 (46%)
	High parking	1034 (19%)	2184 (39%)	1802 (33%)	2322 (42%)
	Mid parking	-558 (-14%)	598 (15%)	214 (5%)	736 (19%)
	Low parking	-2150 (-90%)	-988 (-41%)	-1374 (-57%)	-849 (-35%)

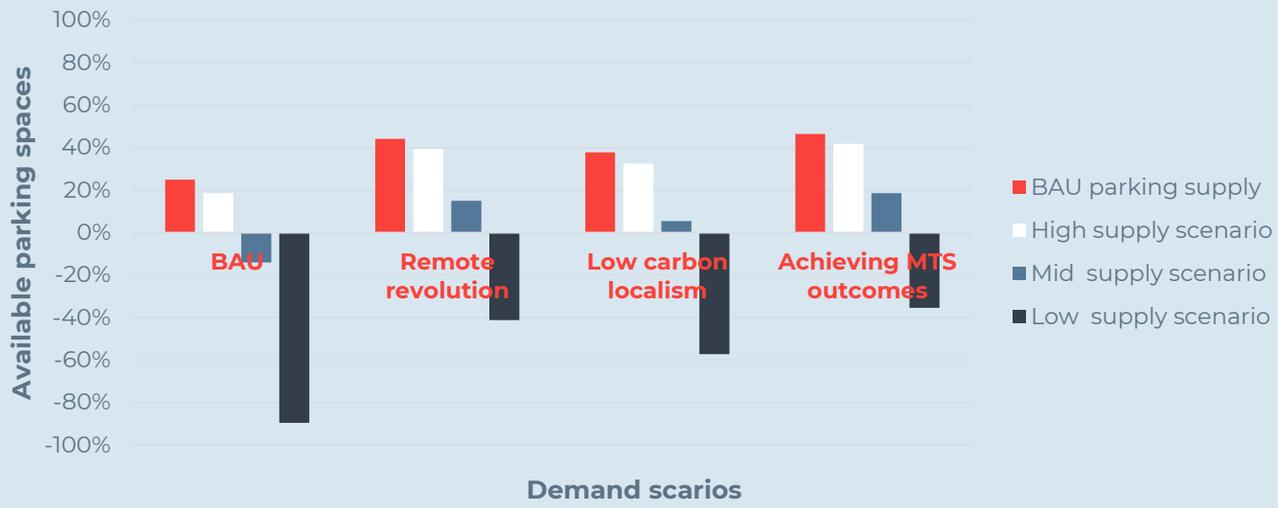


Figure 17 Modelling results – unoccupied parking spaces during peak occupancy (Sat PM)

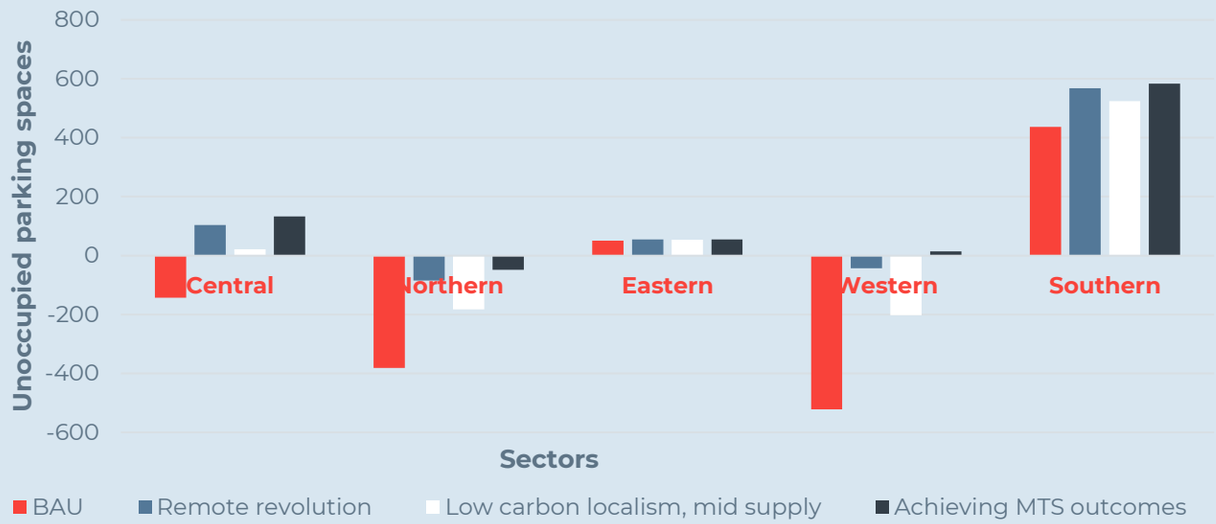


Figure 18 Modelling results – unoccupied parking spaces by sector (mid parking supply)

Modelling Results

Peak annual occupancy - weekdays

Figure 19, 20 and Table 16 represent the results of a second model run using the peak annual weekday occupancy values for each car park.

Overall the number of available parking spaces is greater than during the previous peak annual occupancy weekend model run.

Across the BAU and High supply scenarios there is forecast to be a surplus of parking spaces and the level of occupancy will be below 80%. In the Mid supply scenario there remains a surplus of parking spaces but occupancy is high and above 80% in the BAU demand case. However in the Low supply scenarios there is a deficit in parking spaces for all levels of demand.

Across the individual sectors there is a surplus of parking spaces, except in the Western sector under a BAU demand scenario.

Table 16 Modelling results – unoccupied parking spaces during peak annual occupancy (Thur PM)

Scenarios		Demand			
		BAU	Remote revolution	Low carbon localism	Achieving MTS outcomes
Supply	BAU	2509 (42%)	3392 (57%)	3099 (52%)	3498 (59%)
	High parking	2058 (37%)	2947 (53%)	2652 (48%)	3053 (55%)
	Mid parking	471 (12%)	1364 (34%)	1068 (27%)	1471 (37%)
	Low parking	-1115 (-46%)	-218 (-9%)	-516 (-21%)	-111 (-5%)

Figure 19 Modelling results – unoccupied parking spaces during peak occupancy (Thur PM)

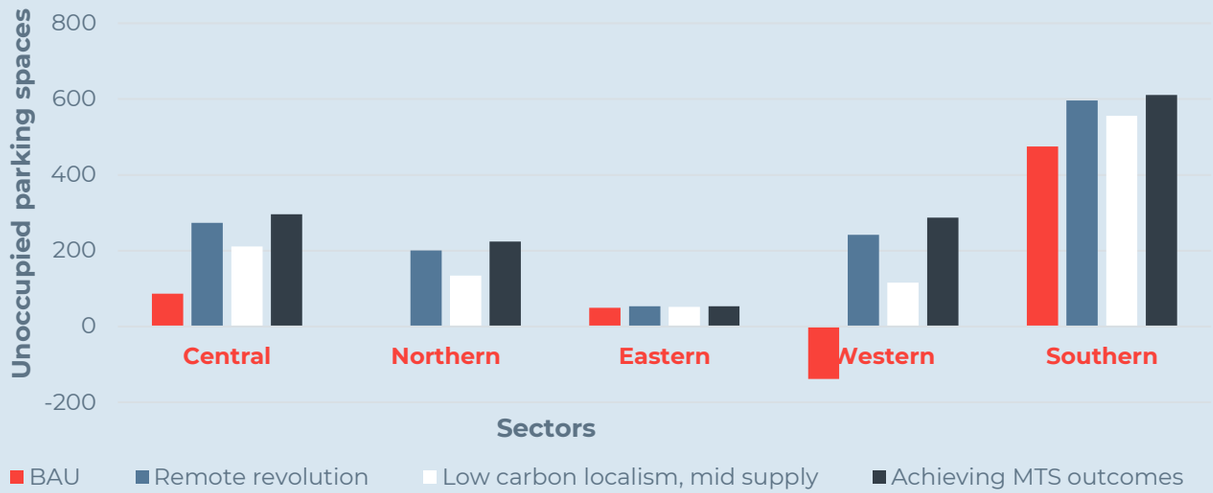


Figure 20 Modelling results – unoccupied parking spaces by sector (mid parking supply)

Modelling Results

Average annual occupancy – weekends

Figure 21, 22 and Table 17 represent the results of a model run for the weekend average annual occupancy, representing the peak occupancy during an average weekend day.

Across the BAU and High supply scenarios there is forecast to be a surplus of parking spaces and the level of occupancy will be below 80%. In the Mid supply scenario there remains a surplus of parking spaces but occupancy is above 80% in the BAU demand case. However in the Low supply scenarios there is a significant deficit in parking spaces for all levels of demand, between -170 and -1,198.

The Northern and Western sectors see a deficit of parking spaces in the BAU demand scenario. The other sectors retain available spaces across all scenarios.

Table 17 Modelling results – unoccupied parking spaces during average annual occupancy

Scenarios		Demand			
		BAU	Remote revolution	Low carbon localism	Achieving MTS outcomes
Supply	BAU	2428 (41%)	3332 (56%)	3032 (51%)	3440 (58%)
	High parking	1977 (36%)	2886 (52%)	2584 (47%)	2995 (54%)
	Mid parking	389 (10%)	1303 (33%)	1000 (25%)	1413 (36%)
	Low parking	-1198 (-50%)	-279 (-12%)	-584 (-24%)	-170 (-7%)

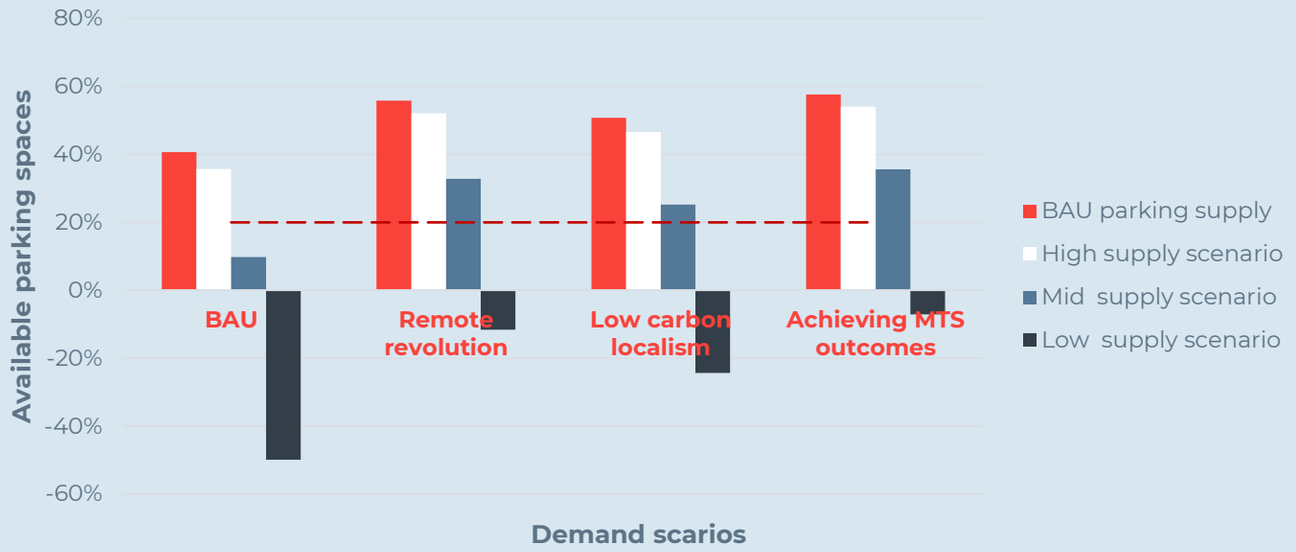


Figure 21 Modelling results – unoccupied parking spaces during average annual occupancy

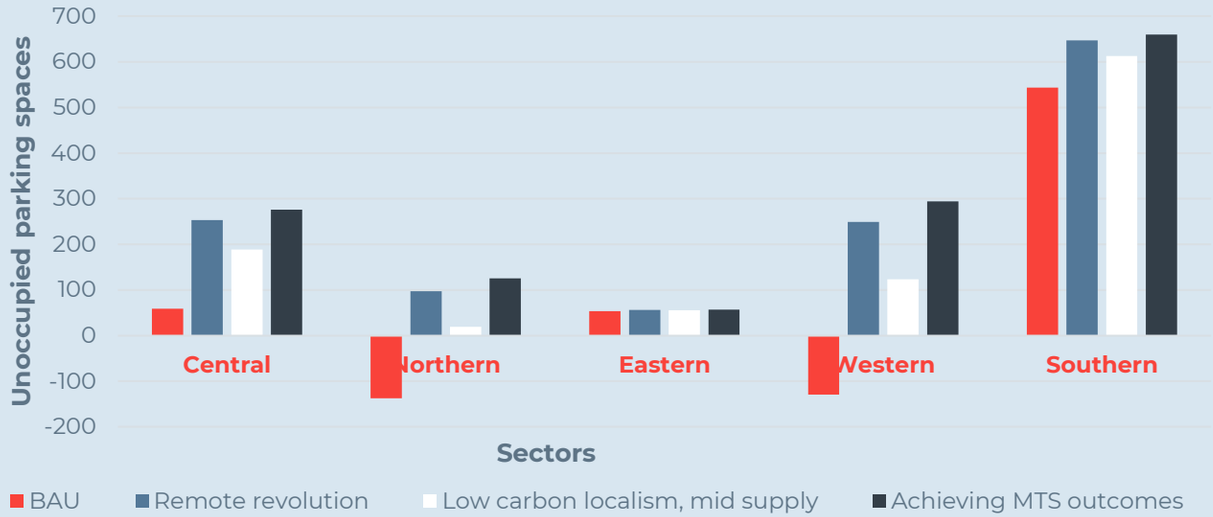


Figure 22 Modelling results – unoccupied parking spaces by sector (mid parking supply)

Modelling Results

Average annual occupancy – weekdays

Figure 19, 20 and Table 18 represent the results of a model run for the weekday average annual occupancy, representing the peak occupancy during an average weekday.

In all but one of the sixteen scenarios there is a surplus of available parking spaces across the Town Centre. In three of the low supply scenarios there would be some parking stress with occupancy above 80%.

In the mid parking supply scenario there is available parking surplus across all sectors.

Table 18 Modelling results – unoccupied parking spaces during average annual occupancy

Scenarios		Demand			
		BAU	Remote revolution	Low carbon localism	Achieving MTS outcomes
Supply	BAU	3233 (54%)	3931 (66%)	3699 (62%)	4015 (67%)
	High parking	2786 (50%)	3489 (63%)	3256 (59%)	3573 (64%)
	Mid parking	1203 (30%)	1910 (48%)	1675 (42%)	1994 (50%)
	Low parking	-380 (-16%)	330 (14%)	94 (4%)	415 (17%)

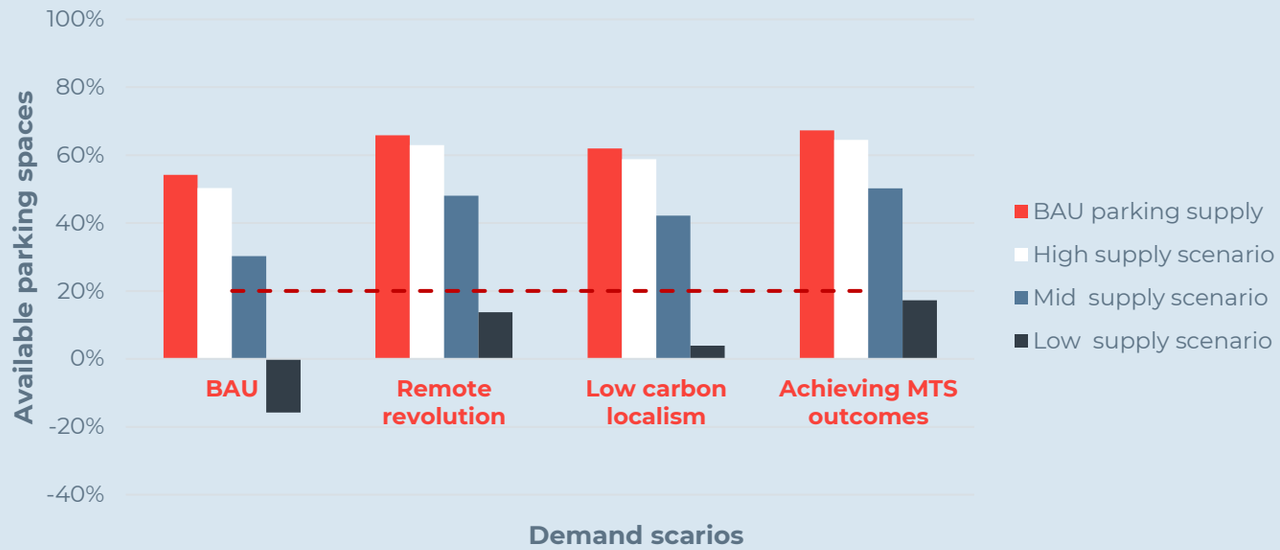


Figure 23 Modelling results – unoccupied parking spaces during average annual occupancy

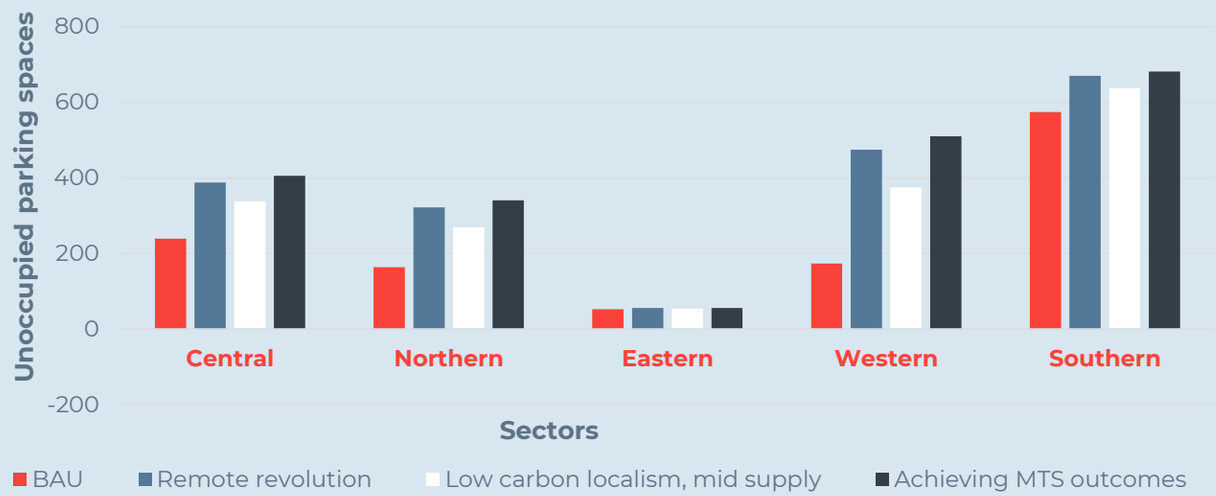
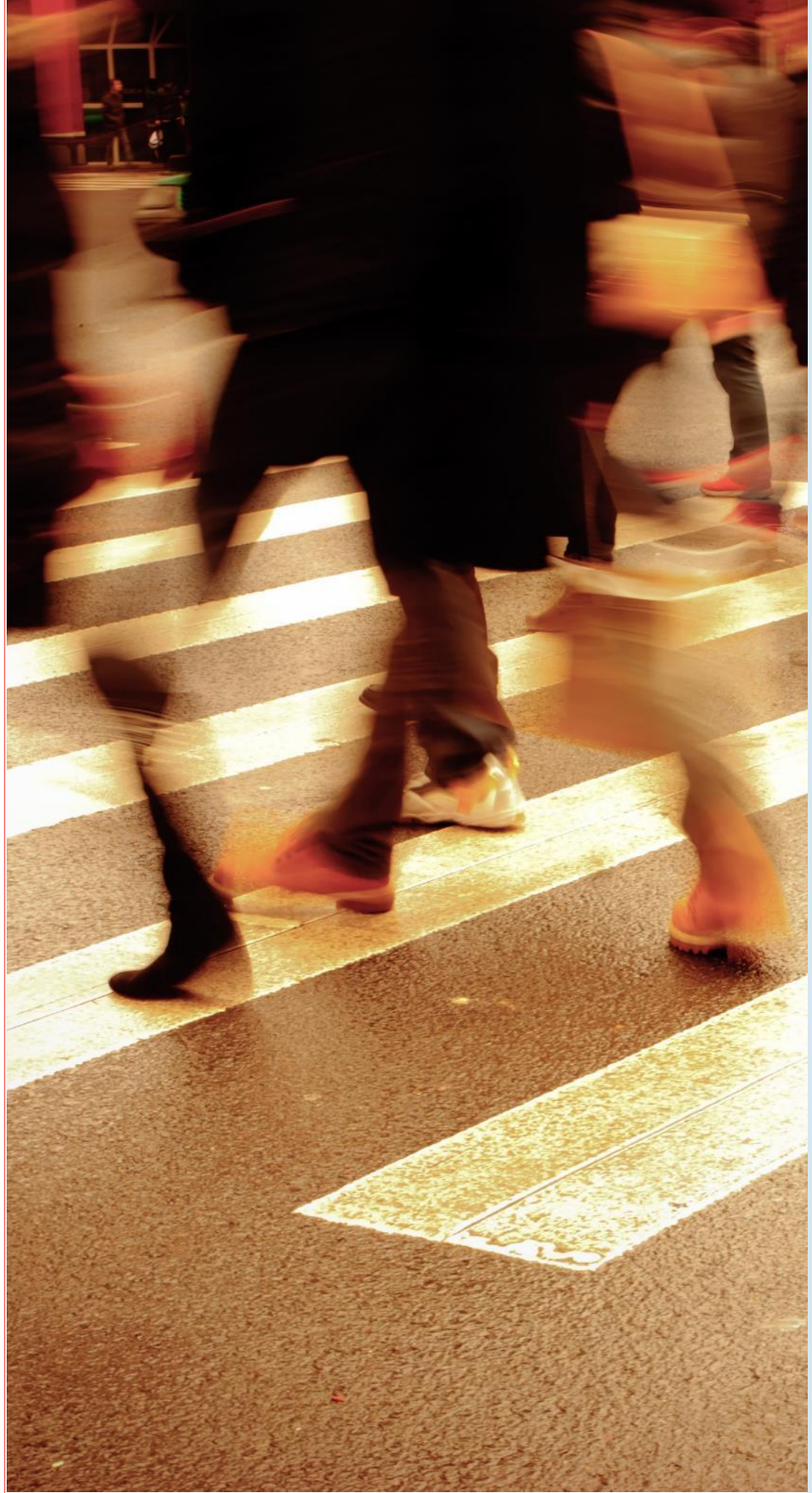


Figure 24 Modelling results – unoccupied parking spaces by sector (mid parking supply)



SECTION 4

Conclusions and Recommendations

Conclusions

Survey results: Across the town centre study area there are 17 car parks, with a capacity of 5,970 spaces overall. Of these car parks, 10 are privately owned. The remaining seven are publicly owned and managed by RBK. Publicly owned car parks account for 1,886 spaces or 32% of the total.

Levels of occupancy vary throughout the week. Peak occupancy is recorded during the Saturday PM peak, and focussed in car parks which serve visitors to shops and leisure locations. Total occupancy across all car parks peaked at 75%. Although there was variation between car parks. During the weekday AM period the lowest levels of occupancy were recorded.

It is generally considered a 'rule of thumb to plan for a surplus of 20% of parking spaces during periods of peak demand. This allows car parks to operate efficiently and provides a quality service for customers, by reducing the time vehicles spend searching for available spaces. If 80% occupancy is exceeded during busy periods then congestion will occur and emissions will arise from unnecessary car mileage and idling.

The survey indicates that occupancy does not exceed 80% across the town centre as a whole. However within individual car parks 80% or greater occupancy is exceeded, especially during the Saturday PM period.

Results by sector It is important to also consider the geographical distribution of car parking. The town centre car parks were split into sectors for the purpose of analysis. Each representing an area a visitor would aim to park in, depending on which direction they approached from. If demand in a sector cannot be met then vehicles will be displaced. and the driver would seek to find parking in another area. This could generate additional mileage, congestion and pollution.

Disabled bays: Overall disabled bay provision more than meets demand, however some on-street bays record consistently high occupancy, indicating inadequate supply in these hotspots.

It is likely that disabled blue badge holders are attracted to these locations due to on-street bays being both free to use and by the convenience of being in close proximity to retail premises.

Longitudinal data: The survey results represent a snapshot of parking in the last week of November. This data was calibrated against longitudinal car parking data to understand typical annual trends. It was calculated that on an average week, the peak occupancy would be 59% and during the busiest period in the second week of December, the peak annual occupancy is 76%.

Modelling: To understand how demand for car parking is expected to change in the future, modelling was undertaken . A range of scenarios were developed to account for likely policy and societal trends which will result in changes in both supply and demand.

Future supply: Supply scenarios were developed based upon information from RBK on the likelihood of each car park being redeveloped in the next ten years. The high supply scenario results in a loss of 7% of the total spaces (430) and the low scenario results in a loss of 60% of total spaces (3569). These losses in supply are not evenly distributed across the town centre sectors.

Constraining supply would itself influence demand. If there is a perception of less available spaces then this would encourage a shift to other modes. This effect could be amplified via changes in parking tariff pricing. In this respect, further flexibility of applying the '80% rule' to supply may be appropriate in order to accommodate wider policy objectives.

Future demand: Three key factors will impact future demand for town centre parking; land use change, changes in travel behaviours and mode shift. Redevelopments will result in changes in land use which will influence trip generation. RBK have provided their forecast development quantums for the next ten years. There are expected to be only minor decreases in retail area. Office and commercial space will increase significantly, however this land use generates less car trips than retail and these occur during the Weekday AM and PM periods when occupancy is generally lower than the peak.

TfL studies predict that travel behaviour will change into the future, caused by societal changes which have been accelerated by the pandemic, including a move towards remote working and online shopping.

Local and National policy will accelerate the modal shift from car journeys to active and sustainable modes. It is proposed that London's Ultra Low Emission Zone (ULEZ) will cover the whole of London by the end of 2023, 135,000 vehicles a day will be affected. Cars that fail to comply with emissions standards will be charged £12.50 a day to use the zone. Since the ULEZ expansion beyond the Congestion Zone in October 2021 there has been a 37% fall in non compliant vehicles and 11,000 fewer (1%) vehicles driving in the zone on weekdays and 0.5% at weekends.

Three scenarios were developed which incorporate these three key drivers of change in trip rates and demand for car parking

Conclusions

Modelling results: Four modelling runs were carried out, to forecast the available parking spaces during the weekend and weekday peaks, both in the 'peak annual occupancy period' (2nd week of December) and during an average week.

The results of the modelling indicate that under the BAU and High parking supply scenarios there is a surplus of parking spaces available, both during the annual peak occupancy period (Dec) and during the peak occupancy of an average week. In almost all cases the car parks are less than 80% occupied and would be expected to be operating efficiently.

For the Mid supply scenarios, there is a deficit of parking spaces during the **peak annual occupancy** weekend period. The other modelling runs show a surplus but occupancy would be above the ideal 80% occupancy level, which may result in congestion and inability to locate spaces.

In the Low parking supply scenarios there is forecast to be a deficit of spaces under all of the demand levels modelled. The shortfall of spaces needed to meet demand would be significant, up to a maximum of 2,150 spaces during the low supply/BAU demand scenario – peak annual occupancy forecast.

The sectors of the town centre are not impacted equally. The Southern and Eastern sectors are forecast to have available parking spaces under all scenarios modelled. With the Southern sector having a minimum of 437 spaces available and the Eastern a lesser 51 spaces. Whereas the other sectors have low or negative parking availability under some scenarios.

Reliance on the private sector: Redevelopment of publicly owned car parks individual private landowners to deliver the required parking capacity the town centre into the future carries risk. If they were to reallocate space or even to dispose of their assets in future then there may not be sufficient capacity.

Competitiveness with competing town centres: Baselining analysis compared Kingston Town Centre to three comparable town centres; Croydon, Wimbledon and Guildford. It is expected that each centre will experience a similar decline in car parking demand. However, if Kingston reduces it's parking supply it may cause visitors to choose an alternative which is easier to drive to, such as Guildford which has a high provision of on-street parking.

Recommendations

In light of the finding of this report the following interventions are recommended.

Consider impact of disposals by sector:

The modelling carried out indicates that whilst it is likely that car trips into the town centre will decline, disposal of car parks could still result in a deficit of parking spaces, with some sectors of the town centre affected more than others.

Before any disposal of car parks is planned, the impact on parking supply should be taken into account, and the potential impact of parking demand being displaced to other parts of the town should be given due consideration. This is to ensure that sufficient capacity is retained in each sector of the town centre to meet demand. Planning policy should be developed to ensure sufficient supply is retained.

Aim for greater than 80% utilisation:

The network of town centre car parks is currently designed to meet peaks in demand experienced during the Sat PM period, in the busiest weeks leading up to Christmas. For the majority of the week the car parks are under utilised.

The merits of this position should be considered in detail to understand whether the level of supply is compatible with the local policy aspirations around mode shift and environment.

Support a switch to active travel:

A switch to from car travel to active and sustainable modes would drive down demand for town centre parking, whilst retaining the level of footfall required for a thriving retail and leisure sector. In order to achieve this switch RBK must continue to build the infrastructure required. High quality services which are attractive to users will increase the rate of adoption. Education and incentive schemes could also contribute to achieving these goals.

Improve wayfinding:

Wayfinding, which directs drivers to available parking spaces should be reviewed and improved. This could include on-street directional signage, variable message signs (VMS), sensors and mobile phone applications to direct town centre visitors to available spaces. These improvements would allow for more efficient use of the parking stock and minimise congestion caused by vehicles searching for an available spaces. With these measure in place it would then be possible for the '80% rule' to be applied more flexibly. It would also allow better use of the car parks in the southern sector of the town centre which modelling showed would have available parking spaces under all scenarios.

As part of the initial conversations with private operators as part of the stakeholder engagement for this project the project team explored appetite for a more strategic approach to wayfinding. In all cases there was a strong desire to collaborate with the council in this area which suggests there may be merit in exploring a single integrated approach to parking management across the town centre.

Adjust parking tariffs to control demand:

Parking fees and tariffs within the council operated car parks are a key lever which can be applied to control the demand for parking within the town centre. An overall increase in parking tariff costs would discourage visitors to drive and make alternative modes more attractive. Commuters who travel into the area to work are most likely able to switch modes. The removal of all day parking discounts would discourage commuter parking and incentivise a switch to walking, cycling or public transport.

Ensure provision of disabled bays:

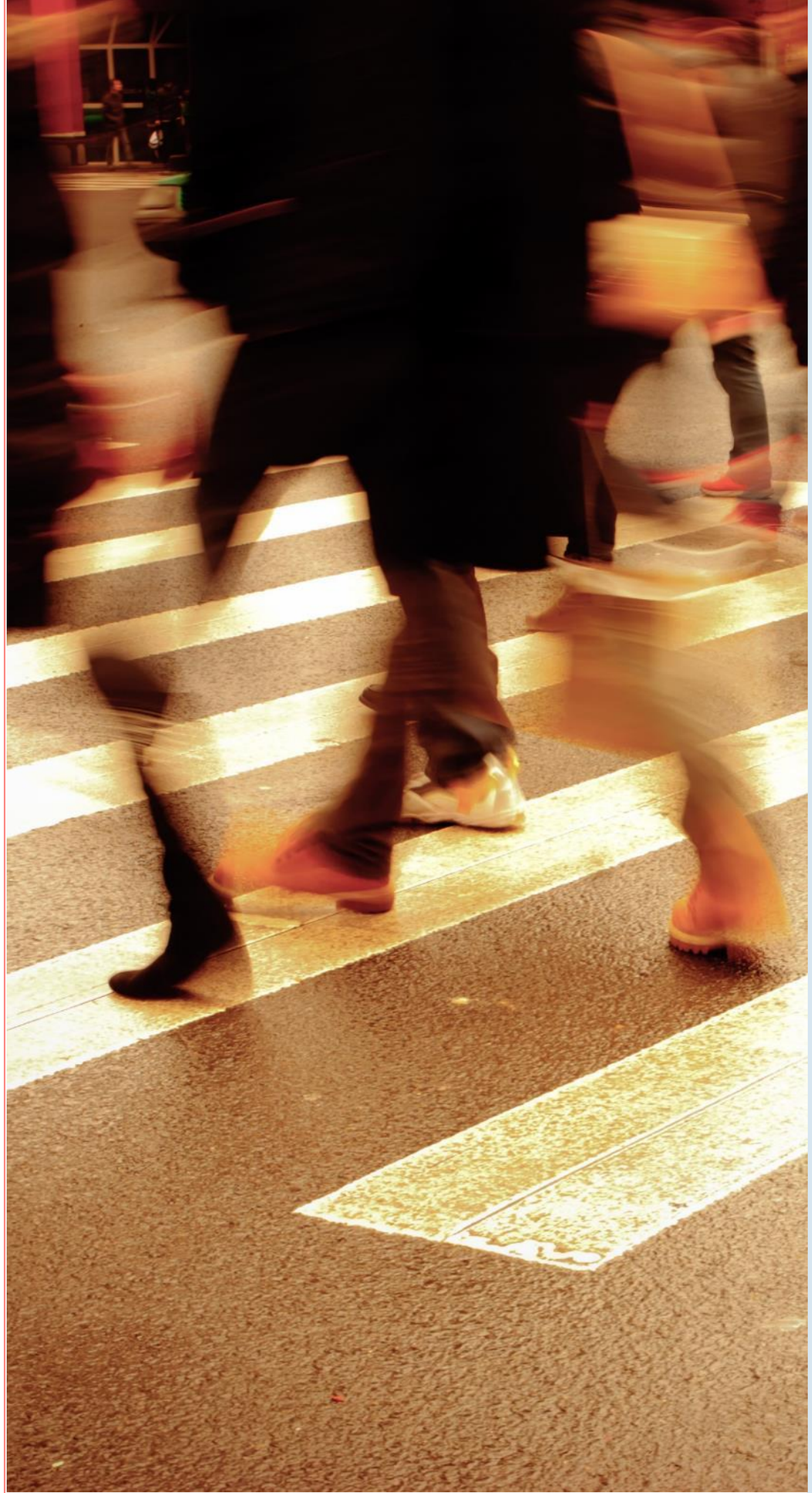
Carry out a review of disabled parking provision and optimise the location of disabled bays to best meet the needs of disabled drivers. Consider the impact of car park disposals.

Engagement with users of these facilities, and car parking providers would provide a better understanding of the drivers behind the demand or lack of in different locations. This would allow provision to be managed more efficiently.

Bay occupancy sensor technology that provides real time data on availability, such as recently employed in London Borough of Sutton, may be valuable in this context.

Mitigate risk of over reliance on private sector:

Whilst there is potential to redevelop some of the car parking space within the town centre, a strategic approach should be taken. There is a risk of overreliance on private sector car parks and consequently if an operator was to close then this could result in not enough parking spaces being available to meet demand. Mitigations could include adding stronger powers into the Land Use Planning Framework, to support the reprovision to meet demand in future.



APPENDIX 1

Survey Results

INTRODUCTION

This report outlines the findings of parking surveys carried out as part of the wider Kingston Town Centre Parking Study.

The data provides an understanding of the current parking situation across on- and off-street parking provision, both publicly and privately operated.

The extent of the study area is shown in Figure A1.

Contents:

- On-street parking provision
- Off-street parking provision
- Methodology
- Analysis of parking surveys – Car Parks
- Analysis of parking surveys – Disabled Bays
- Impact of car park disposals.

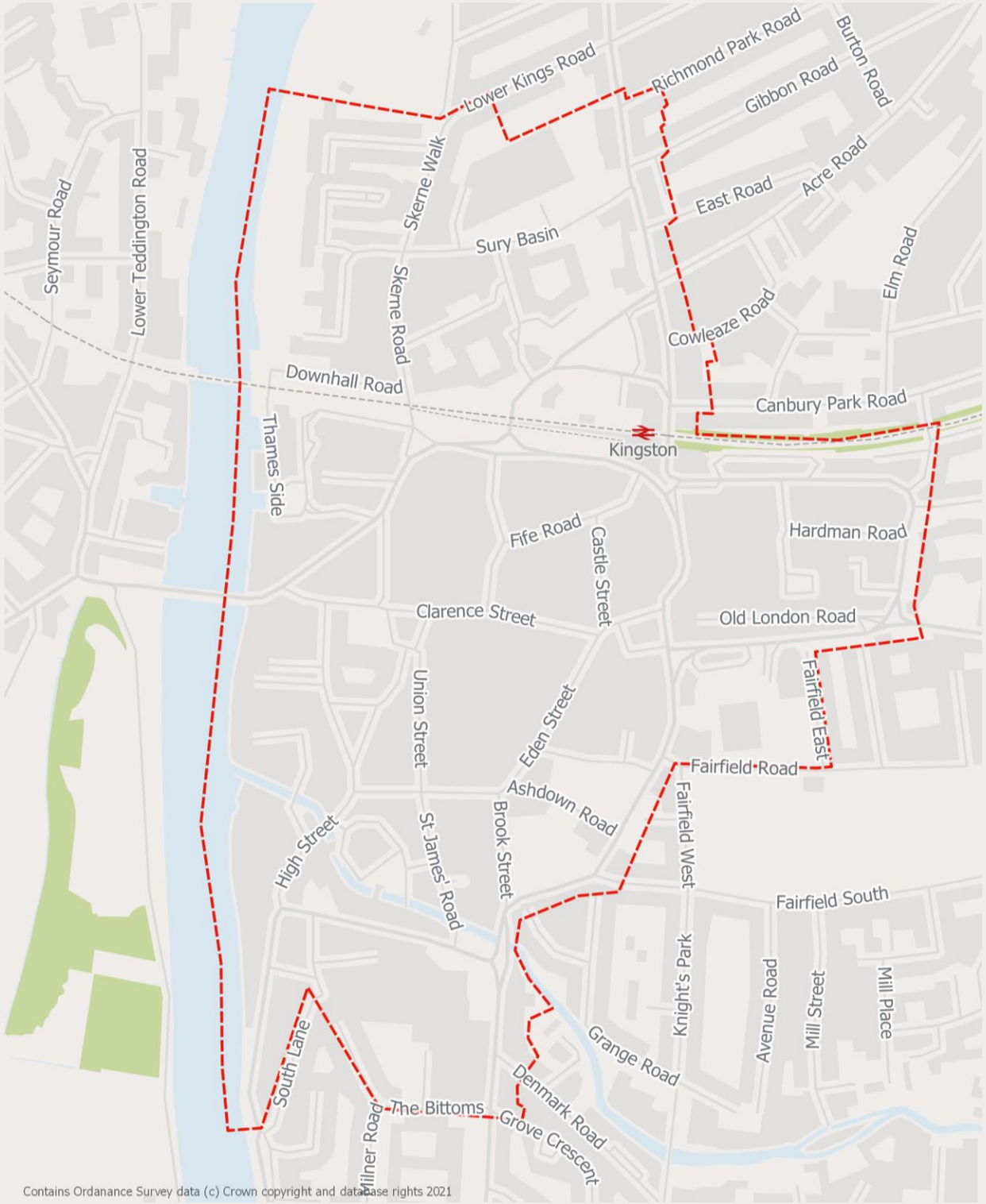


Figure A1 Study area

ON-STREET PARKING

The town centre area is encompassed by a Controlled Parking Zone, with a range of restriction types for different vehicles. The zone operates:

- Monday to Saturdays – 8.30am to 10.30pm
- Sundays – 11am to 10.30pm

In practice this covers the majority of hours in which visitors and commuters to the town centre wish to park.

Figure A2 shows the distribution of on-street parking restrictions across the town centre. The Council's ParkMap data was used to calculate the total on-street parking capacity within the study area.

In total there are 405 available spaces. Of these 197 are available to visitors. This includes 78 payment parking bays and 48 disabled parking bays, which are the key restriction types for visitors. A further 105 bays are reserved for resident and business permit holders. Note that there are a number of bays in place under experimental traffic orders.

Overall, on-street parking accounts for a small proportion (6%) of the total parking within the town centre. The majority of the highway is restricted with yellow lines. The primary function of the kerbside space is to service delivery vehicles.

Occupancy of on-street parking was not surveyed, except for the disabled parking bays.

Restriction Type	Spaces
Payment Parking Bay	78
Permit Holders Bay	105
Shared Use Bay (P&D/Permit)	50
Disabled Badge Holders Bay	48
Limited Waiting Bay	5
Loading Bay	69
Taxi Bay	32
Car Club Bay	2
EV Recharging Bay	1
Motorcycle Parking	15
Total	**405**

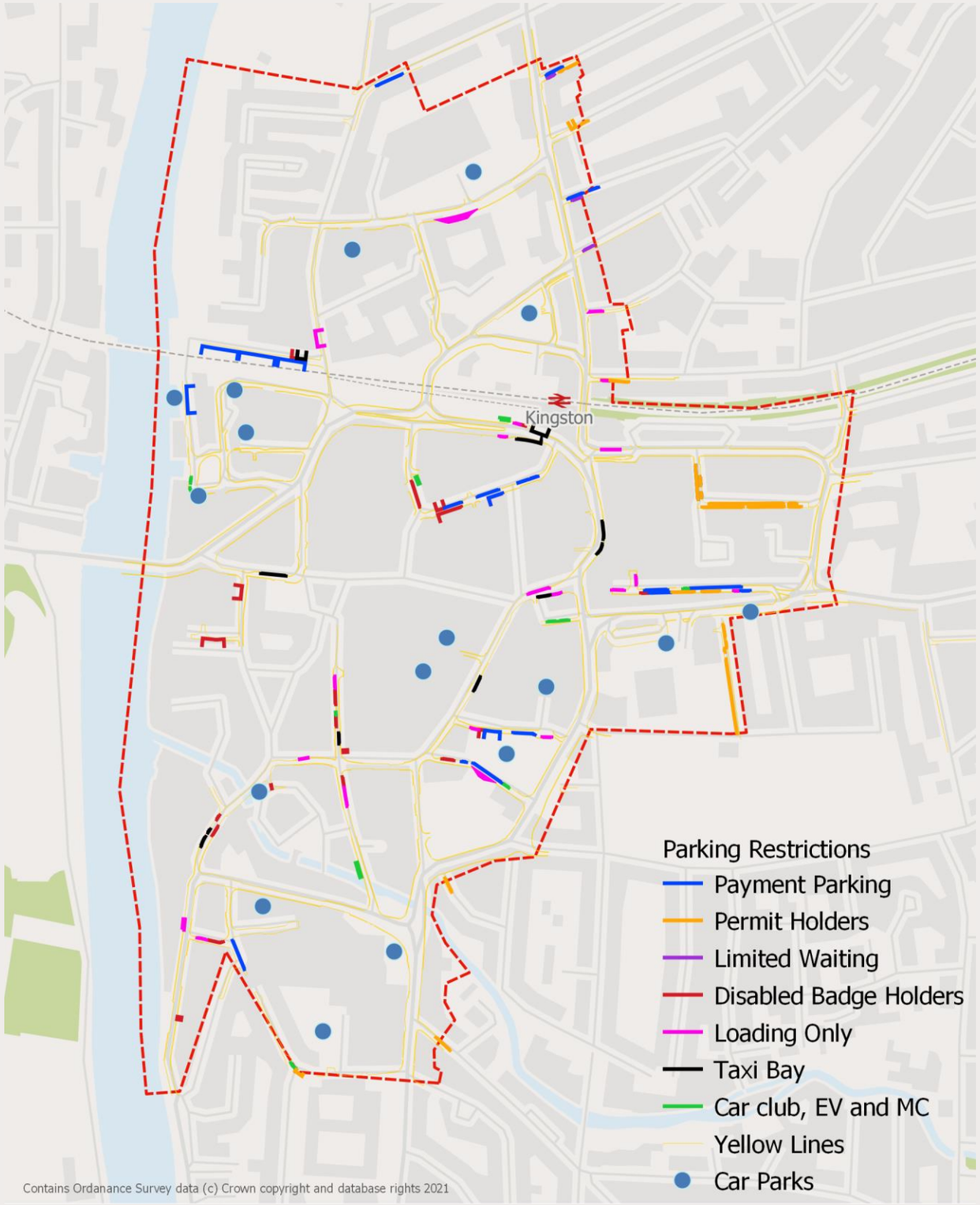


Figure A2 On-street parking restrictions

OFF-STREET PARKING

Across the town centre study area there are 17 car parks, as shown in Figure A3, with a capacity of 5,970 spaces overall.

The Cattle Market – Basement level car park is currently closed, and accounts for an additional 460 spaces.

Of these car parks, 10 are privately owned. The remaining seven are publicly owned and managed by RBK. Publicly owned car parks account for 1,886 spaces or 32% of the total.

The opening hours of the various car parks varies, with eight open 24/7 and the remainder closed overnight. The Guildhall car park is only open on Saturdays.

All of the car parks are pay and display or other forms of payment parking. There is not a consistent charging structure, however on average it costs £1.70-£2.30 to park for 1 hour and £12.50 to park all day.

The car parks are primarily utilised for short stay parking, for visits to the shops and services in the town centre. However a number of the car parks, including 5 of the RBK car parks (Figure 5). However long stay parking and season tickets are offered to cater for commuter demand.

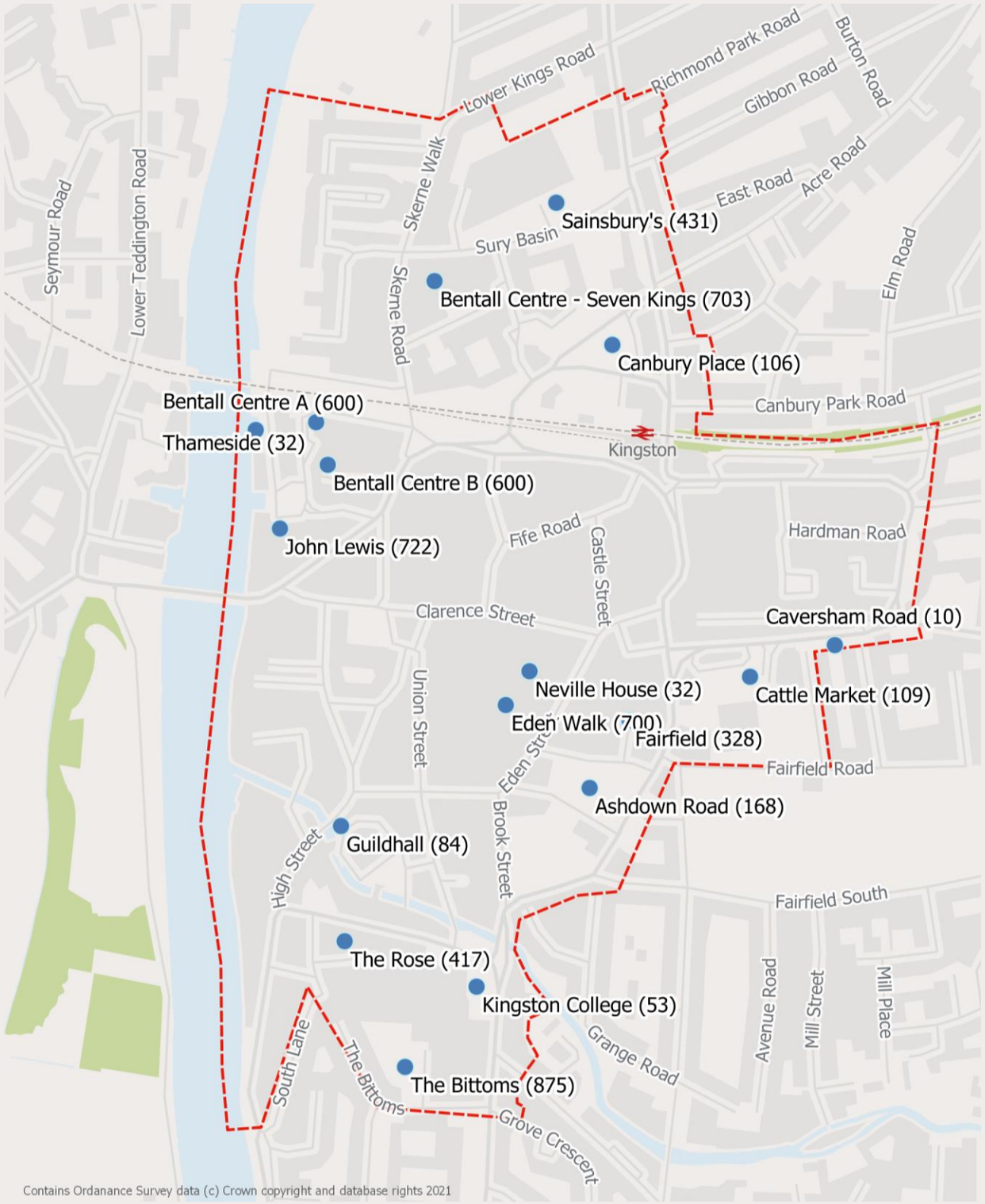


Figure A3 Car park locations, with total number of spaces in brackets

Table A1 Off-street car parks

Car Park	Ownership	Total spaces	Opening Times	Tariffs
Q-Park Eden Walk	Private	700	Mon-Sat 0700-19:30 Sun 1030-1730	Up to 1 hour £ 1.90, 2 hours £ 3.80, 3 hours £ 6.80, 4 hours £ 8.80, 5 hours £ 11.80, 6 hours £ 16.00, 7 hours £ 17.00, 24 hours £ 18.50
NCP Car Park Kingston Fairfield	Private	328	24/7	£2.45 per hour (Pay on the Day) £1.95 Per Hour (ParkPass App)
Bentall Centre A	Private	600	Mon-Wed, Fri-Sun 07:00 - 21:00 Thu 07:00-22:30	£1.40 per Hour 6-7 Hours -11.20 7-8 Hours - £13.60
Bentall Centre B	Private	600	Mon-Wed, Sun 07:00 - 00:00 Thu-Sat 07:00 - 01:00	£1.40 per Hour 6-7 Hours -11.20 7-8 Hours - £13.60
Bentall Centre - Seven Kings	Private	703	Mon-Sat 0700-2300 Sun 09:00-23:00	£1.40 per Hour 6-7 Hours -11.20 7-8 Hours - £13.60
John Lewis	Private	722	Mon-Wed 08:30 - 19:30 Thu 08:30-20:30 Fri 08:30-20:30 Sat 08:00-19:30 Sun 10:00-17:30	£1.40 each hour 5 hours - £7, 6 hours - £9, 7 Hours - £12 8 Hours £15, 9 Hours- £18 10 Hours - £20 , Overnight - £20
Sainsbury's	Private	431	Mon-Sat 07:00 - 22:00 Sun 11:00-17:00	1 Hour - Free 2 hours - £3 4 Hours - £2
The Bittoms	RBK	875	Mon-Sun 07:45-19:00	7am to 7pm, day charges apply: Per Hour £1.80. If parking for more than four hours it caps to a £12.50 flat rate for the whole day. 7pm to 7am, a flat rate of £4.20 applies for the whole evening.
Cattle Market - Surface	RBK	109	24/7	7am to 7pm day charges of £2.50 per hour 7pm to 7am, a flat rate of £4.20 applies for the whole evening.
Ashdown Road	RBK	168	24/7	From 7am to 7pm, day charges apply: £1.20 per 30 minutes £2.40 per hour.
Canbury Place	RBK	106	24/7	From 7am to 7pm, day charges apply: Per Hour £1.80. If parking for more than four hours it caps to a £12.50 flat rate for the whole day. From 7pm to 7am, a flat rate of £4.20 applies for the whole evening.
Rose	RBK	417	Mon to Sat 07.30- midnight Sundays 07:00- midnight	From 7am to 7pm, day charges apply: Per Hour £1.80 If parking for more than four hours it caps to a £12.50 flat rate for the whole day From 7pm to 7am, a flat rate of £4.20 applies for the whole evening.
Neville House	RBK	32	24/7	From 7am to 7pm, day charges apply:£2.30 per hour. From 7pm to 7am, a flat rate of £4.20 applies for the whole evening.
Caversham Road (permit holders only)	RBK	10	24/7	Business Permit / Season Tickets Only
Guildhall (Saturdays only)	RBK	84	Sat only 08:00-18:00	£1.80 per hour
Kingston College	RBK	53	24/7	£1.70 per Hour. Evening flat rate of £4.20
Thameside	RBK	32	24/7	£1.70 per Hour. Evening flat rate of £4.20

Table A2 RBK car park season ticket tariffs – Season ticket tariffs

Parking place	Time period	Charge
THE BITTOMS CAR PARK (Multi-storey section) The Bittoms, Kingston	monthly (Mon-Fri)	£240
	3 months (Mon-Fri)	£650
	annual (Mon-Fri)	£2,300
	monthly (every day)	£260
	3 months (every day)	£730
	annual (every day)	£2,800
CANBURY PLACE CAR PARK Walter Street, Kingston	monthly (Mon-Fri)	£220
	3 months (Mon-Fri)	£610
	annual (Mon-Fri)	£2,280
	monthly (every day)	£260
	3 months (every day)	£730
	annual (every day)	£2,800
CATTLE MARKET CAR PARK (basement levels), Fairfield North, Kingston	monthly (Mon-Fri)	£214
	3 months (Mon-Fri)	£605
	annual (Mon-Fri)	£2,200
	monthly (every day)	£260
	3 months (every day)	£730
	annual (every day)	£2,730
CAVERSHAM ROAD CAR PARK, Caversham Road, Kingston	monthly (local)	£45
	3 months (local)	£130
	annual (local)	£510
	monthly (other)	£200
	3 months (other)	£450
	annual (other)	£1,600
THE ROSE CAR PARK Kent Road, Kingston	monthly (Mon-Fri)	£240
	3 months (Mon-Fri)	£650
	annual (Mon-Fri)	£2,300
	monthly (every day)	£260
	3 months (every day)	£730
	annual (every day)	£2,800

PARKING SURVEYS - METHODOLOGY

Survey methodology

Parking surveys were commissioned, to provide a detailed understanding of the current parking capacity and utilisation in the town centre, as well as to form an input into the future demand model. Best practice was applied in the design of the surveys, including the use of the Lambeth methodology for on-street parking surveys.

Car park surveys

The surveys included all off-street car parks, both those operated by RBK and by private entities. Initial surveys were carried out to ascertain parking capacity and then hourly accumulation was measured, using cameras mounted at entrances and exits to car parks.

Disabled bay beat surveys

In addition to the car park camera surveys, additional snapshot beat surveys were carried out to understand the utilisation of disabled bays. An AM (9-11am), PM (2-4pm), and Evening (7-9pm) survey was carried out on three days; Tuesday (23rd Nov), Thursday (25th Nov) and Saturday (27th Nov). These surveys included both disabled blue badge bays in off-street car parks, and the disabled bays on street, within the survey area.

Analysis

The data collected provides a snapshot for the week of the survey 22nd-28th November 2021. The cameras operated 24/7, allowing for hourly accumulation levels to be calculated for each car park.

To understand how the level of occupancy recorded during the surveys compared to the peak annual occupancy, the data was compared against data from the car park operators showing transactions throughout the previous years.

Furthermore, the data was also compared against those recorded in previous reports (2014 and 2016) to track changes over time.

Table A3 Survey methodology

	Data collected	Method of collection
On-street parking	Disabled bay capacity (supply)	Calculated from ParkMap GIS data
	Disabled bay occupancy (demand)	Snapshot beat surveys AM, PM and Evening, across two weekdays and a Saturday
Off-street car parks	Capacity (supply)	Site surveys
	Occupancy (demand)	Camera accumulation surveys, 24/7, presented as hourly utilisation data

ANALYSIS OF PARKING SURVEYS – CAR PARKS

From the results of the surveys, the following conclusions can be drawn.

Peak occupancy: During the week of the survey, 22nd-28th November 2021, peak demand, during a single 15 minute period, across all car parks, was recorded on Friday at 12:45, with a utilisation rate of 75%, which equates to 4,463 occupied spaces and 1,507 unoccupied spaces.

Variations throughout the day: Figures A4 and A5 show variations of car park demand throughout the day, across all car parks. During all days surveyed the demand increases significantly mid-morning and reaches a peak early afternoon. Demand then falls in the evening. On Saturday and Sunday peak occupancy occurs later in the day.

Variations throughout the week: Figure A4 shows that occupancy increased throughout the week from Monday – Friday. Peak occupancy was achieved on Friday at 75% and remained equally high throughout Saturday and Sunday.

The highest daily average occupancy (Table A3) across all car parks was on Saturday, at 29%. However maximum occupancy rates reach up to 72-74% on Fridays, Saturdays and Sundays.

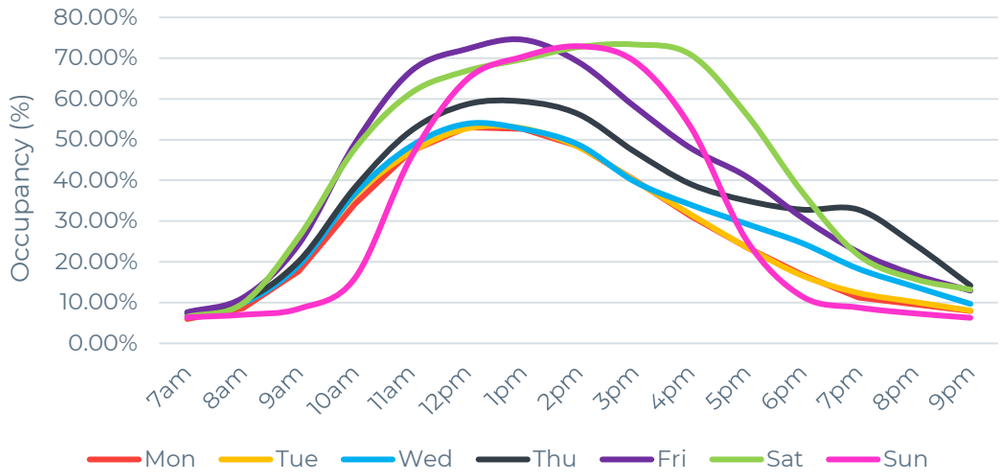


Figure A4 Total car parking occupancy throughout the week (%)

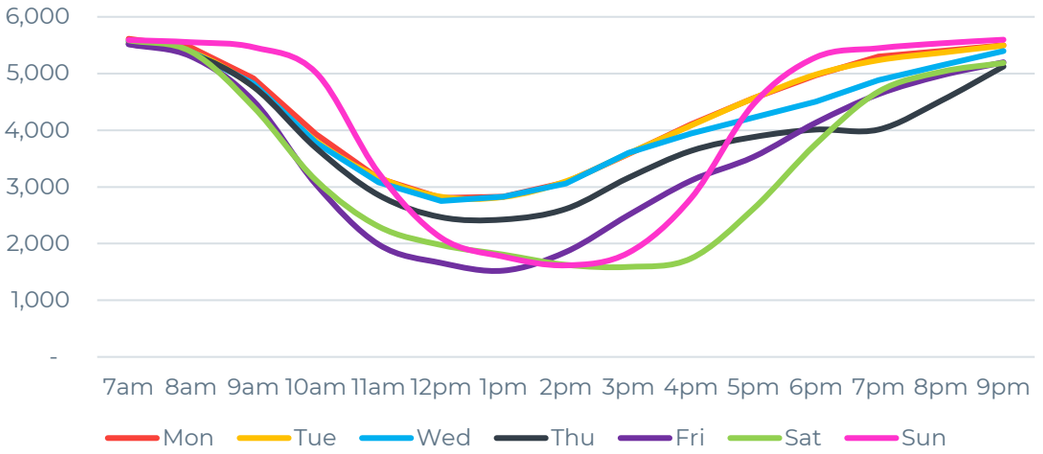


Figure A5 Unoccupied parking spaces

Table A3 Daily occupancy

	Occupancy			Available parking spaces at peak occupancy		
	Max	Min	Ave	During max occupancy	During minimum occupancy	Average
Mon	53%	3%	18%	2,804	5,778	4,869
Tue	53%	4%	19%	2,798	5,711	4,829
Wed	54%	4%	20%	2,743	5,708	4,750
Thu	60%	5%	24%	2,403	5,668	4,529
Fri	75%	5%	27%	1,507	5,688	4,343
Sat	74%	5%	29%	1,561	5,662	4,223
Sun	73%	5%	22%	1,614	5,683	4,656

ANALYSIS OF PARKING SURVEYS – CAR PARKS

Figures A6 and A7 summarise the 24 hour surveys, by presenting the average occupancy percentage across nine key time periods: AM (10am), PM (2pm), Evening (8pm), on the Tuesday, Thursday and Saturday. Table A5 (overleaf) shows that the variations in occupancy, between car parks, across the same time periods. Car parks highlighted red are council owned. This is then represented spatially in the heat maps in Figures A8 and A9.

Maximum and minimum occupancy: The car park with the highest sustained peak period was Canbury Place, which recorded 107% occupancy during the Saturday PM period. The occupancy exceeding full capacity occurred due to vehicles parking outside of marked bays and those circulating looking for a space. The car park with the highest average sustained peak period throughout the week was also Canbury Place. By contrast the least utilised car park was Thameside, which did not exceed 72% occupancy throughout the survey period and was on average below 40%.

Evening: During the evenings a number of the car parks are closed and as a result there is less overall parking capacity in the town centre. However the number of vehicles parked is also lower than during the day. Most car parks were underutilised with less than 50% occupancy, with the exceptions of the Sainsbury's car park (54% Thursday evening.) and Canonbury Place (85% Thursday evening and 88% Saturday evening.)

Weekend parking: The highest occupancy levels were recorded on Saturday afternoon, with the retail centre car parks being most occupied (Bentall Centre, John Lewis and Sainsbury's). Nine car parks exceeded 75% of capacity. Neville House was over 115% of capacity on Saturday afternoon. However there were exceptions with low occupancy. The Bittoms only recorded 9% and Cattle Market surface at 24%.

Weekday parking: During the weekday AM and PM surveys the council owned car parks had the highest occupancies, indicating they are preferred by commuters. The busiest car parks were Kingston College, Caversham Road, which is permit holder only and Neville House.

Figure A6 and Table A6 shows the number of unoccupied parking spaces, during each survey period. The colour coding indicates the level of parking stress.

During the Saturday PM period when peak occupancy was recorded, the number of available parking spaces across the town centre area was 1627. However the number of available spaces in individual car parks was limited in some cases.

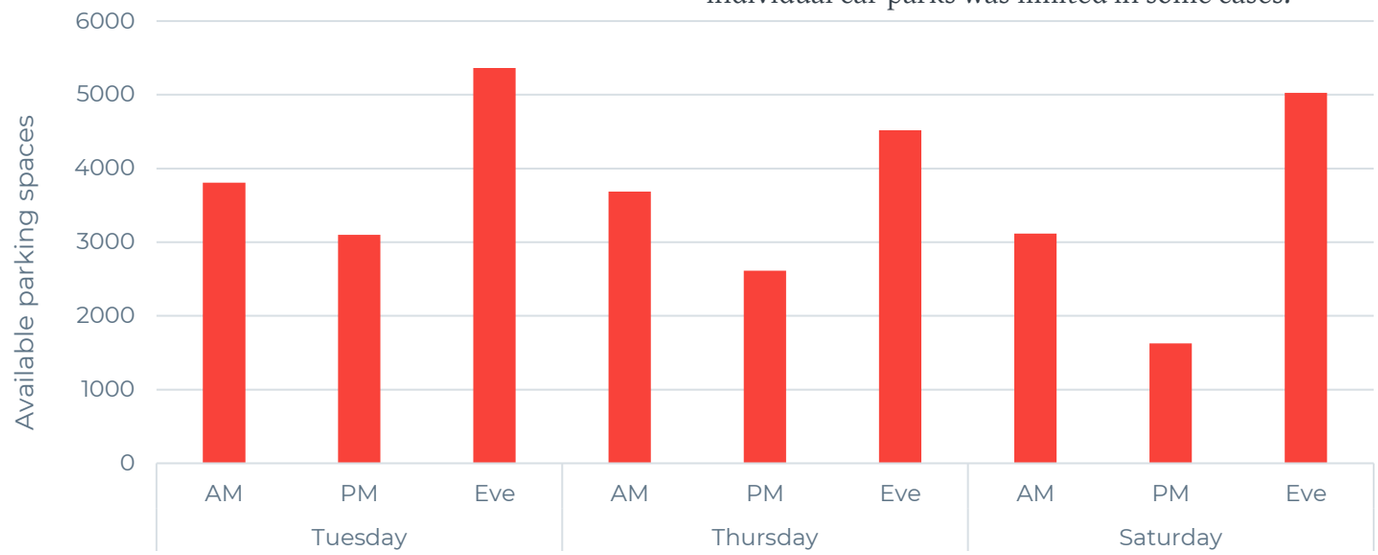
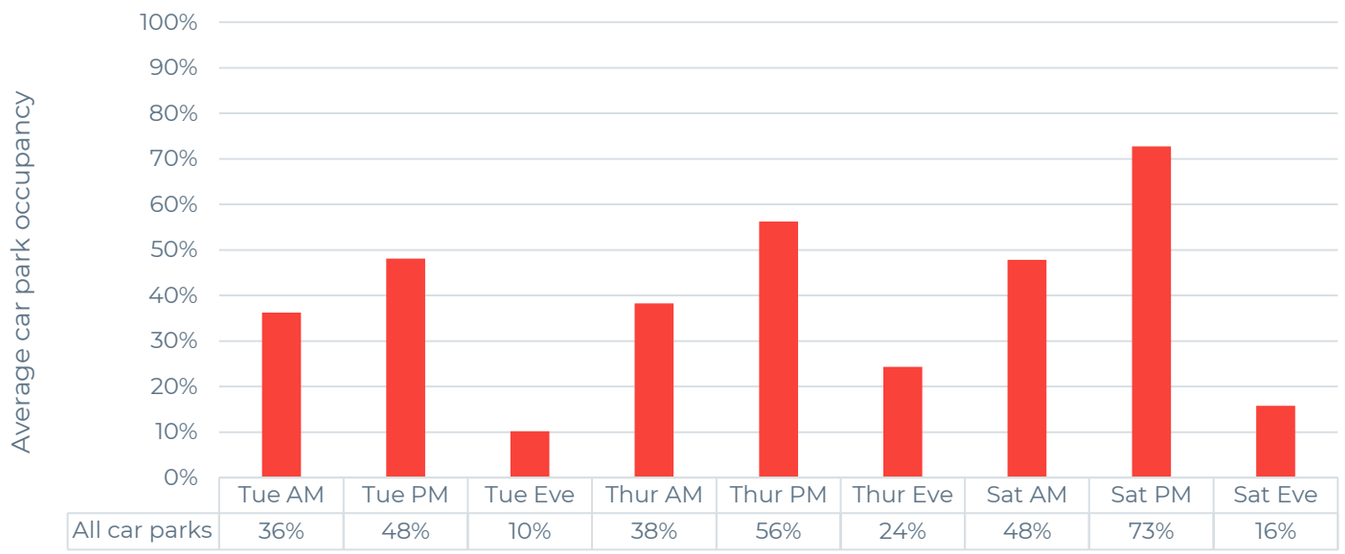


Figure A6 Available parking spaces - all car parks



	Tue AM	Tue PM	Tue Eve	Thur AM	Thur PM	Thur Eve	Sat AM	Sat PM	Sat Eve
All car parks	36%	48%	10%	38%	56%	24%	48%	73%	16%

Figure A7 Overall car park occupancy

High (>75%) Mid (50-75%) Low (<50%) Closed

Table A5 Differences in car park occupancy

Car Park	Capacity	Peak occupancy	Car park occupancy (%)								
			Tuesday			Thursday			Saturday		
			AM	PM	Eve	AM	PM	Eve	AM	PM	Eve
Q Park Eden Walk	700	74%	26%	37%	1%	30%	39%	6%	34%	70%	3%
NCP Kingston Fairfield	328	92%	75%	75%	13%	73%	76%	18%	50%	74%	30%
Bentall Centre A	600	95%	28%	55%	2%	36%	76%	20%	75%	94%	2%
Bentall Centre B	600	93%	28%	49%	5%	32%	61%	43%	53%	91%	17%
Bentall Centre - Seven Kings	703	103%	30%	43%	8%	36%	57%	25%	47%	96%	17%
John Lewis	722	96%	46%	70%	0%	47%	83%	12%	70%	94%	0%
Sainsbury's	431	85%	50%	47%	52%	44%	59%	61%	70%	76%	39%
The Bittoms	875	19%	16%	17%	0%	13%	17%	1%	5%	9%	5%
Cattle Market - Surface	109	94%	11%	10%	15%	11%	5%	54%	10%	11%	29%
Ashdown Road	168	101%	77%	95%	46%	88%	86%	64%	98%	96%	40%
Canbury Place	106	116%	51%	75%	36%	62%	86%	85%	60%	107%	88%
Rose	417	103%	54%	60%	20%	50%	63%	41%	42%	93%	42%
Neville House	32	106%	66%	91%	31%	75%	106%	16%	72%	84%	3%
Caversham Road (Permit holders only)	10	100%	80%	90%	0%	100%	100%	0%	10%	10%	10%
Guildhall (Saturdays only)	84	33%	0%	0%	0%	0%	0%	0%	20%	23%	1%
Kingston College	53	94%	83%	79%	9%	81%	87%	9%	68%	15%	9%
Thames side	32	72%	22%	28%	6%	38%	31%	31%	34%	47%	22%
Average occupancy %		75%	36%	48%	10%	38%	56%	24%	48%	72%	16%

Table A6 Differences in car park occupancy

Car Park	Capacity	Peak occupancy	Available parking spaces								
			Tuesday			Thursday			Saturday		
			AM	PM	Eve	AM	PM	Eve	AM	PM	Eve
Q Park Eden Walk	700	180	521	442	-	491	424	-	464	208	-
NCP Kingston Fairfield	328	27	81	81	284	89	79	270	163	86	230
Bentall Centre A	600	33	435	273	589	383	145	483	153	39	588
Bentall Centre B	600	42	430	306	569	407	235	342	283	56	500
Bentall Centre - Seven Kings	703	- 19	491	402	650	450	299	529	374	28	587
John Lewis	722	26	387	217	-	380	120	636	216	43	-
Sainsbury's	431	66	215	227	207	240	176	170	128	103	263
The Bittoms	875	706	735	729	-	758	728	-	828	797	-
Cattle Market - Surface	109	6	97	98	93	97	104	50	98	97	77
Ashdown Road	168	0	38	8	91	20	23	60	3	6	100
Canbury Place	106	0	52	26	68	40	15	16	42	0	13
Rose	417	0	193	167	335	208	155	245	241	30	243
Neville House	32	0	11	3	22	8	0	27	9	5	31
Caversham Road (Permit holders only)	10	0	2	1	10	0	0	10	9	9	9
Guildhall (Saturdays only)	84	56	-	-	-	-	-	-	67	65	83
Kingston College	53	3	9	11	48	10	7	48	17	45	48
Thames side	32	9	25	23	30	20	22	22	21	17	25
Average occupancy	5,970	1,135	3,806	3,098	5,364	3,685	2,614	4,520	3,116	1,627	5,028

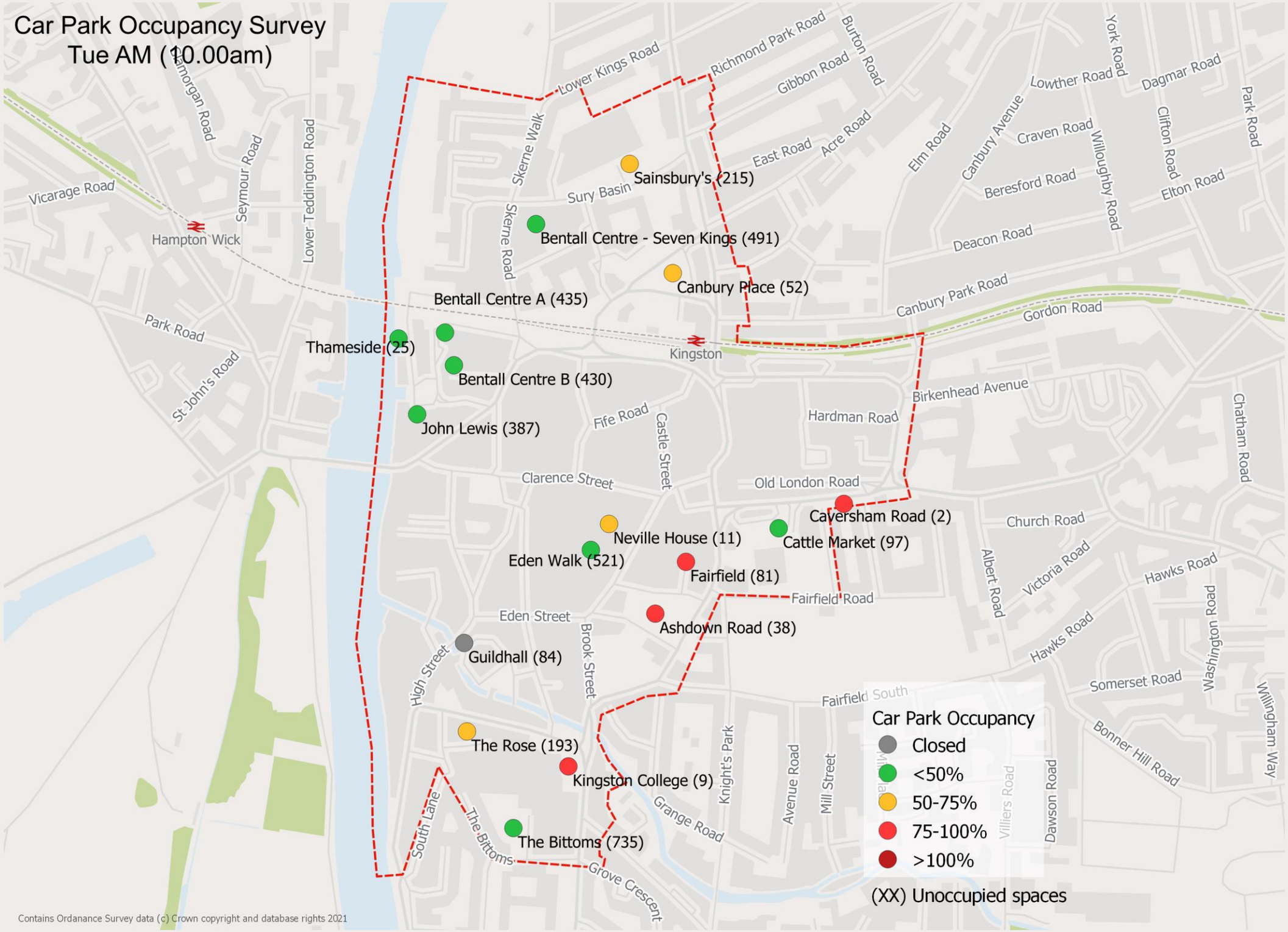


Figure A8 Occupancy heatmap (Tue AM)

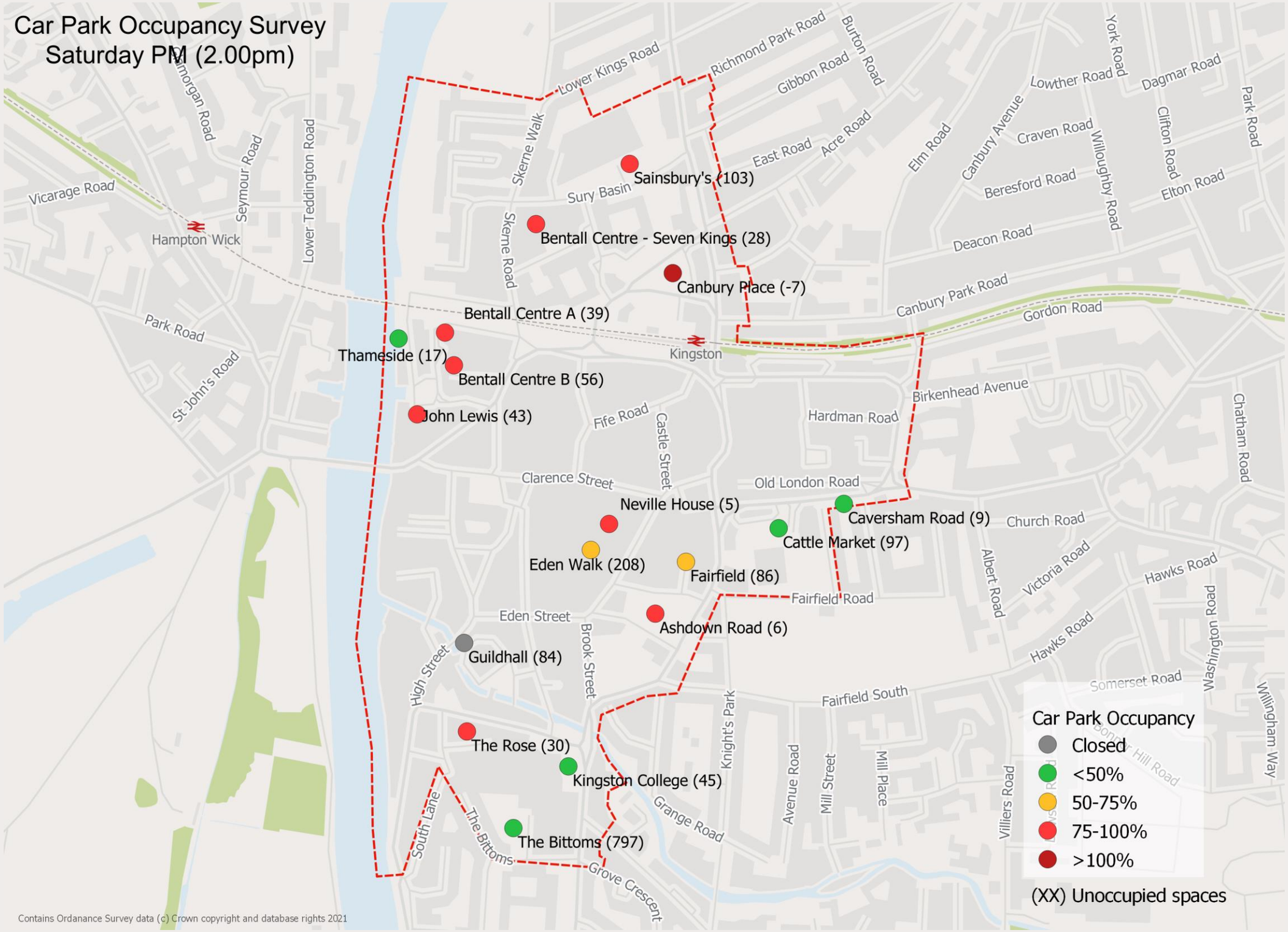


Figure A9 Occupancy heatmap (Sat PM)

Analysis by sector

Figure A10 shows the town centre area split into sectors, each containing a group of car parks which require similar journey times when travelling from outside the area. The central sector is separated from the eastern sector because the one way system artificially extends the journey times when approaching from the south.

The volume of parking spaces is unequally distributed across the sectors, as shown in figure A10, with 1,954 spaces in the western sector and 119 in the eastern sector.

Peak occupancy across the entire town centre area occurs during the Saturday PM period (73%). Figure A11 indicates that peak occupancy occurs during the Saturday PM period for four of the five sectors, with the exception of the eastern sector. The eastern sector records 11% in the Saturday PM and peak occupancy of 50% during the Thursday evening period. It should be noted Cattle Market, in the eastern sector, recorded inconsistent patterns of occupancy, with peaks occurring outside of the nine time periods chosen for this analysis. Unlike other car parks, peak occupancies were observed during the Fri PM period. At this time the eastern sector records 79% occupancy.

Figure A12 shows the number of unoccupied parking spaces by sector, during the Saturday PM period. The southern sector has by far the most available spaces with 937 unoccupied. Occupancy in this sector remains below, 34% across all survey periods.

The western sector, which includes John Lewis and the Bentall centre has a small number of available spaces on a Saturday but has lower occupancy and more spaces available during other periods.

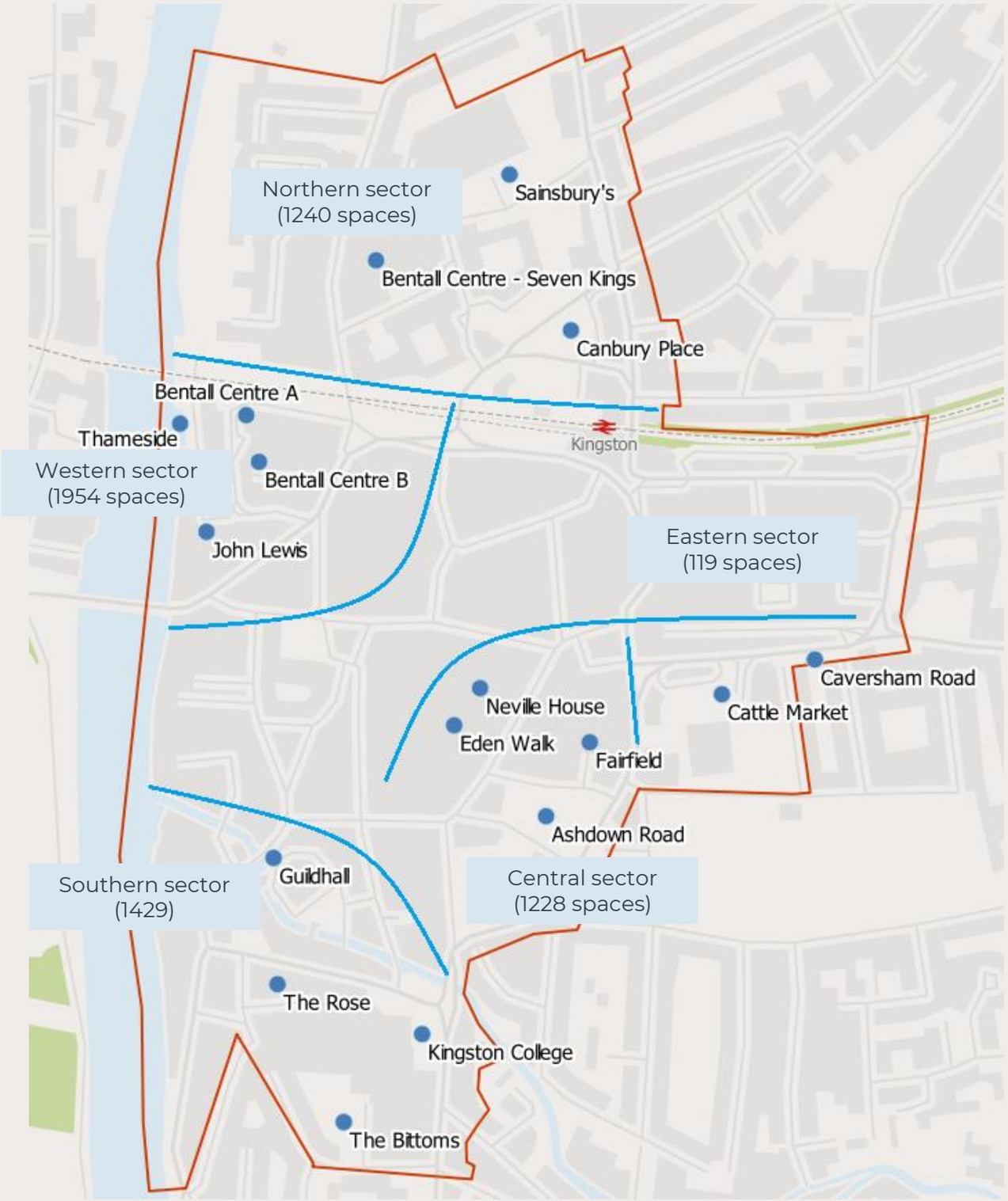


Figure A10 Car park sectors

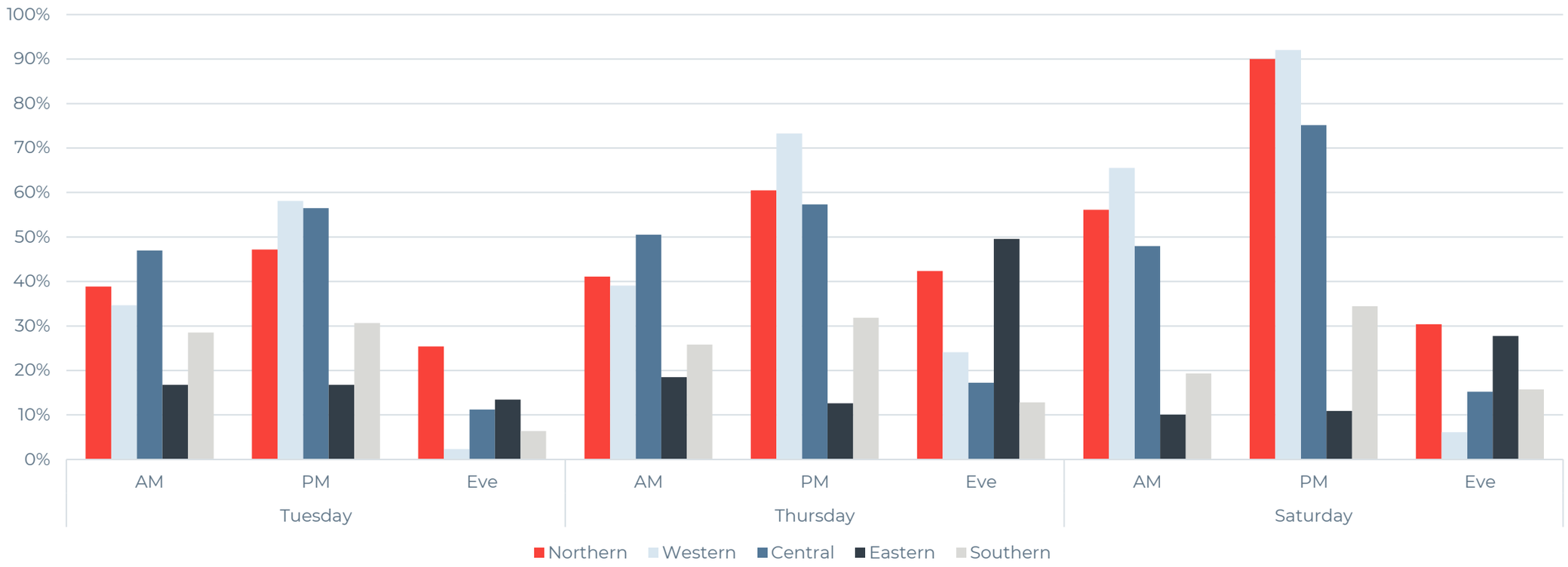


Figure A11 Overall car park occupancy by sector

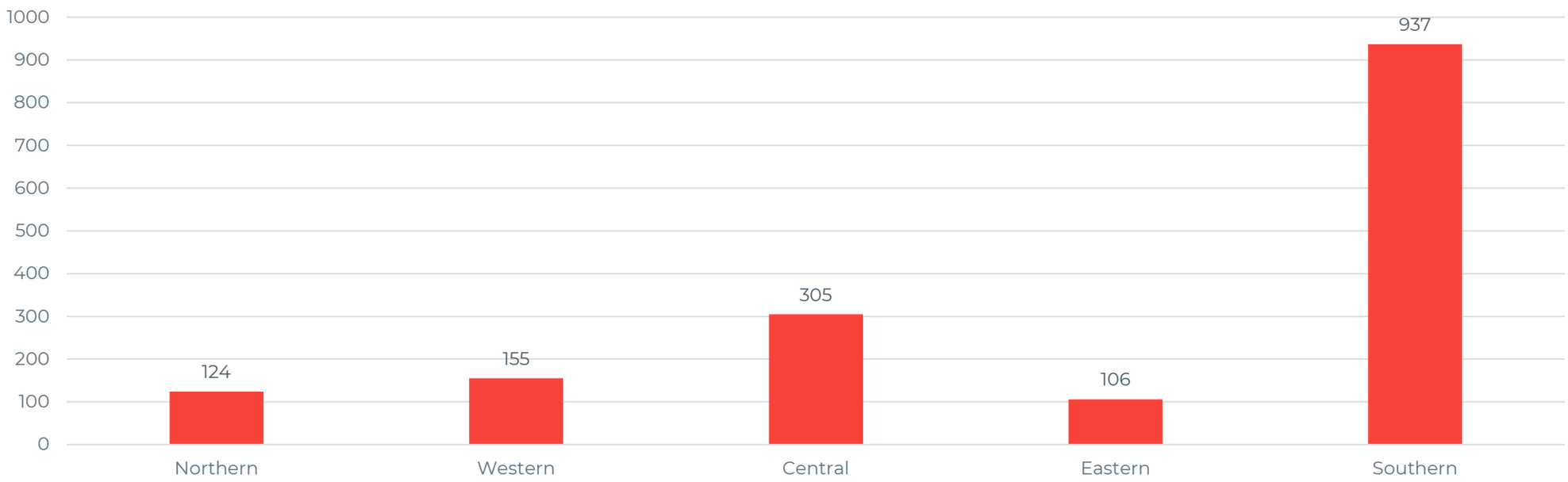


Figure A12 Unoccupied parking spaces by sector – Sat PM

Table A7 Car park occupancy by sector

Sector	Total spaces	Car park occupancy								
		Tuesday			Thursday			Saturday		
		AM	PM	Eve	AM	PM	Eve	AM	PM	Eve
Northern	1,240	482	585	315	510	750	525	696	1,116	377
Western	1,954	677	1,135	46	764	1,432	471	1,281	1,799	120
Central	1,228	577	694	138	620	704	212	589	923	187
Eastern	119	20	20	16	22	15	59	12	13	33
Southern	1,429	408	438	91	369	455	183	276	492	225

Sector	Total spaces	Car park occupancy (%)								
		Tuesday			Thursday			Saturday		
		AM	PM	Eve	AM	PM	Eve	AM	PM	Eve
Northern	1,240	39%	47%	25%	41%	60%	42%	56%	90%	30%
Western	1,954	35%	58%	2%	39%	73%	24%	66%	92%	6%
Central	1,228	47%	57%	11%	50%	57%	17%	48%	75%	15%
Eastern	119	17%	17%	13%	18%	13%	50%	10%	11%	28%
Southern	1,429	29%	31%	6%	26%	32%	13%	19%	34%	16%

Sector	Total spaces	Unoccupied parking spaces								
		Tuesday			Thursday			Saturday		
		AM	PM	Eve	AM	PM	Eve	AM	PM	Eve
Northern	1,240	758	655	925	730	490	715	544	124	863
Western	1,954	1,277	819	1,908	1,190	522	1,483	673	155	1,834
Central	1,228	651	534	1,090	608	524	1,016	639	305	1041
Eastern	119	99	99	103	97	104	60	107	106	86
Southern	1,429	1,021	991	1,338	1,060	974	1,246	1,153	937	1,204

ANALYSIS OF PARKING SURVEYS – DISABLED BAYS

Disabled blue badge parking capacity

Across the town centre study area there are 257 disabled bays, of which 47 are located on street and 210 are in off street car parks. Of the off street locations 28% (58) are within council operated car parks.

Bentall Car Park B has the greatest number of dedicated disabled bays (39). Neville House, has no dedicated spaces. Bentall Centre Car Park B has the highest proportion of disabled bays at 13% of total car parking spaces. The Bittons has the greatest number of disabled bays for an RBK car park (18).

Survey results – Disabled Bay Occupancy

During the week of the survey, 22nd-28th November 2021, snap shot beat surveys were carried out on three days; Tue (23rd Nov), Thur (25th Nov) and Sat (27th Nov). During three time periods: AM (9-11am), PM (2-4pm), and Evening (7-9pm). See Tables A10 and A11 for full details of the results.

Peak demand across both on and off-street disabled parking spaces was highest during the Saturday PM period, with a utilisation rate of 51%, which equates to 130 occupied spaces and 127 unoccupied spaces. The lowest occupancy was recorded during the Tuesday Evening period (16%).

As a general pattern, the on-street disabled blue badge bays were highly utilised, always above 51%. However they represent only a small proportion of the total disabled bays. By contrast the off-street disabled bays in car parks never exceeded 42% occupied, and they represent the majority of the total bays. This may indicate a preference for the on-street bays, which could be closer to the drivers destination. It should also be noted that disabled parking in the privately operated car parks is not free, although it is free to park in disabled bays on-street and in council run car parks.

Table A9, shows that the highest occupancy was in the afternoon monitoring period on all of the days surveyed. During these periods total occupancy was between 38 and 42%, compared to 17-23% in the mornings and 9-16% in the evenings.

The overall pattern observed was low levels occupancy across all disabled parking, however there was some variation between car parks.

Ashdown Road had the highest occupancy with all eight spaces full during three of the survey periods. Similarly Canbury was well utilised. Kingston College was also full capacity during several periods but only has two dedicated disabled bays. Conversely the Bittoms was underutilised with no more than two of its 18 bays occupied throughout the survey.

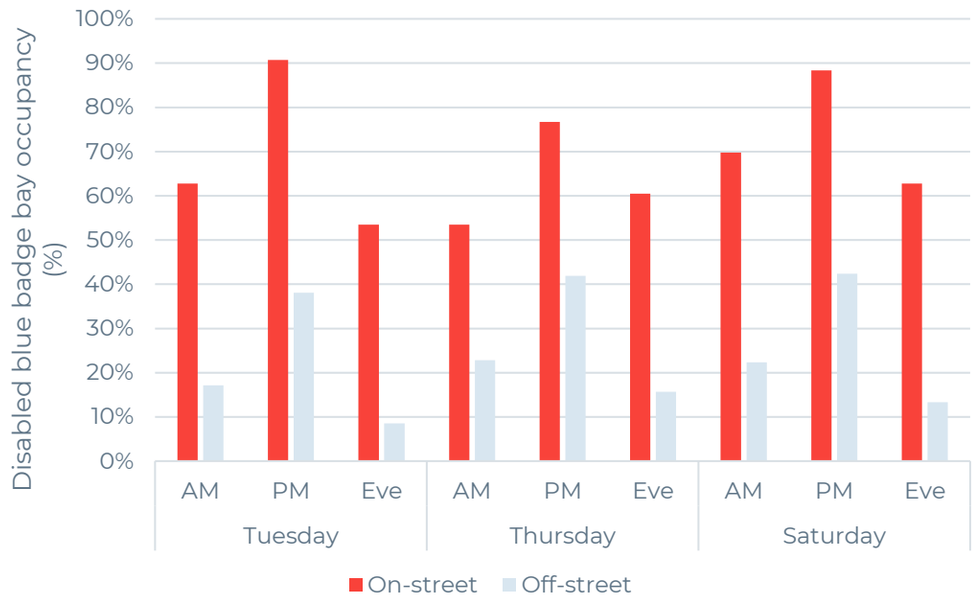


Figure A15 Disabled parking occupancy

Table A9 Disabled parking occupancy

	No. of Disabled Bays	Occupancy								
		Tuesday			Thursday			Saturday		
		AM	PM	Eve	AM	PM	Eve	AM	PM	Eve
On-street	47	29	42	24	25	35	28	32	41	28
Off-street	210	36	80	18	48	88	33	47	89	28
All bays	257	65	122	42	73	123	61	79	130	56
Occupancy		25%	47%	16%	28%	48%	24%	31%	51%	22%

Table A10 Off-street disabled bay occupancy

Car Park	Owner ship	Total space s	Floor Level	No. of Disabled Bays	Tuesday , 23/11/2021			Thursday, 25/11/2021			Saturday, 27/11/2021		
					0900 to 1100 hrs	1400 to 1600 hrs	1900 to 2100 hrs	0900 to 1100 hrs	1400 to 1600 hrs	1900 to 2100 hrs	0900 to 1100 hrs	1400 to 1600 hrs	1900 to 2100 hrs
Vehicles Parked (vol)													
Q-Park Eden Walk	Private	700	2	24	6	19	0	7	17	6	4	19	1
NCP Car Park Kingston Fairfield	Private	328	P1	4	0	0	0	1	1	0	1	2	1
Bentall Centre Car Park A	Private	300	8	10	2	4	1	0	10	3	9	7	0
Bentall Centre Car Park B	Private	300	LG to 12	39	0	3	2	5	8	4	4	14	5
Bentall Centre Car Park - Seven Kings	Private	703	G	35	9	15	5	11	14	7	8	5	5
John Lewis Car Park	Private	722	1&2	23	7	14	0	10	19	5	9	11	1
Sainsbury's	Private	431	Surface	17	0	3	1	1	2	2	3	6	2
The Bittoms	RBK	875	Surface, 1, & 2	18	1	0	0	2	1	0	0	2	0
Cattle Market Car Park - Surface	RBK	109	Surface	7	0	2	0	0	0	0	0	2	0
Ashdown Road Car Park	RBK	168	S	8	4	8	3	6	8	4	7	8	4
Canbury Place Car Park	RBK	106	Surface	5	0	3	2	1	4	1	0	4	5
Rose M-S Car Park	RBK	417	3 &15	12	3	7	2	2	3	0	0	7	2
Neville House Car Park	RBK	32	Surface	2	2	0	0	0	0	0	0	0	0
Guildhall (Saturdays only)	RBK	61	Surface	4	n/a	n/a	n/a	n/a	n/a	n/a	0	1	1
Kingston College	RBK	53	Surface	2	2	2	2	2	1	1	2	1	1
All	All	5,305	All	210	36	80	18	48	88	33	47	89	28
Occupancy %													
Q-Park Eden Walk	Private	700	2	24	25%	79%	0%	29%	71%	25%	17%	79%	4%
NCP Car Park Kingston Fairfield	Private	328	P1	4	0%	0%	0%	25%	25%	0%	25%	50%	25%
Bentall Centre Car Park A	Private	300	8	10	20%	40%	10%	0%	100%	30%	90%	70%	0%
Bentall Centre Car Park B	Private	300	LG to 12	39	0%	8%	5%	13%	21%	10%	10%	36%	13%
Bentall Centre Car Park - Seven Kings	Private	703	G	35	26%	43%	14%	31%	40%	20%	23%	14%	14%
John Lewis Car Park	Private	722	1&2	23	30%	61%	0%	43%	83%	22%	39%	48%	4%
Sainsbury's	Private	431	Surface	17	0%	18%	6%	6%	12%	12%	18%	35%	12%
The Bittoms	RBK	875	Surface, 1, & 2	18	6%	0%	0%	11%	6%	0%	0%	11%	0%
Cattle Market Car Park - Surface	RBK	109	Surface	7	0%	29%	0%	0%	0%	0%	0%	29%	0%
Ashdown Road Car Park	RBK	168	S	8	50%	100%	38%	75%	100%	50%	88%	100%	50%
Canbury Place Car Park	RBK	106	Surface	5	0%	60%	40%	20%	80%	20%	0%	80%	100%
Rose M-S Car Park	RBK	417	3 &15	12	25%	58%	17%	17%	25%	0%	0%	58%	17%
Neville House Car Park	RBK	32	Surface	2	100%	0%	0%	0%	0%	0%	0%	0%	0%
Guildhall (Saturdays only)	RBK	61	Surface	4	n/a	n/a	n/a	n/a	n/a	n/a	0%	25%	25%
Kingston College	RBK	53	Surface	2	100%	100%	100%	100%	50%	50%	100%	50%	50%
All	All	5,305	All	210	17%	38%	9%	23%	42%	16%	22%	42%	13%

Table A11 On-street disabled bay occupancy

Ref	Street Name	No. of Disabled Bays	Tuesday, 23/11/2021			Thursday, 25/11/2021			Saturday, 27/11/2021		
			0900 to 1100 hrs	1400 to 1600 hrs	1900 to 2100 hrs	0900 to 1100 hrs	1400 to 1600 hrs	1900 to 2100 hrs	0900 to 1100 hrs	1400 to 1600 hrs	1900 to 2100 hrs
Vehicles Parked (vol)											
1	Down Hall Road	1	1	1	1	1	1	1	0	1	1
2	Wood Street	1	0	1	0	0	0	0	0	0	0
3	Dolphin Street	6	4	5	4	4	5	4	5	6	4
4	Fife Road 1	2	1	2	1	0	1	2	2	2	2
5	Fife Road 2	6	3	6	4	1	5	5	4	6	4
6	Fife Road 3	2	2	2	2	1	2	2	2	2	0
7	Thames Street	3	3	3	1	1	3	0	2	3	3
8	Union Street 1	3	3	3	0	3	3	2	2	3	3
9	Union Street 2	3	2	3	0	2	1	1	2	3	1
10	Union Street 3	1	0	1	0	0	1	0	1	1	0
11	St James Road	2	0	1	2	2	2	1	1	2	2
12	Lady Booth Road	1	1	1	1	1	1	0	1	0	1
13	Ashdown Road	3	2	3	0	2	3	1	2	3	0
14	Bath Passage	1	0	0	1	0	0	1	0	0	0
15	High Street 1	1	0	1	0	0	0	0	0	1	0
16	High Street 2	2	1	2	2	1	2	2	2	2	2
17	East Lane	3	3	3	3	3	2	3	3	2	3
18	High Street 3	2	1	1	1	1	1	1	1	1	1
19	Bishop's Hall	4	2	3	1	2	2	2	2	3	1
All	All	47	29	42	24	25	35	28	32	41	28
Occupancy %											
1	Down Hall Road	1	100%	100%	100%	100%	100%	100%	0%	100%	100%
2	Wood Street	1	0%	100%	0%	0%	0%	0%	0%	0%	0%
3	Dolphin Street	6	67%	83%	67%	67%	83%	67%	83%	100%	67%
4	Fife Road 1	2	50%	100%	50%	0%	50%	100%	100%	100%	100%
5	Fife Road 2	6	50%	100%	67%	17%	83%	83%	67%	100%	67%
6	Fife Road 3	2	100%	100%	100%	50%	100%	100%	100%	100%	0%
7	Thames Street	3	100%	100%	33%	33%	100%	0%	67%	100%	100%
8	Union Street 1	3	100%	100%	0%	100%	100%	67%	67%	100%	100%
9	Union Street 2	3	67%	100%	0%	67%	33%	33%	67%	100%	33%
10	Union Street 3	1	0%	100%	0%	0%	100%	0%	100%	100%	0%
11	St James Road	2	0%	50%	100%	100%	100%	50%	50%	100%	100%
12	Lady Booth Road	1	100%	100%	100%	100%	100%	0%	100%	0%	100%
13	Ashdown Road	3	67%	100%	0%	67%	100%	33%	67%	100%	0%
14	Bath Passage	1	0%	0%	100%	0%	0%	100%	0%	0%	0%
15	High Street 1	1	0%	100%	0%	0%	0%	0%	0%	100%	0%
16	High Street 2	2	50%	100%	100%	50%	100%	100%	100%	100%	100%
17	East Lane	3	100%	100%	100%	100%	67%	100%	100%	67%	100%
18	High Street 3	2	50%	50%	50%	50%	50%	50%	50%	50%	50%
19	Bishop's Hall	4	50%	75%	25%	50%	50%	50%	50%	75%	25%
All	All	47	62%	89%	51%	53%	74%	60%	68%	87%	60%

Figure A16 shows the location of all disabled bays in Kingston Town Centre. The encircled numbers show the number of disabled parking spaces in car parks, while the red lines show the locations of the on street disabled parking spaces.

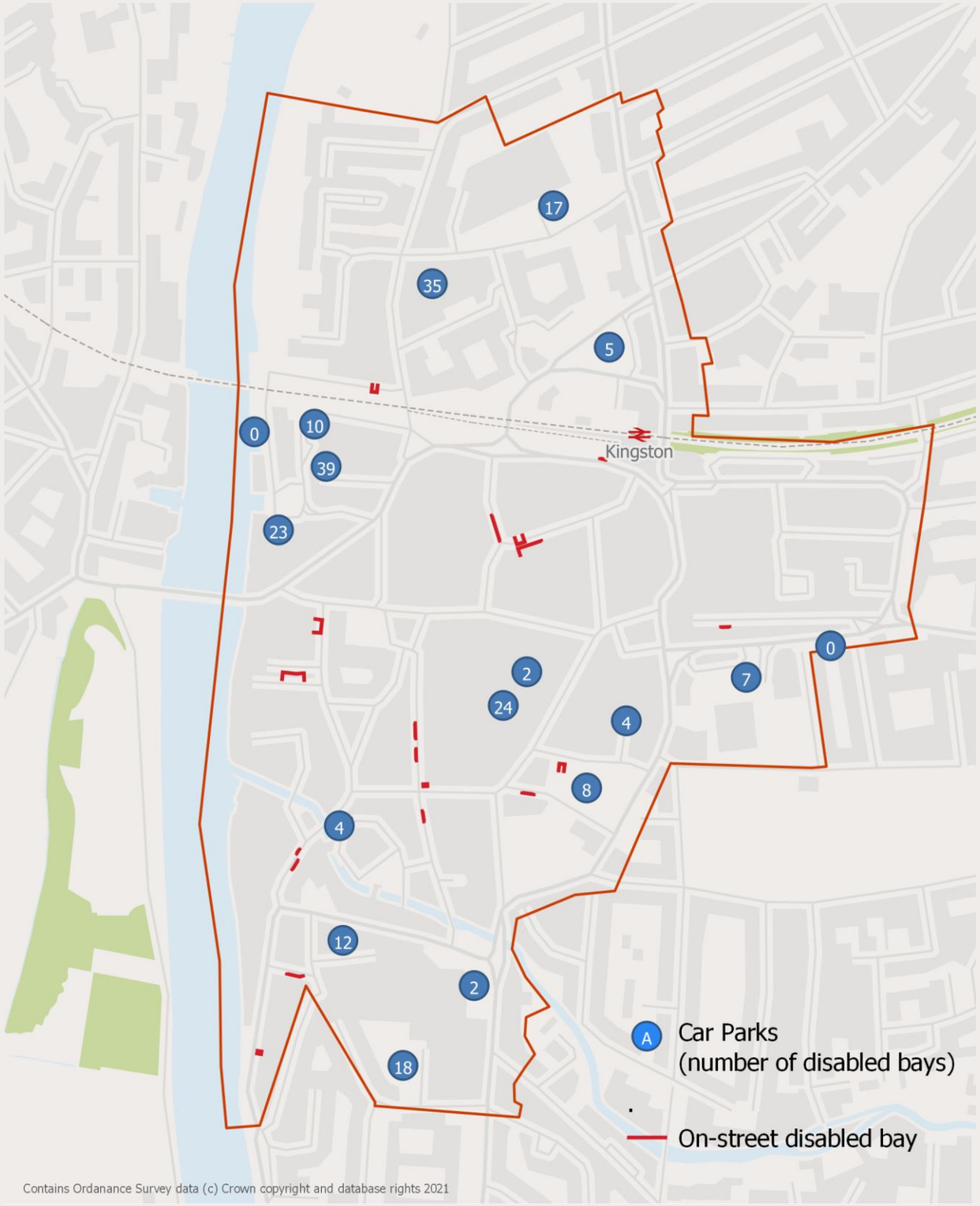


Figure A16 Location of on Street and off Street disabled bays

WSP House
70 Chancery Lane
London
WC2A 1AF
wsp.com