GREATER**LONDON**AUTHORITY

REQUEST FOR MAYORAL DECISION – MD2469

Title: London's Underground Asset Register Pilot

Executive Summary:

The GLA has secured funding of £2.43 million from Government's Geospatial Commission to complete a pilot project that would digitally map underground assets across 6 London boroughs – piloting London's Underground Asset Register (the "LUAR Pilot").

The LUAR Pilot will bring together data from all asset owners in the area, including infrastructure providers and London boroughs, into a digital tool. Improving visibility of these data is expected to have significant impacts on safety (avoiding utility strikes) and efficiency of works (reducing road network disruption). It will be an essential dataset to facilitate the work of the new Infrastructure and Development Coordination Team. The GLA's Growth and Infrastructure Team will manage the project.

The LUAR Pilot is an initial phase within a broader programme of work being undertaken by the Geospatial Commission. The LUAR Pilot's outcomes will contribute to Government's learnings as it evaluates the potential benefits of further funding the mapping of underground assets regionally (including London-wide) and then nationally as the second and third phases of this programme.

The LUAR Pilot will conclude by 1 April 2020.

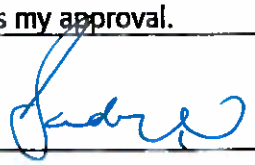
Decision:

That the Mayor approves receipt of £2.43m funding from the Cabinet Office and expenditure of these funds to implement the initial phase of their underground asset mapping programme in London: London's Underground Asset Register pilot.

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: 21/1/19

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

Decision required – supporting report

1. Introduction and background

1.1 The GLA has secured external funding of £2.43 million from the Government's Geospatial Commission to complete a pilot project that would digitally map underground assets across 6 London boroughs – creating London's Underground Asset Register (the "LUAR Pilot") which will be managed by the GLA's Growth & Infrastructure team. The LUAR Pilot will bring together data from all asset owners operating in the areas into a digital tool.

1.2 Currently, underground asset owners (including infrastructure providers and boroughs) across London have limited visibility of one another's asset type and location underground. Information is often contained in formats that make digital sharing difficult and inefficient. This lack of information sharing can, at worst, lead to injury and loss of life through utility strikes. It also causes delays for providers and can incur additional costs for Local Authorities as infrastructure providers undertake numerous 'test digs' to ascertain the location of an asset. Local Authorities and the GLA likewise lack visibility on this asset information - making coordination, improved infrastructure planning, and delivery difficult and more expensive.

1.3 Creating a digital map where providers and the public sector can access information on underground assets is expected to have significant impacts on safety (avoiding utility strikes); and efficiency of works (reducing road network disruption) as well as creating other benefits.

1.4 This project supports the Mayor's commitments to minimise streetworks disruption and is expected also to reduce project delivery issues and related costs. For example, the Northern Line extension incurred delays as the boring machine hit unknown underground assets while excavating the tunnel.

1.5 The Government's Geospatial Commission is funding two pilots in 2019-2020 (as an initial phase of a three-part programme) to evaluate the potential benefits of mapping underground assets, and intends to explore pursuing this approach regionally, then nationally. As one of the two pilots, the LUAR Pilot would be at the forefront of innovation, demonstrating the GLA's commitment to data sharing and digital transformation in a challenging sector.

1.6 The LUAR Pilot will be undertaken in collaboration with the second Geospatial Commission-funded pilot in Northumberland: the North Eastern Underground Asset Register – the NEUAR Pilot. Through arrangements with the Geospatial Commission (GC), Ordnance Survey (OS) will configure their existing platform so it can contain data for both pilots. The GLA will work closely with NEUAR/OS and the GC to ensure that the platform fully meets the needs of London stakeholders (including infrastructure providers and Local Authorities). The GLA's primary focus will be on data modelling and management, as well as stakeholder management. This involves interfacing with London asset owners and collating their data – then ensuring they are in an appropriate format for the tool.

1.7 In addition to the use-cases identified by Government, the pilot will also produce essential data to facilitate the coordination and forward planning work of the Infrastructure and Development Coordination Team (IDCT) – ultimately helping to reduce road network disruption for Londoners and unlock housing by ensuring proper infrastructure is in place to support it.

1.8 As noted in the IDCT MD (MD2386 of 4 December 2018): 'To efficiently realise and support London's growth, there is a need for infrastructure and development to be effectively coordinated; planned and programmed and delivered in a timely and cost-effective manner with minimal disruption to Londoners. Such an approach also has the potential to create the conditions for growth and support the delivery of affordable housing by allowing for more efficient and timely connections at lower cost.'

1.9 The LUAR Pilot builds on an initial proof of concept funded by TfL's Lane Rental Surplus Fund and managed by Thames Water called 'HADES,' which succeeded in mapping underground assets in much smaller areas of London.

1.10 The Mayor's Infrastructure High-Level Group (IHLG), comprising London's leading infrastructure providers, regulators, Government and industry organisations have expressed support for the LUAR Pilot and agreed to share data.

1.11 Note receipt of funding is subject to the GLA agreeing a Grant Agreement with the Cabinet Office, which will be approved under the General Delegation / Signatory Permission (as per Mayoral Decision-Making in the GLA) by the Assistant Director for Growth, Infrastructure and Connectivity.

2. Objectives and expected outcomes

2.1 The LUAR Pilot will result in a digital map of underground assets covering the area of 6 local authorities (LAs) by March 2020. This map will be accessible to all data providers, and the GLA.

2.2 The GLA's activities will focus on data modelling and management, and stakeholder management — engaging asset owners such as infrastructure providers and local authorities to improve their data formats and prepare them for a digital platform. This builds on the GLA's successful track record around coordinating infrastructure delivery through data and innovation, including the London Infrastructure Mapping Application.

2.3 The LUAR Pilot will also build bespoke tools and analytics that work in accordance with the OS platform, providing additional functionality for use in London.

2.4 The project will test Government's central use-cases for an underground asset register:

- Safe digging – to avoid utility strikes;
- On-site efficiency – to create project efficiency savings;
- Site planning – to create project efficiency savings; and
- Data exchange – to create data efficiency savings.

2.5 The project will also cover an additional use-case in support of the Infrastructure and Development Coordination Team:

- Improved coordination – to support collaborative streetworks.

2.6 Conducting a successful pilot as the initial phase of the GC's wider programme of work will position the GLA to help inform and shape regional and national solutions to this issue, continuing the GLA's leadership around data, innovation and infrastructure delivery.

2.7 The pilot platform will be used by a range of stakeholders at various stages of infrastructure planning and delivery. The tool will be used by infrastructure providers' operational teams in planning capital works programmes and by their staff while digging onsite. Local authorities will use the tool to improve streetworks planning and facilitate coordination. The LUAR Pilot will test use-cases by trialling the platform in these scenarios.

2.8 There is more work to do to select which six LA areas the LUAR Pilot will cover. This will be determined primarily based on the asset owners' data quality and formats in each LA. LAs will be chosen that can best prove the use-cases put forward by the Geospatial Commission in the time provided and to align with existing GLA infrastructure planning and delivery initiatives through the

Infrastructure and Development Coordination team. The ambition is for the GLA to expand the platform to include all LAs in future once the use-cases are proven through the LUAR Pilot.

2.9 The GLA will take on four workstreams as part of its engagement with the LUAR Pilot. These are:

- **Engagement**: Convening asset owners including LAs and utilities; defining user needs; coordinating with the Northumberland pilot; and engaging with wider potential data users beyond the core group. The GLA will also build and grow new and existing relationships with asset owners and other potential users (convening stakeholders) to understand and outline potential uses of the tool. Staff will be recruited by the GLA to drive engagement (see 2.10 below).
- **Data Gathering and Integration**: Creating an inventory of existing data condition, systems, and practices; project managing the creation of a data model; establishing data sharing agreements; developing integration between asset owners' systems and the platform; investigating how to include specific data formats and the value of doing so; and investigating additional data sources beyond our core datasets. The GLA expects to receive the most significant amount of funding for sourcing initial data from asset owners (including TfL/LUL, Network Rail, Local Authorities and utilities providers). The GLA will be responsible for overseeing the data gathering and vectorisation process[1]. Staff will be recruited by the GLA to manage data collation (see 2.10 below).
- **Use-Cases**: Facilitating use of the platform on the ground; interfacing with IDCT initiatives; measuring outcomes against Geospatial Commission use-cases.
- **Platform**: Developing analytic tools to sit on top of the OS platform; creating appropriate connections with 3D modelling and BIM.

Hiring, procurement and financial considerations

2.10 The LUAR Pilot will require establishing two fixed-term members of staff to deliver the project. These posts will be recruited in accordance with all GLA staffing protocols. These posts will serve to lead on stakeholder engagement and data management.

2.11 Certain elements of the above workstreams within the project will be put out to tender, following the Contracts and Funding Code and GLA's and TfL's procurement guidelines. Services will be procured through TfL Commercial. These include:

- Procuring technical expertise - in data analysis, data engineering, and front end/back end development – to support data combination, integration, and feedback loop work as well as development of digital analytic tools and integration with 3D modelling / BIM.
- Procuring research expertise to support investigation into the benefits of using different data formats and identifying potential datasets and providers beyond the core group.
- Procuring legal expertise to support the creation of data sharing agreements.

2.12 In order to ensure that all relevant data is digitised in a timely fashion in the selected LAs, the GLA will contribute grant funding to LAs. This will allow local authorities to locate data and upgrade its format for use within the LUAR Pilot platform. See item 2.8 for an explanation as to how LAs will be chosen for pilot participation.

2.13 The GLA will also provide grant funding to asset owners to assist in data vectorisation within the pilot areas. The ambition is to create full vectorisation in three of the borough areas within the timeframe of the LUAR Pilot. The amount of funding to be contributed per asset owner will be determined in the

[1] *Please note throughout that vectorisation refers to process of turning two-dimensional maps, or 'raster' data, into more digitally versatile and usable 'vector' data, which is essential for the success of this programme of work. Vector data lends itself far more easily to being represented in a digital mapping tool.*

initial planning stage of the project. An umbrella budget has been committed by the Geospatial Commission.

2.14 The GLA intends for the LUAR Pilot to result in a platform where data for all asset owners in 3 LA areas is fully vectorised; and data remains in diverse formats (including raster) for 3 other LA areas. This will allow evaluation of the value of vectorised data versus raster data.

3. Equality comments

3.1 The public-sector equality duty (PSED) under section 149 of the Equality Act 2010 requires the identification and evaluation of the likely potential impacts, both positive and negative, of this decision on those with relevant protected characteristics. The Mayor is required 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 relevant protected characteristic and those who do not. This may involve, in particular, removing or minimising any disadvantage suffered by those who share a relevant protected characteristic, and taking steps to meet the needs of such people. In certain circumstances compliance with the Act may involve treating people with a protected characteristic more favourably than those without it.

3.2 The GLA will take appropriate steps to identify any potential negative impacts expected on those with relevant protected characteristics. The project to map underground assets is unlikely to have a direct impact on any persons whether they have any protected characteristics or not—this will be confirmed in full when project plans are finalised.

3.3 Recruitment of the two posts will follow the GLA's equalities, diversity and inclusion in recruitment policy.

4 Other considerations

Links to Mayoral Strategies and Priorities

4.1 The below table captures links to Mayoral Strategies and Roadmaps:

Strategy	Links
Environment Strategy	• Help to improve London's air quality by reducing congestion on the roads and reducing vehicle movements associated with construction. • Improve the efficiency of London's energy and water distribution networks, by improving coordination and master planning between providers, and between providers and developers. • Help to reduce ambient noise associated with construction, through improving the efficiency and speed of construction and road occupation.
Transport Strategy	• Help promote healthier streets, by reducing street works and roadworks-related road occupation and reducing the number of vehicle movements associated with construction.
Housing Strategy	• Help to prevent costly delays and unforeseen costs associated with poor infrastructure planning on development sites. • Help to reduce the overall cost of infrastructure to developers.
The London Plan	• Help developers and infrastructure providers to make the best possible use of land, by encouraging the use of utilities master planning, innovative approaches to co-location of assets, and preventing costly retrofitting. • Help to accelerate housing delivery in areas of London that are poorly served by existing infrastructure. • Increase the efficiency and resilience of infrastructure assets and developments through earlier engagement with providers and facilitating investment ahead of demand in utilities infrastructure.
Economic Development Strategy	• Reduce the impact of construction on London businesses and residents, to ensure that London's economy continues to grow, and to improve the productivity of London's economy. • Ensure that London remains a world-leader in planning and delivering new infrastructure, and maintaining existing infrastructure, to promote positive perceptions of the city internationally.

Smarter London Together Roadmap	• The Mayor is committed to opening up the capital's data to help drive better decision making through sharing and combining data across industry sectors. • The Mayor will coordinate and share best practice in data and digital services across the GLA Group.

Key Risks and Issues

4.2 The following key risks have been identified:

Risk cause and event	Risk consequences	Prob.	Impact	Overall	Control measures / Actions	Prob.	Impact	Overal
There may be integration issues between Ordnance Survey platform and GLA work	The platform may not be delivered in time, or may not meet GLA needs	3	3	9	Close collaboration with OS from the start - clarity of needs. User research planned to ensure GLA passes on clear requirements to OS. Certain elements of the project to be done together - like data model.	2	2	4
The creation of regional and national registers may not proceed, or there may be a long delay	The GLA may be unable to access the platform after the pilot has completed; or it may cost more to access	3	4	12	Confirmation given that GC expects to fund access to pilot platform during 'gap' before regional and national platform if they choose to proceed with a regional or national programme. Conversation with OS to indicate there may be a need for GLA to negotiate separately if GC halts plans. Possibility that utilities could contribute to ongoing platform access, as demonstrated in Northumberland to date.	2	3	6
The funding the GLA has allocated to incentivise utilities' vectorisation may be insufficient	The utilities may not vectorise in the timeline or areas required for full coverage	4	4	16	Strong relationships with utilities leadership - indicating willingness to prioritise particular areas and speed up vectorisation without funding. Potential to switch which boroughs require full vectorisation and which don't.	1	3	3
London boroughs may have minimal usable information on their underground assets in any format	The pilot platform may not provide a comprehensive record of what's underground	3	2	6	Research undertaken indicates mix of borough data - ability to switch boroughs in worst case scenario. There is no way to fully mitigate this risk - however, if it is true, it is very important information to know.	2	2	4
Objectives may not be met within projected timeline	The GC may be unable to make the case for a regional/national platform if all use-cases are not proven	3	3	9	Thorough project planning - clarity on high, medium and low priorities re: functionalities of the tool. Focus on GC use-cases. Partnership with OS/Northumberland to divide work.	2	2	4

					Make use of existing IDCT projects to test use-cases.			
The project may duplicate existing work streams at other organisations (e.g. Project Iceberg, AMT Sybex' new software)	Extant underground asset mapping initiatives may distract from stakeholder participation in LUAR or make outcomes less powerful	2	3	6	Full engagement of the sector through working groups. GC involvement can elevate the project.	1	2	2
Resulting product may be unable to successfully replace existing systems	Infrastructure providers may opt to use existing asset mapping tools or former practices rather than the product delivered	3	3	9	Detailed understanding of existing products and user needs. Involvement of GC which may elevate this product above others.	2	2	4
There may be assets without owners/data found on location that is not accounted for by Government, Infrastructure providers or local authorities	The cost of the project may need to increase to incorporate this data; it may not be possible to incorporate this data if no records are available	4	2	8	Plan with OS how to incorporate this data if records don't exist. Rely on feedback loop mechanism in the tool to capture this in future. Potential to launch separate research in partnership with other initiatives to identify assets.	3	2	6
Data from providers may be too inaccurate or too incomplete to provide value when mapped	The existence of a mapped register would not create benefits because test digs and other activities may still be required to verify data	2	4	8	Initial research to confirm value of mapping. Buy in from all providers to ensure best quality data. Understanding in scope of project that this is a first step - we will have to handle lack of data later/separately.	2	2	4
The resource requirements estimated in the budgeting stage may be insufficient	The pilot may not deliver in time or at the full scope.	3	3	9	Budget includes contingency.	2	1	2

Budget

4.3 The high-level budget outlined for the pilot is as follows:

GLA COSTS (£)	
Fixed-term staffing	110,000
Engagement	30,000
Data gathering and integration	365,250
Platform	219,750
Use-cases	15,000

Subtotal: GLA costs	**740,000**
VECTORISATION BUDGET ENVELOPES – TO BE GRANTED TO EXTERNAL PARTIES (£)	
3-borough vectorisation budget	1,000,000
Utility vectorisation budget	516,000
Subtotal: Vectorisation	**1,516,000**
Project subtotal	**2,256,000**
10% contingency (include GLA costs + 3-borough vectorisation)	174,000
TOTAL	**£2,430,000**

4.4 The £740K in 'GLA costs' captured in the budget includes elements to be procured externally:

- Legal: £50,000.
- Research: £15,000.
- Data Engineering/Analysis: £250,000.
- Web Development to Create Tools: £220,000.

5 Financial comments

5.1 The proposed receipt of funding from the Cabinet Office totalling £2.43m and the associated expenditure for this project will be accounted for within the Development, Enterprise & Environment Directorate subject to the terms of the funding being acceptable to the GLA.

5.2 As noted above all associated expenditure will comply with the Authority's protocol for seeking additional staffing resources and the contracts & funding code (wherever applicable). Any future expenditure beyond this initial pilot phase will be subject to further approval via the Authority's decision-making process.

6 Legal comments

6.1 The GLA has wide powers under section 30 of the Greater London Authority Act 1999 (GLA Act) to promote economic development and wealth creation, promote social development, and promote the improvement of the environment, all in Greater London. These powers are sufficiently broad to cover the proposed use of funds in this decision.

6.2 There are restrictions under section 31 of the GLA Act on the GLA incurring expenditure on doing anything which may be done by Transport for London (TfL). There is some potential overlap between this project and activities within TfL's powers, and/or within (for example) the powers of TfL's subsidiary company London Underground Limited (LUL), in respect of assets in highways under TfL's control as highway or traffic authority, and underground railway assets operated by LUL. The proposed activities of the LUAR Pilot however extend across London and embrace roads in respect of which TfL is neither traffic authority nor highway authority, and other assets which are not owned or operated by TfL or LUL (or any other subsidiary or associated company of TfL). To the extent that anything proposed in this decision might be done by TfL, or any local authority, under section 31(6) of the GLA Act the restrictions imposed by section 31 do not prevent the GLA co-operating with, or facilitating or co-ordinating the activities of, TfL, or any other public body.

6.3 In taking the decisions requested, the Mayor must have due regard to the Public Sector Equality Duty; under section 149 of the Equality Act 2010, that is, the need to eliminate discrimination, harassment, victimisation and any other conduct prohibited by the Equality Act 2010 and to advance equality of opportunity and foster good relations between persons who share a relevant protected characteristic (race, disability, sex, age, sexual orientation, religion or belief, pregnancy and maternity and gender reassignment) and persons who do not share it. To this end, the Mayor should have particular regard to section 3 (above) of this report, although no direct impact is foreseen.

6.4 The Mayor can approve the receipt of the Government's Geospatial Commission funding in principle. However this will be subject to an appropriate GLA officer approving the terms of the funding and seeking further legal advice where necessary.

6.5 Once the terms of the funding are understood, the appropriate GLA officer must ensure that they are content that the GLA can comply with any conditions to which the funding is subject and also must take into account the role of the functional bodies in enabling compliance. In any event no reliance should be placed upon such funding until there is a legally binding commitment from the Government's Geospatial Commission to provide the same.

6.6 Services required to deliver the LUAR Pilot must be procured by Transport for London Procurement who will determine the detail of the procurement strategy to be adopted in accordance with the GLA's Contracts and Funding Code.

6.7 Officers must ensure that appropriate contract documentation is put in place and executed by the successful bidder(s) and the GLA before the commencement of the services.

6.8 Paragraphs 2.12 and 2.13 above indicate that the contribution of funding to local authorities and infrastructure providers amounts to the provision of grant funding and not payment for services. Officers must ensure that the funding is distributed fairly, transparently, in accordance with the GLA's equalities and in manner which affords value for money in accordance with the Contracts and Funding Code.

6.9 Officers must ensure that an appropriate funding agreement is put in place between and executed by the GLA and recipient before any commitment to fund is made.

6.10 The above indicates that two fixed-term members of staff will be recruited to help deliver the LUAR Pilot. Officers must ensure such recruitment is in line with GLA's HR protocols including obtaining permission from the Head of Paid Service as appropriate, and that contracts appropriate for fixed term appointments are entered into.

7 Planned delivery approach and next steps:

7.1 An initial Project Plan has been prepared to secure funding; a detailed plan is forthcoming, pending confirmation from the Geospatial Commission. A working group will be established consisting of representatives from each external participating organisation/company to support delivery, including representatives from the Geospatial Commission.

7.2 The project will be overseen corporately by the Assistant Director for Growth, Infrastructure and Connectivity. The Deputy Mayor for Planning, Regeneration and Skills and the Chief Digital Officer will also provide direction. Officers will regularly update key stakeholders – including the Mayor's Infrastructure High Level Group and the Geospatial Commission.

7.3 The below table provides an indicative timeline of the project:

Workstream	Timeframe for delivery
Recruitment, start up and administration	April 2019 – July 2019
Initial Research, Engagement and Agreements	April 2019 – July 2019
Data Improvement, Loading, and API Integration	May 2019 – January 2020
Data Modelling	June 2019 – August 2019
User Needs and Scoping for Platform	April 2019 – July 2019
Tools and Analytics Development	January – February 2020
Use-Case Testing	November 2019 – March 2020

Appendices and supporting papers:

None.

Public access to information

Information in this form (Part 1) is subject to the Freedom of Information Act 2000 (FoIA) 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 it has been approved or on the defer date.

Part 1 - Deferral

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

Part 2 – Sensitive information

Only the facts or advice that would be exempt from disclosure under FoIA should be included 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: Molly Strauss has drafted this report in accordance with GLA procedures and confirms the following:	✓
Sponsoring Director: Michelle Cuomo-Boorer (deputised by Debbie Jackson) has reviewed the request and is satisfied it is correct and consistent with the Mayor's plans and priorities.	✓
Mayoral Adviser: Jules Pipe has been consulted about the proposal and agrees the recommendations.	✓
Advice: The Finance and Legal teams have commented on this proposal.	✓
Corporate Investment Board This decision was agreed by the Corporate Investment Board on 29 April 2019.	

EXECUTIVE DIRECTOR, RESOURCES:

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

Signature M. D. Gallo **Date** 29.4.19

CHIEF OF STAFF:

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

Signature D. Bellamy **Date** 29/4/2019.