



Uttlesford
District Council

Uttlesford Parking Review

Appendix B – Findings Report

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Prepared by

parking
matters

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1. Introduction

This document forms Appendix B to the Summary Report of the Uttlesford Parking Review and combines the work undertaken in Stages 2 and 3 of the Review. It considers specific options available to the council to help tackle problems identified in the Stage 1 Report. This included an extensive consultation exercise carried out in May 2022.

We have not reproduced large amounts of text or content from the Stage 1 report or third-party sources, instead these are referred to within the relevant sections.

1.1 Summary of Conclusions from the Stage 1 Report (appendix A)

The Stage 1 Report concluded that there was an acute and genuine parking problem across many of the settlements of the district. This is due to:

- The rurality of the district with a settlement and population distribution that is not conducive to public transport provision and encourages private car use
- Narrow, often medieval street layouts and more recent development patterns which limit on-street parking capacity
- A wealthy district with very high car ownership
- Airport and commuter parking in settlements close to the airport with good travel links.

1.2 The Stage 2/3 approach

This overall methodology for the review is summarised below:

- Establish an overall objective and high-level strategy;
- Consider the relative strengths and weaknesses of District wide strategy options providing case studies and information for implementation;
- For the three large towns consider:
 - A town-wide strategy
 - Options for specific problems and areas highlighted in Stage 1.
- For the smaller settlements and villages, consider:
 - Options available which are applicable to all (e.g., Residents Parking)
 - Specific settlements and the specific issues highlighted in Stage 1.

2. The Overall Strategy

The overall strategy is designed to be clear and concise and avoid unnecessary complexity and jargon.

2.1 Strategic Policy and Objectives

The Uttlesford Corporate Plan 2022 – 2026 is a key policy document which sets out the council’s high-level priorities. Its vision is:

“Making Uttlesford the best place to live, work and play.”

The strategic objectives for this strategy follow those in the corporate plan:

- **Putting Residents First**
- **Placemaking**
- **Custodian of the Environment**
- **Champion the District.**

How these objectives and their action points relate to the parking strategy is set out in the table below.

Table 1. Corporate Plan and its relation to the parking strategy

Objectives	Action points relevant to the Strategy	Implications for the Parking Strategy
Putting Residents First	<ul style="list-style-type: none"> ● An emphasis on consultation and engagement ● Openness and transparency in decision making ● Fiscal responsibility and sustainability. 	<ul style="list-style-type: none"> ● Action plans and town strategies must be responsive to the views of residents ● Risk of failure to implement measures if they are not accepted locally ● Measures must be fiscally responsible and if possible be revenue neutral or positive.
Active place-making for towns and villages	<ul style="list-style-type: none"> ● Masterplan communities for and with residents ● Support towns and villages to plan their neighbourhoods ● Secure greater benefits of development ● Work with the airport on issues of concern ● Nurture employment and retail areas to create jobs and retain business ● Promote healthy lifestyles and diverse inclusive communities. 	<ul style="list-style-type: none"> ● Opportunities to have parking considered at the planning stage ● Opportunities to secure planning gain such as S106 and CIL payments for strategy measures ● Consider options for tackling the issues surrounding the Airport ● Ensure that the needs and requirements of businesses’ employers and customer are considered in plans ● Promote active and healthier travel, which encourages mode shift.
Custodian of the rural environment	<ul style="list-style-type: none"> ● Take action on climate change ● Conserve natural resources including reducing local energy consumption ● Protect and enhance rural character and heritage ● Take strong action on dealing with pollution. 	<ul style="list-style-type: none"> ● Promote more sustainable transport and mode shift away from single occupancy car use to reduce energy use and reduce emissions ● Consider the impact of parking and cars on townscape and heritage environment.
Champion for the District	<ul style="list-style-type: none"> ● Improve Uttlesford’s connectivity ● Support students, schools and libraries ● Keep the district safe ● Work with the local health service. 	<ul style="list-style-type: none"> ● Parking as a policy for mobility and connectivity ● Access and safety around schools and education ● Security and safety in parking facilities ● Promoting healthier and more sustainable transport.

2.2 Options for the strategy

The Stage 1 Report built upon previous studies including the **2021 Buchanan Order Management** report (‘the 2021 Buchanan report’), and the **2015 Uttlesford District Parking Review** (the ‘2015 Parking Review’). Their main conclusions concurred with this project’s Stage 1 Report: there is no simple solution to the parking problems faced by the district as there is simply not enough space on or off-street to satisfy demand in places. Furthermore, those solutions that do exist (e.g., residents parking areas) can rarely be implemented without negative consequence to other groups of users.

“The problems are complex and for many, there will not be a ‘right’ answer, but instead a series of options all of which will have capital / revenue implications and create winners and losers. Difficult decisions will need to be made locally, but sufficient information should be provided to help in this process.” – s8.2 of the Stage 1 report.

Therefore, the strategy that comes from this review must be a practical balance between managing the available parking space, increasing the supply where possible, and managing demand, whilst recognising that there are no ‘quick fixes’ for the problem.

2.3 Increasing supply v managing demand

Increasing the supply of parking in the locations of greatest demand would be difficult and expensive to achieve. Moreover, this would be counter to county and national policy, which promotes travel choice and a reduction in car use, reducing congestion, improving poor air quality, severance etc.

The 2021 Buchanan report concluded that for on-street parking there were few opportunities to increase the supply in any meaningful way given safety and congestion concerns. Although this conclusion only covered Saffron Walden it is likely to apply in other areas. Traffic Regulation Orders (‘TROs’) are put in place across the district for safety and traffic management reasons and from the information available and our assessment, there are unlikely to be significant opportunities for new on-street parking spaces.

Increasing off-street supply could be an option in some specific locations but such developments need to be subject to rigorous feasibility and tested against the three key questions applicable to the early feasibility stages of any development project:

- Engineering Feasibility - Can anything be practically built on the site i.e. what are the constraints?
- Business Case – Is there an economic case for change (either disposal or development)?
- Regulatory Feasibility - Would the proposal be likely to receive consent?

Construction prices have been subject to inflation since the Covid-19 pandemic, rising sharply since the end of 2020¹. Surface car parks, excluding land costs, tend to cost £2-3000 per space; multi-storey £15-30,000 per space; and underground anywhere between £60,000 to over £100,000 and so are usually unaffordable for all but the most valuable land in major city centres.

The Overall Strategy can be found Summary Report.

¹ ONS 2022 – “Construction Output Price Indices”

3. District Wide Strategy Options

In considering measures that could form part of the overall strategy, we have first looked at district-wide high-level strategic measures and policies to manage parking demand and help achieve strategic objectives.

The sources of these options include: the consultation, the Essex Local Transport Plan, and established transport planning methods. For each we have assessed deliverability, impact, cost and provided an overall priority score. Inevitably some professional judgment has had to be used based on national case studies, research and reports and ‘real world’ projects.

For each proposal we have considered:

- The capital cost – how much will the initiative cost to set up (Low <£100k – Very High >£10m+)
- Ongoing revenue costs (Neutral or Low, up to Very High >£100k+ p.a.)
- Engineering and planning viability
- Delivery Risk, i.e. the potential acceptance and support of stakeholders
- The impact on the key objectives of car ownership and use, or parking supply
- An overall assessment and a priority score (higher = better).

Anything with a priority score of under three (generally because of cost or difficulty to implement or delivery far beyond the power of the District Council) has been discounted.,

3.1 Providing Better Transport Options

The expansion in the number of electric vehicles, connected cars and longer term, the introduction of autonomous vehicles will create both challenges and opportunities for parking services and transport managers. At the same time, the impact on the demand for both parking and parking services needs to be planned for in the context of climate change and an urgent need to reduce the impact of cars and congestion on unacceptably high levels of air pollution.

The options presented below consider common approaches to providing alternatives to car ownership and use such as Car Clubs and/or were suggested during the consultation.

Table 2. Options Matrix for providing better transport options

	Capital Cost	Revenue Costs	Viability	Overall Assessment	Priority
Providing Better Travel Options					
Car Clubs with designated spaces	Low	Low	V High	V High	V High
Smarter Choices	V low	Low	V High	Med	V High
Cycle network and parking investment	High	Low	Med	V High	High
Park Active / Park and Choose	High	Med	Med	Med	High
Cycle / Scooter sharing	Med	Low	Med	Med	High
Shuttle bus - Saffron W to Railway station	High	V high	Low	Low	Low
Congestion Charge	High	Positive	Low	V low	V Low
Workplace Parking Charges	High	Positive	V Low	V low	V Low
Free Public Transport	Low	V high	V low	V low	V Low
Dedicated bus based park and ride sites	V high	V High	Low	V low	V Low
Re-open rail service to Saffron Walden	V high	?	V low	V Low	V Low

3.1.1 Discounted or out of scope options

These options included dedicated bus-based park and ride sites, and free public transport. Although these would likely have a positive impact on car use and ownership, they were deemed prohibitively expensive, and in the case of deregulated buses hard to implement. Bus-based Park and Ride site would be rare in settlements as small as those in Uttlesford.

Other options such as the re-opening of the Saffron Waldon branch railway, congestion charging, and workplace parking levies would be a major scheme and would need to be considered through the County's Transport plan and District Plan.

3.1.2 Case Studies

Measures to provide better transport options are explained in the boxes below.

Car Clubs

Car Clubs allow registered users to hire cars and vans on a short term 'pay-as-you-drive' basis. Users are registered with some basic checks carried out, and then use apps and smartcards to manage bookings and unlock vehicles². Insurance and breakdown cover are provided by the operators.

Potential benefits for a city include fewer vehicles travelling and reduced demands on parking through lower car ownership³. Car Club spaces and contributions to car clubs are often requested as part of S106 agreements or planning conditions.

Car Club Operation

Main types of Car Clubs exist:

- A - A where the vehicle is taken from its base by the customers, used and returned to base or within a geofenced zone;
- A - B where the vehicle is taken from a location by the customer, used and left at a different location or within a geo-fenced zone.

A-A is by far the simplest and most common model in England although A-B does exist in London. A-B allows users to end a hire in any space covered by the parking permit (so must be written into TROs) including crossing into other boroughs. A hybrid of these models is starting to be deployed, where dedicated bays are not possible, and vehicles must be returned at the end of a hire to a geo-fenced area and parked in one of any of the available parking places along that street.

Additionally, peer-to-peer sharing has potential whereby a vehicle owned by an individual is lent to neighbours and local people with a service provider providing insurance & booking platform.

Parking and Car Clubs

If on-street, a TRO will typically be required with a permit type established for the car club car. The most straight forward way of provision is marked bays with TSRDG signage to denote the bay is reserved for car club cars.



Permit types can be added to Orders for Residents Parking Areas / Controlled Parking Zones from the outset, allowing more flexibility in where car clubs are parked. Vehicle Registration Plates (VRP)s would need to be registered for any online system.

² Manchester have integrated their city travel smart card for use with Car Club cars for e.g.

³ [Shared Cars - Benefits and Research on Car Clubs - CoMoUK](#)

Providers prefer on-street bays⁴. Off-Street Parking Orders would need to include vehicles through permit (with registration of VRP for online systems). Bays are usually marked.

In private car parks, VRPs would need to be registered with the enforcement body. Marked bays would be the easiest enforcement method. Car Club vehicles often have at some demarcation to show that they are a Car Club vehicle.

Impact and implementation

In a 2022 CoMoUK report research shows that each car club vehicle on average can replace 18 private cars⁵.

Procurement options are set out in CoMoUK's Guidance on Car Club Procurement. These include: a single supplier or a framework where individual bays are offered to the market. Funding often comes from S106 contributions.

Further information:

The key UK organisation for information on good practice and practical help information for car sharing is CoMoUK (www.como.org.uk).

- [Car-Clubs-Parking-Carplus-Best-Practice-Guidance-2014.pdf \(como.org.uk\)](#)
- Procurement advice (although focussed on Local Authorities) can be found here: [Guidance-on-Car-Club-Procurement-131120.pdf \(como.org.uk\)](#)
- Good example of car clubs' information [Car Clubs – Travelwest](#)

⁴ [Car-Clubs-Parking-Carplus-Best-Practice-Guidance-2014.pdf \(como.org.uk\)](#)

⁵ <https://www.gov.uk/government/publications/car-clubs-local-authority-toolkit/car-clubs-local-authority-toolkit>

'Smarter Travel Choices' – inc. Car Share, travel planning and travel promotions

Although the term is in less frequent use, 'Smarter Travel Choices' brings together lower cost initiatives which as a package can influence travel behaviour and reduce car use and ownership. Amongst these are included:

- Car Share schemes: tools to help match car sharing partners and other incentives
- Workplace and School Travel Planning where employers design and implement schemes to reduce single occupancy vehicle use
- Residential and personalised Travel Planning, where individuals are given help to change the way they travel
- Better information and marketing of travel alternatives, for example promotion of good bus services or new cycle infrastructure.

The evidence from the Sustainable Travel Towns and Local Sustainable Transport Fund is that they are effective especially when return on investment is considered⁶. Effectiveness is limited where there were fewer travel choices and the impact declines over time.

A meta-analysis of such measures considered the impact of twelve initiatives across cities in Europe. This study: 'Lessons learned from a meta-analysis and Transition Management' which considered Eltis and Civitas projects. It concluded that:

"All cases ... effectively reduced urban car use (or car-ownership) either by reducing the overall car use in a certain geographical area of the city, among a certain car user group, related to a certain institution, or at a specific time of day.."

According to the study incentivised 'travel competition' phone-apps, car sharing, Travel Planning and workplace parking charges (brought in by employers themselves) were most cost- effective

Demand Responsive Transport

Potentially better value than conventional bus route in rural area, demand responsive transport is being piloted in Essex through DigiGo. DigiGo is *"a fully electric shared public transport service which offers on-demand or pre-bookable travel in parts of Essex. There is no fixed route or timetable, which puts you in control of your journey. DigiGo is booked through the TravelEssex journey planning app."*

At present the DigiGo service covers Great Dunmow and runs from 7am – 10pm 7 days a week.

The advantages

The main advantage of 'Smart Choice' measures are their very low cost and scalability. The main disadvantage is that the effects degrade over time if not actively maintained and that the effect is limited by the on-the-ground reality (you cannot promote bus services to people who do not have one). Where they work best, is in partnership alongside new services and infrastructure.

Smarter Travel Choices effectiveness is reduced where there are limited alternative travel choices (e.g. poor bus services) and the impact declines over time. However, at the settlement wide level, especially in smaller settlements (e.g. Darlington) studies found it to be cost effective.

The practicalities of providing such services are reasonably straight forward and could either be provided in-house or more commonly by the County Council Transport team either directly or through a contractor. Funding is often secured via planning obligations e.g. Bristol⁷.

⁶ What Works? Learning from the Local Sustainable Transport Fund 2011 – 2015 – Transport For Quality of Life / DfT 2016

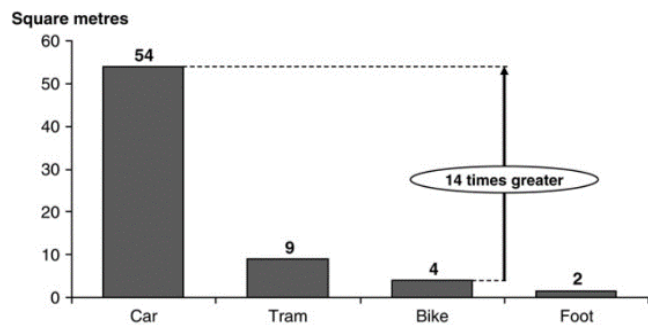
⁷ <https://www.bristol.gov.uk/residents/planning-and-building-regulations/planning-policy-and-guidance/supplementary-planning-documents-practice-notes-and-other-planning-guidance/travel-plans-for-new-developments>

Further Information

- Smarter Choices, Smarter Places (Scotland)
<https://www.pathsforall.org.uk/mediaLibrary/other/english/a-guide-to-delivering-effective-scsp-projects.pdf>
- How to reduce traffic and its impact – Bristol European Capital –
https://bristolgreencapital.org/wp-content/uploads/2019/05/22_bristol_method_how_to_reduce_traffic_and_its_impacts.pdf
- DigiGo Bus - <https://www.essexhighways.org/getting-around/ddrtdigigo/digigo>

Cycle network investment in smaller towns

The benefits of cycling are very well understood: cycles take up less road space than cars and thus reduce congestion, they create zero emissions, very little road noise and less visual intrusion. Despite a few high-profile cases, the number of pedestrians hurt by cyclists is very small⁸ and by reducing road traffic they improve pedestrian safety.



The advantage of cycling over foot is the ability

to travel many times further and at 3-4 times the speed. Cycling has huge benefits to public health⁹ and has been described as the “best buy in public health”¹⁰

Cycling will not be for everyone, the objective is to target those for whom it is most appropriate and so reduce overall car use.

Implementation of cycling infrastructure and promotion in smaller cities and towns

Despite the clear benefits the practical implementation and promotion is a challenge in UK towns and cities, especially those with historic and narrow street layouts (such as the settlements in Uttlesford) as it inevitably leads to a reduction in road space for road vehicles through reduction of parking spaces or carriageway.

The *Sustainable Travel Towns, Cycling Demonstration Towns (CDTs)* and *Local Sustainable Transport Fund* showed a large variation in the effectiveness of cycling promotion depending on local factors, effectiveness of promotion and quality of the infrastructure put into place¹¹.

Considering the CDTs, Stoke on Trent for example experienced a 160% increase in cycling albeit from a low base and Bristol, an increase of 135% from a higher baseline. The lowest increases were found in Aylesbury, Derby and Southend.

The main conclusions from the CDTs and later LSTF programme¹² was that ‘hard’ infrastructure, i.e. solid traffic free cycle-infrastructure needs to be match with ‘softer’ measures such as cycle training, promotion and marketing including good signage and way finding.

⁸ Parliamentary Advisory Council for Transport Safety (PACTS) 2019

⁹ Cycling and walking for individual and population health benefits - Public Health England 2018

¹⁰ <https://travelwest.info/essential-evidence/8-physical-activity-the-best-buy-in-public-health-but-most-undervalued>

¹¹ Summary of Outcomes of the Cycling Demonstration Towns and Cycling City – University of West England et al.

¹² What Works? Learning from the Local Sustainable Transport Fund 2011 – 2015 – Transport For Quality of Life / DFT 2016

The outcomes for smaller towns were variable. There was some difficulty reaching a 'critical mass' where cycling is normalised which encourages more cycle use (especially amongst younger people and women).

Further Information

The County Council is the delivery partner and responsible for development and construction in partnership with the district

- UK government information: <https://www.gov.uk/government/collections/cycling-and-walking>
- Moment of Change: Active Travel report for the DfT: <https://www.activetravel.org.uk/moment-of-change/>

Park Active / Park and Choose / Parking Hubs

The Park Active initiative is a new concept prompted by the British Parking Association, which encourages people to think about undertaking a different approach to the final stretch of their journey to work, leisure or social activities by providing a range of travel options for the 'last mile' including by regular scheduled bus, on foot, or by bicycle or e-scooter.

Locations trialing the initiative include, nearby Colchester, Derby The Point Parking, Ipswich, Nuneaton, and Luton.

Other facilities at locations could include delivery lockers, and toilets.

The advantages

A key advantage is that it is scalable for the operator in terms of revenue support and could increase usage of car parks in more peripheral sites. This contrasts with traditional park and ride sites which require significant initial capital support and ongoing revenue support for bus services.

The scalability means at first, a simple facility could be provided to allow onward travel by scheduled bus, walking or car sharing. As the site increases in popularity, bike hire and scooters could then be introduced.

Benefits for users include the health benefits of active travel and reduced cost as travellers are encouraged to use the peripheral parking sites which are easy to access instead of centrally located sites or the closest car parks to their destination. These further out car parks tend to offer cheaper long-stay parking than those found in central locations.

Benefits are seen in a reduction in traffic congestion and to the environment through shorter car journeys.

In Colchester, three car parks are taking part in the initiative which offer very reasonable daily rates (£2.50 in Napier Rd) without height restriction which supports use by drivers of vans and higher vehicles.

Implementation methods in Uttlesford would include designating more peripheral sites (most obviously Swan Meadow) and securing new sites through development.

Further Information

- A Park Active toolkit is available here: <https://www.park-active.co.uk/Toolkit>



3.1.3 Recommendations

See main report.

3.2 On-Street Parking

Balancing the needs of the various demands for street-space, especially in older settlements with narrow medieval street layouts is extremely challenging given competing demands including circulation, parking, pedestrian and cycle routes and other uses such as markets and café seating. The Stage 1 Report outlined the many problems residents are facing in parking reasonably easily and close to their homes in many parts of the district.

The most common way that towns and cities in the country deal with the issue of incoming on-street commuter / visitor parking in residential or employment areas is through the implementation of Controlled Parking Zones (CPZ), Residents Parking Schemes (RPS) or local restrictions through lining and signing through TROs.

Table 3. Policy Options Matrix - On-street parking

	Capital Cost	Revenue Costs	Viability	Overall Assessment	Priority
On-street Parking Schemes					
Planning policy for parking	V low	None	V High	V High	V High
Local lining and signing schemes	Low	Low	High	High	V High
Large townwide / neighbourhood RPS	High	Neutral	Med	Med	High

3.2.1 Planning Policy for Parking

In the longer term, the adoption of appropriate design and parking standards for new developments will be critical in avoiding the on-street issues that are currently affecting existing residential development areas. Given that the local plan is now being prepared, there is an opportunity to influence planning policy to provide more appropriate parking levels and designs.

The Stage 1 Report discussed the issues being experienced in relatively new developments such as Priors Green in Takeley and Walson Way estate in Stansted Mountfitchet. It also concluded that the **2018 Essex Design Guide** appeared to contradict the earlier **2009 Parking Standards** which had concluded, for example, that rear parking courts in estates which had been designed to remove cars from the street were poorly used as residents preferred to park as close to their house as possible.

Planning Policy which accommodates parking

Parking creates visual intrusion and is an inefficient use of space which could be used for green space or more housing. But the majority of households in Uttlesford and across country need a car for their day-to-day lives and own at least one¹³.

In conjunction with measures to provide alternatives to car use and ownership, sufficient parking that is provided in a way that people are likely to use, i.e. close to their main entrance door and of the correct size and type, should be provided to avoid the difficulties experienced in existing developments.

Case Study

Where there is a risk of non-resident or airport parking in new developments, there is often a Residents Parking Schemes in place from occupation. The **Kingswood Heath**, Colchester development included a residents parking scheme through S38 of the Highways Act 1980.

¹³ S3.1 Stage 1 Report

In discussions during consultation this estate was highlighted specifically because it contrasts with a nearby estate within the area which does not have RPS and reportedly has problems with parking.

4. Examples of new developments with parking restrictions and parking of a size which suits modern cars



Implementation

The existing 2009 parking guidance or an updated document should be adopted, and a policy set out in the upcoming Local Plan through the Local Plan process.

Further Information

- 2009 Essex Parking Design and good practice standards - <https://www.essexdesignguide.co.uk/media/1960/essex-parking-standards.pdf>

3.2.2 Town wide and large-scale residents parking schemes

There are several risk factors with regards to large Resident Parking Schemes or Controlled Parking Zones which need to be discussed at the outset:

- They work best where the problem is vehicles coming into an area and exceeding the on-street parking supply;
- They work best over large areas as smaller schemes can simply displace the demand into the next nearest unrestricted area;
- Local people may be very divided over their implementation as some will judge that the inconvenience of the need for permits or restrictions exceeds the benefits to them as individuals;
- Those opposed to them often demand a level of evidence which is prohibitively expensive to gather over larger areas.
- The decision to implement RPS/CPZ is fundamentally a political and local one, as even expensive surveys may still prove inconclusive.

Resident Parking Schemes (RPS) – Case Studies

A Resident Parking Scheme (RPS) is an area where parking on the highway is controlled, generally for the benefit of residents to help in situations where residents regularly find it difficult to park within a reasonable distance of their homes because of other competing / evolving parking needs.

As well as improving residents’ amenity they are used as a policy tool to reduce commuting by car as part of wider transport policy

Implementation

Restrictions introduced under Traffic Regulation Orders (TROs) can be used to alleviate any access, road safety or environmental problems associated with high levels of parking, but these offer no priority to the residents affected – both residents and non-residents are equally affected by any such restrictions.



It is however possible to give priority to residents by introducing resident permit holders only parking schemes and defining various parts of the highway where parking may be permitted only if a valid permit issued by the Council is displayed by the vehicle.

Permits are normally only issued to residents living in a street within the zone and are under the control of, and issued at, the discretion of the Council. All existing schemes operate in this way with provision for residents generally being within permit holder only or shared use bays.

In Uttlesford, any scheme would need to be implemented by the Highways Authority, or NEPP acting on their behalf.

Public Acceptability and implementation risk

Public acceptability of large residential parking schemes relates to the local conditions. If residents are not convinced that the improved amenity of having an RPS outweighs the inconvenience and permit charges of having a scheme there may be resistance to implementation.

This can lead to an ad-hoc approach with smaller schemes that results in displacement of commuter parking to an adjacent area along and results in demand for additional small RPS areas.

Where large RPS schemes are proposed there can often be demand for road space audits or studies requiring an assessment of the available space and beat surveys to estimate the amount of commuter v residential parking. These can be expensive.

Some of the larger cities such as Bristol, Brighton and Cambridge established the principle of need in key areas and then, to stop displacement of the problem to outlying areas, made the decision to roll-out RPS across large parts of the urban area¹⁴.

Policies and charges

Norwich charges fees based on vehicle length - longer vehicles pay more. Brighton and other places charge based on DVLA emissions categories with more polluting vehicles paying, in some cases, much more.

Most places limit the number of permits per household. The price of the first permit is generally 'at cost' and seems to average around £30-40 although some larger cities charge much higher rates, e.g. Sheffield at £145 and London boroughs which can be even higher.

Brighton, where supply of parking is very limited in relation to demand includes a waiting list for permits in some zones. Calculating capacity is a reasonably simple, if time consuming, process by estimating the available space on street and dividing by the standard 6m parking length and applying an assumed turn-over occupancy rate

Many schemes, such as Brighton and Bristol, forbid those living in developments that were defined as 'car free' at planning, i.e. did not provide off-street parking, from applying for permits.

Local Approach for Uttlesford

The current local policy with UDC is for Annual Resident Permits priced at £70.00 for the first permit and £102.00 for the second. There is no maximum number of permits. Visitor permits are available for ten 24hr stays at £11.50 and 6hr stays at £6.00 with carer and trader permits available.

There are big advantages to using 'virtual' as opposed to paper permits as this allows local residents the opportunity to manage their own permit information online and change registration plates as they need without postage and delay.

¹⁴ Bristol – RPS Roll out p11 onwards - https://bristolgreencapital.org/wp-content/uploads/2019/05/22_bristol_method_how_to_reduce_traffic_and_its_impacts.pdf

3.2.3 RPS Appropriateness in Uttlesford

The 2021 Buchanan Report considered only the central area of Saffron Walden, but the findings are likely to be applicable to Stansted Mountfitchet and other settlements. Our interpretation of the summary is as follows:

- Most 'at risk' residential streets are already protected by appropriate restrictions
- It was difficult to ascertain the impact of commuter and visitor parking in most of the residential streets reviewed as beat surveys could not adequately distinguish different user types
- There appears to be sufficient parking at the main attractors to meet parking demand (on and off-street)
- Further out of the town centres, unrestricted residential locations are not sufficiently convenient to the main attractors to give rise to significant commuter / visitor parking demand.

The conclusions summarised in Saffron Walden, are that the problem is highly localised, not necessarily caused by commuter or visitor parking, and that most parts the street that need protection are already protected:

"The key objective here was to try and determine whether additional permit parking places could be recommended to alleviate the permit holder parking pressure. To put this into perspective, there is little kerbside within the survey area that is not already restricted. The majority of double yellow and single yellow lines are there to avoid obstruction and unsafe parking, especially where narrow streets would have serious issues if more parking was permitted." – the 2021 Buchanan Report.

Although there may be specific sections of streets where more capacity could be found, in general the problem is a chronic lack of on-street space compared to demand, to which there are no easy solutions.

3.2.4 Further Work Required

In transport policy terms Resident Parking Schemes are affordable but still carry significant cost. There is also a risk of public and political acceptance as they inevitably inconvenience residents through the need for resident and visitor permits. The decision to proceed with large RPS schemes will need to be a balance of political will and available evidence.

Carrying out surveys to make a clear technical recommendation in each area will be expensive. This is especially the case if trying to measure the actual level of airport / commuter parking which, whilst possible, would require several beats each day over the course of several days or an entire week to make a reasonable assessment as to the actual level.

Some of the larger cities such as Bristol, Brighton and Cambridge established the principle of need in key areas and then, to stop displacement of the problem to outlying areas, made the decision to roll-out RPS across large parts of the urban area¹⁵. The decision to roll out RPS in existing areas is inevitably political.

3.2.5 On-street Parking Demand from Residents

To what extent the problem of on-street parking in residential areas is caused by incoming commuters/airport parkers, or by local residents' vehicles was discussed in the Stage 1 report s4.3, s6, s8.1 etc.).

From census and other sources, we have selected two areas where the consultation responses highlighted the problem to further explore the possible extent of the problem.

The Walson Way area in Stansted Mountfitchet was built out in the 2000s with around 500 dwellings over a net housing area of 10ha of land built (application UTT/0443/98/OP). The site is split across two Lower Super Output Areas (LSOA), but a reasonable estimate would be of housing for 1,200 residents.

¹⁵ Bristol – RPS Roll out p11 onwards - https://bristolgreencapital.org/wp-content/uploads/2019/05/22_bristol_method_how_to_reduce_traffic_and_its_impacts.pdf

At the district wide average of 633 cars per 1,000 residents, this gives a figure of 760 cars. Each dwelling appears to have at least one parking space, but this would still leave around 160 cars needing to park on street.

The same exercise for Priors Green in Takeley is based on information in UTT/0714/09/OP which was for 327 dwellings on a gross development area of 12.2ha. The design and access statement states a density of 35dph. The estate is too new to have census data and so calculations based on the national average 2.4 persons per household (which is conservative, as new estates tend to be inhabited by families) gives a population figure of 785. Applying the district rate of car ownership predicts 496 cars, which gives around 170 cars which would need to be parked on street.

Additional parking demand could come from the numerous home-based businesses showing on online mapping. In these areas, the residents alone (given the narrow estate roads) could be exceeding the on-street demand although airport parking could exacerbate the situation.

3.2.6 Resident Parking Recommendations

Resident parking schemes continue to be deployed across the country and need to be considered in Uttlesford District.

Ideally, a limit of two permits per household should be implemented as this will have the greatest impact in removing vehicles. This may be politically difficult. Traders' permits should be avoided in favour of visitor permits associated with individual properties. Residents could be given the ability to park in public car parks overnight or during off-peak periods.

The price of the first permit should reflect the cost with a second permits around twice the price of the first.

Permits should be 'virtual' with management of permits and visitor permits carried out online by permit holders.

3.2.7 Local Lining and Signing schemes

Through various legislation, local highways authorities have the power to restrict and limit on-street parking for safety and amenity¹⁶. Powers are granted to authorities to implement on-street parking charges for "relieving or preventing congestion of traffic"¹⁷. Wider powers for restrictions are granted under the Traffic Management Act 2004.

NEPP (on behalf of the County Council) manage a clear but complex process (illustrated in the NEPP 2012 flowchart¹⁸) to implement and prioritise local requests for restrictions through Traffic Regulation Orders. Guidance is provided to residents along with a clear form for new TRO requests¹⁹.

The burden of proof is very high by requiring 75% support, although this is not clearly defined (residents, traders or wider neighbourhood). Selecting schemes in this way may not prioritise those with the biggest impact and resultant schemes will be small and may displace demand elsewhere.

¹⁶ Simple summary: <https://www.racfoundation.org/wp-content/uploads/2017/11/elliott-parking-enforcement-main-report-16082010.pdf>

¹⁷ Road Traffic Management Act 1984

¹⁸ <https://north.parkingpartnership.org/wp-content/uploads/2021/12/tro-flowchart.pdf>

¹⁹ <https://north.parkingpartnership.org/wp-content/uploads/2021/12/revised-tro-application-july-2015.pdf>

5. Extract from NEPP's New TRO Request

For this reason, it is important that all requests include evidence of support obtained locally. This can be from your Local Councillor, County Councillor, a Town or Parish Council. In addition, for Residents Only parking schemes, these requests require a minimum 75% support from other residents living in the street.

Each individual District/Borough will put forward recommendations to the Joint Committee who approves whether or not a scheme will be included on a future work programme and move to full consultation.

In addition, legislation requires NEPP to undertake a review of parking where there is sufficient demand. Such reviews will be conducted based on the weight of evidence available. Depending upon the size of the review, the timescale may be from 18 months up to a few years in order to consider all views and actions and carry out all the work; the process is the same as for a new restriction.

The balance of 'strategic' and 'local' is a challenge for all authorities and it is difficult to identify and prioritise local lining and signing schemes.

The key is that such processes are sufficiently resourced, and that the process reflects local and administrative context. In our experience community, led TROs are generally requested via Councillors. One example, in Bristol, used Community Forums to propose TROs. This was found to be too onerous on officer time and a more regular system is now in place. As a two-tier authority the District council are not responsible for on-street parking or highways TROs.

An Essex County Council Highways Panel for Uttlesford is established, although reportedly does not meet often. This group is the most appropriate forum to discuss TROs without the creation of another group and would allow UDC to play a key role in representing their residents.

3.2.8 Recommendations

See main report.

3.3 School Travel Planning

School travel measures are often referred to as ‘School Travel Planning’ (STP) which includes a range of measures similar to the Smarter Travel Choices category but focussed on schools and more often involving highways measures.

School travel plans aim to help more pupils travel to school by the most sustainable ways. This might be ‘Active Travel’ measures such as walking, scootering or cycling or, for those who live further away, car sharing, public transport or ‘park-and-stride’.

A range of actions can be adopted to implement plans: road safety, scooter training and Bikeability lessons; bike and scooter parking; working with local councillors to improve infrastructure; parking and active travel reward schemes; and education related to science and healthy living.

Active Essex and the NEPP Park Safe Schools are a high priority because they are existing programmes, could be funded, and potentially have low delivery risk and high public acceptance.

Table 6. Policy Options Matrix for School Travel

	Capital Cost	Revenue Costs	Viability	Overall Assessment	Priority
School time congestion					
Active Essex - School Travel Planning	V Low	Low	High	V High	V High
NEPP - Park Safe Schools	Low	Med	High	V High	V High
Local lining and signing schemes	V Low	Low	High	High	V High

Active Essex (a County Council initiative) and NEPP already promote measures around school travel to reduce vehicle use and improve safety through measures such as cycle training, working with children and parents to promote walking, changes to highways and stopping restrictions outside and around schools and better facilities for travel at schools such as cycle and scooter parking.

Active Essex - School Travel Planning

Active Essex provides a toolkit for schools to promote active and sustainable travel on www.activeessex.org. The scheme focusses on behaviour changes sustainable transport must be made easy, so that it becomes the norm.

Their Active Travel Toolkit for Schools includes 'Three Parking Rules' or 3PR scheme related to NEPP.

Measures include walking, cycling and scooting, which is backed up with training and safety lessons such as Bikeability and Park and Stride, arranging with local supermarkets, for example, to reduce traffic manoeuvring around school entrances.



In practical terms, the following example is given in the Active Travel toolkit for Schools:

- Communication to be sent to all parents on alternative travel options to school if they usually travel by car
- Encouraged to walk to school or park further away and walk the rest of the way (Park and Stride). Local Supermarket agreed to their car park being used
- Assemblies and PHSE lessons to encourage pupils to be 'healthier' and walk to school
- Bikeability classes for years 5 / 6 to allow them to cycle safely and independently to school if they had a permit and parent approval, other children cycle under supervision
- A pedestrian gate was opened onto school, this resulted in children being able to walk, cycle or scoot along the cycle path to school with no roads to cross, or to use the Park and Stride facility
- Bike and scooter racks installed
- Safer Parking signs near school.

National evidence shows that STP works²⁰ and locally a reduction from 45% to 34% in the proportion of children travelling to school by car was measured in the areas studied by Park Active.

Further Information

- A Park Active toolkit is available here: <https://www.park-active.co.uk/Toolkit>
- https://www.activeessex.org/wp-content/uploads/2021/05/HA_ActiveTravelToolkit_v.11.pdf

²⁰ "What Works?" Learning from the LTSF Fund 2011-2015 – Report to the DfT

North Essex – Park Safe Schools and 3PR initiative.

The three parking rules (3PR) scheme of Care, Consideration and Caution, aims to make school parking less stressful for children, parents and residents by promoting the 3PRs and working with schools to consider specific campaigns and measures to encourage them.

The Park Safe School (PSS) cameras work in partnership with the 3PR scheme. The cameras are made available to schools already using the 3PR scheme but require some additional support to change behaviours.

As with the 3PR scheme, cameras are installed and operated by NEPP and used to continue to support the efforts in tackling parking issues around schools.

The cameras are monitored off site by trained CEOs and are used to observe the restrictions and vehicle activity only.



Case Studies

Wyburn's Primary in Rayleigh is located at the end of a residential cul-de-sac. By designating a large section of the road a 3PR Zone (advisory no-parking zone), they have incentivised more walking, scooting or cycling onto the school grounds. This has meant fewer cars trying to do the tight U-turn at the school gates, thereby improving pedestrian safety.

Stanway Fiveways Primary in Colchester is located on the same short road as three other schools. Fortunately, the 3PR team has negotiated car park spaces at a nearby shopping parade. Families are now able to park legally and considerately and walk the remaining distance to school along a safe off-road footpath.

More information

- <https://north.parkingpartnership.org/park-safe-schools/>

3.3.1 Recommendations

See main report.

3.4 Airport Parking

Stansted Airport is privately owned and operated, and the Council has little control over its operations. The consultation found that there is a perceived impact on local neighbourhoods resulting from longer stay airport parking on residential streets and waiting on verges and the carriageway around Parsonage Road in Takeley.

The Stansted Area Transport Forum (SATF) was established in 1999 to improve surface access to and from the airport. It includes local authorities, Government, transport operators, airport companies, the airport and stakeholders to deliver transport strategies and initiatives.

Stansted Airport has some of the highest parking prices with the RAC Foundation finding it has the highest pickup/drop-off prices of any airport in the UK²¹. It is now £1 per min for 10-15mins; £25 for over 15mins (£20 charge for re-entering within 30mins of first entering.) However, free set down and up to 60 minutes of waiting is available in the Mid Stay Car Park. This requires a 7min bus ride to the terminal.

Data combined by Zutobi (an international company who provide drivers education services) has considered average weekly rates for car parking and found that only Doha Airport in Qatar was more expensive than Stansted²². This was based on a weeks’ parking in September. Other sources have corroborated this finding²³.

Residential parking and waiting on nearby roads are an issue across the country as the airport’s business model has shifted from fees charged to airlines towards retail and parking. Realistically the delivery of any measures must be within the control of the district or county.

Drive-way selling was discussed in Appendix A. The impact that this is having on on-street parking supply is unclear. There are local reports of ‘valet’ parking companies offering pick up and drop off for passengers and leaving their vehicles on public roads. Reportedly this is happening on The Street in Takeley (B1256).

	Capital Cost	Revenue Costs	Viability	Overall Assessment	Priority
Airport Parking					
Promotion of free drop-off / short stay parking	None	V Low	High	High	V High
Red Routes on key roads	Med	Low	Med	High	V High
Lower Airport Parking Costs	-	-	V Low	V Low	n/a
Additional off-site airport parking	High	Positive	Low	Low	V Low

The most obvious on-site action would be to reduce the costs of public transport, pick-up and drop off and parking, but this would require action by Stansted Airport and transport operators. Reportedly, the airport have justified the high cost of on-site parking by citing planning restrictions which promote travel by non-car modes. This should be investigated.

3.4.1 Recommendations

See main report.

²¹ <https://media.rac.co.uk/pressreleases/8-in-10-uk-airports-increase-pick-up-and-drop-off-fees-in-2019-2904772>

²² <https://zutobi.com/us/driver-guides/global-airport-parking-rates>

²³ <https://thepointsguy.co.uk/news/most-expensive-airports-parking/>

4. Off-street Parking

Councils have a responsibility to meet the needs of both the customers who use their parking services and facilities and those groups who are directly impacted by the use of those services and facilities. For example, well designed, managed and maintained car parks will have a positive impact on the customer experience and reduce negative impacts on the public realm and local amenity. Poorly designed and managed provision will impact on the availability of business and housing land in town centres, increase congestion and impact the local economy.

Local Authorities are given the power to make *Off Street Parking Places Orders* under the *Road Traffic Regulation Act 1984*. There are associated obligations which include how money is managed and any surplus used²⁴. Local Authorities should keep income and expenditure accounts in respect to parking places. Parking revenue can be used for the maintenance and management of parking places and for ‘environmental improvements’ which includes: the reduction of environmental pollution; improving the appearance or amenity of public places; and provision of outdoor recreational facilities.

4.1 The off-street parking estate

The Stage 1 Report highlighted that the condition of some of the car parks required improvement, including renewal of line markings, replacement signage and better wayfinding.

An effective life care plan and inspection regime will ensure that off street car parks do not detract from the visitor experience, whilst ensuring that cars park properly within clearly marked parking bays. Highway ‘P’ signage and site wayfinding information can evolve on an ad-hoc basis over time, and it is essential that periodic reviews are carried out to ensure that signage is clear and information accurate and consistent. This should be funded from parking accounts rather than general funds.

4.2 Operations and Compliance Management

Given the high usage of the off-street parking estate it is essential that spaces turnover as often as possible to optimise space availability. Effective compliance management will assist this by ensuring that all users are complying with the Parking Places Order and not overstaying beyond the time paid for. Directing compliance management where it is most needed will also improve efficiency. Enforcement operations should therefore have a service level agreement in place incorporating the requirements of the service and KPIs to monitor if these are being achieved. Whilst KPIs do not themselves deliver efficiency improvements or cost savings they monitor performance and measure the impact of actions taken to drive efficiency.

A set of typical KPIs are provided below.

Measurement Summary	Process and KPI
Deployment	<ul style="list-style-type: none"> • The Deployment Plan will set out the required level and methods of enforcement. • The number of deployed hours (against plan) • The shift patterns, including location deployment (against plan) • The deployment method proposed (against plan)
Compliance with Parking Regulations	<ul style="list-style-type: none"> • The objective of parking enforcement is to improve compliance with the parking regulations and maintain this within tolerance levels. • Analysis and implications for the compliance • management operation of the results of time-series survey data on compliance

²⁴ Good Summary of this can be found here: <https://shropshire.gov.uk/committee-services/documents/s15733/8%20Appendix%201%20Parking%20Strategy%20Proposals%20-%20Charging%20rules%20and%20guidance%20on%20use%20of%20car%20parking%20income.pdf>

<p>The availability and responsiveness of the rapid response unit</p>	<ul style="list-style-type: none"> • Response to requests for urgent enforcement, special events, and hotspot enforcement within the specified timescales. • Enforcement requests received and response times
<p>Pay and display maintenance</p>	<ul style="list-style-type: none"> • Failure to check machines and report faults within the required timescales • Failure to repair machines within the required timescales
<p>The level of complaints and complaints handling</p>	<ul style="list-style-type: none"> • Any complaints received about a CEO, or an enforcement activity must be recorded. • Requested responses are sent in accordance with agreed procedures and timescales
<p>Number of cancellations due to CEO error</p>	<ul style="list-style-type: none"> • CEOs should collect all necessary information in an error free manner on the handheld devices, including clear notes and digital images as set to the required standards • Comparison of level of cancellations resulting from CEO error against agreed tolerance levels.
<p>General Administration</p>	<ul style="list-style-type: none"> • Failure to log, scan, process or correctly allocate any item of post within 24 hours of receipt. • Failure to process PCNs (including service of statutory documentation) within the required timescales. • Failure to take the required action to update the IT system as required, or to record case details correctly, within the appropriate timescales. • Failure to process permit applications within ** days of receipt

4.2.1 Recommendation

See main report.

4.3 Parking Technology

The information provided in this section may not all be relevant to the estate as it currently stands but is provided for future guidance. There should be a focus on collecting information to provide intelligence (for example EV occupancy) and providing information to customers (for example wayfinding by occupancy).

4.3.1 Introduction - Vehicle trends

Over the next 10 years there will be significant changes in the functionality of vehicles as well as the manner in which customers will find, access and pay for parking. These changes are likely to occur in three time periods (years are approximate and see note on vehicle age below²⁵):

Now – 2026:

Increasing use and integration of mobile payment

Some drivers already use their smartphones to locate car parks and there are an increasing number of apps that can be used to reserve and pay for parking. Vehicle manufacturers are now including similar functionality in their in-car information and navigation systems

The pandemic and the current cost of living crisis had a number of influences on vehicle trends. Two key effects were:

- A significant increase in the use of electronic payment. In parking this has meant a significant uptake in the use of contactless payment (as an alternative to cash) as well as a greater use of smartphone apps.
- A significant downturn in vehicle sales. This will have a lasting effect as new vehicles tend to have the capability of locating and paying for parking. Fewer sales will mean that new in-car features will take longer to establish.

The use of smartphone and in-vehicle systems is currently hampered by the way in which authorities are contracting with pay by mobile suppliers. The National Parking Platform (NPP) is a DfT backed pilot and addresses this issue by bringing various data and parking rights information into a publicly owned data warehouse and enables customers to pay for parking using a wide range of payment apps. Where the NPP has been piloted, the uptake of these methods has increased significantly. The NPP is likely to become a part of the nation's parking infrastructure and there would be significant benefits in joining the scheme.

Electric Vehicles

Whilst overall vehicle sales are at a low point, the proportion of new electric and plug-in vehicles has reached 14% of all sales²⁶. Whilst this is still a small proportion (c3%) of total vehicles in use, the demand for charge points is increasing, and the district is likely to face significant numbers of visitors wanting to charge their vehicles.

Introducing autonomous driving

The major vehicle manufacturers are piloting Autonomous Vehicle Parking (AVP) in a small number of car parks in Europe. The necessary technology is already embedded in some production vehicles and is

²⁵ Currently, the average age of a UK car is approximately 8 years (see SMMT 2017 Automotive Sustainability Report). This is taken into account in our forecasts, for example it is likely there will not be significant numbers of connected vehicles until the end of the first period and they will only form the majority from 2025.

²⁶ SMMT report May 2022. See <https://www.smmt.co.uk/2022/05/april-new-car-market-declines-15-8-as-supply-constraints-see-2022-outlook-downgraded/>

likely to become common very soon, however car parks will need specialist equipment to control automated driving²⁷.

2026 – 2032 Vehicles park themselves and handle the payments

The majority of vehicles will be connected, with significant numbers of users delegating to their car the task of finding, reserving and paying for parking and then guiding them to the space.

Cars with AVP will become common, bringing a potential demand for AVP equipped car parks. This will create new challenges for car park operators as “drop-off” and “pick-up” areas will bring design and operating changes.

Operators may also find that there is an increasing demand for reservation and pre-payment for off-street parking.

Increasingly, customers will expect the availability of on-street parking to be published digitally. New technology is emerging that will enable the use of street CCTV to gather data on occupancy and predict future availability.

EV charger availability will become more important for drivers, creating a demand for information on location and operational status to be available digitally.

Beyond 2032

There will be an ever-increasing number of cars with autonomous driving features during this period, however it seems likely that ‘truly’ autonomous vehicles i.e., those that need no driver intervention under any circumstances²⁸ will not appear in any numbers before 2040. There may also be a significant change in the way these vehicles are owned (with many customers hiring vehicles for periods of use rather than owning their own car). Most predictions, however, relate to city-based scenarios. No studies focus on semi-rural locations or take the needs of specific users (such as caravanners) into account when considering autonomous cars, their ownership and use.

From a parking point of view, the introduction of autonomy may result in the need for fewer car parks (as users share vehicles, they will be less likely to be parked) or car parks that resemble storage areas (i.e., with no walkways and fewer aisles) that can contain a higher density of vehicles. However, based on the current studies these questions would not be key to the district’s policies until the 2040s at the earliest.

4.3.2 Vehicle Trends and the District

By Q3 2022 parking income has recovered to pre-Covid levels although commuter parking at Lower Street, Stansted Mountfitchet is still less frequent than before the pandemic.

In the medium term the growth of connected vehicles and apps will create a number of opportunities for the district:

Accepting a variety of payment methods. The use of electronic payment methods (including contactless at the parking facility and payment by app) are of increasing importance and currently only electronic payments are accepted in off-street car parks. Digitisation also makes it easier to create time-based permits and special permits for specific functions (for example loading permits for businesses,

²⁷ The technology referred to is ‘Type 2’ where the vehicle is managed by a 3rd party system installed in the car park. This is likely to be the most common technology for the foreseeable future. Note that manufacturers are incorporating this technology to reduce the cost of moving vehicles around factories and storage facilities, so that to fit the feature even in low specification vehicles.

²⁸ The definition of autonomy used is based on SAE International J3016, Taxonomy and Definitions for Terms Related to On-Road Motor Vehicle Automated Driving Systems. SAE level 4 defines a vehicle that is capable of autonomy in specific environments whilst 5 defines a vehicle that is autonomous in all circumstances.

permits for residents that allow for special tariffs), enabling councils to tailor products to meet the needs of the communities they serve.

Communication with motorists and influencing behaviour. The use of connected vehicles and apps will enable direct communication of reliable information on traffic and parking conditions (both current and predicted). Effective use of this opportunity will enable drivers to make informed choices about where to park and the best route to use. If the information is provided, customer systems will also have the potential to recommend alternative travel methods, encouraging the use of public transport for all or part of journeys based on a combination of speed, convenience and price. Much of this information will be published through the NPP.

As technology develops it will also become possible for vehicles to inform compliance management systems of their location. This will become useful in, for example, helping to monitor the use of time limited bays.

Charging stations in car parks Most electric vehicle users charge their vehicle at home. Whilst there are still relatively few fully electric vehicles in use, increasing numbers of visitors to the district (i.e., with no home facility to rely on) will present a challenge. This, together with the continuing development of charging technology, suggests that modest investment in car park charging stations should be considered. The underlying capacity of the electricity supply is a limiting factor that should be established. The use of charging points should be constantly reviewed and the number available increased when required up to the limit of the available supply (EV charging provision is dealt with in more detail in Section 6).

Automated Vehicle Parking. The use of AVP and automated vehicles will create new issues. Whilst it may be possible to adapt some larger car parks, the technology may not be usable in the small surface car parks across the district. The development of this functionality is monitored, and the district's facilities reviewed accordingly.

4.4 Legislation and Technology

Some technology that is used widely in other European countries can only be used in a limited way under current UK legislation and regulation. Thus, issuing PCNs can only be undertaken with CEOs observing vehicles for a statutory period and then placing a ticket on the windscreen. This legislative restriction is based on the view that local authority enforcement has been unduly harsh or focused on increasing revenue. This view may change in the future enabling more efficient identification and enforcement of vehicles within a context of ensuring that motorists have sufficient information and opportunity to park legally.

4.4.1 Technology

The main trend in parking technology is towards digitisation – the ability of systems to record and share data whilst removing the need for manual processes. The resulting systems have a number of benefits to customers and operators:

Maintaining detailed records of all off-street parking locations: parking space information, restrictions and tariffs is held digitally, enabling accurate information on parking to be shared online with customers

Customers can interact with the parking service via websites and smartphone apps, reducing the time taken to apply for or renew permits and other permissions as well as reducing the administration burden for operators

The details of all parking sessions, permits etc are recorded centrally and linked to vehicles' licence plates. This will enable:

- an accurate picture of parking availability to be compiled and shared with customers

- a single source of information for enforcement purposes that can be used with a range of monitoring devices (handheld units, fixed and mobile ANPR). Enforcement can be mobilised more easily, covering a wider area with fewer resources.

4.4.2 Standardisation

Standards for the communication of parking data are currently provided by the Alliance for Parking Data Standards (APDS), which is also the basis of an ISO and CEN standard. In order for the compliance management systems to interact effectively with vehicles, apps and payment systems any technology must be able to communicate using these standards. Compliance with APDS standards and interfaces should therefore be an essential requirement in any procurement.

4.4.3 National Parking Platform

As described above, the NPP will make accepting payments from apps and vehicles significantly easier, as well as simplifying the process of digitally publishing parking locations (on and off-street) and availability (including real time occupancy). The NPP also uses APDS standards and interfaces, simplifying integration of new and existing parking systems. The NPP is sponsored by the DfT, is not for profit and the production platform will be publicly owned by local authorities.

4.5 Parking in the District's Off-street Car Parks

Technology can assist in addressing a number of the challenges faced in the district:

4.5.1 Optimising the customer experience

There are five basic ways in which parking technology can help achieve this:

Accept a variety of payment methods

- a) **Provide contactless payment at all payment points.** Contactless payment is fast becoming the natural way to pay in large parts of the country²⁹ and is a convenient payment method.

Optimise the use of Permits and long term passes. Purchased online, these permits and passes can be a very efficient way of accepting payment for visitors and regular users alike.

Use the NPP to provide a 'multi-vendor' platform to accept mobile payments from a variety of sources. The current model of contracting with a single mobile payment service is unsustainable in the long term. Vehicles and apps from out of district will need to be able to make payments, therefore a platform able to accept payments from a variety of 3rd party sources is required.

Pay by licence plate

This can be used in a number of ways;

- **At payment terminals** (pay and display machines³⁰). Entering customers' licence plates when paying removes the need for customers to return to their vehicles to place a ticket in the windscreen, enables monitoring of parking places by mobile ANPR and provides data on length of stay and return rates
- **With Pay on Foot.** Whilst there are currently no pay on foot facilities in the district, the ANPR assists with vehicle identification (for example with lost tickets, issues at exit etc) and with usage statistics.
- **Pay by app.** Licence plate is the vehicle identifier.
- **Permits and long-term passes** (e.g. Rover tickets). When combined with ANPR, customers can use these permits and passes in pay on foot car parks; when combined with check in/check out (see below) these

²⁹ The British Retail Consortium's annual Payments Survey shows that in 2016 card payments accounted for 54% of all retail payment transactions. Contactless is also changing the way in which people pay small amounts – 9 out of 10 coffees were paid for by contactless in 2017.

³⁰ Note that the term 'pay and display' is not used as machines will not issue a ticket for windscreen display.

can be used in short term car parks. Other long term ticket types can also be created for specific types of users (e.g., commuter, tourist, rural residents, carers) to support other council policies.

- **Discounts and offers.** Payment by licence plate simplifies the process of offering discounts and validations, using an online system to manage the process of applying a discount to the parking session.

Pay for time used rather than pay on arrival. This can be achieved in the following ways:

- a) **Pay on foot with barriers** in larger or more strategically important car parks. Pay on foot has the advantage that users have to pay to leave, reducing the need to patrol and issue PCNs (note that PCNs can still be relevant for those who park inappropriately, e.g., in disabled bays).

Case Study – Cheshire West and Chester Council

Cheshire West and Chester Council (CWCC) operates both on and off-street parking within its boundary. It had historically operated its off-street car park using pay and display with the exception of one car park in Chester which had pay and display on some floors and pay on exit on the remainder. Due to issues with the pay on exit system, CWCC considered options for its replacement and the potential to extend the system to other car parks in Chester. This was for a number of reasons including: -

- Improving compliance rates at off street car parks – enforcement resources had been prioritised to on-street to ensure statutory obligations were complied with
- To improve payment options. Existing machines accepted only coins and no change was given.
- To provide functionality for the introduction of concession arrangements with local businesses

A WPS Pay on Foot and ANPR (licence plate recognition) system was subsequently installed at 7 of its car parks in Chester and new pay and display machines at other which now allow contactless payment and provide change for cash payment. Functionality includes: -

- Recognition of season ticket/pre-payment card holders with barriers raising automatically
- CWCC resident Blue Badge Holders park free for up to 4 hours using a chip system applied to the badge which the pay on foot system recognises.
- A system to manage free parking for specific users such as visitors to surgeries. A custom-built Ticket Entry Terminal in each entry lane enabling visitors to choose between concession parking and public parking. If a concession ticket is chosen the system automatically analyses the parking status and provides visitors with a 'concession parking available' ticket (to be validated within the concession before exit) or informs them that concessions have reached the available limits and requires them to take a 'standard' public ticket.
- A web-based application that allows business to pay towards or for its customers' parking.
- An intercom system linked to the Council's car park management office during operational hours. Outside these periods, issues are managed by the CWCC's main CCTV control room.
- A flexible WPS maintenance contract, supported by front line maintenance from CCWW officers if required.

Since installation, revenue has increased significantly with the capital costs being recouped within 12 months. The system has allowed CWCC to focus more resources on enforcing on-street parking contraventions to keep traffic moving in the city. As reasonable provision was made for customer support and equipment maintenance there have been no material issues with system reliability.

- b) **Check in – Check out.** This can be installed as an 'add-on' function to payment terminals that accept card payment. Customers can use their credit/debit card to identify themselves on arrival, then return to the machine before departure. Using the same card enables the machine to calculate the fee, process

payment and “check out” the vehicle. This removes the need for customers to estimate their stay length on arrival. A similar process can be used with pay by app. This approach has been successfully piloted at a number of Councils across the UK including Newcastle, Lichfield and Basingstoke.

- c) **Link licence plates to Disabled badges.** Blue badges are issued to individuals, not to vehicles and this creates difficulties when monitoring parking using digitised systems. One way to significantly improve blue badge monitoring will be to link badges to vehicles, effectively treating the badges as special passes. Consideration should be given to providing a website where badges can easily be registered (including temporarily), and incentives (such as free parking) linked to badges that have been registered. A second way of registering (e.g., a phone line) should also be provided to maximise accessibility.
- d) **Provide information through open data feeds.** Connected vehicles and apps are able to communicate in real time with systems that provide information on parking availability and price. This data should be provided free to ensure that this has the maximum benefit for consumers, but also has the maximum impact on congestion and pollution. This will become a high priority as the number of connected vehicles increases. The use of the NPP will provide this function.

Making best use of available resource

- a) **Monitor parking bays.** Bays should be monitored according to their tendency to be misused, or to gather data in order to establish their availability in busy areas.

Traditionally, Civil Enforcement Officers (CEOs) were deployed according to a number of factors including experience and community demand. However, with better data from sensing systems deployment can be made more efficient and effective. The data can be analysed using algorithms that will be able to recommend deployment patterns based on demand and compliance levels. These algorithms will be able to learn from the data collected to improve their predictive ability (note that systems will need to ensure that privacy requirements are fulfilled).

There are a number of ways in which data on parking places can be gathered:

- **Pay on Foot.** Busy or premium car parks with pay on foot equipment will provide accurate occupancy data. The addition of ANPR will add further data on patterns of use. Note however that Pay on Foot car parks with special bays (disabled, parent and child or EV charging bays) will need a secondary method of monitoring to ensure that these facilities are not being abused.
- **Other Car Parks.** Car parks that are equipped with payment terminals can provide real time data on usage, especially if the terminals are configured for licence plate entry and/or check in-check out. Whilst this will be adequate for many locations, busy or prime locations will need a supplementary bay monitoring system that will provide more accurate data on space usage. Recent developments in AI technology allow the use of security CCTV cameras to monitor space occupancy, making these systems very cost effective.

Reduce costs

- a) **Rationalise the parking machines required.** If machines no longer issue tickets or are used as check in-check out devices, then fewer machines may be required. Car park machines should also be re-positioned to make them convenient for customers entering or leaving the car park on foot.
- b) **Monitor the use of cash machines.** Providing alternatives will reduce the demand for cash payment in certain areas and amongst some users (e.g., long term commuter car parks). Removing mechanisms from machines with no demand for cash will reduce the requirement for onsite hardware reducing the cost of maintenance and cash collection. Contactless only machines are also less prone to vandalism.

- c) **Adopt intelligent deployment.** Data gathered by the methods described above will build a detailed picture of parking across the district. This will enable the parking service to deploy CEO resources intelligently to increase compliance.

Integrate systems

Using data from the parking system in the wider context of travel in the district will enable:

- Traffic managers to effectively manage peak periods of visitor demand
- Multi-modal journey recommendations to be integrated into One Public Transport strategies.
- Data will also be able to inform future policies on issues such as parking demand and tariffs. The NPP can assist in providing integrated data on usage and payment.

4.5.2 Recommendations

See main report.

4.6 Tariff benchmarking

Tariffs are a main way that parking is managed and a key way of influencing driver behaviour, for example, to protect short the parking or to better manage what is a finite resource to encourage churn and better management.

How tariffs are set depends very much on the objectives of the operator. A retail park or shopping centre is likely to set tariffs to encourage medium dwell times, but discourage the 'wrong' sort of parking, e.g., commuters either through maximum stay limits or through pricing. A private operator is likely to simply set tariffs to maximise income. Local Authorities have a much more difficult job and have to balance a whole range of policy objectives, as well as political influences.

As well as considering nearby market town settlements we have also selected settlements with similar characteristics using the Harper Dennis Hobbs Retail Vitality Index (RVI). The RVI lists the top 999 retail centres by 'vitality'. What this represents is an attempt to score the retail offer on quality and vitality rather than simply by size, in practice, this means independent boutiques, cafés or major department store boosts the vitality rank whilst bookmakers, and takeaways reduce it. The RVI cannot be scientific and is open to individual interpretation but is a useful tool to broadly consider whether tariffs broadly reflect the retail offer in a town.

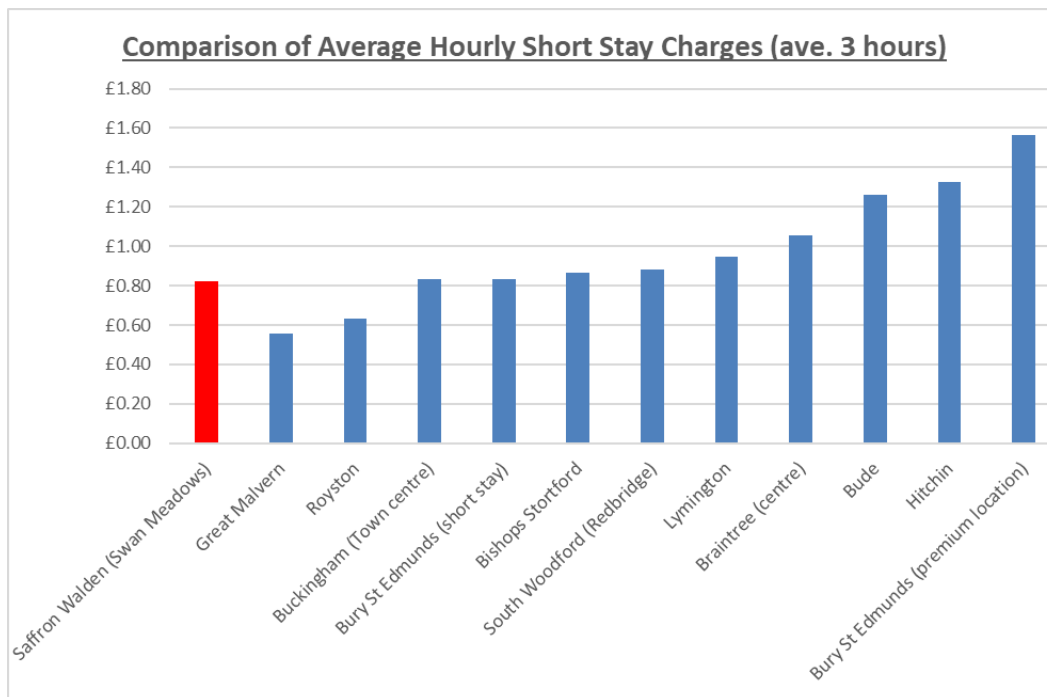
The local comparators are Bishops Stortford, Bury St Edmunds, Braintree, and Royston. Those with a similar RVI rank are Buckingham, Bude, Great Malvern, Hitchin, Lymington, South Woodford (London Borough of Redbridge).

Perhaps the clearest comparison settlements would be Bishops Stortford and Hitchin as market towns in the East of England *and* with similar RVI ranks.

4.6.1 Short Stay Tariffs

SHORT STAY TARIFFS									
Location	Retail Rank	1 Hr		2 Hrs		3 Hrs		4 Hrs	
Saffron Walden (Swan Meadows)	62	£0.70	3	£1.20	2	£2.00	T2	£2.00	T1
Great Malvern	59	£0.50	1	£1.00	T1	£2.00	T2	£2.00	T1
Royston	908	£0.60	2	£1.35	3	£1.85	1	£3.95	5
Buckingham (Town centre)	64	£1.00	T5	£1.00	T1	£3.00	5		
Bury St Edmunds (short stay)	657	£1.50	7	£2.00	6	£2.50	4	£3.00	3
Bishops Stortford	76	£0.90	4	£1.80	5	£2.40	3	£3.20	4
South Woodford (Redbridge)	63	£1.00	T5	£1.70	4	£2.40	3	£6.00	T8
Lymington	61	£1.00	T5	£2.00	T6	£2.50	4	£3.00	3
Braintree (centre)	295	£1.00	T5	£2.00	T6	£3.50	6	£6.00	T8
Bude	60	£0.90	4	£2.70	8	£4.60	8	£5.90	7
Hitchin	53	£1.30	6	£2.60	7	£4.15	7	£5.70	6
Bury St Edmunds (premium location)	657	£2.70	8	£4.00	9				

(Rankings: cheapest =1, T is tied ranking)



There is wide variation in short stay tariffs which reflects the differences between the local market and the ‘offer’ of the town centre. Only Royston, which has a much poorer offer and Great Malvern, which sits in a very rural area in Worcestershire have cheaper tariffs, which only highlights what good value UDC tariffs are.

Of the more direct comparators of Hitchin and Bishops Stortford, UDC tariffs look good value. This is reflected in the current high usage levels at most of the car parks in the district.

4.6.2 Long Stay Tariffs

Long stay tariffs are low compared with most comparators. Whilst the number of car park users paying for stays of 9 hours or may is relatively low, it will still impact on the turnover of spaces and therefore the availability of bays for shorter term visitors. As part of a policy to reducing car modal share, long stay tariffs should be increased to help change behaviour as travel alternatives become available.

LONG STAY TARIFFS				
Location	24 Hrs	Season ticket price (per annum)	Equivalent 5 Day Daily Rate	Discount v Daily Rate
Saffron Walden	£3.50	£300.00	£1.25	64%
Great Malvern	£3.00			
Royston	£3.95	£740.00	£3.08	22%
Bury St Edmunds (long stay)	£4.00	£624.00	£2.60	35%
Bishops Stortford	£4.80			
Lymington	£5.00			
South Woodford (Redbridge)	£5.00	£730.00	£3.04	39%
Hitchin	£5.70	£740.00	£3.08	46%
Braintree	£6.00	£550.00	£2.29	62%
Buckingham (town centre)	£6.00			
Bude	£10.40	£404.00	£1.68	84%

4.6.3 Season Tickets

The level of discount applied to existing season tickets prices is relatively high compared with other authorities resulting in a very low equivalent daily rate. In reality the number of season ticket holders who use car parks all day, every day is reducing due to increased part time and flexible working, a trend that has been accelerated by Covid-19. Nevertheless discount levels should be reduced over time to help encourage modal shift and increase parking space availability.

COVID-19 is likely to have an impact on demand for season tickets - workers are likely to continue to work from home, at least for a couple of days per week. Permit products will therefore need to be flexible to adjust to these changing habits as the cost effectiveness of businesses and employees purchasing season tickets that are priced for Monday to Friday use will be impacted.

Suggested new products could include:

Product	Pricing
3 day season ticket – to be paid in advance for a minimum of 4 weeks. This would allow a maximum of 12 day visits to a car park per 28 day period to be utilised flexibly.	25% discount on usual daily rate and payment administered by pay by phone service.
3 day part time season ticket – to be paid in advance for a minimum of 4 weeks. This would allow up to 5 hours use for a maximum of 12 days in a 28 day period. This would be suitable for part-time employees.	25% discount on 5 hour rate.

4.6.4 Recommendations

See main report.

5. Electric Vehicle Charging

5.1 UK Government Policy Background

In November 2020, the government announced that vehicles powered exclusively by petrol or diesel will be banned from sale by 2030 as part of its commitment to net zero emissions by 2050 under the Climate Change Act.

Under the Environment Act local authorities are required to review and assess air quality in their area and if problems exist to designate an Air Quality Management Area (AQMA) and draw up and implement an action plan to reduce emissions from motor vehicles to improve quality of life and health, and combat climate change.

In 2020, 10% of all new vehicles registered in the UK were Ultra Low Emission Vehicles (ULEVs which require a plug-in charge, both Battery Electric Vehicles, BEVs, and Plug-in Hybrid Vehicles, PHEVs). This compares with 3% in 2019 and a forecast of 25% in 2022.

This change in the market will bring impetus to the provision of Electric Vehicle (EV) charging infrastructure across domestic, workplace and destination locations, as well as on main roads.

Nationwide provision of EV charging infrastructure is a key requirement to deliver a zero-emissions road fleet as set out in the Department for Transport's "Decarbonising Transport" published in July 2021.

There will be an expectation on public facilities such as Council off-street car parks, to provide sufficient charging capacity for EVs attending their sites, whether for commuters, short stay visitors or Council fleet.

5.2 EV Charging Strategy

EV charging is currently a relatively immature marketplace which is evolving very rapidly. Challenges when assessing future trends include:

- the continuing development of EV batteries and how this changes driver expectation and behaviour
- the patterns of demand for charging driven by the level of and type of EV usage and the status and capability of charging infrastructure
- the regulatory environment

Successful chargepoint implementations require an understanding of users' needs, alternative business cases, and a combination of hardware, control software and payment systems. Questions to consider include: how many charge points are required, what type/speed of chargepoint best serves customer needs, what type of payment system and reservation system will be provided, and what impact proposals will have on the local grid energy capacity. Services should be accessible and inclusive, and it is important that chargepoints meet interoperability criteria.

There is currently a relatively small number of chargepoints in the district's off-street parking estate with a mix of charger types. This number will have to increase as demand increases.

5.3 Demand Forecasts

The Society for Motor Manufacturers and Traders (SMMT, June 2021) has forecast that 28% of car sales in 2022 will be ULEV (BEVs and PHEVs) compared to 3.1% in 2019. It is anticipated that the "tipping point" of over 50% of car sales being electric will be reached in 2025-6, driven by improved battery technology and reduced cost, along with the UK government prohibiting the sale of petrol and diesel-engine cars from 2030.

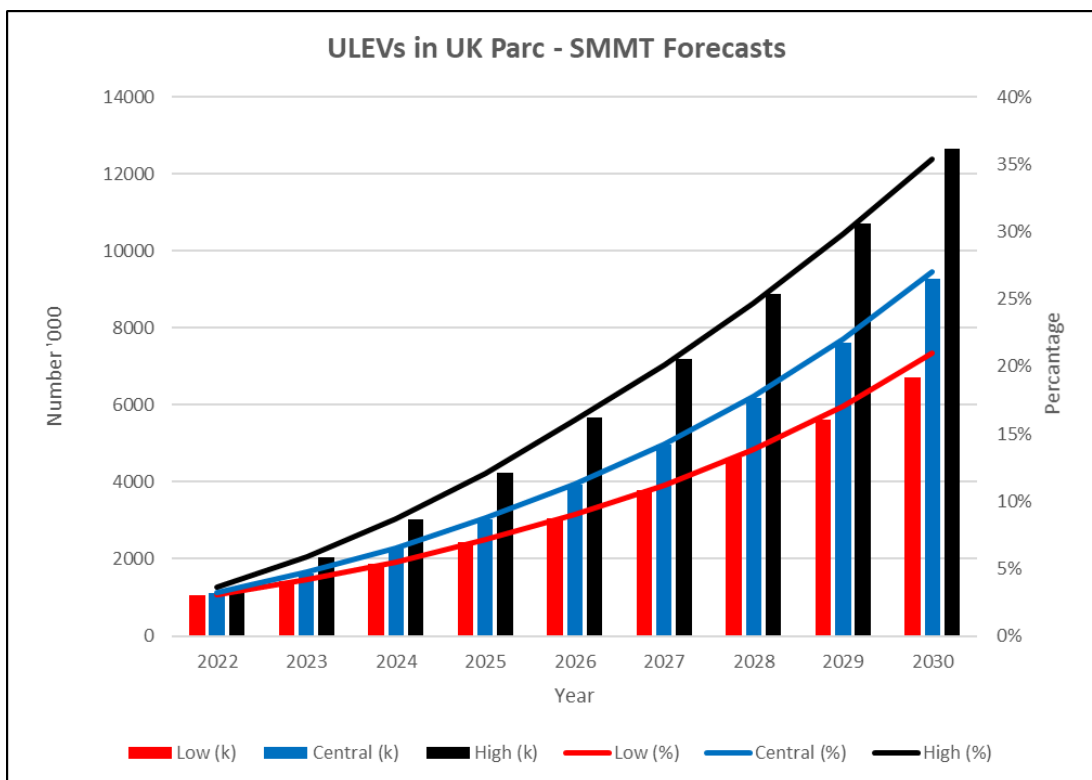
This growth in usage of electric vehicles, from both private vehicle owners and operators of vehicle fleets, will result in an increased demand for EV charging infrastructure with chargepoints at home, at workplaces and destinations, and at en route charging stations.

Forecasting future demand for EV chargepoints in car parks is however complex and difficult. EV technology is changing rapidly as car manufacturers try to improve the usability of their products. New vehicles have a greater range and use faster charging technology. There are other potentially disruptive technologies (in-road induction, hydrogen powered vehicles, etc) that will emerge over the next 10 years. There are uncertainties around key enablers such as fiscal policy and infrastructure provision, as well as the sheer scale of the transition of a mature and well-established new car market, such as the UK’s, from one technology to another. Supply chain difficulties post-Covid have slowed the availability of new cars which in turn impacts on the creation of a used EV car market. However, availability of used EVs is expected so see a step change as the first tranche of leased EVs reach the end of their leases and are available second hand.

Published growth forecasts of the proportion of ULEVs on the road take account of a range of factors including end of sale dates for ICEs (Internal Combustion Engine vehicles) and hybrids, provision of charging infrastructure, constraints in the supply of EVs, vehicle attributes (range, EV model range, EV price, running costs, total cost of ownership and performance), fiscal incentives (grants, fuel duty, VAT, VED, BiK, road user charges), consumer behaviour (travel and charging patterns), age of existing ICE fleet when scrapped, and energy prices.

June 2021, forecasts by SMMT are shown in Figure 4.1.

Figure 4.1 UK Forecasts of ULEVs to 2030



The central forecast is for 6.5% of the UK “car parc” (the vehicle population) to be ULEV (BEV or PHEV) in 2024, rising to 27% in 2030 when the UK government’s proposed ban on the sale of petrol and diesel engine cars comes into effect.

5.4 EV Driver Behaviour

Another significant unknown factor which will impact demand is the future behaviour of EV drivers. This will affect any assumed relationship between the levels of EVs in the car parc and the use of public chargepoints.

As a result of the time taken to recharge, more planning will be required to use an EV compared to an ICE vehicle, especially before and on long journeys, or routinely as part of a weekly commuting pattern. EV usage is likely to see a move away from the typical ICE refuelling pattern of ad hoc filling up when required although future behaviour patterns are uncertain.

In terms of where drivers will charge, it is anticipated that customers may seek lower cost lower speed charging and adapt their lifestyle accordingly, and as a result domestic charging (including Council provision for residents without this facility) will predominate. Estimates of UK households with no access to off-street parking and hence no opportunity to install a home chargepoint are 25-35%. On-street chargepoints or charging hubs in local authority car parks may be suitable provision for some of these households. A convenient local car park provides a feasible local alternative for fast residential charging for those without domestic provision.

Guaranteed chargepoints at home could satisfy the majority of drivers' requirements given an EV range of 250 miles, and current data indicating an average car journey of 8.4 miles and an average commute of 10 miles. Some 95% of car trips are <25 miles, and 97% of car trips are <50 miles. Furthermore, 70% of car trips are "the same" i.e. repeat trips which will embed charging behaviour.

Most charging requirements, apart from long journeys, could therefore be satisfied by domestic charging e.g. one overnight slow charge (at a cheap rate) can provide energy for 5 days of 2x20 miles commuting. Currently only 16% of charging time is spent using public chargepoints (Which) and 90% of workers can use an EV for most of their needs using only slow charging. The government envisages most charging will take place at home and see this as a "key attraction" of EV ownership and government policy encourages the provision of chargepoints at new homes.

There is likely to be a difference in behaviour between the two types of plug-in vehicle: BEV drivers rely entirely on a battery and must seek recharging opportunities, whereas PHEV drivers have a very limited battery range of e.g. 30 miles, with longer distance travel powered by an ICE. There is some indication that many PHEVs are rarely recharged and driven using the ICE only, whilst taking advantage of the lower tax regime applied because of the lower stated level of emissions. A significant proportion of PHEVs in the car parc will reduce the demand for charging. We have considered ULEVs as a whole in this report, but it is worth noting that charging demand may be reduced as the forecasts indicate a BEV:PHEV split of 68:32 in 2024, and 75:25 in 2030.

Some commentators suggest the emergence of an EV charging pattern similar to mobile phone charging, with the expectation of charging at home and top up charging nearly everywhere else ("power snacking") to ensure a minimum EV range is maintained at all times. However, a desire to "power snack" would be a "nice to have" rather than essential for living with an EV.

In this context, it seems likely that domestic charging will predominate for cost and convenience reasons with en route rapid charging being used for quicker (and more expensive) fill-ups on longer journeys.

ZapMap's EV Charging Survey (April 2022) showed an 11% increase in the use of ultra-rapid chargepoints (100kW+) attributable to an increased provision of such en route charging stations fulfilling demand from EV drivers travelling longer distances when drivers want to charge their EV as quickly as possible, with most new EVs now able to charge at the higher speed.

Predominance of domestic and en route charging would leave car park charging in the squeezed mid-market and as such it is important not to over-estimate charging demand in car parks and similar destinations. It may be that the SMMT's low scenario of 5.5% ULEV in the UK car parc (2024) rising to 21% (2030) is a more appropriate measure of the proportion of car park users requiring charging.

5.4.1 Type of chargepoint

As shown below, the vast majority of car park users in the district park for 3 hours or less.

Ticket purchase by time – average May – June 2022



This use case of shorter stays lends itself to a higher speed of chargepoint. However, behavioural aspects are important as it is unlikely that visitors will expect or plan to need a full recharge during a visit. An expectation of “power snacking” might be more usual.

It is recommended that (subject to grid capacity) 22kW fast chargepoints are the standard installation in public car parks which would allow an 80% charge in 120 minutes.

Future chargepoints should be located at convenient high turnover locations and, particularly in the case of rapid chargepoints, should be in a location easily connected to the electricity supply.

5.4.2 Other considerations

a) Inclusivity and accessibility

- A 2020 survey from Zap-Map and national disability charity Motability that found a third of disabled drivers have difficulties locating a chargepoint to meet their needs, for example:
- Challenges with the weight of charging cables (one in seven)
- Force required to attach the connector

- The height above ground where cables are stored
- Accessibility of chargepoint information screens
- Positioning of the chargepoint in relation to the parking space as charging sockets have no standard position on cars
- Need for accessible parking with sufficient space to manoeuvre around the vehicle
- Lack of dropped kerbs around charge points
- Accessible facilities nearby
- Ability to seek assistance when experiencing difficulties.

Some 8% of survey respondents identified themselves as disabled, below the 20% rate of disability expected to be seen within the UK population (2.7 million disabled drivers or passengers by 2035). The future uptake of EVs from disabled motorists may be limited by accessibility issues.

Accessibility difficulties may also apply to less mobile or elderly drivers who may not possess a blue badge.

Existing blue badge spaces have enlarged dimensions which already provide for additional space around the vehicle compared to standard spaces. Otherwise, it should be noted that allowing additional space for chargepoint bays may impact on the total number of spaces that can be provided in a location.

However conversely, a minimum accessibility standard across all EV bays (as opposed to enhanced standards applying to just a proportion of bays), would allow all drivers to park in all bays rather than potentially blocking access to enlarged bays for a disabled driver, or requiring enforcement action against the use of enlarged bays by non-qualifying vehicles.

It should be noted that standards are currently under development by the British Standard Institute, having been commissioned by Motability and the Department for Transport. A new accessibility standard for chargepoints (PAS 1899) was published in October 2022. to set the minimum requirements for accessibility across all charging infrastructure.

b) Equality

Typical purchasers of EVs in 2022 are middle-aged, male, well-educated, affluent, urban, have more than 2 cars in their household, and are able to charge at home. This presents an equality consideration for the district as all motorists will not benefit from EV infrastructure and reserving space for EV drivers may reduce space available to others. Whilst the profile of an EV driver is expected to change as early-adopters are joined by those more representative of the general population, this process will take some years as barriers to EV ownership fall away and will rely in part on the development of a market for cheaper second-hand EVs. Policy should therefore have regard to equity arguments e.g. of designating EV chargepoint spaces in premium locations, and as a consideration in setting tariffs.

5.4.3 Chargepoint lifespan and standards

The lifespan of a chargepoint is estimated to be between 7-10 years depending on the level of usage. In order to minimise the risk of stranded assets (e.g. if a chargepoint become obsolete before there is a return on investment or if a new technology such as induction charging replaces today’s chargepoints) it is advisable to specify equipment conforming to recognised standards, which allow hardware to be futureproofed and allow inter-network compatibility:

- Open Charge Point Protocol (OCPP) – compliance ensures hardware can operate on different networks (comparable to a mobile handset working on and different networks)
- Open Charge Point Interface (OCPI) – data standard

5.4.4 Options for EV Charging Point Management

This section considers the options available for the management of the chargepoints with the caveat that this is still a relatively immature marketplace and EV technology is evolving at pace.

a) Delivery Model

There are four basic delivery models in the market as shown in Table 4.4:

- Lease/Concession – A lease/concession if offered to the market and (potentially) receive a lease payment/share of revenue.
- Management – A chargepoint operator is employed to manage the chargepoints
- Owned and operated in house
- Owned and external operated – as above with management contracted to a specialist chargepoint operator

Table 4.4 Approaches to provision of EV chargepoints

Benefits		Risk
Lease/ Concession	<ul style="list-style-type: none"> • Capital cost funded • Installation, and management (maintenance call-outs, replacement parts, fixes, remote maintenance, data and back-office software, integrations, load balancing, payment systems, licences and transaction fees) provided by chargepoint operator in a turnkey operation • No revenue cost if arrangement includes electricity supply • Potential revenue share negotiated with chargepoint operator • Chargepoint operator takes risk on demand 	<ul style="list-style-type: none"> • No, or limited control, of all aspects of installation and management (including equipment type, standards and speed, maintenance, tariffs and location) which may have consequences for level of customer experience – will be designed to achieve desired return of investor • Investors may sell-on or leave market • Locked in for contract term (long term)
Management	<ul style="list-style-type: none"> • Installation, and management provided by chargepoint operator • District controls operational policies including tariff 	<ul style="list-style-type: none"> • District purchases equipment and meets installation costs • Ongoing handling fee (p/kWh) charged to cover all support services • District takes risk on electricity cost • District takes risk on demand • Locked in for contract (short/medium term)
Owned & operated	<ul style="list-style-type: none"> • Purchase and own assets 	<ul style="list-style-type: none"> • Need to procure hardware, installation, management, and warranties • Need to manage entire operation

	<ul style="list-style-type: none"> • Full control of all aspects including tariffs and customer experience • Retain all revenue 	<ul style="list-style-type: none"> • Management of multiple hardware types • Future obsolescence • Need to project manage a specialist function • Take full risk of all aspects including demand
Owned & External Operated	<ul style="list-style-type: none"> • As Owned & Operated 	<ul style="list-style-type: none"> • As Owned & Operated with specialist management functions bought in

A market testing exercise is likely to suggest hybrid solutions subject to the appetite of suppliers. However, given the specialist nature of installing and managing an operation it is recommended that the managed approach represents a suitable balance of risk which takes advantage of specialist expertise to provide and manage the system (the core business of a chargepoint operator) without ceding control of all wider aspects perhaps over a longer period, as would be the case for a lease/concession. Under the management model, the demand risk remains with the client.

b) Operational considerations

Given the close link between parking and EV charging, partnerships have evolved between car park management operators and chargepoint operators, where operation of the chargepoints is subcontracted to the car park operator who in turn engages a chargepoint operator. Such an arrangement enables a fully joined-up approach and a seamless customer experience, de-risking operational issues which need to be considered in relation to charging bays:

- Low levels of chargepoint demand may cause an operational issue leading to spaces being sterilised for other users at peak times if ICE vehicles are prohibited from using chargepoint bays. Dynamic management of the chargepoint bays may be necessary allowing use by ICE vehicles at times when charging requirement is known to be below capacity. This would need to be considered as part of a lease/concession arrangement with a chargepoint operator as allowing ICEs shared use of charging bays potentially restricts revenue generation. A soft and agile approach to the enforcement of EV bays is recommended until demand matches supply.
- There is also a potential problem of “ice-ing” i.e. ICE cars parking in chargepoint bays. This can be addressed through patrols and issue of a PCN by the car park management operator, or remotely by ANPR surveillance of grouped EV bays with PCNs issued to cars confirmed as ICE (by reference to the DVLA database).
- Overstaying on a chargepoint bay by an EV after charging has finished can be managed through the chargepoint operator’s software. A message to move the car can be sent to the driver and if the car is not moved an ongoing parking charge (at a penalty level if required) can be applied. This may require software integration between chargepoint and car park software systems. However, requiring a member of staff (or indeed a visitor) to move their car part-way through a shift (or visit) may not be feasible in a hospital environment. The practical solution to this is to install sufficient chargepoints such that “all day” (or for visitors “whole visit”) parking and charging is not problematic.

c) Chargepoint operator market

There are currently some 15 major UK chargepoint operators and c.40 in total. Analysis of ZapMap data shows a number of chargepoint operators in the Bristol area including: BP Pulse, Charge Your Car, Revive, Shell Recharge, ZeroNet, and Pod Point.

There are a range of cross-network agreements, access methods (apps, RFID etc) and memberships/fees, and apps which allow access to location, availability, live status of charging,

payments, transaction history, receipts etc. Interoperability across networks is aided by network aggregators (e.g., Bonnet) and is being strongly encouraged by the government to enhance the consumer experience at chargepoints and avoid “subscription traps”. Future changes in the structure of this relatively new market are inevitable and the government has recently indicated that it plans to impose requirements on chargepoint operators to allow all drivers to pay with contactless payment as a minimum interoperability requirement.

5.5 [Electric Vehicle Charging Recommendations](#)

See main report.

6. The Main Towns

As well as the district wide measures outlined above, there are specific problems relating to individual settlements which must be considered as part of the review.

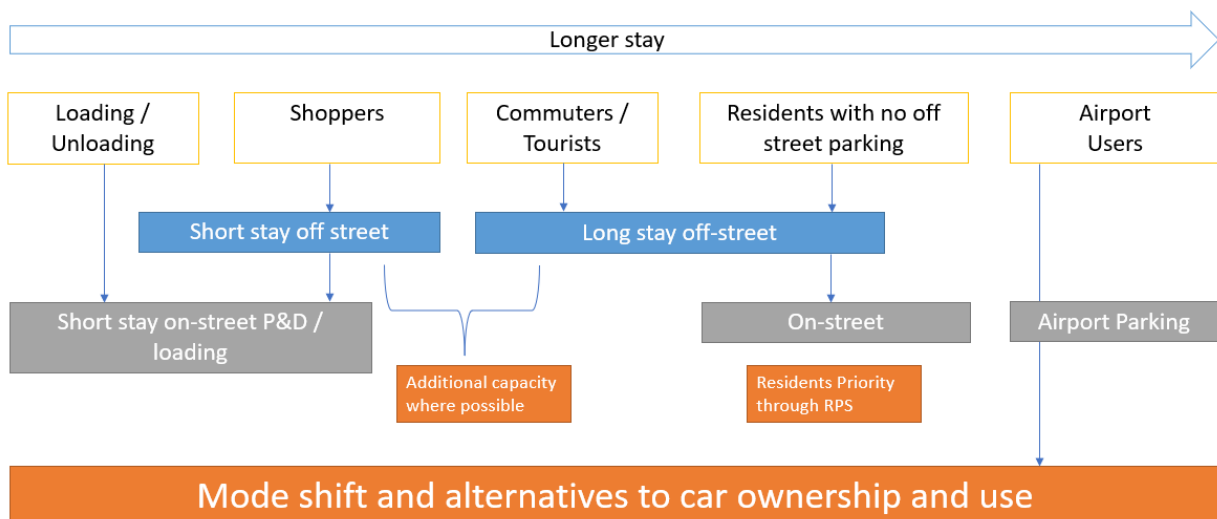
6.1 The Parking Hierarchy

It is important to consider different types of users and their needs and where they should be most appropriately accommodated. The parking hierarchy below provides an overview of the different types of users and where they should be accommodated.

Loading and unloading need to take place as close to where and when it is required and needs to be managed with the provision of loading bays (e.g. George St, Saffron Walden) or through clearways and red routes. Shoppers and those staying for >3hrs should be prioritised in off-street car parks with pricing or maximum stays. Those visiting for very short periods can be accommodated on-street to support businesses and quick trips. Longer stay customers, for example commuters and day-visitors should be encouraged to park in the larger car parks further out from the town centre. On-street parking outside of the town centre needs to be prioritised for residential amenity, alongside measures to promote alternatives to car ownership and use to relieve the pressure in busy areas.

Underpinning this are those measures outlined above to encourage mode shift and a reduction in car ownership and use.

Table 7. The Parking Hierarchy proposed for the towns and villages



6.2 Great Dunmow

The strategic approach is based on the consultation responses and the issues identified in the Stage 1 Report:

- Considering ways to increase parking supply for short-stay visitors to support the towns' vitality
- Improving short-stay availability and design options to relieve loading problems on the High Street.

6.2.1 Options Discussion

See Appendix C for specific options assessment which consider:

- Reducing the amount of season ticket parking to help short-stay customers
- Through the District or Town Council, commence discussions with the Dunmow Club to see if there are opportunities to utilise space
- Restrictions along High Street.

White Street car park is often well above the 80% full threshold, and the surveys reported up to 97% in the mid-morning. A discount is given to season ticket holders. There could be an opportunity to provide another level or a 'deck' to increase the capacity of the site as it is not overlooked by residential buildings except on the south. See Appendix C for more information.

The three other off-street car parks are often over the 80% full threshold (see Stage 1 Report) and the consultation received responses where customers had struggled to find spaces, especially on market days, and so missed appointments or had given up and gone to other retail locations.

From the consultation and available information, the residential parking problems in Great Dunmow are not as acute as in the other two main towns, but consideration could also be given to town-wide Resident Parking Schemes.

6.2.2 Other Issues

- Starr Lane is a very narrow lane providing access to residential dwellings. There is a complaint that 'too many permits have been issued'. There may be an option to create parking bays on the west side of the road, but this would replace open space
- Great Dunmow Primary School. Suggestion to extend the zig-zags further on Woodlands Park Drive to help visibility and safety
- Station Road is Reportedly used for commuter parking in the town, but the issue does not appear to be unusual to other places in the district or country.

6.2.3 Recommendations

See main report.

6.3 Saffron Walden

The strategic approach is based on the consultation responses, the parking hierarchy and the issues identified in the Stage 1 report:

- To concentrate long-stay parking in Swan Meadow;
- To prioritise short-stay in the other town centre car parks;
- To remove traffic in the Market Place in order to improve the townscape and vitality;
- To consider residents parking schemes which utilise shared residents and pay & display during the day;
- To tackle key specific local issues e.g. Debden Road).

6.3.1 Options Discussion

See Appendix C for specific options assessment which consider:

- Market Place parking
- Ashdon Road
- Debden Road sites
- Thaxted Road
- Hill St, Common Hill, and Church St.

Many of the strategic measures such as Park Active sites and Car Clubs are key to success in Saffron Walden, and it is important to communicate that the benefits of these could take some time to be realised.

Off-street car parks are busy, although there is still some capacity in Swan Meadow. Common occupancy levels exceed the 80% threshold for much of the day, however the options assessment recognised that the problems arise as a result of restricted capacity and that increasing capacity would be difficult.

Within the central area, arterial routes provide the biggest on-street problem and are the most difficult for which to develop solutions because they must fulfil a range of different roles despite being so narrow.

6.3.2 Other Issues

- Streets around Peaslands Rd. Roads are narrow and through traffic must navigate on-street parking. There are already restrictions including school zig zags, yellow line and zebra crossing protection along the roads. There is no obvious solution in this area with any measures advantaging one group of users (e.g. through traffic) negatively impact others (e.g. residents' parking). Local solutions need to be sought. For example UDC had facilitated allowing nursery users to park in the football club car park and walk to the nursery although this does not seem to be active.
- The consultation raised issues about signage and lining in the town centre core which was leading to PCNs and confusion on King St, Market Hill, Market St and Cross St. During site visits we observed signage clearly stating that the area is a Restricted Zone with no loading Mon – Sat except in signed bays. If the signage was insufficient presumably a PCN appeal would have overturned the penalties.
- Hill Street is very narrow in points. There were suggestions that more short-term P&D or loading bays could be installed on the east End of Hill Street where the road broadens to around 5m wide. Any changes to this street go beyond a parking review and will require a detailed highways design study using Computer Aided Design and surveyed widths and distances. This should be raised at the Essex Local Highways Panel.

6.3.3 Recommendations

See main report.

6.4 Stansted Mountfitchet and Elsenham

Stansted Mountfitchet and Elsenham are addressed together as both have similar issues. The strategic approach is based on the consultation responses and the issues identified in the Stage 1 Report:

6.4.1 Stansted Mountfitchet

See Appendix C for specific options assessment which consider:

- Lower Street Car Park
- Grove Rd
- Crafton Green.

Lower Street has a complicated set up which has evolved over many years with agreements in place to supply designated parking to NHS Staff and residents of The Maltings. Whilst to the casual visitor the arrangement of Lower Street may appear complicated, in comparison other sites we have seen across the country the signage is as clear as can be reasonably expected. Two consultation responses remarked on the layout, both also requesting a 20 minute free period. One mentioned that the NHS spaces were underused although the survey seemed to suggest this was not the case.

This car park might be designed to include protected on-call doctor spaces and then a mixed area for NHS, residents and short stay customers, as this would have ensured a better use of the east side of the car park which is closer to the shops and other services. NHS users and residents would be able to input their registrations into terminals / online for enforcement efficiency and be allowed to park in any area.

In reality, any proposed changes will be limited by lease arrangements and desires of the leaseholders.

Figure 1. Current alignment of Lower Street

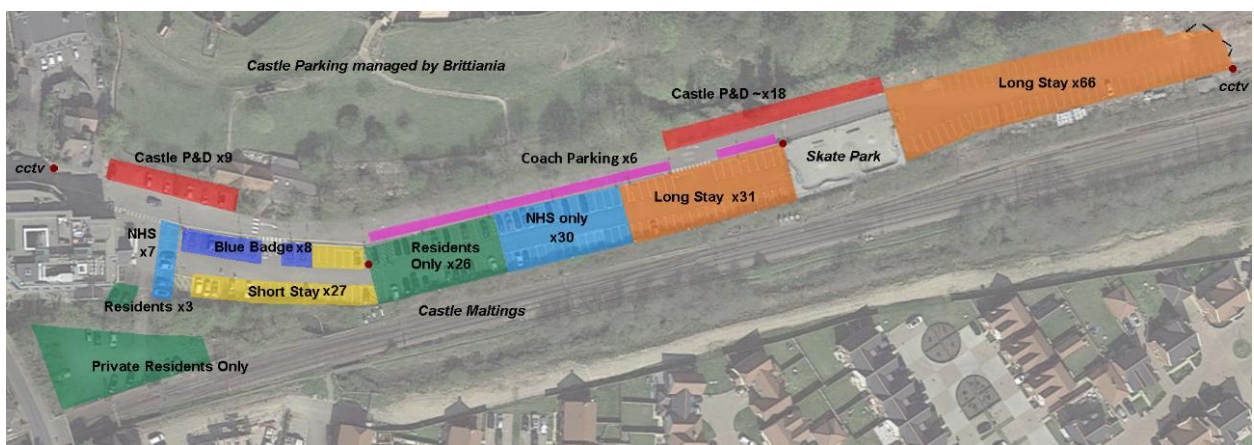
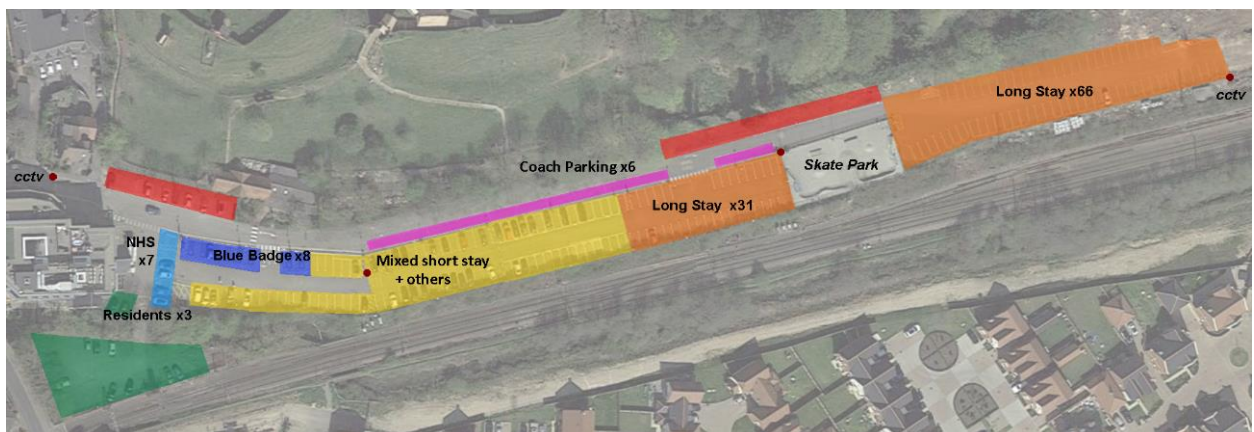


Figure 2. Option for re-alignment of Lower Street



Crafton Green car park is often full, and the consultation feedback highlighted that customers are finding it hard to find spaces during the day. It is worth noting that the charges are very low for such a busy car park, and that all-day stays are permitted which impacts the turnover of spaces. Four spaces are designated for EVs and three for the Parish Council. A combination of charge increases, removal of Parish Council spaces and a reduction in the maximum stay is likely to improve the supply of spaces for short-stay users who are visiting the library and local businesses.

Grove Road issues are difficult to solve and will require a highways engineering study or an alternative route (see Appendix C).

Residents and airport parking has been discussed elsewhere, but Stansted Mountfitchet should be a priority for the implementation of these.

6.4.2 Elsenham

Elsenham also appears to suffer from airport parking, exacerbated by rail-commuter parking. Again, this presents the option of a village-wide resident parking scheme.

The consultation reported difficulty finding parking at the shops and post office. There is essentially no obvious solution which would not require losing the green space to the south of the High Street or expensive remodelling of the road junction to free up space for parking.

We often see that prime parking is taken up by traders, which whilst entirely understandable, undermines space availability for their customers. Local people will be best placed to ascertain whether this is the case and the Parish or other group should enquire if alternative parking for traders could be found elsewhere, for example, at the memorial hall during the day.

6.4.3 Recommendations

See main report.

6.5 Takeley and around the Airport

The issue of airport parking and the effectiveness of RPS schemes given residential street layouts and high car ownership is discussed elsewhere.

6.5.1 Options Discussion

Airport parking in Elsenham and Takeley appears to present a straightforward choice between the continuation of either a piecemeal CPZ and local restrictions which tackle issues on specific roads but run the risk of displacing the problem; or a village wide residents parking scheme. A single more RPS areas would resolve the matter but would not necessarily provide a transformation as the scale of the problem is unknown.

This will be a local decision. At the very least, some beat surveys using ANPR camera cars over a day with an approximation of road space availability (using mapping software) and comparing this to usage and will need to be carried out. This should not be cost prohibitive.

6.5.2 Recommendations

See main report.

6.6 Smaller Settlements

Solutions need to be found locally through local lining and signing schemes, behaviour change campaigns, and use of community assets in inventive ways, for example using sports grounds car parks as 'park and stride' sites to schools. The Local Highways Panel is the most appropriate place for discussion.

Included below are only those specific recommendations for settlements that are not included in the preceding sections as general recommendations.

6.6.1 Ashdon

Very localised issues with parking on Carters Croft should be investigated at the parish level.

6.6.2 Barnston

Local lining and parking restrictions to protect crossing, driveways and junctions from airport and commuter parking can be considered locally through NEPP's TRO scheme.

6.6.3 Great Chesterford

Informal and unrestricted parking around Station Approach was *not* reported as an issue during the consultation. High Street circulation can be considered locally through NEPP's TRO scheme.

6.6.4 Hatfield Forest

Red Routes have been employed to reduce on-street parking. However, the National Trust car park is not always open and now costs £8 a day for non-members. Prior to the pandemic a section of car parking was available on an 'honesty box' basis for shorter visits when the main car park was closed. Bringing this back would improve amenity for local people making shorter visits to enjoy the rights of way for users such as dog walkers.

6.6.5 Henham

A cluster of comments originated from around the junction between School Lane and Crow Street, which lies on a bend. The junction is already protected with restrictions in place, so the issue may be speed which speed surveys may help to clarify.

6.6.6 Newport

Reported problems on the high street with circulation and loading. The High Street is already restricted for most of its length. A small cluster of shops and a restaurant sit on the High Street. The Village Stores has a small car park for its customers. There were two comments of 'dangerous and inconsiderate

parking' on the High Street between Debden and Wickham Road. An additional comment was made disagreeing with this and expressing that this was the only parking available for local businesses. Unless there are specific safety or congestion concern parking there is no reason to change the current alignment.

The railway station car park is £5.50 a day or £22 a week. There is unrestricted parking on Station Road, but no comments were received concerning this. There may an opportunity to better utilise the village hall car park, possibly for in-coming commuters working on the High Street. There was one comment concerning the single yellow line opposite the village hall entrance, but this is required to help traffic movement.

Comments concerning school time traffic do not highlight anything unusual. A comment regarding residential parking concerns on Cherry Garden Lane was countered by a comment which perceived no safety issue, only annoyance.

6.6.7 Radwinter

There were several comments around parking on the junction of Church Hill/ Roman Road and Walden Road which is causing circulation difficulties for HGVs. Some basic junction protections should relieve this. A cluster of comments around the church reported local difficulties with on-street parking. The road is narrow and houses along it do not have off-street parking. The Parish Council should consider options and work through NEPPs TRO process.

6.6.8 Thaxted

In the options matrix (Appendix C) we discuss the options for removal of on-street parking on Newbiggin Street and other parking across the town. Two phone conversations were held between the team and a parish councillor over the summer to investigate the issues.

Options to remove on-street parking along Newbiggin Street would be detrimental to the residents who live along it, although off-street parking is available within a few minutes' walk, and it is unclear as to the impact or benefits to traffic or safety this would have. The wider issue of parking in the town needs to be considered by the Parish Council who have the local knowledge and contacts to fully consider the impacts of changing the regime. Where car park demand is high, the principle is usually that a charge should be levied to prompt behaviour change, pay for upkeep and manage demand. With ticketless parking, i.e. pay by phone, app, and subject to phone network strength, the capital cost of implementing this could be reasonably low, although the cost of enforcement should be considered.

See main report.

Appendix C – Specific Settlement Options

Great Dunmow - White Street					
Description:	UDC Car park is close to 100% full during peak times during the working week. 172 spaces in general use with a section for season ticket holders to the north east.				
Option	Cost		User impact		Risks – Implementation / Acceptability
	Capital	Revenue	Positive	Negative	
Consider, at least on a trial basis, removing the season ticket only section	Nil	Positive	Would provide more capacity for short term and less regular users	Potential negative impacts to current season ticket holders	Could result in season ticket holders not being able to find a space.
Addition of a single deck above existing car park	High	Needs feasibility	Would provide more capacity	One neighbour overlooks the site, but feasibility would confirm the impact level.	Proximity to the Gas Valve Compound. Standard construction risks
Recommendation:					
<ul style="list-style-type: none"> - A small deck may be possible but would require more detailed feasibility. In the short term a reduction in the discount offered to season ticket holders or a reduction in the number of spaces allocated to ticket holders would marginally increase capacity. - Review tariffs closer to market rates. 					
Further Work Required:					
Feasibility, if decking is to be considered as an option.					

Great Dunmow - Town Centre Car Parks					
Description:	Town centre car parks are busy for much of the day on weekdays. Consultation reported difficulties for customers finding space when needed for appointments, shopping etc. especially on market days.				
Option	Cost		User impact		Risks – Implementation / Acceptability
	Capital	Revenue	Positive	Negative	
Liaise with The Dunmow Club about allowing the market and/ or season ticket users to use the facility	Nil	Nil	Car park users through increased capacity		The Dunmow Club may not cooperate or complications such as insurances / rates may preclude it
Move the market to the pedestrian areas along White Street	Low	Neutral (via permits)	Townscape benefits, higher footfall for traders. More parking capacity on market days	Trader’s parking needs to be accommodated	Dialogue with town council and traders required. May be impractical.
Recommendation:					
<ul style="list-style-type: none"> - Dunmow Club may not cooperate in making their car park available to third parties or there may be other restrictions e.g. lease covenants which prohibit. - Consider moving the weekly market to the pedestrian area along White Street. 					
Further Work Required:					
Dialogue and feasibility of moving the market.					

Great Dunmow - High Street Restrictions					
Description:	Circulation and safety problems with parking and waiting for convenience shopping and take-aways which could be impacting public transport reliability.				
Option	Cost		User impact		Risks – Implementation / Acceptability
	Capital	Revenue	Positive	Negative	
Do nothing	None	None	Perceived convenience when visiting shops and take-aways	Problem could get worse in the future if not tackled	Continued issues with circulation and impact on public transport.
Stronger restrictions for parking, waiting and loading.	Low	V low	Would free movement of public transport and general traffic	Amenity of those using businesses in the locality. Increased enforcement requirement.	Already restricted. Red Route or clearway may be disproportionate. Resistance from traders.
Pavement widening with formal bays	High	V low	Would improve pedestrian amenity, townscape, and should have some positive impact on circulating traffic.	Traffic movements from reverse parking will still create hold-ups for circulating traffic.	Resistance from traders. Consult the town council.
Recommendation:					
Clearway or 'red route' may be disproportionate but would allow enforcement via Moving Traffic Offences. Other advantages of pavement widening could be townscape, cycle parking and better bus waiting facilities.					
Further Work Required:					
Discuss the outcomes of the consultation with the Town Council and gauge their opinion of the situation locally. If taken forward, design and TRO process.					

Saffron Walden - Market Place					
Description:	Market Place and surrounding streets				
Option	Cost		User impact		Risks – Implementation / Acceptability
	Capital	Revenue	Positive	Negative	
Do Nothing	Nil	Nil	Short stay customers who want to park in the town core.	Does not address the difficulties faced by residents or businesses as highlighted by the town council.	Problem could become worse as growth and traffic circulation undermine efforts to nurture a distinct retail and historic environment.
Remove parking and general traffic from Market Place and Market Hill	Med	Low	Pedestrians, cyclists and town centre users. Improvement to the historic environment and potential for increased retail vitality.	Short stay customers and traders who wish to park in the town core. A reduction of around 21 parking spaces in Market Place.	Risk off-set by the extensive work that the town council has done over two phases and detailed consultation.
Recommendation:					
<p>Implement the town centre plan as proposed by the Town Council:</p> <ul style="list-style-type: none"> - Market Hill to be closed to general through traffic - Parking to be removed from Market Place - Retain one way road along King St and implement southbound only on Market St. <p>Deliveries and access to properties will need to be retained. The simplest solution being a TRO controlled Pedestrian Zone which allows loading but otherwise prohibits motor vehicles. There will be an enforcement commitment.</p> <p>Making Market Street one way would allow for a limited number of additional of loading / on-street spaces</p> <p>Another option would be for loading to be completely prohibited including loading between certain times, (commonly 10am-4pm). There are already loading bays on the south side of loading bays for goods vehicle and postal and parcel delivery in front of NatWest bank.</p>					
Further Work Required:					
Detailed Consultation on the exact layout through the TRO Process.					

Saffron Walden - Ashdon Road					
Description:	Busy arterial route with residential housing along both sides for much of its length.				
Option	Cost		User impact		Risks – Implementation / Acceptability
	Capital	Revenue	Positive	Negative	
Do Nothing	Nil	Nil	Allows on-street parking for residents, balanced with circulation and safety.	Reports of difficulty with circulation and congestion.	Problem could become worse through town growth.
Remove on-street parking	Low	Nil	Benefits to through traffic.	Severe disbenefits to residents who would lose off-street parking. Potential noise and speed from through traffic	Counter to general practice: through traffic should not be prioritised on residential streets where it disbenefits residents.
Residents parking only	Low	Negative from loss of P&D income	Potential benefits to resident amenity, although on-street capacity is limited in any case.	At the western end, disbenefits to shorter stay and P&D users.	Limited benefit from residents only as Buchanan Order Report concluded.
Recommendation:					
There is no obvious way to increase the amount of on-street parking or improve circulation given the narrowness of the road. Two consultation responses suggest left turn only out of school. This would require a study by the local highways authority. Change must come from other measures aimed at reducing car ownership and use.					
Further Work Required:					
If funds allow, a detailed corridor study by qualified highways engineer.					

Saffron Walden - The Common Car Park					
Description:	Very busy car park with a number of comments received during the consultation which indicate a lack of capacity.				
Option	Cost		User impact		Risks – Implementation / Acceptability
	Capital	Revenue	Positive	Negative	
Do Nothing	Nil	Nil		Does not deal with capacity issues	None
Introduce more parent & child spaces as requested through consultation	Low	Nil	Benefits to parents with children that cannot walk far or need pushchairs	Enforcement difficulties, potential for spaces to empty when car park is full	Enforcement will be very difficult and risk of misuse is very high
Pay on Exit	Med	Unclear	Pay-on-exit would provide customers with more flexible payment arrangements potentially spending more money in the town centre without having to return to their cars at a specified time	Car park is too small for pay-on-exit - an additional exit lane would be necessary. Barriers would require maintenance and management .	Buying additional time is already available via pay-by-phone. Site is small
Additional 'deck' to increase parking capacity	High	Positive	Positive for a range of customers and residents, residents could use the car park when on-street occupancy is high	Townscape impact and a loss open space	The Common has a number of designations which are likely to make development unfeasible in policy terms
Recommendation:					
Raise tariffs to manage demand and increase churn.					
Further Work Required:					
Basic feasibility with planning.					

Saffron Walden - Debden Road Parking Sites					
Description:	Two parcels of land owned by UDC currently used by residents and local businesses to park informally.				
Option	Cost		User impact		Risks – Implementation / Acceptability
	Capital	Revenue	Positive	Negative	
Do Nothing	Nil	Nil	Allows businesses and residents to continue to use the spaces.	Maintenance liability for UDC. No dedicated residents parking.	Residents reportedly want formalised parking.
Residents Only Parking	Surfacing/ lining	Neutral (via permits)	Provides residents with off-street parking.	Would impact businesses and their customers. May be under utilised during the day further reducing overall parking capacity.	Local businesses and their customers will be negatively impacted. Residents may not want to purchase permits.
Shared Permit and short-stay P&D	Surfacing/ lining	Positive	Allows businesses to use the spaces during the day, albeit at a cost.	Would reduce the number of available spaces, estimated from 16 to 14.	Requires changes to off street parking order. May still not completely satisfy some residents.
Recommendation:					
<p>Shared permit and P&D (pay-by-phone only) would provide some day-time parking for business visitors (e.g. 08:00 – 18:00 – Max stay 3hrs) and off-street overnight / weekend parking for residents. Staff should be encouraged to use Swans Meadow long-stay parking. Although the sites are small, such sites are not unusual and implementation costs will be lower if cashless / pay-by-phone only parking is implemented.</p> <p>Spaces in London Rd car park could be made available for traders and their customers on a P&D basis.</p>					
Further Work Required:					
Specific consultation with the local businesses and residents. Potentially, a more in-depth survey of usage, although it might be difficult to predict future usage patterns from current occupancy. Changes to the off-road parking order.					

Saffron Walden - Thaxted Road					
Description:	Busy arterial route which is very narrow in parts with residential housing along both sides for much of its length.				
Option	Cost		User impact		Risks – Implementation / Acceptability
	Capital	Revenue	Positive	Negative	
Do Nothing	Nil	Nil	Allows on-street parking for residents who have no off-street alternative	Continued issues with difficult circulation and pavement parking.	Problem could become worse through town growth.
Remove on-street parking	Low	Nil	Benefits to through traffic and pavement parking	Severe disbenefits to residents who would lose off-street parking. Potential noise and speed from unimpeded through traffic.	Counter to general practice: through traffic should not be prioritised on residential streets where it disbenefits residents.
Residents parking only	Low	Negative from loss of P&D income	Potential benefits to resident amenity, although on-street capacity is limited in any case.	Narrow street does not provide opportunities for formalised on-street residents parking	Limited benefit for residents given few opportunities to increase supply
Finding off-street parking for residents (suggested via consultation)	High	Negative - maintenance	Benefits to residents.	Loss of employment land or opportunities for housing. Expensive.	Parking is an efficient use of land. Significant investment, such as purchase of industrial land, cannot be justified given land values.
Recommendation:					
There is no obvious way to increase the amount of on-street parking or improve circulation given the narrowness of the road. This route (or similar site towards the southern end of Thaxted Rd) should be a priority for measures to promote alternatives to car ownership and use, for example with a park & choose..					
Further Work Required:					
Change should result from other measures aimed at reducing car ownership and use.					

Saffron Walden - Town Centre Residents Parking – Castle Hill (and general principle)					
Description:	The consultation reported circulation issues, especially on Hill Street and Church Street				
Option	Cost		User impact		Risks – Implementation / Acceptability
	Capital	Revenue	Positive	Negative	
Do Nothing	Nil	Nil	Circulation and visitor parking.	Inconvenience to residents.	
Increase the supply of residents only parking on-street	Low	Varies by site	Positive impact for residents who will benefit from being able to park closer to their homes.	Loss of amenity for visitors parking on-street or in P&D bays.	Counter to general practice: through traffic should not be prioritised on residential streets where it disbenefits residents.
Provide permits for council car parks overnight or during the day	Low	Negative	Some improvements for residents.	Loss of revenue if day-time parking allowed.	Poor solution for all parties in most cases, unless dictated by specific situation.
Recommendation:					
Where residents have no access to off-street parking, and housing pre-dates the restrictions, two permits should be issued in-line with current policy. Any additional provision should be mixed Resident only/ P&D during the day.					
Further Work Required:					
Changes to TROs.					

Saffron Walden - Town Centre circulation – Hill St, Common Hill, and Church St					
Description:	The consultation reported circulation issues, especially on Hill Street and Church Street				
Option	Cost		User impact		Risks – Implementation / Acceptability
	Capital	Revenue	Positive	Negative	
Do Nothing	Nil	Nil		Reports of difficulty with circulation and congestion.	Problem could become worse.
Remove on-street parking and loading	Low	Low	Benefits to through traffic.	Severe disbenefits to residents and business who require loading close their homes and businesses.	Counter to general practice: through traffic should not be prioritised on residential streets where it disbenefits residents.
Residents parking only	Low	Neutral (via permits)	Benefits to individual residents and households.	Loss of shopper and visitor spaces in high demand area of the town.	Complex issue involving residents, town council and highways authorities.
Recommendation:					
<p>Hill Street is very narrow and only allows for one vehicle in one direction for much of its length. Very little opportunity to improve the situation without detailed highways study.</p> <p>Deliveries and access to properties will need to be retained. The simplest solution would be a TRO controlled Pedestrian Zone which allows loading but otherwise prohibits motor vehicles. There would be an enforcement commitment.</p> <p>Making Market Street one way would allow for a limited number of additional of loading / on-street</p> <p>Another option would be for loading to be completely prohibited between certain times, (commonly 10am-4pm). There are already loading bays on the south side for goods vehicle and postal and parcel delivery in front of NatWest Bank.</p>					
Further Work Required:					
If funds allow, a detailed corridor study by qualified highways engineer.					

Stansted Mountfitchet - Lower Street Car Park					
Description:	Complex parking arrangements for a range of different users in long linear car park				
Option	Cost		User impact		Risks – Implementation / Acceptability
	Capital	Revenue	Positive	Negative	
Do Nothing	Nil	Nil	Allows on-street parking for residents, balanced with circulation and safety	Reports of difficulty with circulation and congestion	Problem could become worse as growth is delivered across the district
Redesign the arrangement	Low	Nil	More straightforward arrangement, best use of high demand spaces to destinations	Perception around loss of designated, numbered spaces for residents. Offset by close parking	Lease arrangements. Could be offset through single level deck which provides short stay parking above and permits below
Increase capacity through a decked car park facility	High	Unknown	Provides additional capacity for customers and local users	Unclear business case given changes to commuting patterns	Business case required.
Recommendation:					
Consider a mixed approach to NHS staff, residents, and short stay customers to make better use of the eastern part of the car park closer to shops and destinations. This is dependent on lease holder agreement.					
Further Work Required:					
Any re-alignment would require discussions with occupants and others with agreements.					

Stansted Mountfitchet - Crafton Street Car Park					
Description:	Very constrained site which is often full with limited options for expansion				
Option	Cost		User impact		Risks – Implementation / Acceptability
	Capital	Revenue	Positive	Negative	
Do Nothing	Nil	Nil	Allows on-street parking for residents, balanced with circulation and safety	Reports of difficulty with circulation and congestion	Problem could become worse as growth is delivered across the district.
Reduce maximum stay to 3 or 4 hours	Nil	Positive(?)	Will increase the supply of short-stay parking to benefit local businesses	Longer-stay commuters will need to park further away	
Make Parish Council spaces available to all	Low	Nil	Provides modest number of spaces to make best use of space	Disbenefits to the Parish Council	Acceptance of the Parish Council
Increase the size of car park	High	Positive	Provides additional capacity for customers and local users	Loss of greenspace or space for housing	Site appears to have been cleared. Cost may be prohibitive
Recommendation:					
<p>Although enlarging the car was suggested during the work this does not appear to be a realistic option. The site to the north east is likely to be too valuable for other uses and a loss of green and open space for parking would be difficult to justify.</p> <p>Reducing the maximum stay should improve the situation for visitors to local businesses.</p> <p>Although only a very modest increase in capacity, trial the removal of the parish council parking and use road markings to highlight that the EV mixed use parking is available to non-EV.</p> <p>It is also worth noting that the fees are very low for a site under such demand.</p>					
Further Work Required:					
Discuss with the Parish Council.					

Stansted Mountfitchet - Grove Hill					
Description:	Grove Hill is a narrow road which provides the main link to Elsenham and Thaxted.				
Option	Cost		User impact		Risks – Implementation / Acceptability
	Capital	Revenue	Positive	Negative	
Do Nothing	Nil	Nil	Allows on-street parking for residents, balanced with circulation and safety	Reports of difficulty with circulation and congestion	Problem could become worse as growth is delivered across the district.
Remove on-street parking	Low	Nil	Benefits to through traffic	Severe disbenefits to residents who would lose off-street parking.	Counter to general practice: through traffic should not be prioritised on residential streets where it disbenefits residents.
Move lights which shuttle working	Medium	Nil	Could improve safety and ease circulation	Will increase wait times and could block junction of Grove Hill and Lower Street	Requires a detailed traffic study which will need queue length surveys and highways engineering designs
Alternative Route between B1383 and B1051 (c.1km)	High	Low	Would ease circulation and reduce traffic on Grove Hill	Environmental impact	Likely to be undeliverable unless land along the route is designated for other development.
Recommendation:					
Consider a highways study to assess feasibility of moving shuttle working lights at the eastern end to beyond the on-street parking (around no.10/12 Grove Hill).					
Use potential future development as an opportunity to deliver an alternative route.					
Further Work Required:					
Highways study.					

Thaxted - Newbiggen Street					
Description:	Main route into Thaxted from the north, with historic streetscape usually with cars parked on both sides of the road on the pavement.				
Option	Cost		User impact		Risks – Implementation / Acceptability
	Capital	Revenue	Positive	Negative	
Do Nothing	Nil	Nil	Allows on-street parking for residents who have no off-street alternative	Continued issues with difficult circulation and pavement parking.	Pedestrian safety concerns, although reportedly low pedestrian traffic as alternative routes available.
Remove on-street parking	Low	Nil	Benefits to through traffic and pedestrians parking	Severe disbenefits to residents who who would lose off-street parking.	Parish Councillor reports that there is likely to be capacity in Margaret St car park for residents, at least overnight, although this would result in a 3 -4 minute walk to their homes.
Recommendation:					
There is no clear recommendation, and the decision would have to be made locally and in consultation with local residents.					
Further Work Required:					
Local consultation by the Parish Council.					

Thaxted - Car Park management																							
Description:	Park St car park is often full. Margaret street usually has capacity																						
Option	Cost		User impact		Risks – Implementation / Acceptability																		
	Capital	Revenue	Positive	Negative																			
Do Nothing	Nil	Nil	Benefits to users through no parking charges	No control over car parking. Effective subsidy through business rates and maintenance. Some car parks are often full.	Pedestrian safety concerns, although reportedly low pedestrian traffic as alternative routes available.																		
Introduce reasonable charges to better manage parking demand	Low	Positive	Benefits to users through increased space availability and the operator through income to fund maintenance and management.	Disbenefits to users if stopping for very short periods ('pint of milk'). Enforcement costs.	Business case for enforcement would need to be considered.																		
Recommendation:																							
<p>Management of car parks through tariffs, even with a very low tariff, will contribute to maintenance costs and influence behaviour to make better use of a finite resource and increase space availability.</p> <p>Subject to phone signal, cashless parking could be implemented to lower capital costs with special rates for local businesses, where discounted rates may help to influence behaviour, for example by encouraging MOT at the garage customers to pick up their cars via a small daily charge.</p> <p>There is no clear recommendation, and the decision would have to be made locally and in consultation with local residents.</p>			<p>Margaret St, Thaxted</p> <table border="1"> <caption>Margaret St, Thaxted Parking Counts</caption> <thead> <tr> <th>Time</th> <th>Day</th> <th>Count</th> </tr> </thead> <tbody> <tr> <td>08:15</td> <td>Fri</td> <td>32</td> </tr> <tr> <td>10:30</td> <td>Tue</td> <td>55</td> </tr> <tr> <td>14:00</td> <td>Fri</td> <td>48</td> </tr> <tr> <td>21:30</td> <td>Thu</td> <td>58</td> </tr> <tr> <td>22:15</td> <td>Tue</td> <td>30</td> </tr> </tbody> </table>			Time	Day	Count	08:15	Fri	32	10:30	Tue	55	14:00	Fri	48	21:30	Thu	58	22:15	Tue	30
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Further Work Required:																							
Local consideration and consultation by the car park operator.																							

Molehill Green					
Description:	Multiple reports of long-stay airport parking on School Lane and in Molehill Green. Molehill Green had edge markings but no parking restrictions, although parking on these may be an obstruction and vehicles could be removed. There is no record of parking on this section on site visits. School Lane is a narrow lane.				
Option	Cost		User impact		Risks – Implementation / Acceptability
	Capital	Revenue	Positive	Negative	
Do Nothing	Nil	Nil	Benefits to users through no parking charges	No control over car parking. Effective subsidy through business rates and maintenance. Some car parks are often full	Pedestrian safety concerns, although reportedly low pedestrian traffic as alternative routes available
No vehicles except for access	Low	Low	Reasonably straightforward way to reduce airport parking on School Lane	Very difficult to enforce	There is a public right of way and a byway (PROW 7_69) which runs off School Lane
Double yellow lines at key points	Low	Low	Reasonably straightforward way to reduce airport parking on School Lane / Molehill Green	Reduces options for on-street parking for residents, although all appear to have off-street parking.	
Recommendation:					
Yellow lines (TRO) on Molehill Green through the village and School Lane as the most efficient way of tackling the problem.					
Further Work Required:					
TRO and Highways Designs					

Appendix D - Decking Systems

“Decking” systems are generally based upon a steel frame. There are several specialist decking suppliers including Fast Park, Another Level, Top Deck, as well as suppliers such as Bourne Parking and Duplipark UK who supply decks as well as multi-storey car parks.

Suppliers’ costs vary significantly between £17k to £20k per space (the cost is generally reflected in the quality of the product). Decking systems can be installed over existing surface car parks while maintaining up to 75% of the existing capacity during works. Car park decks do not usually have foundations (in the case of single deck systems only) or lifts. The construction of a deck over an existing car park often requires the existing parking layout to be amended to facilitate the deck structure and ramp and allow a reasonable circulation throughout the whole car park. The design life of these decking systems is claimed to be 25+ years, however they will require regular maintenance to achieve this.

In practical terms, disabled access is limited to the surface level in the absence of lifts, however providing a reasonable number of accessible bays are allocated then there will be no issues complying with statutory regulations.

The only real benefit of this type of system is the speed of erection as a permanent traditional structural design would provide better value in the longer term. The construction period for a traditional deck is longer than for a temporary deck, in particular, because of the need for the construction of permanent foundations. However, where the lack of parking spaces can be an issue, speed of construction and the potential to maintain some capacity, these systems may be a preferable solution.

The performance specification prepared for any procurement process should define an appropriate design life and level of quality, to ensure that the completed temporary structures will be fit for purpose and maintenance requirements will not be too onerous.

Some decking suppliers will lease their systems for short term periods.

Issues with Decking

There are issues that must be considered as part of any review as to whether decking will be an appropriate solution.

- Before any works can progress a temporary or full planning consent (as appropriate for each proposal) will be required. This could result in delays if certain proposals are deemed to be contentious. The procurement process for the supply and installation of the decking systems must also be factored in. The Council’s requirements will have to be formalised via an ITT and advertised in accordance with the Council’s procurement policies.
- Where decking is to be installed over existing car parks, a degree of preparation will be required to the existing surface layouts including removal of trees, kerbs, buildings and other physical obstructions. As the deck structure will interfere with the existing access ways, layouts will have to be redesigned and existing surface markings will have to be burnt off and reapplied.
- For permanent installations, the design quality will have to be higher with attractive cladding and clear span parking layouts to both comply with the likely planning requirements and to ensure that completed structures are user friendly and in accordance with modern requirements. The clear span design itself will increase the system costs by c£1k per space, however cheaper options with regular columns at the front of parking bays make parking difficult for some users and would impact existing usage. For sensitive areas we would expect a higher specification facility with appropriate cladding to help protect the character of the surrounding areas.

- Any additional provision of disabled spaces at the decked sites must be provided at ground level if no lifts have been allowed for. Consequently, the number of ground-floor spaces on the existing car parks will be reduced to accommodate the wider disabled bays.
- The consequence of the previous two bullets is that to increase capacity by 100 spaces, we would expect decking accommodating c120 spaces would be needed.
- Additional pay and display machines will be required where decks are to be installed over existing car parks. The installation of a barriered pay on foot system would be preferable to improve compliance and provide more reliable occupancy data.

Revenue Generation

Any proposal to provide additional decked spaces to cater for peak demand should recognise that even where car parks are currently extremely well utilised during peak periods it is very unlikely that all additional spaces will generate a level of revenue per space equal to that currently generated by the existing spaces. This is because the new spaces will initially only be used at peak periods and will, therefore, generate a lower yield per space than those at surface level that will be occupied for longer periods. There is also the possibility that some of the revenue generated by the provision of additional spaces will not represent new income for the Council but will simply be existing revenue relocated from less popular Council car parks.

Assuming a maximum economic life of any new structure of 30 years and a construction cost of c£17k per space (including fees), we estimate that additional gross revenue (net of VAT) of c£1,400 per space would need to be generated to viably deliver a decking system.

Decking Viability Conclusions

As revenues per space (excluding permit income) are currently a maximum of c£1,200 per space the development of additional spaces is unlikely to be financially viable. Increasing tariffs and season ticket prices in the short term would assist with funding and could be justified by existing demand levels and if some of the additional surplus produced is used to improve parking provision. In any event a detailed business case would be required before any decision could be made.