

North Yorkshire County Council
Business and Environmental Services

Executive Members

20 April 2018

Smart Parking in Harrogate

Report of the Assistant Director - Highways and Transportation

1.0. Purpose of the report

- 1.1 To seek approval to implement an innovative, new smart parking solution in the town centre of Harrogate, in partnership with Harrogate Borough Council (HBC) and for a trial period of 18 months.

2.0 Introduction

- 2.1 Smart parking has the potential to significantly improve parking and traffic management, reduce pollution, support the visitor economy and enhance the user experience.
- 2.2 The proposal to introduce an intelligent parking management system in Harrogate will support the County Council's Economic Growth Agenda and wider objectives. It will also ensure that Harrogate, one of the county's principal towns, would be at the forefront of a new, innovative smart town solution.

3.0 Smart Parking – Background

- 3.1 An opportunity has arisen through an Innovation Competition Fund to (in partnership with HBC) be part of a trial to create a smart city demonstration; showcasing cutting edge parking guidance and frictionless parking payments.
- 3.2 Smart parking is one of the fastest growing smart city/town solutions across the world. It involves the use of sensors, real-time data and applications (including paying for parking by a mobile application) that improves both parking/traffic management and the user experience.
- 3.4 Whilst still relatively new, it is being adopted and trialled in a number of towns and cities throughout the country. Car manufacturers are also working towards integrating smart parking within their vehicles. Evidence suggests that UK-wide implementation is inevitable.
- 3.5 In October 2017 HBC Officers contacted 'AppyParking' regarding their Innovation Competition Fund - an opportunity for a town or city to be a national showcase for a new, unique and innovative smart parking solution that has the potential to be truly transformational (encompassing hardware, software and a comprehensive end-to-end user experience).
- 3.6 In December 2017 AppyParking presented the product to NYCC, HBC officers and Elected Members following which it was agreed that the product could be of significant benefit to both authorities and that a joint project should be initiated.

4.0 AppyParking

- 4.1 The system incorporates both on and off-street parking spaces and offers an exclusive, holistic approach to managing traffic and the parking experience. Different elements of the system have previously been piloted in parts of Westminster, Coventry, Islington and Reading. AppyParking are now seeking to demonstrate the complete solution across a whole town or city.
- 4.2 The capital cost of the required infrastructure (i.e. sensors and installation worth circa £200k) is being funded by Visa in collaboration with AppyParking. It is often this cost that prevents Local Authorities from pursuing new, innovative solutions.
- 4.3 The proposal involves:
- Installation of approx. 1,600 surface mounted sensors in all paid for on-street parking bays (914 bays) and in the off-street surface level car parks in Harrogate Town Centre.
 - The sensor can determine if a space is occupied or not in real-time.
 - This information is utilised within the free AppyParking application (app) by the motorist to identify parking availability and associated cost in the Town Centre.
 - The motorist can then navigate the most efficient route to the parking space that suits their needs and avoid areas where there is no available parking.
 - On arrival the motorists can start their parking session via the AppyParking app or can choose to pay and display in the traditional way using the pay and display machines.
 - When using the AppyParking app, the motorist does not have to predict how long they will be in the bay and the session automatically ends when the car leaves the bay. This 'start/stop' transaction using AppyParking's 'One Click' solution is unique to this supplier.
 - The motorist pays for their parking via the app. AppyParking levy a 'convenience fee' of thirty pence on each parking payment directly to the customer. (It should be noted that the ability to pay at parking machines will still be available to customers who may wish to avoid this fee or continue with their traditional method of payment).

5.0 AppyParking Platform

- 5.1 The AppyParking approach combines: standardisation and digitisation of parking data, integration with sensors, an award winning mobile app, and a proprietary payment platform and tariff engine capable of enabling minute-by-minute payments for parking (called 'Linear parking' further explained in 7.0). Competitors like ParkMap, Smart Parking, RingGo etc. do not currently provide this all-inclusive approach to smart parking.
- 5.2 AppyParking offers a unique and patented technology for taking payments for parking through sensors, creating a frictionless payment experience for the customer. 'One Click' parking is a radical, new approach when compared against all existing providers including RingGo, PayByPhone, MiPermit, ParkMobile, PhoneandPay, Woosh etc.

6.0 AppyParking Hardware

- 6.1 AppyParking sensors operate on a scalable Low Powered Wide Area Network (LPWAN) capable of covering an entire town/city with two small base stations. Competitors currently require relay stations on every street, limiting scalability and robustness.

6.2 AppyParking offer the thinnest surface mounted sensor design on the market and the only design compliant with DfT guidelines for road studs. Other competitors use flush mounted sensors that require drilling holes into the tarmac.

6.3 The sensors are also the only model available on the market with embedded Bluetooth beacon technology enabling vehicle to infrastructure communication (and the unique, Payment Card Industry (PCI) compliant 'One Click' payment system).

7.0 Linear Parking

7.1 Parking in Harrogate currently operates on a block tariff parking model (e.g. a user pays for an hour or part thereof). A shift to minute-by-minute 'linear' parking is an essential condition for AppyParking. This model is more attractive and considered fairer to the customer; however it is not yet common in the UK. After consulting LAs who have employed a linear parking model, it is considered that (with an appropriate minimum charge) it is unlikely that there would be a change in parking income levels.

7.2 It has been acknowledged that a linear parking model can be introduced post-implementation and both AppyParking and NYCC have agreed that a trial area of approximately five streets should be implemented initially for a three month trial before it is rolled out elsewhere. Longer term, it is essential to incorporate the two barriered car parks (Jubilee and Victoria) at the same time as changing on/off-street Traffic Regulation Orders (TROs) to accommodate linear parking. This holistic approach to a new Harrogate town-wide charging regime will be smoother/easier to implement for both the LAs and the public

8.0 Benefits of the Proposal

8.1 The proposal has been developed in partnership with HBC and the benefits for the local authorities include:

- Improved traffic management (which, in turn, supports sustainable growth).
- Reduced congestion/pollution.
- New opportunities around data-driven real-time town centre traffic management.
- Enhanced customer insight.
- Optimisation of operations and enforcement activity.
- National/global recognition as a progressive, innovative, 'smart' place.
- Reduced cash management.
- Real-time data and insight to improve event management.
- Faster turnover of bays.
- No dead time – users pay immediately on arrival.
- Reduced search times and, therefore, increased paid parking duration.
- Removing concern about having a fixed parking duration could increase length of stay.
- Real time revenue monitoring and optimisation.
- Reduction in payment avoidance.
- New opportunities may include variable rate options based on demand/location and loyalty programme participation.

8.2 Benefits for the user:

- Improved customer experience/satisfaction.
- Elimination of parking over-payments.
- Real-time smart signage.

- Eliminates parking search time by navigating user to the nearest available bay. According to research conducted by the British Parking Association, the average time motorists spend looking for a space is 5.9 minutes, adding up to a total of 90.5 hours - or four days - spent searching for a parking spot over a year.
- Eliminates risk of receiving a penalty charge notice (PCN).
- Ability for customers to make an informed decision relating to their journey.

9.0 Test Phase

- 9.1 The proposed contract trial period is for a maximum of 18 months, however prior to full implementation it is recommended to conduct a preliminary test of the system on a small number of streets (e.g. 5 and yet to be decided) over a 3 month period.
- 9.2 This test phase will provide a brief snapshot into the operation and use of the system and afford the opportunity to understand any potential unforeseen matters which would be exacerbated by full implementation from the very start.

10.0 Financial Implications

- 10.1 NYCC and HBC will be invoiced a joint fixed service cost of £90,000 for the 18 month contract (£45,000 each). This fee includes the analytics software and other 'back office' features such as reporting and payment portals, a 9am-6pm Monday to Friday support service and product enhancements.
- 10.2 There will be a one-off cost for changing the on-street pay and display machines to allow for linear parking charges. This will incur a cost of circa £6,000 to NYCC which will be funded as an operational cost of CPE in accordance with the service agreement with HBC. However, some of this cost will initially be paid to facilitate the test phase.
- 10.3 Advertising a change to the TRO costs circa £2,000 per council. However, this can be combined with other tariff/TRO changes. It is anticipated that these costs would also be covered as an operational expenditure.
- 10.4 Unforeseen costs to the council are unlikely over the 18 month timeframe as the sensors have a five year warranty and a five to eight year battery life.
- 10.5 The main aim of the proposal is to introduce a system that improves traffic management and provides an improved customer experience. The costs and expenses associated with introducing, managing and maintaining on-street parking are drawn from the account managed in accordance with the requirements of Section 55 of the Road Traffic Regulation Act 1984, which sets out the purposes for which the County Council may levy on-street parking charges and how the surplus may be spent - these include the making good of any deficit in the last four years regarding parking, the provision and maintenance of off-street parking and the cost of public passenger transport services and a highway or road improvement project, where it appears to the Council that the provision of further off-street parking accommodation is unnecessary or undesirable. There is a small risk of a fall in income which could have potential implications for projects funded through the CPE surplus.

11.0 Project Management

- 11.1 A Steering Group would be formed with HBC to oversee project management and delivery.

- 11.2 **Data:** Open Data standards will be developed by the County Council's Technology and Change Team in partnership with AppyParking and HBC so that opportunities around data-driven town centre traffic management are realised.
- 11.3 An indicative Project Plan can be found in Appendix A. AppyParking would aim to have the system installed by September 2018.

12.0 Measuring Success

- 12.1 Stakeholders would consider how to maximize and measure the perceived benefits. Performance measures will include:
- User uptake.
 - CPE surplus impact.
 - Air pollution monitoring.
 - User feedback and consultation.
 - User testing to establish search times with/without utilising smart parking.
 - Parking bay utilisation (e.g. changes in parking trends, length of stay and overstays).
- 12.2 Should the 18 month trial prove to be a success, Officers would re-evaluate the business case and market offer. It is likely that further adoption beyond the pilot would require a full OJEU procurement process.

13.0 Legal Implications

- 13.1 Section 32 of the Road Traffic Regulation Act 1984 ("the 1984 Act") gives local authorities the power to provide parking places (both on and off-street) and Section 35 of the 1984 Act states that the local authority may by Order make provision as to the use of the parking place and the conditions on which it may be used. Sections 45 and 46 of the 1984 Act give local authorities the power to designate paying parking places on highways and prescribe any charges to be paid and Section 49(5) provides that any local authority may acquire, whether by purchase or by hiring, such parking meters and other apparatus as appear to the authority to be required or likely to be required for the purposes of these functions.
- 13.2 As mentioned in Paragraphs 7.2 and 10.3 above, the implementation of smart parking would require amendments to existing TROs. Schedule 4 to the Local Authorities' Traffic Orders (Procedure) (England and Wales) Regulations 1996 provides for making a "Minor Order", which has the effect of varying a provision included in an Order under Section 35 or 46(2) of the 1984 Act regulating the method, or requiring the use of apparatus, by which any charges for the use of a parking place are to be paid – the usual requirements to consult and allow for objections do not apply to a Minor Order, which can be made and advertised at least 14 days before it comes into force.
- 13.3 Section 122(1) of the 1984 Act imposes a duty on the County Council to exercise their functions under that Act so as to secure the expeditious, convenient and safe movement of vehicular and other traffic (including pedestrians) and the provision of suitable and adequate parking facilities on and off the highway and Section 16 of the Traffic Management Act 2004 imposes a duty to manage their road network with a view to securing the expeditious movement of traffic on that network. Officers consider that trialling the smart parking solution outlined in this Report will assist the County Council in continuing to fulfil these statutory duties.

14.0 Equalities Impact Assessment

- 14.1 The proposed introduction of the system is not considered to discriminate or have any adverse impact on or against any group or persons with protected characteristics. The proposed introduction of the system is to enhance the service, parking opportunity and improve access to and from the highway network. The EIA screening document is included as Appendix B to this report.
- 14.2 Parking will not be solely managed through the application (App) and drivers who choose not to register to it are still able to park and pay for their parking via the on-street pay and display ticket machines, as per the existing arrangement.

15.0 Conclusions

- 15.1 The proposal represents an opportunity to minimise the costs of trialling a smart parking solution whilst maximising the numerous traffic management and road user benefits.

16.0 Recommendations

- 16.1 The Corporate Director for Business and Environmental Services (BES) in consultation the BES Executive Members agrees the proposal that the council enter into a contract with HBC and Yellow Line Parking Limited (trading as AppyParking) to trial a smart parking solution in Harrogate Town for an 18 month period.
- 16.2 The Corporate Director, BES, in consultation with the BES Executive Members agrees to the £45,000 fixed service fee and other associated transitional costs totalling approximately £8,000 being funded from the Civil Parking Enforcement budget.
- 16.3 The Corporate Director, BES, and the BES Executive Members notes that Officers will report back on the outcome of the trial and proposals thereafter.

BARRIE MASON
Assistant Director, Highways and Transportation

Author of Report – David Kirkpatrick

Background papers: None

Programme of Works

Work Packages	1	2	3	4	5	6	7	8	9	10	11	12
0 - PM												
1 - Set up & Installation												
2 - Initial phase delivery												
3 - Full phase delivery												

Deliverables

Work Package	Deliverables (to be provided each month)
0 – PM	<ul style="list-style-type: none"> Dedicated AppyParking project manager Weekly performance review meetings (if required)
1 – Set up & Installation	<ul style="list-style-type: none"> Project initiation meeting Assessment of LPWAN base station locations (primary and redundancy) Assessment of existing TRO data LPWAN base station installation and set-up Site survey including measuring of bays within project scope and network signal testing Technical investigation for Scheidt & Bachmann barrier integration Proposed sensor location plan Standardisation and digitisation of TRO data on AppyParking GIS system Back office cashless system integration Agreed sensor installation schedule and parking bay suspensions Sensor installation and system configuration (estimated 1,602 sensors) Sensor data monitoring and evaluation period (2-4 weeks) Retrofitting beacon system with Scheidt & Bachmann barriers at Victoria and Jubilee car parks Harrogate TRO data published in mobile app and website Sensor data live in Analytics and QA with Harrogate Council System training and handover (including Analytics platform and Back office payment portal) Sensor maintenance training Sensor data published in mobile app (Go Live)
2 – Initial phase delivery (months 0-6)	<ul style="list-style-type: none"> Data analytics on performance of the Smart City Parking system Marketing for the app in Harrogate Handle PR & communication to the public Comprehensive support weekdays 9.00am - 6.00pm
3 - Full phase delivery (months 12+)	<ul style="list-style-type: none"> Data analytics on performance of Smart City Parking system Marketing for the app in Harrogate Handle PR & communication to the public Technology advisory report

Work Package	Deliverables (to be provided each month)
	<ul style="list-style-type: none"><li data-bbox="587 253 1107 282">• Operational and financial impact assessment<li data-bbox="587 286 1294 342">• Planning support for future upgrades to the Smart City Parking system<li data-bbox="587 347 1350 376">• Product enhancements to Analytics Dashboard and Cashless Portal<li data-bbox="587 380 1185 409">• Comprehensive support weekdays 9.00am - 6.00pm

<p>Initial equality impact assessment screening form (As of October 2015 this form replaces 'Record of decision not to carry out an EIA')</p> <p>This form records an equality screening process to determine the relevance of equality to a proposal, and a decision whether or not a full EIA would be appropriate or proportionate.</p>			
Directorate	BES		
Service area	Highways and Transportation		
Proposal being screened	Trial of a smart parking system in Harrogate		
Officer(s) carrying out screening	David Kirkpatrick		
What are you proposing to do?	To trial for a period of up to 18 months a smart parking system which allows app users to identify available parking spaces and cashless linear (pay by minute) payment.		
Why are you proposing this? What are the desired outcomes?	<p>Smart parking has the potential to significantly improve parking and traffic management, reduce pollution, support the visitor economy and enhance the user experience.</p> <p>The proposal to introduce an intelligent parking management system in Harrogate will support the County Council's Economic Growth Agenda and wider objectives. It will also ensure that Harrogate, one of the county's principal towns, would be at the forefront of a new, innovative smart town solution.</p> <p>The proposal will assist the County Council in continuing to fulfil their statutory duties in respect of parking and traffic/network management under Section 122 of the Road Traffic Regulation Act 1984 and Section 16 of the Traffic Management Act 2004.</p>		
Does the proposal involve a significant commitment or removal of resources? Please give details.	No		
<p>Impact on people with any of the following protected characteristics as defined by the Equality Act 2010, or NYCC's additional agreed characteristic</p> <p>As part of this assessment, please consider the following questions:</p> <ul style="list-style-type: none"> • To what extent is this service used by particular groups of people with protected characteristics? • Does the proposal relate to functions that previous consultation has identified as important? • Do different groups have different needs or experiences in the area the proposal relates to? <p>If for any characteristic it is considered that there is likely to be a significant adverse impact or you have ticked 'Don't know/no info available', then a full EIA should be carried out where this is proportionate. You are advised to speak to your Equality rep for advice if you are in any doubt.</p>			
Protected characteristic	Yes	No	Don't know/No info available

Age		✓	
Disability		✓	
Sex (Gender)		✓	
Race		✓	
Sexual orientation		✓	
Gender reassignment		✓	
Religion or belief		✓	
Pregnancy or maternity		✓	
Marriage or civil partnership		✓	
NYCC additional characteristic			
People in rural areas		✓	
People on a low income		✓	
Carer (unpaid family or friend)		✓	
Does the proposal relate to an area where there are known inequalities/probable impacts (e.g. disabled people's access to public transport)? Please give details.	No		
Will the proposal have a significant effect on how other organisations operate? (e.g. partners, funding criteria, etc.). Do any of these organisations support people with protected characteristics? Please explain why you have reached this conclusion.	No		
Decision (Please tick one option)	EIA not relevant or proportionate:	✓	Continue to full EIA:
Reason for decision	<p>To approve this decision will allow NYCC to be at the technological forefront of intelligent parking / traffic management systems and solutions.</p> <p>It has the potential to have a significantly positive impact on traffic / parking management and to reduce pollution, support the visitor economy and enhance the user experience.</p> <p>The proposal will assist the County Council in continuing to fulfil their statutory duties in respect of parking and traffic/network management under Section 122 of the Road Traffic Regulation Act 1984 and Section 16 of the Traffic Management Act 2004.</p> <p>The proposed introduction of the system is not considered to discriminate or have any adverse impact on or against any group or persons with protected characteristics. The proposed introduction of the system is to enhance the service, parking opportunity and improve access to and from the highway network.</p>		

	Parking will not be solely managed through the application (App) and drivers who choose not to register to it are still able to park and pay for their parking via the on-street pay and display ticket machines, as per the existing arrangement.
Signed (Assistant Director or equivalent)	Barrie Mason
Date	11 April 2018