



C: ENTERPRISE PARTNERSHIP



GREATER CAMBRIDGE
GREATER PETERBOROUGH



**UNIVERSITY OF
CAMBRIDGE**



South
Cambridgeshire
District Council

Report To: Greater Cambridge City Deal Executive Board 4 August 2015

Lead Officer: Graham Hughes, Executive Director: Economy, Transport & Environment, Cambridgeshire County Council

Workstream ref.: D – Smart/digital

Smarter Cambridgeshire Work stream

Purpose

1. The purpose of this paper is to set out a proposal to incorporate a “smart cities” approach within the City Deal programme to help support the delivery of improved transport, skills and housing and unlock further sustainable economic growth within Greater Cambridge.

Recommendations

2. It is recommended that the City Deal Executive board approve the establishment of a Smarter Cambridgeshire work stream for Greater Cambridge, as outlined in Appendices A and B, to be overseen within the City Deal governance arrangements.
3. An overview of potential projects is included as Appendix C.

Reasons for Recommendations

4. Digital technology now underpins almost all aspects of modern living in every sphere across work, travel, leisure and health; and increasingly it impacts on the economic strength, sustainability and quality of life of all parts of the UK and beyond. Emerging “smart cities” technology which is set to have an even greater economic impact in future, builds on this to utilise digital connectivity, sensors and data in innovative ways to support: efficient resource and environmental management; combatting traffic congestion and other city management challenges and engage more directly with citizens.
5. This is particularly pertinent given the strength of the Cambridge business and academic communities with respect to “Internet of Things” (often abbreviated to “IoT”) and associated technology. The Greater Cambridge area has a unique opportunity to become a leading “digital test bed” for smart technology.
6. The academic and business sectors in Cambridge and the surrounding area have long been associated in a global context with pushing the boundaries of technology and being at the forefront of digital innovation. Incorporating a “smart cities” approach within the City Deal programme offers the dual benefit of both drawing on the strengths of the Cambridge research and entrepreneurial community to facilitate delivery of the City Deal objectives at the same time as supporting the local digital economy by showcasing the work of the technology sector

Background

7. In late 2011, in line with national government thinking, the leadership at Cambridgeshire County Council recognised that the digital connectivity infrastructure in the county was inadequate and risked damaging the long term economic success of the area.. A multi-agency programme - Connecting Cambridgeshire - was established to address the digital connectivity infrastructure shortfall and support better exploitation of digital technology across all sectors.
8. The Connecting Cambridgeshire Programme includes a number of work streams to ensure the county is connected and can benefit from future facing 21st century digital infrastructure and services. One of the strands within the programme has included investigation of “smart” technologies and its relevance for Cambridgeshire and specifically the City Deal Programme.
9. The City Deal Board allocated £20,000 per year for 2015/16 and 2016/17 to develop a Smart Cities work stream and seed fund bids for external funding. A “Smart Cities” workshop was held earlier this year with a number of local expert speakers, at the conclusion of which the City Deal Board and Assembly requested that a “Smarter Cambridgeshire” proposal be developed.
10. The recommendation is for the establishment of a Smarter Cambridgeshire work stream within the City Deal Programme which is closely linked to, but distinct from the Connecting Cambridgeshire which has a wider remit and geographical scope. This enables a closer focus on the objectives and delivery of an initial smart cities work stream

Considerations

11. Given the long term impact of the City Deal Programme it is vital that the major delivery strands relating to skills, transport and housing should be as future proofed as possible. A fully developed Smart Cambridgeshire approach can help to achieve this.
12. However given the current formative and therefore speculative nature of “Smart Cities” technology, combined with the need to focus on the delivery of the first tranches of the City Deal Programme in order to draw down further funding, an iterative and initially relatively small scale approach is recommended.
13. The proposed programme will further develop collaborative partnerships to explore and implement solutions based in the Greater Cambridge area.
14. An initial one-year developmental phase is proposed which will identify and implement smaller scale and pilot solutions which will be primarily but not exclusively focused on transport and smart city technology infrastructure. In parallel the project will convene/participate in a wider exploration of smart city opportunities, including the cross-cutting areas of housing, health & care, skills and environmental management to feed into the development of a longer term and larger scale smart city strategy to support future phases of the City Deal Programme.
15. In addition to wider collaboration across the local academic and business community the Smarter Cambridgeshire work stream will draw on resources from the Connecting Cambridgeshire Programme team as well as input from the five participating

organisations and wider stakeholders in the City Deal Programme (as illustrated in Appendix B)

16. The work stream concepts and overview are set out in Appendix A.
17. The initial objectives of the Smarter Cambridgeshire project, through to September 2016 will be to:
18.
 - (a) Generate an outline “smart architecture” blueprint which will facilitate the delivery of a test bed/demonstrator programme.
 - (b) Establish and deliver an initial one year test bed/demonstrator programme of work packages which implement small scale “smart” solutions, with a focus on transport related opportunities (see Appendix C for example work streams).
 - (c) Establish/ participate in a wider forum for collaboration with and information exchange between complementary work programmes (eg the Mobilising Local Energy Initiative – MLIE) and other initiatives across the wider Cambridge research and development communities to develop and showcase the “smart” credentials and profile of the area.
 - (d) Investigate government, EU and other funding opportunities and co-ordinate funding bids to develop the Smarter Cambridgeshire programme in both the short and medium term
 - (e) Investigate and develop collaboration opportunities with other nearby cities, including Peterborough and Milton Keynes. Co-ordinate funding bids where possible to develop the Smarter Cambridgeshire programme in both the short and medium term.
 - (f) Develop a longer term smart cities approach which reflects the level of ambition for Greater Cambridge. This will complement and influence the emerging City Deal programme to ensure that “smart” characteristics are incorporated within the overall approach to housing, transport and skills as part of the delivery of the City Deal.

Options

19. The proposal for an iterative approach minimises the resource requirements and enables the early stages of the Smarter Cambridgeshire vision and strategy to be developed and implemented in a manner which minimises the impact on the initial key delivery strands of the City Deal Programme.
20. This also enables a more agile approach which is appropriate to the fast changing and emerging technology development and associated commercial models.
21. An alternative approach would be to build a dedicated Smart Cities team as part of the City Deal Programme. However this would have higher costs, would take longer to set up and would risk disruption to the delivery of the early phases of the City Deal Programme in diverting resource from the agreed schemes.

Implications

22. In the writing of this report, taking into account financial, legal, staffing, risk management, equality and diversity, climate change, community safety and any other key issues, the following implications have been considered: -

Financial and other resources

23. In March this year the City Deal Executive Board agreed an allocation of £20,000 per year for two years which will be used to support the establishment of a Smart Cities initiative within the City Deal Programme.
24. Staff time to support the work stream will be drawn from existing resources, including the Connecting Cambridgeshire Programme, as set out in Appendix B.

Risk Management

25. The Smarter Cambridgeshire work stream is intrinsically speculative and therefore higher risk in terms of delivery, however the proposal has been devised in a manner which minimises risk to other aspects of the City Deal Programme

Equality and Diversity

26. Smart technology offers opportunities to engage with citizens via different mechanisms which can support greater citizen engagement from population groups usually less likely to engage with Councils. Wider engagement regarding smart city solutions will be incorporated within the work stream where it is feasible to do so.

Climate Change and Environmental

27. There are opportunities to support pilot and trial schemes which include climate change mitigation and environmental management as set out in Appendices A & C.

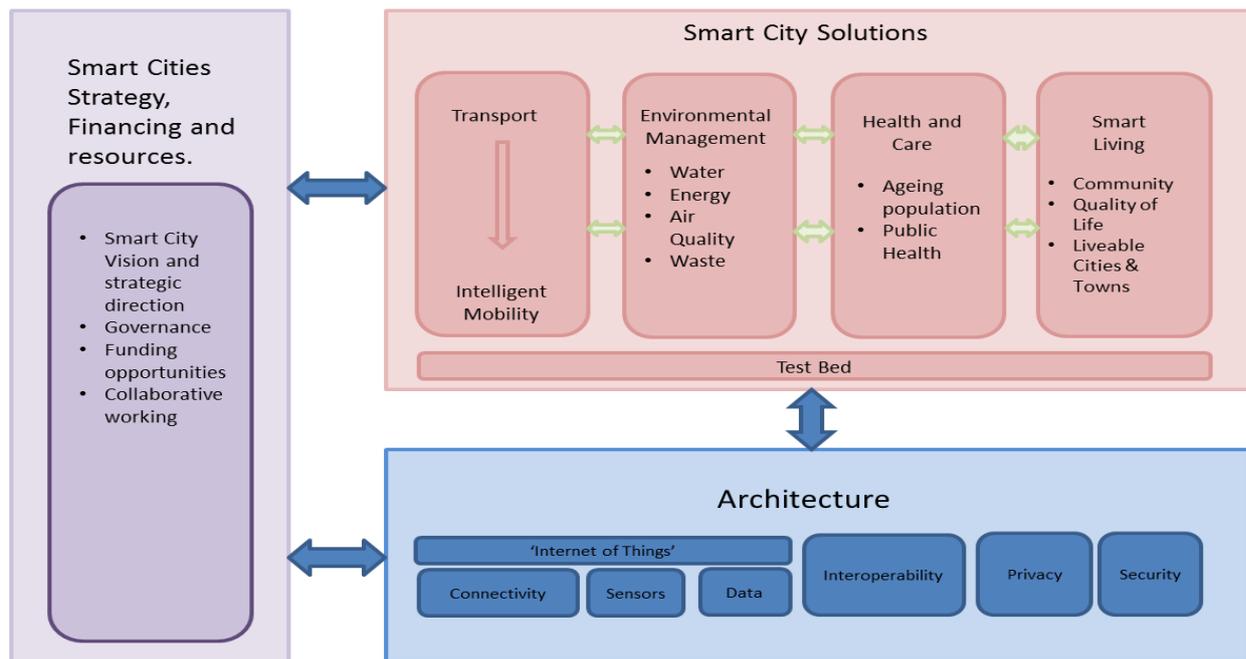
Background Papers

No further background papers have been relied upon in the writing of this report.

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Appendix A - Work stream concept and overview

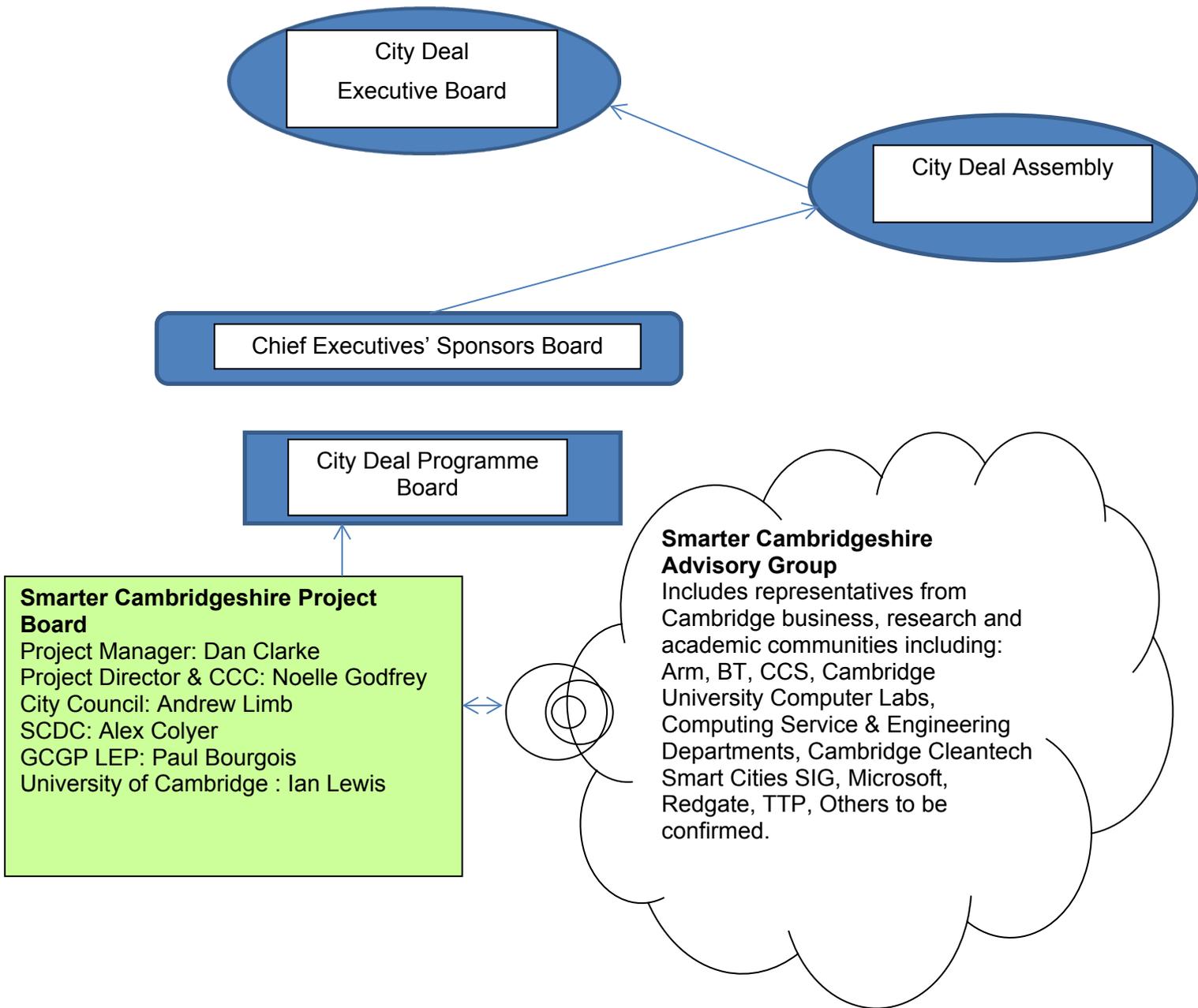
Smarter Cambridgeshire



The primary geographical focus will be Cambridge and South Cambridgeshire, however it is also recognised that activities within the wider geography of Cambridgeshire will also be relevant to delivering the benefits of the City Deal programme, for example the inclusion of “smart” technology within the new A14 could be linked to support better traffic modelling and management within Cambridge and South Cambridgeshire. The initial objectives of the Smarter Cambridgeshire project, through to September 2016 will be to:

1. Generate an outline “smart architecture” blueprint which will facilitate the delivery of a testbed/demonstrator programme.
2. Establish and deliver an initial one year test bed/demonstrator programme of work packages which implement small scale “smart” solutions, with a focus on transport related opportunities (see Appendix C for example work streams).
3. Establish/ participate in a wider forum for collaboration with and information exchange between complementary work programmes (eg the Mobilising Local Energy Initiative – MLIE) and other initiatives across the wider Cambridge research and development communities to develop and showcase the “smart” credentials and profile of the area.
4. Investigate government, EU and other funding opportunities and co-ordinate funding bids to develop the Smarter Cambridgeshire programme in both the short and medium term
5. Investigate and develop collaboration opportunities with other nearby cities, including Peterborough and Milton Keynes. Co-ordinate funding bids where possible to develop the Smarter Cambridgeshire programme in both the short and medium term.
6. Develop a longer term smart cities approach which reflects the level of ambition for Greater Cambridge. This will complement and influence the emerging City Deal programme to ensure that “smart” characteristics are incorporated within the overall approach to housing, transport and skills as part of the delivery of the City Deal.

Appendix B - Governance



Appendix C – example “Smart Solutions” and Architecture projects

This is an indicative list of the test bed and smart city architecture work streams that will be investigated or are already underway. The technology and commercial models, as well as the funding streams available are fast moving and subject to change which means that a definitive list is not currently possible. There will be further investigations undertaken for each of these work streams and an assessment made of their technical, financial and delivery viability to determine whether they will be developed further.

- **Intelligent Transport Information Platform & App**
The 1st phase of this work is collaboration between the County Council with Cambridge University Computer Labs and other partners to develop a platform that will combine real time, historic and crowd funded data to give more accurate travel time information. The second phase will look to collaborate with the University of Cambridge, Cambridge University Health Partners and the Addenbrookes campus to integrate the platform into a journey planner. This will allow travellers to make intelligent transport choices, encourage more sustainable modes of travel and once in motion give them accurate information about journey times both before they leave and whilst travelling.
- **Cambridge Station Gateway Information- Digital Way finding**
Collaboration with partners including Abellio, Cambridge central station operators. The project will aim to use transport data to give the users of Cambridge station a better customer experience. This will include digitally displayed, clear information both inside and outside the station as well as clear way finding and support for more integrated transport choices. One of the aims will be to encourage rail users to walk/cycle on their on-ward journey.
- **“Intelligent” A14**
Project proposal linked to A14 upgrade. Potential for Greater Cambridge, Peterborough, Highways England, Skanska and Costain to work together to develop a Smart Corridor linking Cambridge and Peterborough to facilitate better management of the road network.
- **‘Internet of Things’ – City Solutions**
Partnership with Umbrellium on a successful ‘Internet of Things’ Innovate UK bid. The project looks to explore some of the issues that cities will face deploying the ‘Internet of Things’. Specifically building up understanding of how data can be discovered and combined from public and private sources, as well as looking at issues such as entitlement. The data then will be used to develop a ‘Smart City’ solution which in this case is an app that will look to influence cycling behaviour.
- **“Hyper-Connected Cambridge”**
Development of a strategy for the connectivity layer of the “Smart Architecture” in Cambridge and the surrounding area, which includes fixed, Wi-fi and mobile infrastructure and services. Undertaking a gap analysis and focusing in turn on the different requirements, solutions and opportunities for making Cambridge an exemplar city region for connectivity for : businesses; the academic and research communities; the public realm and urban management (inc IoT); local public service delivery; as well as residential and community needs.

- **‘Smart City’ Data**

The first phase of this project will be to identify data sets that the authority holds which could enable a ‘Smart City’. We will look to work with partners and the research team to publish these through the open data platform Cambridgeshire Insight or to make the data discoverable. As part of this work we will work with local companies and residents to stimulate interest in our data and to encourage its use through ‘hack’ events. Exploration of issues such as privacy, security and how to use big data to address city challenges will begin.

- **Sensing the City**

Building on the “Smart City Data” workstream this will identify the appropriate sensing technology which will enable data collection. Initial discussions have been held regarding air quality and transport data collection.

- **Digital high street**

Pilot of a tool which provides a mechanism for the City Deal authorities to influence both shopping behaviour (encouraging the use of independent shops/areas such as Mitchams Corner) and travel choices. It does this by offering discounts on parking/travel. This can nudge behaviour by encouraging travellers to come in to town off-peak or encourage the use of Park and Rides.

- **Investigating driverless vehicles/pods**

Working with transport policy staff and drawing on expertise from the University of Cambridge to investigate whether autonomous vehicles can deliver some of the aims of the city deal within the medium term and highlight Cambridge as a showcase for advanced, future oriented technology development. For example there may be opportunities to join up various campuses off-road using on demand driverless pods.