



HAMPSHIRE COUNTY COUNCIL &
WINCHESTER CITY COUNCIL

*Winchester Car Parking
Usage & Forecasting Study
– Final Report*



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Contents

1	Introduction	1
1.1	Overarching Context & Purpose	1
1.2	Final Report Purpose.....	1
1.3	Study Area & Geographical Focus.....	2
2	Study Objectives.....	5
2.1	Objective Development Process	5
2.2	Study Objectives	5
2.3	Strategic Objectives of this Study	6
3	Working From Home (WFH) Assumptions	7
3.1	Background	7
3.2	Current WFH Assumptions.....	7
3.3	Future WFH Assumptions	10
4	Future State Scenarios	11
4.1	Overview of Scenarios.....	11
4.2	Long Stay City Parking Tariff Increases	11
5	Future State Testing Methodology	13
5.1	Overview & Key Assumptions	13
5.2	Determine Number of Long Stay Morning Car Park Users	13
5.3	Estimate Number of Likely Car Park User Switches to Northern P&R Sites	14
5.4	Estimate Car Park User Redistribution Within the City	15
5.5	Apply WFH Demand Sensitivity Tests	17
5.6	Mode Shift Model (Scenario 2 Only).....	17
6	Future State Testing Results.....	19
6.1	Maximum Occupancy	19
6.2	Tickets Sold & Revenue.....	23
7	Conclusions & Recommendations	24
7.1	Future State Test Results Conclusions & Recommendations	24
7.2	Other Recommendations.....	26
7.3	Concluding Remarks & Next Steps.....	32
8	Appendix A: Review & Comparison of Existing P&R Demand Forecasts.....	33
8.1	Background	33
8.2	Comparison of Forecast Methodologies & Assumptions	33
8.3	Concluding Remarks.....	39
	References	40

1 Introduction

1.1 Overarching Context & Purpose

City Science has been commissioned by Hampshire County Council (HCC) and Winchester City Council (WCC) to carry out a Car Parking Usage & Forecasting Study. This Study sought to understand both the nature and level of demand of car park usage in car parks located in and around Winchester Railway Station and the Worthy Lane area north of the city centre, considering the impact of the COVID-19 pandemic on demand as well as users' journey purpose and origin.

This Study has assessed the likely impacts of the delivery of the Winchester Movement Strategy (WMS) (WCC & HCC, 2021), adopted as the transport strategy for the Winchester urban area by HCC and WCC in spring 2019. The WMS and WCC's emerging Local Plan process both include proposals for a new 850 space strategic Park & Ride (P&R) site on the B3420 Andover Road north of Winchester, within the Sir John Moore Barracks site, which is being proposed by WCC as a location for new development as part of its next Local Plan. As part of the Kings Barton development, CALA Homes are also delivering a new 200 space P&R site south of Wellhouse Lane, which will serve the B3420 Andover Road corridor.

This Study considers what impact the potential redevelopment of car parks in the Station Approach area (being considered as part of the Local Plan process), how changes to working patterns of office workers, rail commuting and the cost of parking are likely to have on future car parking demand and car park occupancy levels. As part of the analysis, this Study makes use of current and historical data collected from user intercept surveys, sales from ticketing machines, occupancy data, Automatic Number Plate Recognition (ANPR) and Automatic Traffic Counts (ATC). A full description of the source materials can be found in the Current State Report (November 2022).

1.2 Final Report Purpose

The purpose of this **Final Report** is to outline the methodology and the results of the Future State Scenario Testing, as well as make recommendations for future action based on these results, and complementary measures which will support the WCC objective of reducing city centre congestion.

This Report is structured as follows:

- **Chapter 2:** Study Objectives
- **Chapter 3:** Working from Home (WFH) Assumptions
- **Chapter 4:** Future State Scenarios
- **Chapter 5:** Future State Testing Methodology
- **Chapter 6:** Future State Testing Results
- **Chapter 7:** Conclusions & Recommendations
- **Appendix A / Chapter 8:** Review & Comparison of Existing P&R Demand Forecasts

1.3 Study Area & Geographical Focus

1.3.1 Local Context

Winchester is a city in the county of Hampshire, in the South East of England, and the main urban area within the Winchester City Council area. It is west of the South Downs National Park and north of Southampton. The M3 is located to the east of Winchester, where the A34, A31 and A272 and A3090 meet. Winchester Railway Station is located centrally in Winchester, served by:

- South Western Railway (SWR): Operating frequent services to London, Southampton, Portsmouth, Bournemouth and Weymouth
- CrossCountry: Operating services to Reading, Birmingham and Manchester

1.3.2 Geographical Extent of this Study

This Study focuses on the usage of parking in and around Winchester Railway Station and the Worthy Lane area, both now and in the future, comprising of the following car parks:

- Cattlemarket Worthy Lane Surface Car Park
- Gladstone Street Surface Car Park (publicly accessible section only)
- Winchester Station (Station West Stockbridge Road Multi-Storey Car Park & Surface Car Park, and Station East Andover Road Multi-Storey Car Park)

Usage surveys of these car parks were carried out. Further car parks of interest to this study comprise of:

- Coach Park
- Tower Street
- Existing P&Rs (South Winchester, Pitt, Barfield, Vaultex (Barfield Phase II) and St Catherine's)
- Kings Barton P&R Lite (planned 200 space site, north of Kings Barton)
- Strategic Northern P&R (planned strategic 850 space site west of Andover Road)

No usage surveys were undertaken at these additional car parks as they were not the core focus of this Study.

Throughout this report, when referring to the Kings Barton P&R Lite/Strategic Northern P&R sites in combination, it is sometimes referred to as the 'Northern P&R'.

Figure 1-1 displays the car parks of interest for this Study and Figure 1-2 displays a study area boundary with a wider view of the extent of this Study, including the locations of all five existing P&R sites.

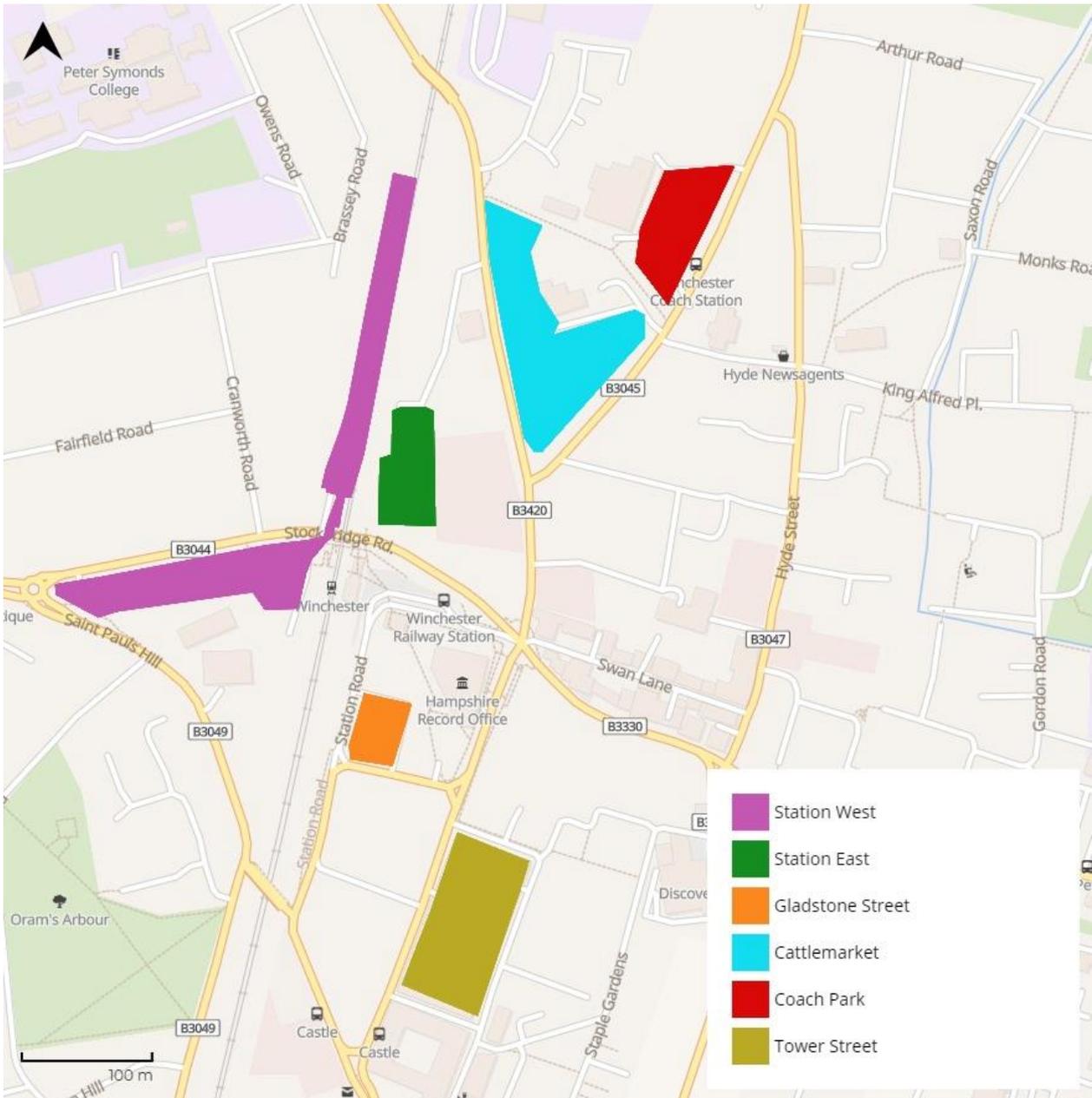


Figure 1-1: Car Parks of Interest to this Study

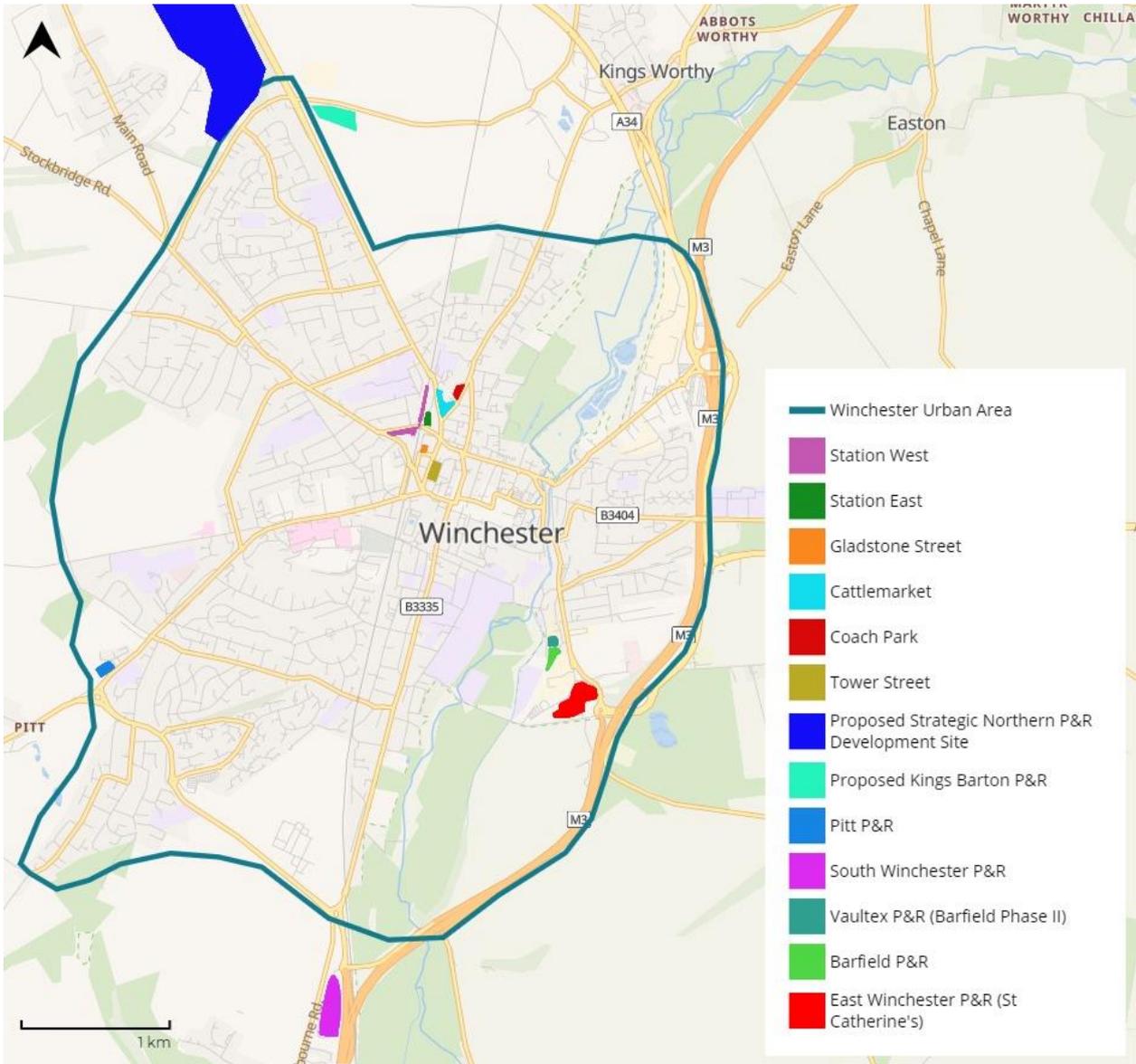


Figure 1-2: Study Area, Car Parks of Interest to this Study and P&Rs

2 Study Objectives

Chapter at a Glance

This Chapter sets out the objectives for this Study, which are based on a review of relevant local and national policy and strategy as set out in the Current State Report

2.1 Objective Development Process

Objectives have been developed for this Study to ensure this Study’s outcomes are aligned with HCC and WCC’s strategic objectives, as well as other local and national policy and strategy. These objectives have been developed as a result of a comprehensive review of existing policies and strategies. This was carried out by City Science for the policy and strategy, summarised in Figure 2-1 and as set out in full in the Current State Report.

Local Plan ambitions to redevelop the Station Approach area and WMS priorities and proposals for the city including expansion of P&R beyond the current five sites, and to deliver a corresponding reduction in car parking capacity within the city, have been important factors that have shaped these objectives

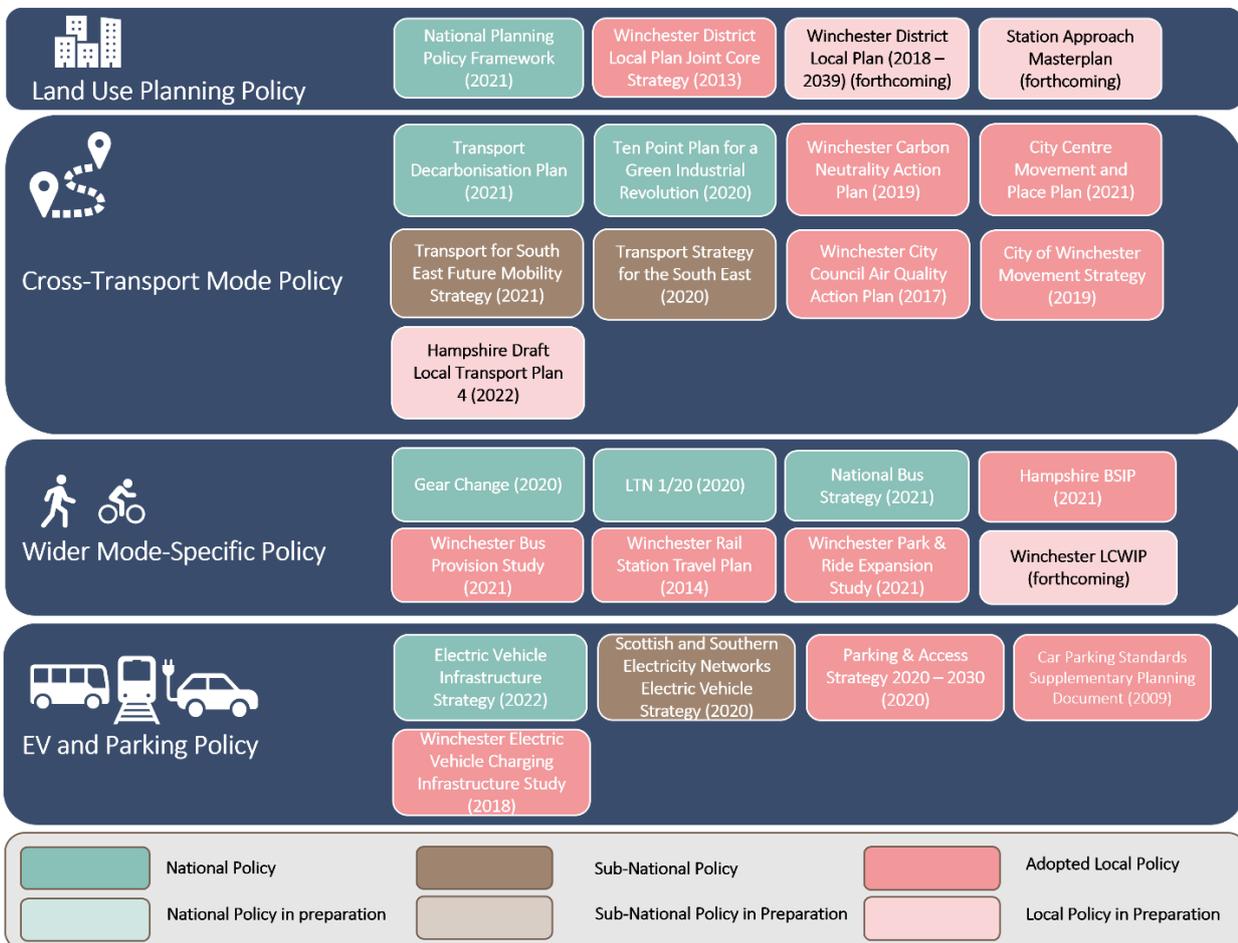


Figure 2-1: Overview of Winchester Parking Study Relevant Policies & Strategies

Both Study and Strategic Objectives have been developed alongside the Client, with input from key stakeholders.

2.2 Study Objectives

Study Objectives have been developed with the purpose of direct and tangible outcomes and conclusions of this Study and are displayed in Figure 2-2.



Figure 2-2: Study Objectives

2.3 Strategic Objectives of this Study

Strategic Objectives have been developed with an understanding of the wider impacts of this Study in relation to the local and national policy and strategy context. As shown in Figure 2-3, they follow the Key Priorities of the WMS and align with how this Study can support these wider objectives.



Figure 2-3: Strategic Objectives Related to this Study

3 Working From Home (WFH) Assumptions

Chapter at a Glance

This Chapter gives an overview of the data collated regarding WFH patterns for various large employers within Winchester and the likely changes to these patterns in the future, as well as a comparison of 2019 and 2022 data and the implications of this data on model assumptions

3.1 Background

As a result of the COVID-19 pandemic, there has been a significant rise in the number of employees who regularly WFH and a change in the travel behaviour for commuting journeys as a result, including by rail commuters. In the Winchester City Council local authority area, 53% of employees (ONS, 2021) were expected to be WFH in 2020 at least occasionally (see Section 3.2.2). To capture this in the model, long stay ticketing data has been analysed and supported by stakeholder engagement to understand the current levels of WFH. As the future level of WFH is unknown, it has been important to include two sensitivity tests to understand the impact of this uncertainty on the conclusions of the Future State Testing.

3.2 Current WFH Assumptions

The user intercept survey carried out in September 2022 asked respondents about their typical frequency of travelling to the respective car park by different modes. As detailed in the Current State Report, there was a reduced sample size towards the end of the survey when this question was asked and it seems likely there was a misunderstanding of the question due to the answers given. Therefore, as detailed in this Section, current WFH data and evidence has been sought from alternative sources.

3.2.1 Key Employer WFH Proportions

As part of the Current State, engagement with key Winchester employers involved establishing what the level of WFH in 2022 was. This summary is included in Table 3-1 along with an understanding of where employees of key employers are currently parking and how they are travelling. Where an employer may have multiple sites in Hampshire, the Winchester site has been used in this analysis.

From this, we have assumed that an average WFH split would be two days/week WFH and three days a week travelling to the employee's respective office site.

Employer	Scale of Demand	Employer Parking Available	P&R Permit Available?	Car Park Usage	Days Travelling to Site Per Week
WCC	Unknown	<ul style="list-style-type: none"> • Guildhall Yard Monday to Friday for essential car users (~70 staff members) • Leased 50% of parking provision to University of Southampton 	Yes	<ul style="list-style-type: none"> • Chesil Street (54%) • P&R (32%) 	0 days/week (4%) 3-4 days/week (21%) 1 days/week (24%) 5 days a week (12%) 2 days/week (39%)
HCC	Unknown	<ul style="list-style-type: none"> • Staff parking (280 spaces) available at the basement level of Tower Street car park • 60 space surface car park leased from WCC • Permit allocations based on business-need 	Yes	Unknown	2 days/week (19%) 1 day/week (33%) There is a current policy that staff should be on site at least 1 day/week
Royal Hampshire County Hospital	~3,000 staff	<ul style="list-style-type: none"> • Staff permits available dependent on role • Patient and visitor parking is Pay & Display 	Yes (staff only)	Unknown – some staff are allocated P&R permits	Unknown
University of Winchester	1,200 staff	<ul style="list-style-type: none"> • Staff permits available for those who reside outside of Winchester 	Yes	<ul style="list-style-type: none"> • P&R (6%) 	0 days/week (2%) 3 days/week (36%) 1 days/week (5%) 4 day/week (17%) 2 days/week (15%) 5 days/week (25%)
	8,250 students	<ul style="list-style-type: none"> • Small number of spaces available for students requiring them for accessibility reasons 	Yes	<ul style="list-style-type: none"> • P&R (21%) 	0 days/week (5%) 3 days/week (26%) 1 days/week (6%) 4 day/week (23%) 2 days/week (11%) 5 days a week (15%)
Winchester School of Art	140 staff	<ul style="list-style-type: none"> • Parking permits restricted to staff members that live >3 miles • On-campus is Pay & Display 	No	Unknown	Average 2.8 days/week
	1,600 students	<ul style="list-style-type: none"> • Parking permits are available for students that have medical grounds for needing to drive • On-campus parking is Pay & Display and for those with permits 	No	Unknown	Unknown, but almost all teaching now taking place face-to-face

Table 3-1: Summary of Key Employer Current Parking & Travel Behaviour Including WFH

3.2.2 Office for National Statistics COVID-19 Survey

The Office for National Statistics (ONS) published a dataset titled “Homeworking in the UK, broken down by unitary and local authority districts, 2020” (ONS, 2021). This data was collected as part of the Annual Population Survey. Homeworking was defined by the ONS in four categories:

1. **Mainly:** Main place of work as “in their home”, apart from those who use home as a base or lives within their place of work (i.e. flats above shops)
2. **Recently:** Works from home on the week of survey
3. **Occasionally:** For those who don’t mainly WFH
4. **Never:** Never WFH

For the Winchester City Council Local Authority area, the dataset reported that 47% of survey respondents had never worked from home in 2020. The remaining 53% WFH population ranges from 14% mainly, 31% recently, and 8% occasionally. This provided a guideline and validation for our model’s WFH sensitivity testing. Please note that 2021 Census for WFH statistics was not available at the time of analysis.

3.2.3 Comparison of Observed Data

The model used observed parking data to create a benchmark for current WFH proportions in Winchester. This included an understanding of the number of long stay tickets sold in Gladstone Street, Cattle Market and Tower Street, as this is a proxy for the number of commuters not WFH. Parking occupancy at Station East and West car parks were used as a proxy for long stay users, as we could not obtain ticketing data for these car parks. This was considered appropriate as only long stay tariffs are available at these car parks.

Comparisons between ticket sales in 2019 and 2022 used both:

- The number of machine tickets purchased that were over four hours, seven days, and 28 days
- The proportioned long stay number of telephone-purchased tickets (via the RingGo app)

Seven- and 28-days tickets were only sold in Cattle Market and Worthy Lane in 2019 and had been discontinued by 2022. These ticket types were included in the figures for 2019 as it was anticipated that these ticketing products were used by long stay commuters.

Car Park	Reference	Observed Value (2019)	Observed Value (2022)	Demand Reduction
Gladstone Street	Long Stay Ticket Purchases	25	21	17%
Cattle Market		69	61	12%
Tower Street		82	65	21%
Station East	Total User	223	94	50%
Station West	Occupancy	461	184	60%
Weighted Average				51%

Table 3-2: Comparison & Resulting Demand Reduction of Long Stay Tickets Sold for an Average Weekday in 2019 and 2022 (Source: WCC Ticketing Data March 2019, Winchester Ticketing Data March 2022, RingGo Ticketing Revenue March 2022, PaybyPhone Ticketing Revenue March 2019, Winchester ACC Parking Occupancy Data 2022)

Assuming that in 2019 no WFH occurred regularly, the calculated 51% decrease in long stay users to 2022 could amount to an average of 2.6 (or 2-3) days a week of WFH.

3.3 Future WFH Assumptions

3.3.1 Background

As it is challenging to predict the WFH trend to 2030, three different demand scenarios have been developed, reflecting possible future levels of WFH. The core test assumes that the current (2022) WFH assumption (2-3 days a week) is representative of what the level will be in 2030. Two additional alternative WFH scenarios have also been tested (low and high WFH).

This Section sets out what stakeholders who are large employers thought the likely future WFH trends would be by 2030.

3.3.2 Stakeholder Engagement

Engagement with stakeholders resulted in mixed views as to whether WFH measures currently seen will continue in the future.

Employers such as WCC and HCC have different levels of WFH across departments and depending on factors such as business need, individual employees' situations and preferences. The Royal Hampshire County Hospital, a major employer in the Winchester area, has openly encouraged staff to work from home in order to manage the current level of demand, which currently sits at four employees permits per employee parking space. This includes the use of remote appointments, which has increased dramatically since the COVID-19 pandemic.

By contrast, the two education establishments, University of Winchester and Winchester School of Art, are not expecting to increase levels of WFH in the immediate future. Student experience was heavily impacted by the pandemic, and both the University and the School of Art are prioritising face-to-face teaching for students when considering their agile working plans. The University of Winchester recently released an agile working policy stating that the optimal home/office split was two days WFH for full time staff, and one day for part time staff.

3.3.3 Resulting WFH Sensitivity Tests

Two sensitivity tests have been applied to the core test (which assumes current levels of WFH of two to three days a week will be seen in 2030):

- **Low WFH:** Assumes that WFH would reduce back to the levels seen in 2019 (assumed no days a week)
- **High WFH:** Assumes that WFH would increase to on average of four days a week

4 Future State Scenarios

Chapter at a Glance

This Chapter sets out the Future State Testing Scenarios, including the assumed parking provision and any parking tariff changes

4.1 Overview of Scenarios

The Future State Scenarios developed cover what the impact would be on car park occupancy of various changes to parking provision, parking tariffs and parking demand changes (as a result of different levels of WFH) in 2030. Four scenarios have been tested as part of this Study, as summarised in Table 3-3. Each scenario was tested using three demand scenarios (representing differing levels of WFH in 2030) as explained in Section 3.3.3.

Scenario	Description	Assumed Parking Provision	Parking Tariff Changes
0	Do Nothing	<ul style="list-style-type: none"> Addition of Kings Barton P&R Lite (200 spaces) Removal of Upper Brook Street (50 spaces) Removal of Gladstone Street (98 spaces) 	None
0+	Do Nothing + Remove Cattle Market	Do Nothing plus: <ul style="list-style-type: none"> Removal of Cattle Market (350 spaces) 	None
1	Strategic Northern P&R + Remove Cattle Market	Do Nothing plus: <ul style="list-style-type: none"> Removal of Cattle Market (350 spaces) 	None
2	Strategic Northern P&R + Remove Cattle Market + Parking Tariff Changes	<ul style="list-style-type: none"> Removal of St Peter's (165 spaces) Addition of Strategic Northern P&R (850 spaces) 	100% increase to long stay tariffs (>4 hours) at: <ul style="list-style-type: none"> Tower Street Station West Station East

Table 3-3: Summary of Future State Scenarios

4.2 Long Stay City Parking Tariff Increases

The impact of inflation has not been included in any Scenario tests to simplify the methodology (whilst maintaining an even playing field). The parking tariffs assume a constant price index, so any tariff changes amount to 'real' price changes and do not include inflation.

Scenarios 0, 0+ and 1 did not test any parking tariff changes.

Scenario 2 took the inputs from Scenario 1 and applied parking tariff changes to car parks in the city as part of the scope of this Study:

- Tower Street
- Station West
- Station East

The WMS proposes changes to the cost and availability of city centre car parking, which would include edge of centre car parks like Cattle Market and Gladstone Street, to incentivise a shift in long stay parking users from city centre and edge of city centre car parks to P&R. Therefore, as part of Scenario 2, a test was performed using the Mode Shift Model to predict the likely impact

of doubling long stay city centre parking whilst freezing P&R tariffs (see Table 3-4) on the usage of the Kings Barton P&R Lite/Strategic Northern P&R. Note that as we are testing using 2022 prices, any tariff changes tested will be on top of inflation.

It was assumed that long stay parking exceeded 4 hours and for weekdays only. Charges have not included consideration for multi-day or season tickets.

Car Park	Long Stay Tariff Charge (2022)	Tested Long Stay Tariff Charge (2030)
Kings Barton P&R Lite/Strategic Northern P&R	N/A	£3.50
Tower Street	£15.00	£30.00
Station West	£9.30	£18.60
Station East	£9.30	£18.60

Table 3-4: Summary of Existing & Tested Parking Tariff Charges for Long Stay Parkers by Car Park

5 Future State Testing Methodology

5.1 Overview & Key Assumptions

Our methodology principally assesses the likely level of use by 2030 of the Kings Barton P&R Lite and the Strategic Northern P&R based on those currently using parking in the city within those car parks that are in this Study's scope (Gladstone Street, Cattle Market, Station West and Station East), that are likely to switch to either of these new Northern P&R options based on:

- Only long stay parkers arriving in the morning period (until 10:30) would switch
- Stated likelihood for switching to the P&R (from the User Intercept Survey)
- Origin of those surveyed (postcode and/or route taken from the User Intercept Survey)

Our methodology may overestimate parking demand in the city car parks due to:

- Switchers to the five existing P&R sites not included in the scope that are likely to occur
- Switchers to other long-stay car parks that are outside of the scope of this Study that is likely to occur (e.g. other public car parks such as Chesil Street or Coach Park car parks)

Similarly, the methodology may be underestimating parking demand at the Kings Barton P&R Lite/Strategic Northern P&R due to:

- Those switching from parking outside of scope, for example:
 - **Private Non-Residential (PNR) parking:** The switch from this type of parking to the Kings Barton P&R Lite/Strategic Northern P&R is deemed unlikely as it is expected that much of this parking is free to users (e.g. supermarket parking, employee parking)
 - **Upper Brook Street/St Peter's short-stay car parks (proposed for redevelopment):** As these did not form the core scope of our Study, no user intercept surveys were undertaken at these car parks, therefore we are not able to predict the number of users of these short/medium stay car parks that would switch to the new P&R site
 - **Other P&Rs:** As these did not form the core scope of our Study, no user intercept surveys were undertaken at the five existing P&Rs. Therefore we are unable to predict the number of switchers who would use the new northern P&R options from the other five existing P&Rs. However, in Scenario 2, this has been able to be modelled using pre-Covid survey data for these P&Rs (see Section 5.6). It is worth noting here that it is unlikely that users of the P&R sites in the Bar End area travelling on the M3 from the north (Basingstoke direction) would switch to use either of the new P&R sites due to the new sites not being easily accessible by car from this direction
- New/induced demand at the Kings Barton P&R Lite/Strategic Northern P&R (e.g. trips into Winchester from the north switching from other modes like public bus to the new Northern P&R sites; or additional travel journeys generated coming into Winchester that without the new P&R provision would otherwise go elsewhere like Andover or Basingstoke)

5.2 Determine Number of Long Stay Morning Car Park Users

The number of long stay car park users arriving in the morning period is determined, assuming in the model that this user type only will switch to the proposed P&R sites in the north. The morning period has been defined as 06:30-10:30 to capture long stay commuters and to mimic the user intercept survey period. Where multiple data sources were available, the best source was utilised based on the year of the data source and the data collection assumptions (for example, ANPR data was preferred as this includes more detail and granularity than the WCC occupancy data).

Long stay users in 2030 have been forecasted using the DfT’s National Trip End Model (NTEM). A factor of 1.05 has been applied, representing the expected growth in jobs in Winchester between 2022 and 2030. Table 5-1 summarises the calculations for this step.

Car Park	Source	Long Stay Morning Users	
		2022	2030 Estimate
Gladstone Street	ANPR (September 2022)	17	18
Upper Brook Street	WCC Ticket Sales (March 2022)	12	13
Cattle Market	ANPR (September 2022)	158	164
Tower Street	WCC Ticket Sales (March 2022)	65	67
Station West	ANPR (September 2022)	114	116
Station East	ANPR (September 2022)	35	36
St Peter’s	WCC Ticket Sales (March 2022)	7	7

Table 5-1: Summary of Long Stay Car Park Users Arriving in the Morning Period (06:30-10:30) in 2022 & 2030

5.3 Estimate Number of Likely Car Park User Switches to Northern P&R Sites

As part of the user intercept surveys undertaken for this Study in September 2022, the origin postcode and route choice were collected. This allowed us to observe whether the route the driver had taken would pass by the proposed new Northern P&R facilities. We also asked respondents to comment on their likelihood of using a new P&R facility to the north of Winchester, on Andover Road. This question is caveated that this new P&R will benefit from a frequent and reliable bus service to the city centre. The responses to this question by postcode are shown in Figure 5-1.

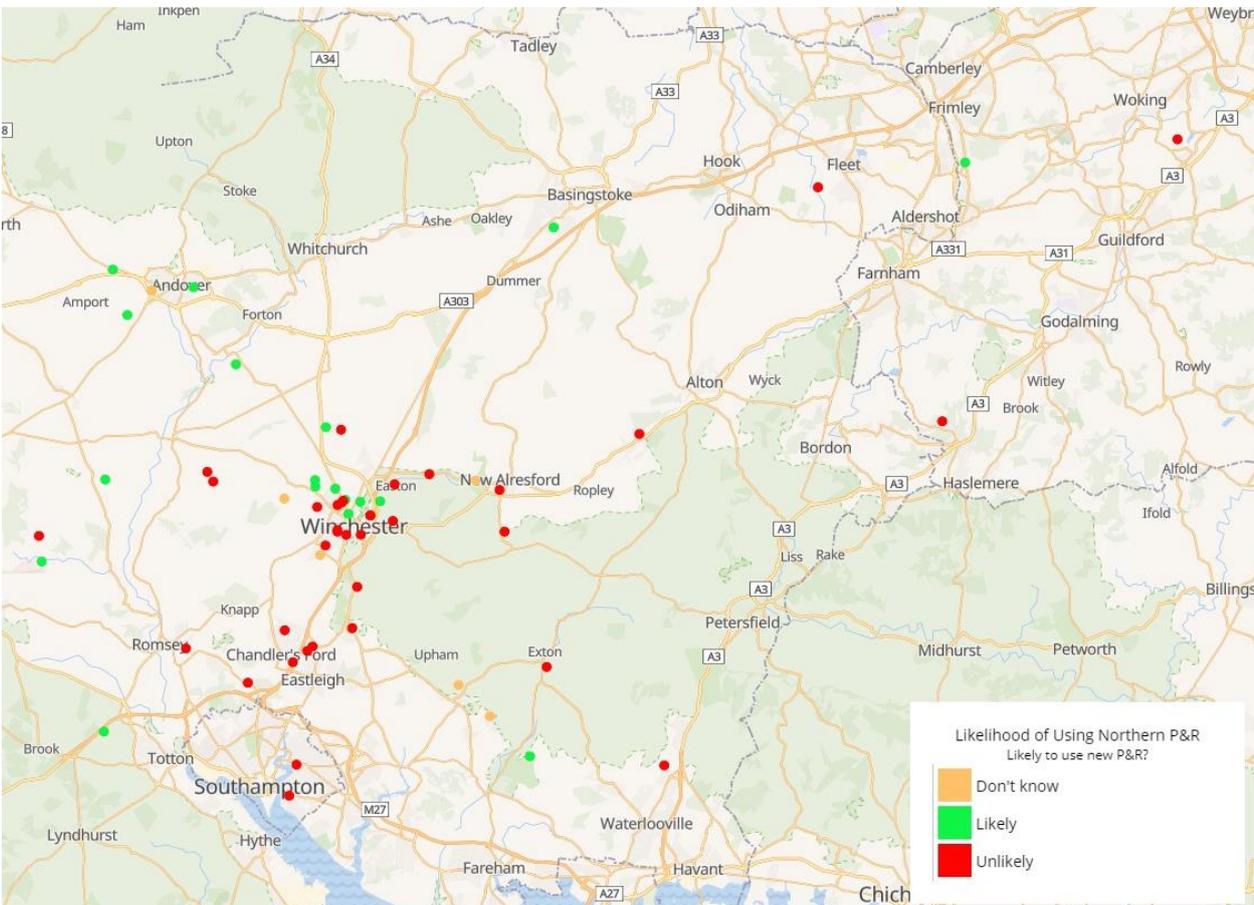


Figure 5-1: Responses to ‘if a new Park & Ride site was built on the north side of Winchester outside of the city centre on Andover Road with frequent and reliable buses to the city centre, how likely would you be to use it?’ by Postcode (Sample size: 62)

As some respondents who were looking to catch a train abandoned the survey after answering the initial survey questions about their journey, we applied a proportional approach to estimate their likelihood of using a new P&R facility on Andover Road. This indicator is calculated by:

- Retaining the number of responses of those who have answered both the routes and their likelihood of using one of the new Northern P&R options
- Adding the number of responses of those who have only answered the route choice question that were travelling on Andover Road and proportioning it by the percentage of likely switchers to the new P&R at each car park

This provided a proportion of all current users of the car parks surveyed that would be likely (using categories “Very Likely” and “Likely”) to switch to a new P&R, as summarised in Table 5-2. This allowed this Study to understand the proportion of those who travel from the north of the city and would use a new P&R facility on Andover Road.

Car Park	Originated from North	Likelihood Question Answered				Likely to Use P&R
		Likely	Unlikely	Unsure	Unanswered	
Cattle Market	18	10	3	2	3	61%
Gladstone Street	11	4	4	0	3	40%
Station West	7	3	3	1	0	30%
Station East	17	4	7	0	6	51%

Table 5-2: Percentage of Drivers Who Would Switch to a New P&R Facility on Andover Road Based on Survey Response

Upper Brook Street, St Peter’s and Tower Street were not surveyed during the user intercept surveys meaning we do not know the proportion of users that would potentially switch to parking at the new P&R instead of at these car parks. For Upper Brook Street and St Peter’s, although we can calculate the number of long stay morning car park users, we have not determined the number of these users that would switch to Kings Barton P&R Lite/Strategic Northern P&R as this would be a small number (some proportion of 20 vehicles). Due to the high long stay morning occupancy of Tower Street (65 in 2022), it was necessary to determine the number that would switch to the Northern P&R. We have therefore assumed that this proportion is the same as at Gladstone Street, due to its geographical similarity, so therefore more likely that users will be of a similar profile.

Using the proportions calculated above and the number of long stay morning parks for each car park, we calculated the number of likely users of the P&R, as summarised in Table 5-3.

Car Park	Number of Switchers to Kings Barton P&R Lite/Strategic Northern P&R (2030)
Gladstone Street	7
Cattle Market	99
Tower Street	27
Station West	35
Station East	18
Total	187

Table 5-3: Summary of the Number of Switchers to the Kings Barton P&R Lite/Strategic Northern P&R From Each Car Park in the City (2030)

5.4 Estimate Car Park User Redistribution Within the City

Once the number of Kings Barton P&R Lite/Strategic Northern P&R users is estimated for each car park (in Section 5.3), the number of car park users for those parking in the city can be estimated. This number has been estimated by taking the maximum observed occupancy of each car park

(sources as summarised in Table 5-4), applying the growth factor to 2030 (see Section 5.2) and redistributing any demand to account for closed car parks.

Please note that where ANPR survey data was utilised to understand the maximum occupancy, a proportion was applied to account for the number of vehicles arriving and leaving within 10 minutes during the day of the survey. It should also be noted that the maximum occupancy was sometimes found to be outside of the morning period but was utilised to account for a possible worse-case scenario that may occur during the day.

Redistribution was based on factors assumed based on the user origins by car park (principally based on moving to the nearest car park, depending on the origin of the user).

From this, the new occupancy of each car park can be estimated as summarised in Table 5-4 (Scenario 0), Table 5-5 (Scenario 0+) and Table 5-6 (Scenario 1). Further detail by car park is shown in Appendix A.

Maximum Occupancy (2022)	Cattle Market	Tower Street	Station West	Station East
Source	225 ANPR (Sept 22)	325 WCC (2022)	137 ANPR (Sept 22)	64 ANPR (Sept 22)
Reference Maximum Occupancy (2030)	233	337	143	67
Switches from Car Park to P&R	99	27	35	18
Switches to Car Park from Other Car Parks	110	173	35	35
Final Max Occupancy	244	483	142	84

Table 5-4: Total Number of Switches To/From Car Parks & Resulting Maximum Occupancies for All Tariffs for Scenario 0, Core Test

	Tower Street	Station West	Station East
Reference Maximum Occupancy (2030)	337	143	67
Switches from Car Park to P&R	27	35	18
Switches to Car Park from Other Car Parks	309	123	123
Final Max Occupancy	619	230	171

Table 5-5: Number of Switches To/From Car Parks & Resulting Maximum Occupancies for All Tariffs for Scenario 0+ , Core Test

	Tower Street	Station West	Station East
Reference Maximum Occupancy (2030)	337	143	67
Switches from Car Park to P&R	27	35	18
Switches to Car Park from Other Car Parks	401	147	147
Final Max Occupancy	711	254	195

Table 5-6: Number of Switches To/From Car Parks & Resulting Maximum Occupancies for All Tariffs for Scenario 1, Core Test

5.5 Apply WFH Demand Sensitivity Tests

As discussed in Chapter 3, WFH demand sensitivity tests have been applied to understand the impact of differing levels of WFH that could occur in 2030. Based on a comparison of 2019 and 2022 long stay data (see Section 3.2.2), the current average level of WFH has been estimated at 2.6 days a week. Demand reductions and days WFH per week are summarised for each demand sensitivity tests in Table 5-7.

	Core	High WFH	Low WFH
Demand Reduction	51%	80%	0%
Days WFH Per Week	2.6	4	0

Table 5-7: Summary of Demand Reductions and Days WFH Per Week for the WFH Demand Sensitivity Tests

In the model, these demand reductions for the High and Low WFH tests were applied only to the long stay morning users as this is assumed to represent commuters. This therefore only affects the number of those switching to the Kings Barton P&R Lite/Strategic Northern P&R (as summarised in Table 5-8) and the number of long stay morning users of the city car parks.

Car Park	Number of Switchers to Kings Barton P&R Lite/Strategic Northern P&R (2030)		
	Core	High WFH	Low WFH
Gladstone Street	7	3	14
Cattle Market	99	41	204
Tower Street	27	11	55
Station West	35	15	73
Station East	18	8	38
Total	187	77	383

Table 5-8: Summary of the Number of Switchers to the Kings Barton P&R Lite/Strategic Northern P&R From Each Car Park in the City for Each WFH Demand Sensitivity Test (2030)

5.6 Mode Shift Model (Scenario 2 Only)

We utilised a mode shift model that predicts the level of parking demand at both the city centre parking (within the scope of this Study) and the Kings Barton P&R Lite/Strategic Northern P&R, by:

- Calibrating the number of switchers from the city centre parking (in the scope of this Study) to the Kings Barton P&R Lite/Strategic Northern P&R to the number from Scenario 1 (187 for the core test)
- Predicting the number of switchers from the city centre parking (in the scope of this Study) and existing P&Rs to the Kings Barton P&R Lite/Strategic Northern P&R
- Predicting the number of switchers from the (in scope) city centre parking to existing P&Rs

It is a generalised cost model that considers the cost difference between the cost of driving to and parking in the city centre, versus the cost of driving to a P&R and getting a bus to the city centre.

The model has the following parameters:

- Journey times to and from the P&R and city centre parking
- Cost of the P&R ticket (see Section 4.2) and city centre parking (as a weighted average across Tower Street and Station East/West) (see Section 4.2)
- Value of time for driving (=1.76), for bus (=1) and for waiting for the bus for P&R users (2.65)
- Frequency of P&R bus (assumed 6 buses per hour, so one bus every 10-minutes)
- Benefit for bus priority to P&R users (assumed that travelling by bus would be 3-minutes quicker than driving due to bus priority measures)

The values of time stated above were based upon the industry guidelines taken from the TAG databook (DfT, 2022) and then calibrated such that the results of the tool matched known values.

6 Future State Testing Results

Chapter at a Glance

This Chapter summarises the results from each Future State Scenario as a result of the Future State Testing Model

6.1 Maximum Occupancy

6.1.1 Background

This Section summarises the results for all Scenarios in terms of the maximum occupancy of car parks. This therefore does not account for the number of tickets sold (this is instead used to calculate revenue in Section 6.2), but instead the expected maximum occupancy of each car park that needs to be considered. This helps give an indication of where car parks may go over capacity and what level of capacity needs to be provided at each car park and the Kings Barton P&R Lite/Strategic Northern P&R.

The model used to predict results for Scenarios 0-1 directly uses the survey data for both the question regarding the likelihood of switching to this P&R and the origin/route they took to get to the car park (see Section 5.3 for more detail). During the analysis of this survey data there were several responses that did not seem logical. For example, survey respondents answering that it would be likely they would use this P&R, yet their origin or route suggests they live to the south of Winchester. The model for Scenarios 0-1 takes the survey results as is, but it is likely that around 30% of the responses were not logical. The model for Scenario 2 was unable to calibrate to these non-logical responses, therefore predicts a lower number of P&R users prior to the tariff changes tested.

6.1.2 Scenario 0

In Scenario 0, as summarised in Table 6-1, the removal of 100% of parking capacity at Upper Brook Street and Gladstone Street car parks causes a redistribution of parking demand across the car parks. This is mitigated to some extent by the number of switchers to Kings Barton P&R Lite (187), but maximum occupancies for nearby car parks generally increase. As expected, in the High WFH test, occupancy of other car parks decreases and for the Low WFH test, occupancy of other car parks increases. This is most notably shown in the Kings Barton P&R Lite as this is occupied by only long stay morning users, typically commuters, in the model.

6.1.3 Scenario 0+

As displayed in Table 6-2, by additionally removing 100% of parking capacity at Cattle Market car park in Scenario 0+, the number of redistributed parking occurring to the remaining city car parks nearby in the scope of this Study increases. Under this scenario, this causes Tower Street demand to go over capacity and, specifically in the Low WFH Test, Kings Barton P&R Lite also goes over capacity.

It should be noted that although in reality car parks would not go over capacity, in the model it represents where there is a demand for a certain car park that exceeds its capacity, labelled as assigned demand. This demand in excess of available capacity could be assigned elsewhere, including the Northern P&R and the five existing P&R sites.

6.1.4 Scenario 1

In Scenario 1, as shown in Table 6-3, the Strategic Northern P&R is introduced, adding an additional 850 parking spaces to the total P&R provision available on the Andover Road corridor, so has been

combined with that of Kings Barton P&R Lite. With the removal of St Peter's, additional demand is redistributed throughout the car parks in the city. Again, Tower Street demand goes over capacity.

Car Park	Capacity	Base (2022)	Core (2030)			High WFH (2030)	Low WFH (2030)	
		Maximum Occupancy	Switchers to the P&R	Switchers from Other Car Parks	Maximum Occupancy	Maximum Occupancy	Maximum Occupancy	Unassigned Demand
Cattle Market	360	233 (63%)	99	110	244 (68%)	202 (56%)	320 (89%)	0
Tower Street	492	325 (66%)	27	173	483 (98%)	452 (92%)	492 (100%)	46
Station West	477	143 (29%)	35	35	142 (30%)	92 (19%)	232 (49%)	0
Station East	265	67 (24%)	18	35	84 (32%)	72 (27%)	105 (40%)	0
Kings Barton P&R Lite	200	N/A	N/A	N/A	187 (93%)	77 (38%)	200 (100%)	183

Table 6-1: Future State (2030) Testing Results for Scenario 0 Including Switchers Between Car Parks & Maximum Occupancy for Three WFH Sensitivity Tests

Car Park	Capacity	Base (2022)	Core (2030)				High WFH (2030)		Low WFH (2030)	
		Maximum Occupancy	Switchers to the P&R	Switchers from Other	Maximum Occupancy	Unassigned Demand	Maximum Occupancy	Unassigned Demand	Maximum Occupancy	Unassigned Demand
Cattle Market	360	233 (63%)	99	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tower Street	492	325 (66%)	27	309	492 (100%)	127	492 (100%)	79	492 (100%)	212
Station West	477	143 (29%)	35	123	230 (48%)	0	167 (35%)	0	341 (72%)	0
Station East	265	67 (24%)	18	123	171 (74%)	0	146 (55%)	0	214 (81%)	0
Kings Barton P&R Lite	200	N/A	N/A	N/A	187 (93%)	0	77 (38%)	0	200 (100%)	183

Table 6-2: Future State (2030) Testing Results for Scenario 0+ Including Switchers Between Car Parks & Maximum Occupancy for Three WFH Sensitivity Tests

Car Park	Capacity	Base (2022)	Core (2030)				High WFH (2030)		Low WFH (2030)	
		Maximum Occupancy	Switchers to the P&R	Switchers from Other	Maximum Occupancy	Unassigned Demand	Maximum Occupancy	Unassigned Demand	Maximum Occupancy	Unassigned Demand
Cattle Market	360	233 (63%)	99	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tower Street	492	325 (66%)	27	401	492 (100%)	351	492 (100%)	168	492 (100%)	309
Station West	477	143 (29%)	35	147	254 (53%)	0	191 (40%)	0	367 (77%)	0
Station East	265	67 (24%)	18	147	195 (74%)	0	170 (64%)	0	240 (91%)	0

Car Park	Capacity	Base (2022) Maximum Occupancy	Core (2030)				High WFH (2030)		Low WFH (2030)	
			Switchers to the P&R	Switchers from Other	Maximum Occupancy	Unassigned Demand	Maximum Occupancy	Unassigned Demand	Maximum Occupancy	Unassigned Demand
Kings Barton P&R Lite / Northern P&R	1,050	N/A	N/A	N/A	187 (18%)	0	77 (7%)	0	383 (36%)	0

Table 6-3: Future State (2030) Testing Results for Scenario 1 Including Switchers Between Car Parks & Maximum Occupancy for Three WFH Sensitivity Tests

6.1.5 Scenario 2

In Scenario 2, for the core test, the use of Kings Barton P&R Lite / Strategic Northern P&R increases slightly due to the doubling of long stay tariffs in the city centre car parks. Demand for the existing P&Rs increases by a greater number due to the origin locations of car park users. The average maximum occupancy of city centre car parks decreases to 52% due to this switch to P&Rs.

Car Park	Capacity	Base (2022) Maximum Occupancy	Core (2030) Maximum Occupancy
Cattle Market	360	233 (63%)	N/A
Tower Street	492	337 (66%)	645 (52%)
Station West	477	143 (29%)	
Station East	265	67 (24%)	
Kings Barton P&R Lite / Northern P&R	1,050	N/A	196 (19%)
Existing Winchester P&Rs	2,100	1,355 (65%)	1,910 (91%)

Table 6-4: Future State (2030) Testing Results for Scenario 2 Core Test - Maximum Occupancy by Car Park Including P&Rs

6.2 Tickets Sold & Revenue

Table 6-5 summarises the revenue on a weekday based on car park ticket sales and P&R ticket sales, taking into account the split of ticket types sold (i.e. length of stay).

Car Park	Base (2022)	Forecasted Base (2030)	Scenario 0 (2030)	Scenario 0+ (2030)	Scenario 1 (2030)	Scenario 2 (2030)
Cattle Market	£1,505	£1,561	£1,114	N/A	N/A	N/A
Tower Street	£1,469	£1,523	£1,882	£2,708	£3,097	£1,863
Upper Brook Street	£817	£858	N/A	N/A	N/A	N/A
St Peters	£1,034	£1,086	N/A	N/A	N/A	N/A
Gladstone Street	£565	£586	N/A	N/A	N/A	N/A
Kings Barton P&R Lite/ Strategic Northern P&R	N/A	N/A	£654	£654	£654	£686
Additional Existing P&R Demand	N/A	N/A	N/A	N/A	N/A	£1,943
Sum	£5,391	£5,613	£3,650	£3,362	£3,751	£4,492

Table 6-5: Future State (2030) Summary of Weekday Revenue by Scenario for the Core Test

7 Conclusions & Recommendations

Chapter at a Glance

This Chapter concludes the Future State Scenario Testing results and sets out further complementary recommendations as a result of this Study

7.1 Future State Test Results Conclusions & Recommendations

7.1.1 Removal of Gladstone Street & Upper Brook Street

The removal of Gladstone Street and Upper Brook Street (~150 spaces combined) can be displaced to Kings Barton P&R Lite, as it is predicted 187 vehicles will shift to this P&R from the city centre in Scenario 0. There will additionally be sufficient capacity in existing city centre car parks to displace the demand for Gladstone Street and Upper Brook Street once closed.

7.1.2 Removal of Cattle Market

7.1.2.1 Redistribution of City Parkers

The parking model forecast predicts that the removal of the 360 parking spaces at Cattle Market in Scenario 0+ (see Section 6.1.3) causes a large redistribution of parkers across the day to Tower Street (309), Station West (123) and Station East (123) when considering the core test (assuming current levels of WFH). This switching of use to nearby alternative car parks can be compared to a prediction that 187 would switch to using the Kings Barton P&R Lite in this Scenario under the Core test. This forecasted level of switching to alternative city centre car parks is based on the split of corridors used to access car parks in the Station Approach area. This would result in these remaining car parks seeing an increase in occupancy levels at peak times, particularly at Tower Street.

The model predicts between 17 and 83 long stay parkers arriving in the morning period will switch to Tower Street from closed car parks (Gladstone Street, Cattle Market and Upper Brook Street) in this Scenario, which is modelled as exceeding available capacity. However, in reality, this would mean parkers would need to switch to other car parks (including the Station, where there remains capacity) or to other modes (including the other five existing P&R sites).

Moreover, given that long stay parking tariffs charged at Tower Street are double the cost of Cattle Market, in practice parkers who currently use Cattle Market who are price sensitive would be more likely to switch to other long stay car parks that charge the same as Cattle Market (including Chesil Street Multi Storey, Coach Park) or one of the five existing P&R sites which would be cheaper still. Further, the increase in usage of these nearby city car parks is likely to be overestimated due to the model not explicitly accounting for switchers to other P&Rs.

7.1.2.2 Use of Kings Barton P&R Lite

Kings Barton P&R Lite is well utilised in Scenarios 0 and 0+ (93%). It should be noted that the use of Kings Barton P&R Lite is not directly affected by the closure of Cattle Market in the model, as the same number of switchers to the P&R are predicted to occur regardless, as this is based on the survey results (see Section 5.3). However, it is expected that Tower Street car park (which the model suggests could reach or exceed capacity) would in practice instead result in long stay parkers choosing to switch to the Kings Barton P&R lite site alongside those switching to use the five other existing P&R sites.

Should WFH revert to 2019 levels, demand for Kings Barton P&R Lite would exceed capacity by 183. Moreover, as stated in Section 5.1, it is likely that the model will be underestimating use of Kings Barton P&R Lite as it does not include any additional demand that may be induced (e.g.

mode shift to P&R from other modes such as bus). It also does not include long stay parkers arriving after 10:30.

7.1.2.3 Impact on Carfax Junction

As set out in the Baseline Report for this Study, the User Intercept surveys showed that of the sample of Cattle Market car park users, 14% travelled via Andover Rd, 16% travelled via Worthy Road and 70% via other routes. Over the course of a day, the ANPR survey recorded 318 vehicle entries to Cattle Market. If Cattle Market parking provision was to be removed as part of the Station Approach project, this would have an impact on the vehicular movements using Carfax junction (the signalised junction in Winchester City Centre between Stockbridge Road/Andover Road/City Road), likely to:

- Remove around 223 vehicle movements crossing the Carfax junction northbound, previously accessing Cattle Market from the east and south of the junction
- Add 95 vehicle movements crossing the Carfax junction southbound, previously accessing Cattle Market via Andover Road or Worthy Lane, but now using the junction to access alternative parking south of the removed provision at Cattle Market
- However, the above does not account for those switching to a Northern P&R which would likely consist of some proportion of those vehicles previously accessing Cattle Market via Andover Road

7.1.3 Provision of a New Strategic Northern P&R

The provision of a new Strategic Northern P&R allows the room for any additional demand by increasing total P&R capacity on Andover Road corridor to 1,050 spaces. As in Scenarios 0 and 0+, the demand for the P&R is between 187 and 383 across all three demand sensitivity tests, although this would not be the total expected demand at this P&R, as stated in the known exclusions in Section 5.1.

It would be expected that all P&R sites (both the Northern P&R as well as existing P&Rs) would be likely to see further increases in demand if price sensitive parkers decide not to switch to alternative car parking near to Cattle Market (such as Tower Street which is double the cost for all day parking) or if long-stay parkers who are not making onward journeys by train feel that the station car parks are not suitable alternatives. Increasing use of P&R by parkers who are not all-day long stay commuters would require different approaches to how the P&R system is marketed and communicated so that the benefits of using P&R are shared with these people (see Section 7.2.3).

7.1.4 Long Stay City Parking Tariff Increases

The increase of long stay tariffs in the city centre car parks does further encourage parkers to use P&Rs (564 in the core test), but this additional switch to the Northern P&R is minimal (9 in the core test).

Based on catchment analysis of the origins of parkers (using the user intercept survey results), there are an insufficient number of additional vehicles in the correct catchments to justify further switching to the Northern P&R. The generalised cost model utilised for Scenario 2 (see Section 5.6) does see switching to other P&Rs due to the number of vehicles in the correct catchments for these P&Rs. Notably, this includes those using the M3 from the north, as the journey time to P&Rs in the Bar End area are much quicker than to the Northern P&R.

7.1.5 Future State Test Results Concluding Remarks

Without assuming changes to tariffs or the removal of parking, it is predicted that the Strategic Northern P&R and Kings Barton P&R Lite together will see 18% utilisation, assuming 2022 levels

of WFH, based only on the switch expected from Cattle Market, Gladstone Street, Station West and Station East. This forecast is based on the survey results, which asked parkers if they would switch to the P&R in the north, without asking in relation to tariff changes or the removal of the respective parking in the city centre.

With the doubling of long stay tariffs in the city centre, the Northern P&R is predicted to increase only to 19% utilisation. This is due to the catchments of the origins of vehicles using the city centre car parks. Should WFH decline and revert to 2019 levels, the Northern P&R could see this predicted demand rising to ~400 vehicles, giving an overall predicted range for this Study of around 200-400 vehicles in peak time. However, as highlighted throughout this Study, the composition of demand for the Northern P&R consists of:

- Morning long-stay commuters from the closure of car parks for Station Approach (estimated in this Study as 196 based on current WFH levels)
- Additional commuting demand should WFH lessen over time (~200 additional vehicles, should WFH revert to 2019 levels)
- Commuters that arrive outside of the AM period or stay for less than four hours
- Those switching from other car parks and existing P&R
- Other purposes (e.g. shoppers)
- Any measures to further encourage P&R (e.g. traffic management, bus improvements)
- Over capacity car parks in Winchester City Centre potentially pushing vehicles to use P&R

It should be noted that switchers to the P&R are based on the premise that a good quality bus service is in place, as stated in the User Intercept Survey question.

Existing P&Rs increase by 555 vehicles in total, demonstrating the greater number of vehicles in correct catchments for these P&Rs. Again, these numbers will increase if home working was to increase from the current levels (assumed 2.5 days a week).

Although the forecasts for some Scenarios suggest that some Winchester City Centre car parks could see demand exceed capacity in some areas, this demand can be redistributed and accommodated within other car parks, including the five other existing P&Rs and other long-stay car parks in the centre outside the scope of this Study, such as Chesil Street and Coach Park.

It should be noted, however, that there are a number of limitations to this Study which will impact the results. These are summarised throughout the report but, most notably, the predictions do not account for the switching of vehicles to the Northern P&R from car parks outside of the scope of this Study and assume only long-stay parkers arriving in the morning will switch. These assumptions are compared with those of existing approaches in Section 8.2.

All results are caveated with several possible overestimations and underestimations which are summarised in Section 8.2.

7.2 Other Recommendations

7.2.1 Complementary Mode Shift Options

Reducing parking availability and increasing prices in the city centre forms one priority element of the WMS (and more detail on how this would be done can be found in the Parking and Access Strategy). Providing less and more expensive city centre car parking would help to incentivise people to make greater use of sustainable transport, thereby helping to reduce car traffic in the centre of Winchester (WMS Priority 1). However, the WMS recognises that measures to improve the current offering for both active travel and public transport need to be developed in tandem

with any changes to the parking landscape to give people attractive alternative travel options for their journeys currently made by private car.

7.2.1.1 Public Bus

The results from the user intercept survey carried out in central Winchester car parks as part of this Study showed that 54% of respondents would consider leaving their car at home if bus services were more frequent and more reliable (Figure 7-1). As part of the WMS (WCC & HCC, 2021), the Council is looking to introduce bus priority measures on key radial routes into the city centre and work in partnership with operators to encourage more people to use local bus services. This also aligns with ambitions set out within the Hampshire Bus Service Improvement Plan (BSIP) (HCC, 2021).

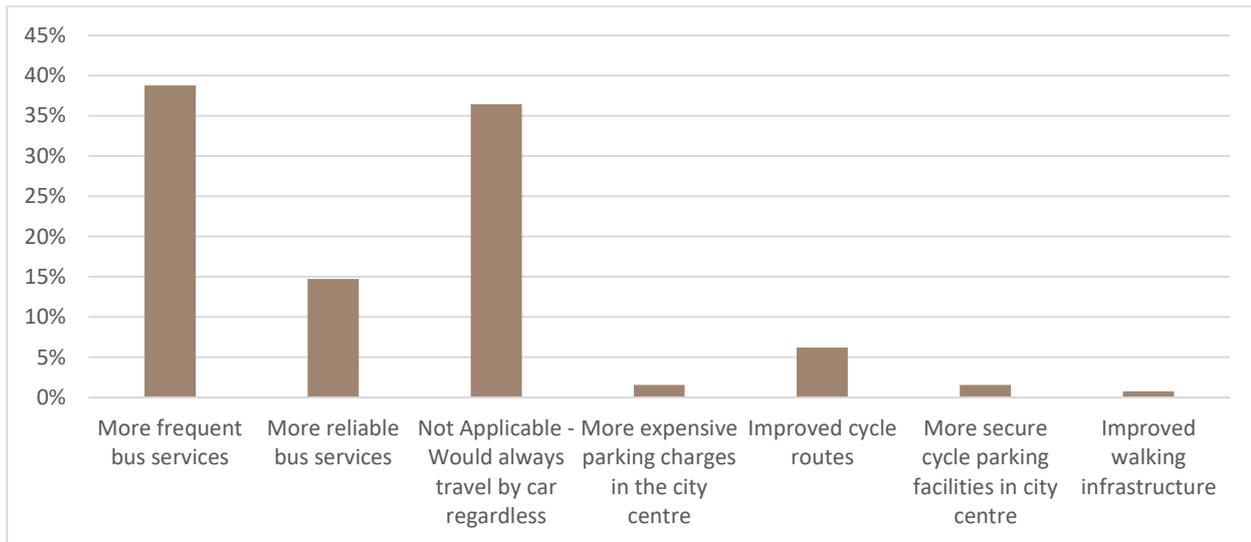


Figure 7-1: Responses to 'What Would Encourage you to Leave the Car at Home?' (Sample Size: 129 (17%))

Currently there are 20 regular bus services operating into central Winchester, served by two main operators. Stagecoach runs a frequent bus service that connects the city’s P&R facilities every 10-minutes at peak times (under contract to WCC) and operates other regular services to residential areas within Winchester. There are also hourly services to surrounding towns and villages such as Andover, Salisbury, Alton, Petersfield, Twyford, Colden Common, Fareham, Eastleigh, Chandlers Ford and Southampton. The service to Chandlers Ford and Southampton is run by Bluestar.

Using the postcode data collected by the survey and overlaying bus frequencies by route, it was calculated that approximately one-third of the respondents’ journeys could have been replaced by a 30-minute journey at peak hour (Figure 7-2). This suggests that current provision of bus service is limited, and many communities lack an acceptable level of service for the bus to be an attractive travel option. The area to the west of Winchester (postcode SO22) had the highest density of survey respondents. This area covers 18 bus routes with frequency ranging from 10-minutes to one a day (see Figure 7-3). The current bus services from Winchester provide connections to most respondents’ area apart from Hart, Guildford, Surrey Heath, Portsmouth and East Hampshire.

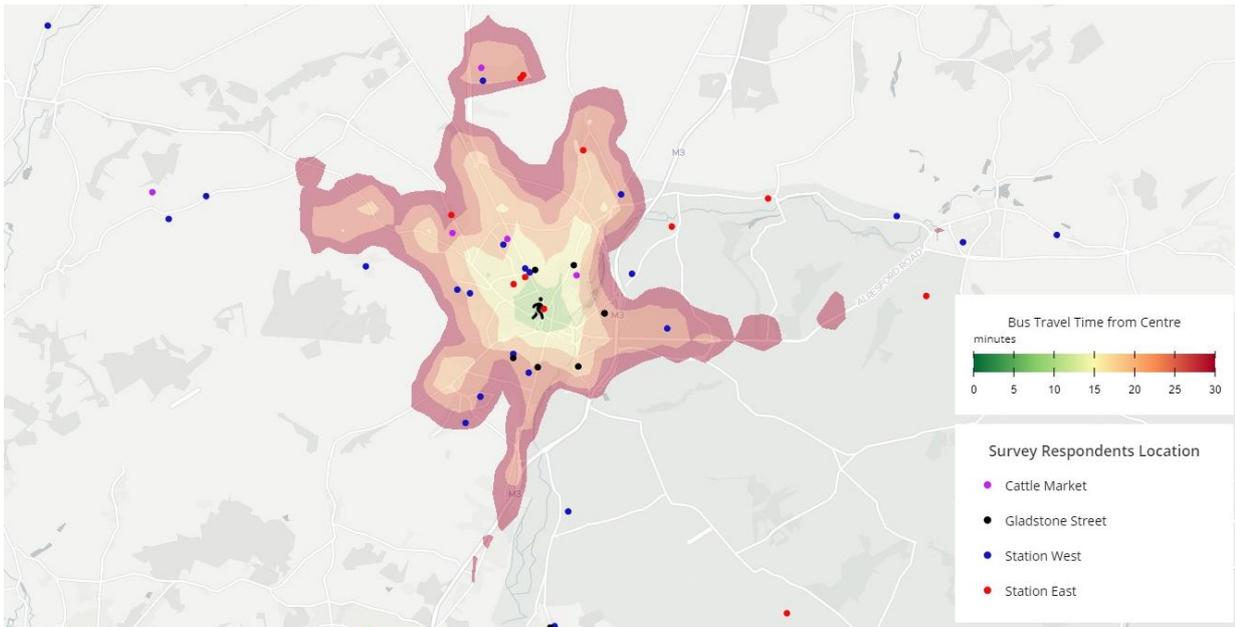


Figure 7-2: Time Needed to Travel to Winchester City Centre by Bus (Including Access & Egress by Walking) in the Morning Peak Hour with Origin Postcodes of Survey Respondents by Car Park Surveyed

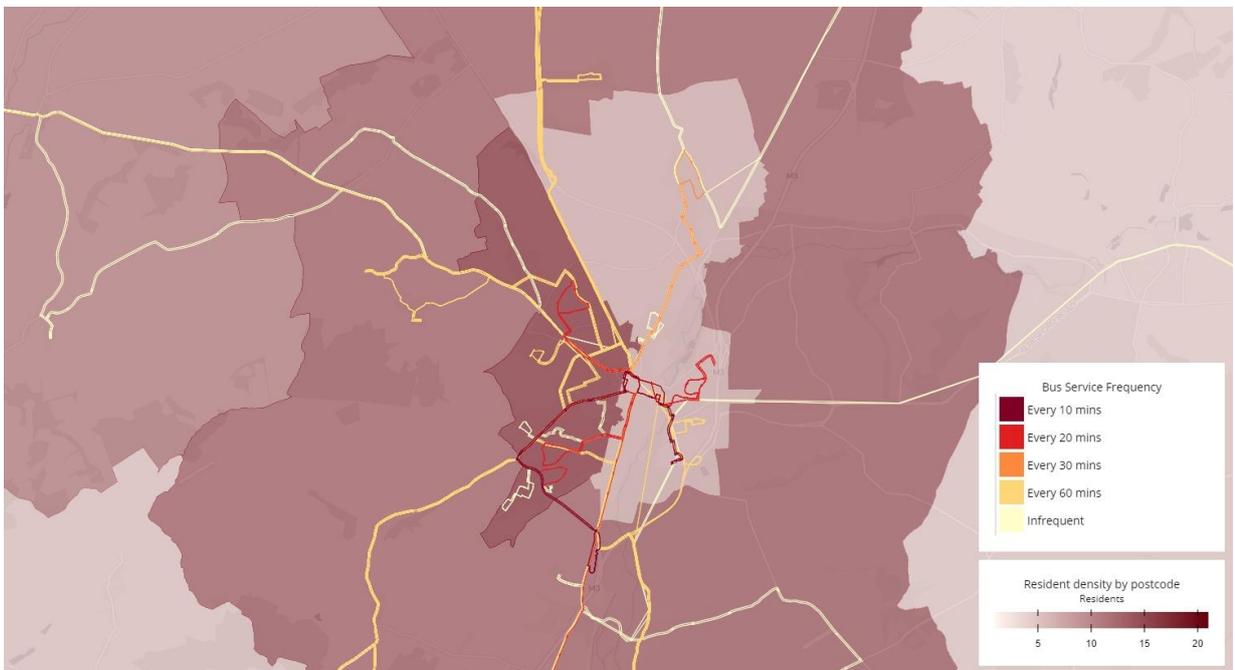


Figure 7-3: User Intercept Survey Origin Density by Postcode & Bus Service Frequency (Sample Size: 115 (15%))

7.2.1.2 Rail

Using a similar isochrone analysis for rail services, Winchester Station serves most respondent locations (such as Basingstoke, Farnborough, Andover, Eastleigh, Southampton, Bournemouth, Fareham, Salisbury and Reading) and London within a one hour or less journey time (Td, 2022) (see Figure 7-4). Other respondents originate from further afield, such as Bristol, Hampshire and Woking and other towns in Surrey, can be reached within two hours.

This analysis of rail trips demonstrates that some key user origins are also covered by rail services, meaning some car park users accessing Winchester Station could potentially switch to rail for their full journey. However, results from the user intercept survey indicate that for those choosing to travel from Winchester rather than a closer station, they do so due to quicker journey times and more frequent services which are not available to them at their local station.

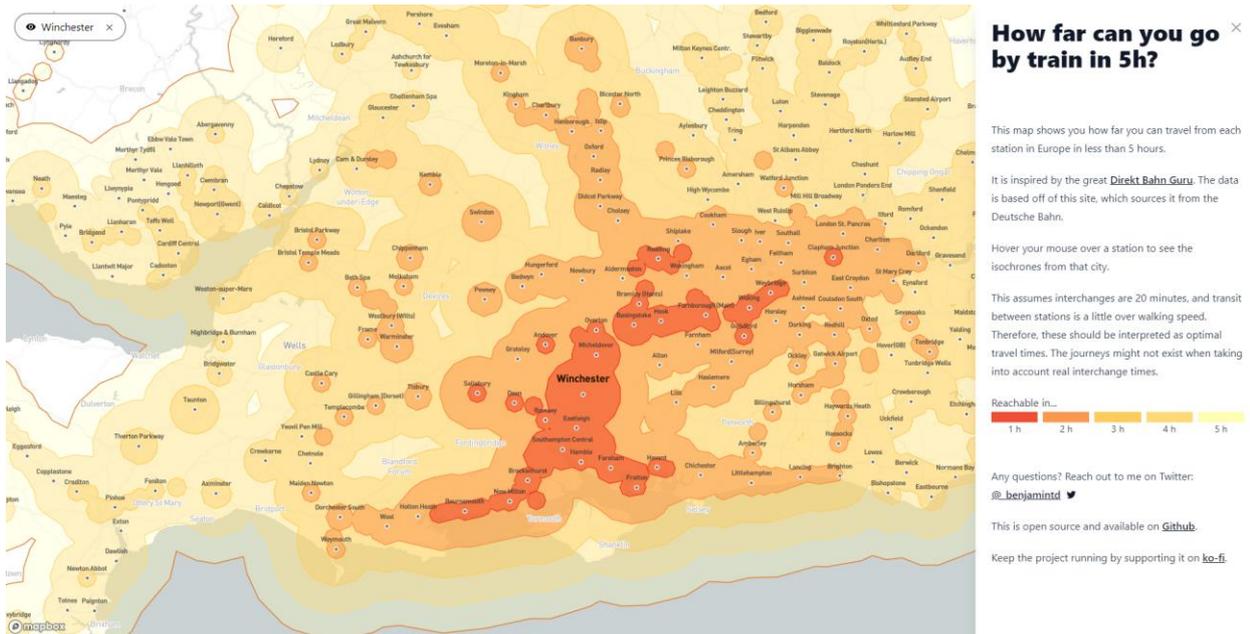


Figure 7-4: Time Needed to Travel to Winchester City Centre by Rail in Peak Hour (Source: (Td, 2022))

7.2.1.3 Cycling

Walking and cycling are a priority, as HCC and WCC are looking to reallocate road space to improve pedestrian and cycle provision through development of a Local Cycling and Walking Infrastructure Plan (LCWIP). As part of the Winchester Movement Strategy, WCC is looking to deliver a network of high-quality walking and cycling routes (WCC & HCC, 2021). The LCWIP schemes will improve cycling access from Kings Barton to Winchester City Centre, as such, opportunities to promote P&R on Andover Road and new cycling facilities may prove useful in generating modal shift in Winchester (WCC & HCC, 2021).

Similar to the bus analysis, one third of survey respondents are within a 30-minute cycle journey into Winchester City Centre (Figure 7-6). However, there is less cycling infrastructure where most respondents' origins are, on the west of Winchester.

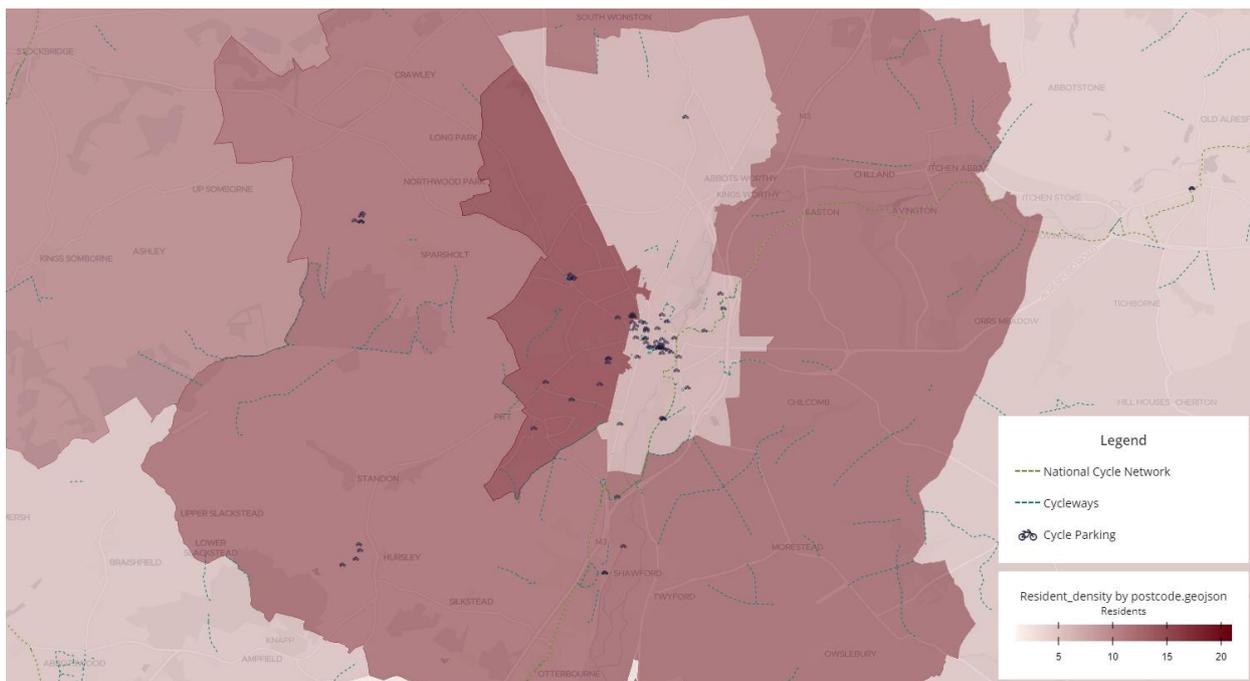


Figure 7-5: Cycle Infrastructure within Winchester City Centre with Postcode Density of Survey Respondents

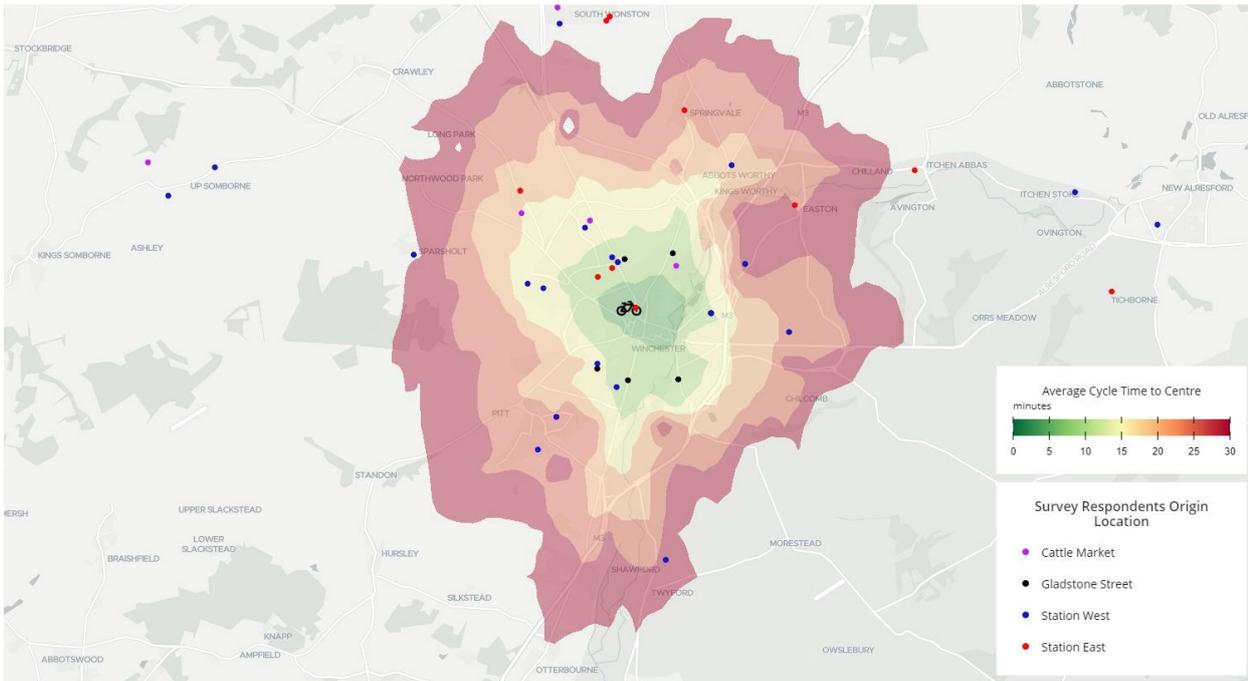


Figure 7-6: Respondents Within 30 minutes Cycle to Winchester City Centre with Origin Postcodes of Survey Respondents by Car Park Surveyed

Additionally, it is important that sufficient good-quality and secure cycle parking is made available at the Station, as well as in the city centre more widely, to allow a further shift to cycling into the city centre and for accessing the Station for long stay commuters wishing to leave their bicycle.

7.2.2 Employee & Associated Business Parking

7.2.2.1 Discouraging Employee City Centre Parking

From the stakeholder engagement carried out during this Study, it has become clear that some employers within Winchester provide some staff with free parking within PNR car parks in the city centre. This will reduce the impact of any future tariff changes as they will not have a direct impact on drivers, and large employers are more likely to be able to absorb the rise in cost. Engaging with city centre employers that currently offer this as a benefit to explore ways to discourage the practice, and potentially replace it with a corporate discounted P&R agreement, would have a greater benefit on reducing congestion in the city centre caused by commuter traffic.

A similar issue has been noted in the Winnall Community Plan (Winnall Forum, 2012) regarding the Winnall Industrial Estate, which generates large volumes of car commuting journeys and some working in the Industrial Estate Park on those residential roads that don't have permit parking schemes in operation. Discouraging parking by introducing permits and encouraging employers to take up a corporate discounted P&R offer could help alleviate the issues for Winnall residents.

Surveys undertaken in 2020, as part of the WMS, suggest that there were 1,959 PNR parking spaces available in the city centre.

7.2.2.2 P&R Routes to Key Employment Sites

In order for the P&R to be an attractive option for people commuting to the town centre, it is essential that the routes service key businesses within Winchester. Existing P&R routes should be reviewed to ensure that key local employers and businesses are being served, and the new Northern P&R could help to alleviate some of the parking pressures at the Royal Hampshire County Hospital for staff, patients and visitors by including the hospital and the city centre on its route.

7.2.2.3 Employee & Business P&R Permits

Engagement with some of the key employers in Winchester has demonstrated the popularity of the P&R and corporate discounted ticketing agreements, with significant uptake (for example 32% of respondents to the WCC travel survey used the P&R) driven by savings and convenience. There are a number of other employers operating in Winchester that are interested in signing up to discounted P&R ticketing for staff, including the Winchester School of Art. Engaging with all major employers in the area to encourage and maximise P&R use, and the potential benefits to them should they be able to reduce their need for on-site staff parking spaces, would help support the shift away from city centre parking.

7.2.3 Parking Information & Communication

Communication of the proposed changes to parking in Winchester is important, to avoid people entering and circulating around the city centre searching for parking spaces which may not be available or perhaps be deemed too expensive, contributing to congestion.

On the other hand, the P&R provision (both existing and proposed) should be promoted to those that may already be currently driving to Winchester, in order to (further) encourage their use. This includes both advance promotions and road sign communications.

7.2.3.1 Advance Promotions & Targeted Marketing

Communications designed to promote the use of P&Rs (both existing and proposed) in advance of journeys into Winchester City Centre can be achieved through advertisements on social media, WCC's website, local news, via key employer newsletters/communications and targeted posters within Winchester City Centre (such as the city centre car parks, at Winchester Station and key employment areas).

Promotions for the P&R sites should be designed to target non-commuter demand in particular, to further encourage its use by leisure trip makers (as demand currently mostly comprises of long stay commuters). An example of this targeted marketing can be found in Figure 7-7.

Promotions should simply and clearly set out the benefits of the P&R service in comparison to city centre parking, such as cost or journey time. It could also include details on the location(s) and operating hours/timetable (e.g. frequency and first and last service), with links to relevant webpage(s) for more information.

7.2.3.2 Road Signage

Drivers using the radial routes to enter Winchester could be informed of changes to availability and tariffs, as well as having clear directional signage for how to access the nearest



Figure 7-7: Example of Advance Promotion for Oxford P&R via Social Media

P&R, in order to avoid worsening congestion as parking in or near the city centre is progressively reduced in line with the WMS.

Variable Messaging Signs are already deployed when there are special events in the area (such as Christmas markets and University open days) and could be used to provide parking information to road users and encourage them to seek alternative parking locations. They may also be useful for communicating when the hospital visitor car park is full and providing specific information about P&R routes to the hospital to help patients who are not familiar with Winchester.

7.2.4 Electric Vehicles

One of the key priorities of the WMS is to reduce city centre traffic. Whilst it is acknowledged that electric vehicles (EVs) do not contribute to this goal as they still cause congestion, the switch to zero emission vehicles remains an important aspect of reaching net zero goals at a local and national level.

For this reason, we recommended that EV charge points are installed at all P&Rs where they are not currently available and at the Northern P&R, to cater for EV users. In addition, charging at a reduced rate could be offered, either as part of a corporate P&R agreement or the P&R ticket itself to encourage people not to use city centre parking.

7.3 Concluding Remarks & Next Steps

This Final Report summarises the potential for a Strategic Northern P&R on Andover Road using up-to-date demand as a result of the COVID-19 pandemic in the context of changing supply and pricing of parking in the city centre to encourage mode shift.

This Study will inform the Station Approach Project, whilst aligning with the developing Parking & Access Strategy and the WMS.

8 Appendix A: Review & Comparison of Existing P&R Demand Forecasts

Chapter at a Glance

This Chapter sets out existing P&R demand forecasting as carried out by Atkins and compares the methodology and results for this Study, drawing conclusions about the assumptions and estimations made for both approaches

8.1 Background

As stated in the Baseline Report, in 2021 Atkins carried out a Feasibility Study (Atkins, 2021) for a Winchester P&R to support the delivery of the WMS. Their Study assessed potential future P&R demand using the Solent Sub-Regional Transport Model (SRTM) and considers two potential new sites (Andover Road in addition to the committed 200 space Kings Barton P&R 'lite' site, and Winnall near M3 Junction 9) and expansion of two existing sites (Bar End and South Winchester). Atkins carried out a "what if" analysis to understand the consequence of differing proportions of public and PNR parking demand shifting to existing or proposed P&Rs in 2030. For high and low scenarios, this was 65% and 40% from public parking (respectively) and 36% and 29% from PNR parking (respectively). This resulted in 796 users of the Northern P&R in the low scenario and 527 users in the high scenario, as summarised in Table 8-1.

P&R Scenario	Switchers from Public Parking	Switchers from PNR Parking	Total
High	599	198	796
Low	368	158	527

Table 8-1: 2030 Demand for Kings Barton P&R Lite/Strategic Northern P&R, Split by Public & PNR (Source: Atkins WMS P&R Feasibility Study Phase 2)

This Chapter reviews and compares the methodology and results of the Atkins Feasibility Study with that carried out for this Study, to understand the merits of each methodology and the justification of the proposed demands.

It should be noted that the Atkins future P&R demand forecasting approach estimated the impact on P&R usage of two new inbound bus gates (on Chesil Street and on Southgate Street) and a new inbound bus lane on Andover Road between Athelstan Road and Worthy Lane. By making car travel into Winchester City Centre via these three corridors either slower or requiring drivers to enter the city via a different route would have made using P&R relatively more attractive in the forecasting results. However, in the forecasting work for this Study, we assumed a three-minute improvement on all P&R inbound journeys to represent an element of bus priority on the routes.

8.2 Comparison of Forecast Methodologies & Assumptions

The Atkins P&R Feasibility Study methodology and results has been thoroughly reviewed using the Winchester Park & Ride Study Report (Atkins, 2021) and through email exchange with Atkins. This has then been compared to the methodology for this Study for several elements as summarised in Table 8-2. This comprises of:

- **Calculation/Assumption:** Element of the methodology that is being compared
- **Summary:** Summaries of the respective element as included in each methodology
- **Impact on Difference in P&R Demand Results:** Concluding summary of the difference between the two methodologies for this element and how this will affect the resulting Northern P&R demand. This has been colour-coded to highlight where the greatest (in red) and smallest (in green) differences are between the methodologies

- **Likely Underestimation or Overestimation of P&R Demand:** Summarises where overestimations or underestimations may have occurred in each methodology

Ref	Calculation/ Assumption	Summary		Impact on Difference in P&R Demand Results	Likely Underestimation or Overestimation of P&R Demand	
		Atkins	City Science		Atkins	City Science
A	Parking Provision & Tariffs Assumptions	<ul style="list-style-type: none"> Provision of a Northern P&R No explicit changes to tariffs/provision 	<ul style="list-style-type: none"> Provision of a Northern P&R Scenarios 0-1 assume closure of city centre car parks as part of the Station Approach and Scenario 2 additionally assumes a change in city centre long stay tariff 	This affects the methodology employed which is covered in E and G	N/A - Atkins did not explicitly assess the impact of changes to parking provision/tariffs and it is unknown how the proportion of city centre parkers switching to the Northern P&R (F) is determined	Potential for underestimating as surveyed car park users were not asked about their likelihood of using a Northern P&R if the car park was closed
B	Forecasted Vehicular Demand Assumptions	<ul style="list-style-type: none"> 2030 Forecast Year The SRTM will likely forecast an underpinning increase in vehicular demand (in line with national road traffic forecasts), but this is unknown The SRTM will likely forecast an additional increase in vehicular traffic specific to any new local developments, but this is unknown 	<ul style="list-style-type: none"> 2030 Forecast Year Applies a 5% increase in demand in line with business growth in Winchester as predicted by DfT NTEM (see Section 5.2) 	Unknown but not likely to be vastly different	None	Potential for underestimating as we have not accounted for an increase in demand due to any local developments (e.g. new housing developments)

Ref	Calculation/ Assumption	Summary		Impact on Difference in P&R Demand Results	Likely Underestimation or Overestimation of P&R Demand	
		Atkins	City Science		Atkins	City Science
C	Forecast Commuting Demand Assumptions	SRTM base model is 2019 therefore forecast models do not account for any WFH	Assumes current recorded levels of WFH (~2.5 days/week on average) continue (see Section 3.3) and applies two WFH sensitivity scenarios (high and low)	If we assume 2.5 days a week WFH, demand could be up to 50% of 2019 demand on any given day (used as a reference year by Atkins)	Likely overestimating demand	None
D	Pool of Parkers Available to Switch to P&Rs	<ul style="list-style-type: none"> • 3,254 public + on-street parkers • 1,959 PNR • Includes all lengths of stay • Pre-pandemic occupancies • Daily occupancies 	<ul style="list-style-type: none"> • 423 public car park parkers (long stay only) • On-street and PNR parkers not included in the model • 2022 demand (accounts for WFH) • Occupancy during a morning period is only considered 	Significant difference between the definition of available city centre parkers to switch to a P&R	Likely overestimating demand as it's unlikely that short/medium stay users will switch	<ul style="list-style-type: none"> • Potential for underestimating demand as we have not considered parking outside scope of this Study that may switch to the Northern P&R • Potential for underestimating demand as we only consider those parking in a morning period will switch

Ref	Calculation/ Assumption	Summary		Impact on Difference in P&R Demand Results	Likely Underestimation or Overestimation of P&R Demand	
		Atkins	City Science		Atkins	City Science
E	Calculation of the Proportion of City Centre Parkers Switching to the P&R (F)	Unknown	<ul style="list-style-type: none"> Scenarios 0-1: Directly derived from the survey, comprising of those that answered highly likely/likely they would switch and a proportion of those that did not answer this question but stated their postcode/origin that would sensibly use the Northern P&R Scenario 2: a generalised cost model was applied to understand further switches made when doubling long stay tariffs 	N/A	Unknown as the methodology is not clear and proportions quoted should be used with caution	Mixed: <ul style="list-style-type: none"> Possible that it will overestimate as stated preference does not translate to actual choices Could be underestimating as additional switching could occur due to busy/overflowing city centre car parks and further incentives to use the P&R
F	Proportion of City Centre Parkers Switching to the P&R	<ul style="list-style-type: none"> High P&R Demand Scenario: 65% (of public and on-street) and 36% (of PNR) Low P&R Demand Scenario: 40% (of public and on-street) and 29% (of PNR) 	<ul style="list-style-type: none"> Scenarios 0-1: 44% of long stay users (on average, as this differs by car park) Scenario 2: 46% of long stay users (on average, as this differs by car park) 	Proportions are not dissimilar and sit within the range tested by Atkins		

Ref	Calculation/ Assumption	Summary		Impact on Difference in P&R Demand Results	Likely Underestimation or Overestimation of P&R Demand	
		Atkins	City Science		Atkins	City Science
G	Calculation of Forecasted Users of the Northern P&R	<ul style="list-style-type: none"> Demand on Stockbridge Rd, Worthy Rd, Dean Ln, Andover Rd taken and divided by total demand entering Winchester City Centre This proportion is then applied to the pool of parkers (D) and the proportion switching (F) 	Proportion switching (F) applied to each car park occupancy (D)	None	None	None
H	Bus Infrastructure Priority Assumption	Assumed two new bus gates (on Chesil Street and on Southgate Street) and a new inbound bus lane on Andover Road	Assumed quicker P&R bus journey times (nominal three-minute reduction) as a result of general bus priority infrastructure on all P&R routes	It is not clear if the journey time comparison between private vehicle and P&R bus directly affected the proportion of switchers to the P&R (E and F) in the Atkins work	Unknown	Mixed – the journey time reduction applied could be improved by assigning this to the relevant P&R service routes and calculating expected journey time reductions for individual routes

Table 8-2: Comparison of Forecasting Demand Methodology Elements Between Atkins P&R Feasibility Study & this Study

8.3 Concluding Remarks

In summary, the greatest impacting difference between the two approaches is the pool of parkers to which the switching proportion is applied to, because:

- Atkins used a greater number of locations (assume all parking locations in Winchester) to which they drew upon for potential Northern P&R users
- We have used post-pandemic demand, roughly half of pre-pandemic demand, and assumed this will continue in the future whereas Atkins has not
- We have assumed only long stay parkers arriving in a morning period can switch, whereas Atkins have not made this distinction, therefore capturing a larger number of parkers across all lengths of stay (including short stay) and all time periods

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