

**REQUEST FOR MAYORAL DECISION – MD1581**

**Title: Smart London Demonstrator Programme - New Innovative Demonstrator Projects**

**Executive Summary:**

Approval is sought to deliver a number of new innovative demonstrator projects that scale up the value of data, technology and digital solutions in addressing London's environmental challenges as part of the evolution of London as a leading *Smart City*. The following projects will use GLA funding released following a grant award of £3m from Innovate UK (IUK) under its Future Cities Demonstrator programme:

- An "innovation accelerator" investment scheme to support the development and implementation of scalable smarter environment demonstrator products, services and projects through an open competition process.
- Part grant fund the Bunhill Smart Energy project, demonstrating smart heating solutions across four systems at the city level: network, buildings, homes and citizen.

**Decision:**

The Mayor approves:

1. A reprofile of the remaining programme budget approved through MD1247 as set out in 5.3.
2. Expenditure of £229,000 revenue funding, with contract break-clauses, on an Innovation Accelerator to support the development and implementation of scalable smarter environment demonstrator products, services and projects through an open competition process.
3. Expenditure of £483,037 (capitalisation of £394,400 of programme revenue budget and £88,637 revenue) with contract break-clauses in order not to fetter the new Mayor, to part grant fund Islington Council to deliver the Bunhill Smart Energy project.
4. Capitalisation of £107,000 of programme revenue budget as award of grant funding to Gnewt Cargo for the delivery of Category 2 Agile Urban Logistics project.
5. Delegation of authority for consequent decisions on the Smart London Demonstrator programme, including changes to the programme within the approved timescale and budget, to the Executive Director for Development, Enterprise & Environment.

**Mayor of London**

I confirm that I do not have any disclosable pecuniary interests in the proposed decision, and take the decision in compliance with the Code of Conduct for elected Members of the Authority.

The above request has my approval.

**Signature:**



**Date:**

13.1.2016

## **PART I - NON-CONFIDENTIAL FACTS AND ADVICE TO THE MAYOR**

### **Decision required – supporting report**

#### **1. Introduction and background**

- 1.1 The Smart London Demonstrate programme seeks to bring together emerging opportunities in Smart Cities and to demonstrate the economic, social and environmental value that can be created through the application of digital (data-driven) solutions, systemic approaches to city infrastructure and services, and collaborative co-design and business models. The GLA Environment team, which led a bid ('Linked London' – London's Future Cities Demonstrator) to IUK (formally known as the Technology Strategy Board) in the Autumn of 2012, has agreed with IUK to deliver aspects of projects from that bid and new project concepts that have emerged since that time following a grant award of £3m from Innovate UK (IUK) under its Future Cities Demonstrator programme.
- 1.2 Three of the five work projects from the bid have or are being delivered: Agile Urban Logistics; Networked Utilities and Work and Volunteering Platform – see MD1247. As these projects have not required the full investment of £3m, the GLA Environment team has agreed with IUK to use the funding to:
- A) run an "innovation accelerator" investment approach with the remaining programme budget to support the development and implementation of scalable smarter environment demonstrator products, services and projects through an open competition process.
  - B) deliver activity in one of the two remaining project areas from the bid – 'Bunhill Smart Energy', which would support opportunities for the integrated, smart management of heat and power across four city systems: network, buildings, homes and citizen;

#### **Innovation Programme**

- 1.3 The London we live, work and play in is constantly evolving and citizens' needs and demands of environmental infrastructure and services are increasing more quickly than ever before. Urban innovation can improve London's environment and Londoners' quality of life, whether that is through the introduction of enabling technology, data analytics or involved decision making. However, what is critical to bringing these aspects together and creating disruptive innovation and step change in performance around environmental city services and enabling infrastructures is ensuring that the citizen plays a key role, whether that be in decision making, collaborative partnerships or through active participation.
- 1.4 The Smarter Environment Innovation Programme will produce, via a human and digital platform for agency and action, use cases and examples of tangible innovative on the streets, parks, waterways of London – showing London leadership in the design and roll out of smarter environments in the digitalised twenty first century.

#### **How it will work**

- 1.5 Individuals, small, medium and large enterprises will be able to bid for "byte" size packets of finance, matched by the bidder at a contribution of up to 50%, to assist design, development, trial and commercialisation of digital, human orientated solutions that contribute to achieving the Mayor's and GLA's objectives of a resource efficient and resilient, green London.
- 1.6 The innovation accelerator projects could run for up to two-three years to ensure a meaningful timeframe for start-up, trial, commercialisation and evaluation.

#### **Bunhill Smart Energy Project**

- 1.7 Heat Networks present a significant opportunity for the UK to provide lower carbon, affordable and resilient heat. Bunhill Heat Network, owned and operated by Islington Council, was launched in 2012

and is located in Clerkenwell. The Bunhill Heat Network presents an excellent opportunity to demonstrate the role a heat network can play as part of a smart city. The network serves a number of existing communally-heated housing estates, and the compatibility of these older systems with a modern heat network is a challenge.

1.8 This project aims to demonstrate smart heating principles across four system areas at the city level: network, buildings, homes and people. This will be delivered through two related work streams, requiring capital and revenue funding:

- Bunhill Heat Network upgrade of control infrastructure (e.g. thermal store, heat pumps, CHP engine etc.) for supplying heat to the district heating network and electricity generation and demand management to support the National Grid.
- Redbrick Estate: replacement and upgrade of communal heating systems, installation of smart home heating controls, and provision of resident advice.

1.9 The Bunhill Heat Network control system will be designed to monitor the electrical purchase and sale market and help support the balancing of the national grid by switching between demand and supply of electricity from the heating plant; while at the same time utilising thermal storage to balance the local demand for heat. Achieving this balance will provide additional income for the network due to the financial savings associated with reduced electrical consumption and increased local production of during periods of high electricity demand nationally. These savings will be passed on to local residents.

## **2. Objectives and expected outcomes**

### **Innovation Accelerator**

#### **2.1 Objectives**

- Create momentum by stepping up to scale quickly once the initial trial has proved successful – a key criteria for the calls;
- Take measured risks with use cases and solutions;
- Don't be afraid of failure; and
- Use outcome-based innovation and procurement criteria to allow creative alternatives to flourish.

#### **2.2 Outcomes**

- Urban innovation to improve London's environment and Londoners' quality of life, through the introduction of enabling technology, data analytics, digitisation of infrastructures and services and involved co-design and decision making.
- Step change in performance for environmental city services and enabling infrastructures.
- Citizen playing a key role, whether that is in co-design, decision making, collaborative partnerships or through active participation.

### **Bunhill Smart Energy Project**

#### **2.3 Objectives**

- Improved heating efficiency
- Demonstration of electricity supply balancing
- Lowering heating costs across all Council residents connected to the Bunhill network
- Improved heating services to residents (comfort, control, understanding)
- Improved heating supply from heat network
- Lower carbon emissions
- Improved monitoring of local heat supply and demand

#### **2.4 Expected Outcomes**

- Upgraded control systems (e.g. new energy centre, thermal store, heat pumps, CHP engine etc.) across the Bunhill Heat network.

- Smart heat controls installed in 102 flats on the Redbrick Estate. Smart heat controls will monitor internal and external conditions and regulated the provision of heat to meet occupant comfort levels throughout the year.
- New smart energy website launched (October 2016) to collect demand, supply and consumption of heat across the Bunhill heat network. Analysis of this data will be used to identify inefficiencies (e.g. heat loss, heat network temperature etc.) and associated improvement.

### 3 Equality comments

- 3.1 The GLA is subject to public sector equality duties, and any grant funding agreements that would be awarded, will be consistent with these duties, and with the Mayor's strategies and plans, including those identified in section 4 below with associated equality impact assessments.
- 3.2 No adverse impacts are identified for the proposed programme of works described. Meeting the objectives of this proposal is expected to bring positive contributions to equality arising through improving air quality, health impacts associated with poor heating controls and condensation, and quality of life in present and future London. The Bunhill Smart Energy project also aims to reduce fuel poverty for diverse groups of residents in the London Borough of Islington.

### 4 Other considerations

#### a) Key Risks

Risk	Risk Assessment		Mitigation Response Summary	Owner (org)
	Prob.*	Impact*		
IUK questions direction of programme	1	3	Regular contact with IUK on direction of programme to secure buy-in to projected outcomes	Project Manager
Innovation competition does not unearth innovation solutions	1	4	Produce effective communication strategy to ensure maximum awareness and engagement with city innovators, drawing on similar Mayoral approaches to competition led innovation.	Project Manager
Budget overspend	2	5	Budget contingency has been built into project cost. Bunhill heating controls, quotation already received which inform budget breakdown	London Borough of Islington (LBI)
Timescale – not delivering project by March 2017	2	5	Colloide Engineering procured to deliver Bunhill Heating controls. Work due to commence Mid-end of October 2015. Project team appointed to ensure that project is monitored to ensure timescales can be met.	LBI
Planning permission refused for communal heating works	2	5	Early consultation with planning colleagues on pipe work design	LBI

Risk	Risk Assessment		Mitigation Response Summary	Owner (org)
	Prob.*	Impact*		
Resident objection to communal heating works or proposed home heating controls	2	4	Ensure consultation process is well planned and executed.	LBI
Delays to installation of the communal heating system	1	3	Installation not scheduled until summer 2016. Currently the timescale is viewed as very achievable	LBI
Design of home heating controls is unable to meet desired functionality	2	4	Commission design consultants early and carry out extensive market research with potential providers	LBI
Design of Bunhill HN controls is unable to meet desired functionality	2	4	Commission design consultants early and carry out extensive market research with potential providers	LBI
Lower than expected resident engagement in surveys or advice provision	3	3	Ensure plans are well prepared; engage with housing colleagues, TMO and other stakeholders to market to residents.	LBI
Operation of new energy centres prevents or limits the demonstration of heat network control strategies	2	4	Existing Bunhill CHP enables demonstration of 50% of the functions. Ensure specification and plans for client engineer and build contractor are adequate, including commissioning and maintenance.	LBI
Installation of home heating control system does not perform as designed	2	3	Require performance within specification to installation contractor. Require seasonal commissioning	LBI
Installation of communal heating system does not perform as designed	2	3	Require performance within specification to installation contractor. Require seasonal commissioning	LBI
Low resident satisfaction with home heating controls	2	3	Residents to be consulted on design. Advice to be provided to residents on operational use.	LBI

## b) Links to Mayoral strategies and priorities

The relevant Mayoral Strategies and Priorities against which this programme aims to deliver are:

- Mayor's Air Quality Strategy
- Mayor's Biodiversity Strategy and Green Infrastructure Task Force
- Mayor's Climate Change Mitigation and Energy Strategy
- Mayor's Economic Development Strategy

- Mayor's Transport Strategy
- Mayor's Waste Strategy
- Mayor's Water Strategy
- Smarter Environment for London Programme (in development)
- Smart London Plan

### c) Impact assessments and consultations.

- The project team will continue to consult and engage with key stakeholders including London Borough of Islington, Innovate UK and the GLA Energy and district heating team.
- Impact assessments and evaluation of the project has been carried out to determine the effectiveness of the project in meeting the required outcomes.

## 5 Financial comments

5.1 MD1247 approved £3m of spend on the Smart London Demonstrator Programme, funded from a revenue grant award of £3m from Innovate UK (IUK) (formerly the Technology Strategy Board (TSB) under its Future Cities Demonstrator programme.

5.2 Approval is now sought for the expenditure of the remaining programme budget for 2015-16 through to 2017-18 (including staffing costs).

5.3 Below is a summary of spend to date of the £3m IUK funding received at the end of 2012-13 and forecast spend for 2015-16 to 2017-18.

Spend	2013-14 (£000s)	2014-15 (£000s)	Forecast 2015-16 (£000s)	Forecast 2016-17 (£000)	Forecast 2017-18 (£000)	Total (£000s)
Team London (Micro-volunteering and staffing)*	23	278	431	18		750
Agile Staffing and expenses	31	57	61	61	64	274
Agile Urban logistics category 1 (including £99,000 capital spend in 2014-15 DD1160 and DD1259)	30	275	96			401
Agile Urban logistics category 2 and 3 (including £107,000 of capital spend in 2015/16 for approval) approved under DD 1346			543	210		753
Network utilities		110				110
<b>Bunhill (revenue) approval being requested</b>			<b>28</b>	<b>20</b>	<b>40</b>	<b>88</b>
<b>Bunhill (capital) approval being</b>			<b>35</b>	<b>198</b>	<b>162</b>	<b>395</b>

<b>requested</b>						
<b>Innovation Accelerator (revenue)</b>				<b>114.5</b>	<b>114.5</b>	<b>229</b>
<b>Total</b>	<b>84</b>	<b>720</b>	<b>1,194</b>	<b>621.5</b>	<b>380.5</b>	<b>3,000</b>

\*-Team London (part of Communities and Intelligence Directorate) has been allocated £750,000 of the £3m funding as per DD1160 for Work and Volunteering Platform.

5.4 £394,400 capital will be used to purchase in-home display, in-home smart heating controls, communications network (e.g. cables to boiler room and boiler controls) and a bespoke project website which will link to the GLA/Innovate demonstrator portal. Information will be anonymised subject to data protection.

5.5 £107,000 capital will be used to purchase hardware and licences of Fleetcarma, Emakers software improvement and adaptation, and six licenses of tour planning and routing software.

## 6 Legal comments

6.1 The foregoing sections of this report indicate that the decisions requested of the Mayor fall within the GLA's statutory powers to do such things considered to further or which are facilitative of, conducive or incidental to the promotion of the improvement of the environment in Greater London; and

6.2 In formulating the proposals in respect of which a decision is sought officers have complied with the GLA's related statutory duties to:

- pay due regard to the principle that there should be equality of opportunity for all people further details on equalities are set out in section 3 above) and to the duty under section 149 of the Equality Act 2010 to have due regard to the need to eliminate unlawful discrimination, harassment and victimisation as well as to advance equality of opportunity and foster good relations between people who share a protected characteristic and those who do not<sup>1</sup>;
- consider how the proposals will promote the improvement of health of persons, health inequalities between persons and to contribute towards the achievement of sustainable development in the United Kingdom;
- consult with appropriate bodies; and
- the contribution to the London Borough of Islington amounts to the provision of grant funding and not payment for services. Officers must ensure that the funding be distributed fairly, transparently in accordance with the GLA's equalities obligations and in a manner, which affords

<sup>1</sup> The protected characteristics and groups are: age, disability, gender reassignment, pregnancy and maternity, race, gender, religion or belief, sexual orientation and marriage/ civil partnership status.

value for money in accordance with the GLA's Contracts and Funding Code (the "Code") and, to the extent that it is reliant upon the use of Innovate UK funding, that they be content that such use corresponds with any conditions applicable to that funding.

6.3 Officers must ensure that an appropriate funding agreement be put in place between and executed by the GLA and London Borough of Islington before any commitment to fund is made. Furthermore, the officers must ensure that they comply with the Code for the procurement of any services, supplies or goods in furtherance of the programme.

## 7 Investment & Performance Board

7.1 The proposal was tabled at the IPB meeting of the 10 December 2015 and approved in principle.

## 8. Planned delivery approach and next steps

### Innovation Accelerator

Activity	Timeline
Open innovation calls in the first four months of the financial year	April – June 2016
Assessment and award of innovation finance	August - September
Solution design, development, testing	Oct – Feb 2017
Assessment and evaluation (self and external)	March 2017
Communication of results, impact	April 2017
<b>Above repeated for 2017/18</b>	
Delivery End Date	March 2018
Project Closure:	May 2018

### Bunhill Smart Energy Project

Activity	Timeline
Sign grant funding agreement and project begins	01/12/15
Business Plan Implementation plan Project Plan Design report - final for Redbrick Est. Progress Report (x1)	17/12/15
Progress Report (x1) Design report - draft for Bunhill HN Initial resident survey results & summary report	17/03/16
Progress Report (x1) Design report - final for Bunhill HN Issues Log & Risk Register Update	13/06/16
Delivery Report (Bunhill) Baseline report Progress Report (x1) Issues Log & Risk Register Update	03/10/16
Progress Report (x1) Issues Log & Risk Register Update	17/12/16
Progress Report (x1) Issues Log & Risk Register Update	17/03/17
Delivery Report (Redbrick) Issues Log & Risk Register Update (x3)	13/06/17
Interim Report (Bunhill) Issues Log & Risk Register Update (x3)	03/10/17

<b>Activity</b>	<b>Timeline</b>
Draft final report	17/12/17
Final report (incl. appendices)	17/03/18
Presentation of findings	09/04/18

**Appendices and supporting papers:**

**Public access to information**

Information in this form (Part 1) is subject to the Freedom of Information Act 2000 (FOI Act) and will be made available on the GLA website within one working day of approval.

If immediate publication risks compromising the implementation of the decision (for example, to complete a procurement process), it can be deferred until a specific date. Deferral periods should be kept to the shortest length strictly necessary. **Note:** This form (Part 1) will either be published within one working day after approval or on the defer date.

**Part 1 Deferral:**

**Is the publication of Part 1 of this approval to be deferred? NO**

If YES, for what reason:

Until what date: (a date is required if deferring)

**Part 2 Confidentiality:** Only the facts or advice considered to be exempt from disclosure under the FOI Act should be in the separate Part 2 form, together with the legal rationale for non-publication.

**Is there a part 2 form – NO**

**ORIGINATING OFFICER DECLARATION:**

Drafting officer to confirm the following (✓)

**Drafting officer:**

Daniel Barrett has drafted this report in accordance with GLA procedures and confirms the following have been consulted on the final decision.

✓

**Assistant Director/Head of Service:**

Patrick Feehily has reviewed the documentation and is satisfied for it to be referred to the Sponsoring Director for approval.

✓

**Sponsoring Director:**

Fiona Fletcher-Smith has reviewed the request and is satisfied it is correct and consistent with the Mayor's plans and priorities.

✓

**Mayoral Adviser:**

Matthew Pencharz has been consulted about the proposal and agrees the recommendations.

✓

**Advice:**

The Finance and Legal teams have commented on this proposal.

✓

**EXECUTIVE DIRECTOR, RESOURCES:**

I confirm that financial and legal implications have been appropriately considered in the preparation of this report.

Signature



Date

4.1.16

**CHIEF OF STAFF:**

I am satisfied that this is an appropriate request to be submitted to the Mayor

Signature



Date

11:01:2016