OPDC
OLD OAK AND
PARK ROYAL
DEVELOPMENT
CORPORATION

CEO DECISION – CD 146

Title: 5G Industrial Testbed Stage 1 - Business Case

Executive Summary:

As part of its Industrial Regeneration Programme, OPDC has ambitions to transform Old Oak and Park Royal into a large-scale integrated 5G testbed capable of supporting artificial intelligence, data analytics, virtual and augmented reality, connected and autonomous vehicles, and innovation in all sectors.

The commission will be delivered in two stages:

- The first stage will seek to develop a viable business case for private and public sector investment in fibre and 5G, and secure high-level commitment from a coalition of delivery organisations.
- If the first stage is successful, the second stage will create a detailed delivery plan setting how the partners will work together to create a 5G Industrial Testbed in Old Oak and Park Royal.
- If the first stage is unsuccessful, the commission will end.

This decision supersedes CD137, which approved £80,000 for this work based on officer's estimates of the fee budget. The revised financial authority is in line with highest scoring tender returns received.

Decision:

The Chief Executive Officer approves:

Expenditure of up to £120,000 to appoint consultants to work on Stage 1 of the 5G Industrial Testbed commission. Stage 1 includes the development of a viable business case and extensive market testing with both infrastructure partners and 5G business users.

OPDC will appoint a consultant for both Stage 1 and Stage 2 with the instruction of Stage 2 conditional on the success of Stage 1 and OPDC approving this further investment through a subsequent decision.

CEO AUTHORISATION

I have reviewed the request and am satisfied it is correct and consistent with the OPDC business plan and priorities. It has my approval.

Name: *David Lunts* **Position:** Chief Executive Officer

Date: 09 December 2020

Signature: 

PART I - NON-CONFIDENTIAL FACTS AND ADVICE

Decision required – supporting report

1 Introduction and background

1.1 Park Royal is London's largest industrial estate. It accommodates a wide range of businesses from small start-ups to large multi-national brands which operate across a range of sectors. The Mayor's London Plan sets a target for an additional 10,000 new jobs and 1,500 new homes across Park Royal.

1.2 OPDC has developed a programme to support industrial regeneration and intensification of industrial land use in its area over the next decade. It has been developed in consultation with businesses and stakeholders and targets changes that will support existing businesses and make Park Royal competitive and attractive to new businesses.

1.3 Park Royal and other industrial locations in the OPDC area are poorly served by conventional broadband. The relatively low density of users vs. the high cost of upgrading copper cabling for fibre when compared to high density residential or office locations has resulted in poor coverage of fibre enabled broadband.

1.4 Although 5G distribution still requires "fibre spines" to connect the beacons that create the wireless 5G network, the infrastructure costs of a 5G network could be lower than a fibre connection to all users in Park Royal. This work will allow OPDC to build the business case for 5G coverage to meet business' current data connectivity needs.

1.5 City centre 5G networks are likely to still feature variable and sometimes patchy coverage. However this work will also look at how OPDC could develop a high-coverage seamless 5G network. This type of ultra-connected and integrated 5G testbed would be capable of supporting highly innovative and data-intensive industrial and logistics processes across the area including the use of autonomous vehicles, augmented reality, advanced real-time sensors and data analytics. It's application at scale across an industrial area is highly innovative and could be a significant driver for future investment in the area.

What is 5G?

5G is the next generation of mobile networks. The deployment and roll out of 5G will see significant enhancements on previous mobile technology generations (2G, 3G, 4G), taking the connectivity beyond consumer focused (faster with larger volumes of data) towards being the first network that is designed for multiple use cases, from very high density of sensors (large scale Internet of Things (IoT)) to autonomous vehicles and robots; meeting applications requirements from generating gigabytes of data per hour to transmit a robot command in 1ms. It will incorporate new architectures in radio access, system architectures and protocols that will enable new ways of integrating mobile communication and cloud services together. 5G is being designed to blend the requirements of previous communication technologies into a fundamentally new mobile network architecture.

This new architecture will be able to operate in multiple spectrum bands with a vision to provide the following key features (although not simultaneously):

- Handle up to 1000 times higher data volumes than what exists today
- Support 10-100 times more connected devices than what exists today
- Enable data rates of 10-100 times higher than current availability
- Reduce latency by around 5 times that of 4G technology
- Enable up to ten-year battery life for low power, machine-type devices

Large scale integrated digital testbed example

1.6 Digital Greenwich is an example of a large-scale integrated digital testbed. It is developing new standards for smart infrastructure and data with international partners. The Sharing Cities programme is trialling technology in Greenwich such as energy management systems in social housing blocks, energy-saving lighting and controls, and sensors and digital connectivity in lampposts. Autonomous delivery robots and vehicles have been tested and the technology is now being scaled in other cities abroad. The borough is also trialling a range of air quality sensor and data standards to measure air pollution and gain further insights into the levels and causes of pollution.

1.7 Potential use cases and opportunities for 5G in Park Royal:

- End-to-End Smart Inventory & Asset Management
    - Business to Business Scenario - the transportation of goods, mainly in large quantities, between ports, warehouses, manufacturing sites and other logistic hubs.
    - Business to Customer scenario - last mile logistics where goods are delivered to or even picked up by customers.
- Digital Twin of Hubs - a digital twin can use real time data on a virtual model and help test service deployment or prevent faults.
- Augmented Reality powered hub operations
- Connected and Autonomous Transport Systems
- Automated Warehouse Management
- Drone Logistics
- Cloud robotics (Compute power in the cloud, resulting in smaller, cheaper robots)
- Collaborative robotics (Cobots)
- Predictive maintenance of manufacturing assets on the factory floor (using large network of sensors)
- Time critical hazard detection (using high resolution video streaming, IoT sensors, etc.)
- Remote monitoring and remote maintenance of manufacturing assets (in a hazardous environment or instance)
- Quality control based on augmented reality (AR) headset to improve identification and resolution of faults

1.8 5G will bring enormous benefits and opportunities to businesses by allowing enhancements and differentiators to existing products and services or by providing a platform for entirely new digital services. 5G can also improve the operation of the industrial estate, enabling the roll-out of SMART technology to increase the efficiency of mobility, energy and servicing.

1.9 5G will be a crucial enabler of the Fourth Industrial Revolution. The first industrial revolution saw a transition from hand production to machines through the use of steam and water power. The second industrial revolution saw an increase in productivity through better transport and communication networks, and greater electrification. The third industrial revolution saw a marked increase in computer and communication technologies.

1.10 The Fourth Industrial Revolution is a combination of digital data, connectivity and cyber physical systems which will lead to disruptive and transformative digital technologies. It will increase productivity in UK industrial sectors and the UK economy as a whole. However, the adoption of new technologies is dependent on seamless high-speed data coverage.

1.11 Central Government is particularly interested in industrial projects that can demonstrate the value of 5G beyond enhanced mobile broadband and help improve efficiency and productivity in the UK economy.

1.12 On a regional level, the Mayor has set an ambition to make London the smartest city in the world. A smart city is a collaborative, connected and responsive city. It integrates digital technologies and uses city-wide data to respond to its citizens' needs.

1.13 Park Royal offers a suitably high value proposition as a demonstrator project or early adopter of full 5G coverage. However, current broadband provision in the estate is poor with only 20% of the estate able to access to fibre to the cabinet.

1.14 In 2018, OPDC successfully secured up to £1m from the Department for Digital, Culture, Media and Sport's (DCMS's) Local Full Fibre Network Fund as part of a pan-London application led by the GLA and TfL. This funding will be used to install two fibre broadband spines which will provide fibre to the cabinet for 60% of Park Royal. OPDC is working with TfL to clear DCMS' final assurance requirements.

1.15 In 2019, DMCS launched the 5G Industrial Testbeds Fund. At the time, OPDC was unable to meet the criteria of the competition but successfully engaged DCMS through that process and has been encouraged to continue developing a testbed proposal.

2 Objectives and expected outcomes

2.1 The objective of this commission is to create a business case and delivery plan for a 5G testbed focusing on industrial land use in our development area.

2.2 The commission will be managed by OPDC with input from a steering group which will include digital leads for the GLA and West London Alliance to ensure our proposals are developed in line with compatible plans for West London and the rest of the city.

2.3 The commission will be delivered in two stages:

- The first stage will seek to develop a viable business case for private and public sector investment in fibre and 5G, and secure high-level commitment from a coalition of delivery organisations.
- If the first stage is successful, the second stage will create a detailed delivery plan setting how the partners will work together to create a 5G Industrial Testbed in Old Oak and Park Royal.

2.4 In Stage 1, the external consultants will be expected to:

1. Assess a range of options and make recommendations on the scope of the project

2. Assess a range of option and make recommendations on network design

3. Provide a detailed business case including:

    - Challenges addressed and Cost/Benefit Analysis
    - Key outputs and viable use cases
    - Analysis of social and economic contribution
    - Commentary on how the project can support local, sub-regional, regional and national objectives and a wider 5G ecosystem
    - Assess a range of delivery models, including commercially sustainable funding models

4. Assess appetite for private and public sector funding and collaboration with stakeholders

5. Produce detailed analysis of costs, financing, funding and added value

2.5 If Stage 1 is successful, we will start Stage 2, where the external consultants will be expected to:

1. Develop the delivery model and produce detailed business plans(s)
2. Make recommendations on an operating model and governance arrangements.

2.6 By the end of the commission we hope to have assembled a consortium of partners to deliver a 5G Testbed and secured any necessary funding support if required.

2.7 On 19 September, TfL invited suppliers from their multi-disciplinary framework to submit proposals via their e-tendering portal. The tender enquiry required proposals for both Stage 1 and Stage 2.

2.8 OPDC, GLA and West London Alliance colleagues reviewed and scored all tenders and the highest scoring tender proposal was received from Jacobs. This decision is to authorises the expenditure required for the commission.

2.9 Jacobs will be awarded a contract for both stages 1 and 2, with the instruction of Stage 2 being at OPDC's discretion and conditional on further authority by separate decision at that stage.

3 Equality comments

3.1 Under section 149 of the Equality Act 2010, as a public authority, the OPDC is subject to the public sector equality duty and must have 'due regard' to the need to (i) eliminate unlawful discrimination, harassment and victimisation; (ii) advance equality of opportunity between people who share a relevant protected characteristic and those who do not; and (iii) foster good relations between people who share a relevant protected characteristic and those who do. Protected characteristics under section 149 of the Equality Act are age, disability, gender re-assignment, pregnancy and maternity, race, religion or belief, sex, sex orientation, and marriage or civil partnership status (all except the last being "relevant" protected characteristics.

4 Other considerations

Risks

4.1 Risk 1 - The Business Case is not viable or attractive. In Stage 1, the business case fails to generate interest from private or public sector organisations.
Mitigation - Do not proceed to Stage 2.

4.2 Risk 2 - Conflicts with other strategies/studies that are being commissioned. The proposals being recommended within the strategy may conflict with other proposals from studies or strategies that are being developed concurrently.
Mitigation - Ensure that continued discussions take place during the development of all related strategies to ensure that they are aligned

4.3 Risk 3 - External stakeholders may disagree with proposals being made within the Business Case or Delivery Plan. Disagreements may arise from stakeholders, which could affect the timing of the completion of the project.
Mitigation - Include stakeholders within the development of the strategy. SMT will review and sign-off the strategy at key stages in its development

4.4 Risk 4 - The scope and budget may creep during the project. During the project, additional inclusions may be identified which will result in a variation to the scope and an increase in budget.

Mitigation - Fortnightly review meetings with the consultants and client have been requested within the scope.

Stakeholders

4.5 The 5G Testbed Business Case and Delivery Plan will require external input and local stakeholders will be invited to join steering or working groups or contribute through workshops or consultation events. Local stakeholders that have been consulted to date are noted below:

Stakeholder	**Level of commitment**
Greater London Authority	Supportive in early conversations
LB Brent	Supportive in early conversations
LB Ealing	Supportive in early conversations
LB Hammersmith and Fulham	Supportive in early conversations
West London Alliance (WLA)	Supportive in early conversations
West London Business / Park Royal Business Group	Supportive in early conversations
Local businesses	Small group approached. Supportive in early conversations.
Developers / Landowners	Segro supportive in early conversations.
HS2	Not discussed yet
TfL	Supportive in early conversations

4.6 OPDC has considered other options for resourcing this work, including using in-house staff. However, we have concluded that engaging a specialist external organisation (with access to greater expertise, resource and networks than OPDC or the GLA) for a short period of time is more cost effective than recruiting or seconding new staff members. OPDC will continue to work with expertise within the GLA group to ensure consultant input is focused where such resource is not available.

5 Financial comments

5.1 Expenditure of up to £120,000 to appoint consultants to work on Stage 1 of the 5G Industrial Testbed will be funded from the 5G and Data Connectivity Strategies budget which sits within the Delivery Directorate. Further expenditure on Stage 2 will be subject to separate authority.

5.2 Further expenditure and contract variations are subject the Corporation's decision-making process.

6 Legal comments

6.1 The report above indicates that the decision requested of the CEO falls within the OPDC's object of securing the regeneration of the Old Oak and Park Royal area and its powers to do anything it considers appropriate for the purpose of its objects or purposes incidental to those purposes, as set out in the Localism Act 2011.

6.2 As noted in the executive summary, this decision supersedes CD137. The legal comments in that decision form reminded the officers of the need to comply with the OPDC's Contracts and Funding Code (the "Code") when procuring services. As set out in paragraphs 2.7 to 2.9 above, Jacobs has been selected following a mini-competition under TfL's multi-disciplinary framework agreement. In light of this, the procurement complies with the requirements of the Code.

6.3 Officers must ensure that appropriate contractual documentation be executed by Jacobs and OPDC, before the commencement of the services.

7 Planned delivery approach and next steps

7.1 The Senior Responsible Owner for this commission is Ben O'Neil and the Lead Officer is Kate Richards.

7.2 The Tender Review Panel and Client Group are Kate Richards (OPDC), Beverley Archer (OPDC), Fin Kelly (WLA) and Sara Kelly (GLA).

7.3 External consultants will be procured to help OPDC develop the 5G Testbed Business Case and Delivery Plan. They will be procured through a competitive procurement process and in line with OPDC's Contracts & Funding Code.

7.4 Tenders will be reviewed by a panel made up of OPDC staff and external stakeholders

7.5 Fortnightly project meetings will be held to monitor project progress, with the OPDC Client Group and Consultant/s in attendance.

7.6 The Consultant/s will produce Inception Reports for stages 1 and 2 which will be submitted to OPDC's Client Group.

7.7 The Consultant/s will produce Interim Reports for stages 1 and 2 which will be submitted to OPDC's Client and OPDC's SMT.

7.8 The Consultant/s will produce Final Reports for stages 1 and 2 which will be submitted to OPDC's Client Group and OPDC's SMT.

Activity	**Timeline**
Issue tenders	Sept 2020
Appoint consultants	Dec 2020
Stage 1 - Inception report	Dec 2020
Stage 1 - Interim Business Case	Feb 2021
Stage 1 - Final Business Case	Mar 2021

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 OPDC 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 – YES/NO**

ORIGINATING OFFICER DECLARATION:	Drafting officer to confirm the following (✓)
Drafting officer: Beverley Archer has drafted this report in accordance with OPDC procedures and confirms that:	✓
Financial and Legal advice: The Finance team has commented on this proposal, and this decision reflects their comments.	✓
The Legal team has commented on this proposal, and this decision reflects their comments.	✓

CHIEF FINANCIAL OFFICER:

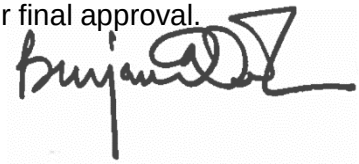
I confirm that financial implications have been appropriately considered in the preparation of this report.

Date 08/12/20

Signature 

DEVELOPMENT DIRECTOR

I confirm that I have reviewed this request and can confirm that I am satisfied it is correct and consistent with the OPDC business plan and priorities. It has my clearance and can be referred to the CEO for final approval.

Signature  **Date** **08 December 2020**