

# ARUP

Greater London Authority

## Unlocking London's Opportunity Areas: good practice for effective planning and delivery of infrastructure

This document outlines the challenges and benefits of a coordinated approach to infrastructure delivery in London's Opportunity Areas. Taking a case study approach, the report identifies lessons learned from three of London's Opportunity Areas and presents a roadmap for actionable bodies (i.e. developers, utilities providers, local authorities and the GLA) to navigate challenges more efficiently and effectively through actionable recommendations.



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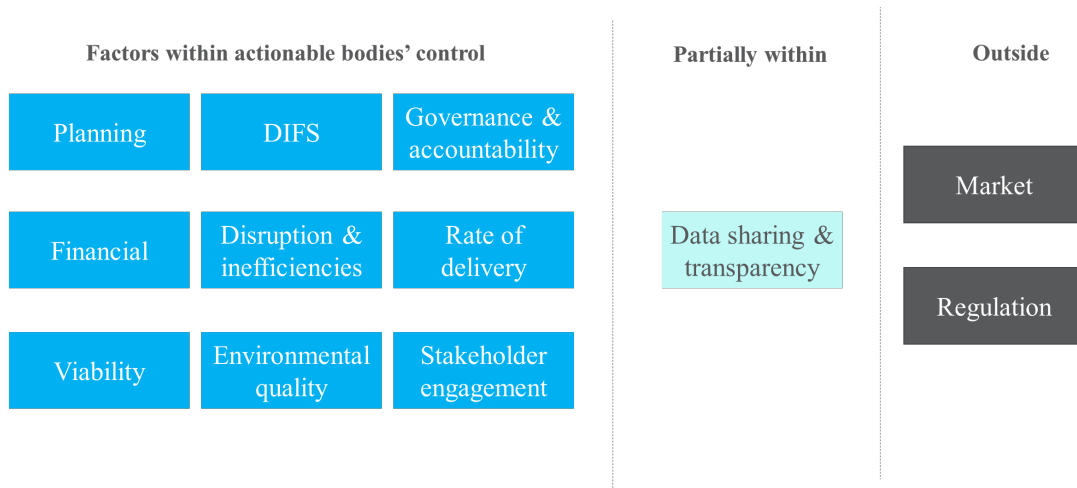
# Executive Summary

Due to limited space and competing demands, many of London’s largest developments are concentrated in its Opportunity Areas, which are areas of brownfield land usually linked to existing or potential improvements in public transport connectivity and capacity. There are 38 such Opportunity Areas (OAs) in London, each with a significant capacity for development –typically at least 5,000 jobs, 2,500 new homes or a combination of the two. The size and scale of these sites means they are often complex to develop; they require a host of other supporting facilities and infrastructure which must be managed over long-term development pipelines. Meeting the development goals of these OAs is critical for London’s continued growth, but the delivery of infrastructure can hold back the pace and scale of that development if not properly planned for and managed.

In 2018, the Mayor of London’s ‘London Infrastructure Group’ agreed to establish the London Infrastructure Coordination Service. This service, provided by the Greater London Authority (GLA), aims to support improved coordination of utilities infrastructure planning and delivery across London in order to achieve ‘good growth’ - a key policy objective of the New London Plan<sup>1</sup>. This report is a stepping stone - guiding this new service in leading efficient delivery of infrastructure for future development. This is very relevant, as the scale of growth needed and the pace at which new development must be delivered to meet the targets set up by the New London Plan places increasing pressure on utilities delivery, communications capacity and the social infrastructure essential to make housing functional and liveable.

This report looks at the role of “actionable” bodies – developers, local authorities, utilities providers and the GLA Family (including TfL) – in delivering infrastructure effectively in London’s high-growth OAs. While regulators play an incredibly important role in setting the policies, rules and incentives for infrastructure delivery, it is these actionable bodies who can work within the system to deliver better outcomes for Londoners.

This research found 13 factors which directly influence the delivery of infrastructure – many of which are largely within control of these actionable bodies. Factors such as planning activities, mitigating disruption and inefficiencies, and accurate viability assessment are all important for achieving the development aims of OAs. However, whilst many of these are under the control of actionable bodies, they are rarely wholly managed by one single party with the powers to influence positive outcomes. Instead, infrastructure delivery in OAs is incredibly complex, relying on transparent communication, trustworthy relationships, and common standards.



*The 13 factors which were identified to directly influence the delivery of infrastructure.*

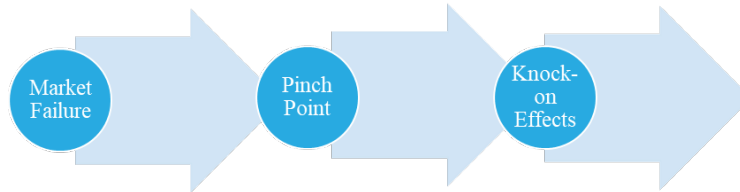
While the positive outcomes of OAs are easier to define, the roadmap to achieving them is far more complex. This report takes a case study approach, learning from the experiences of three London OAs – Vauxhall, Nine Elms and Battersea (VNEB); King’s Cross; and Elephant & Castle. Actionable bodies including local authorities, developers,

<sup>1</sup> Mayor of London, The London Plan – Intend to Publish version, December 2019



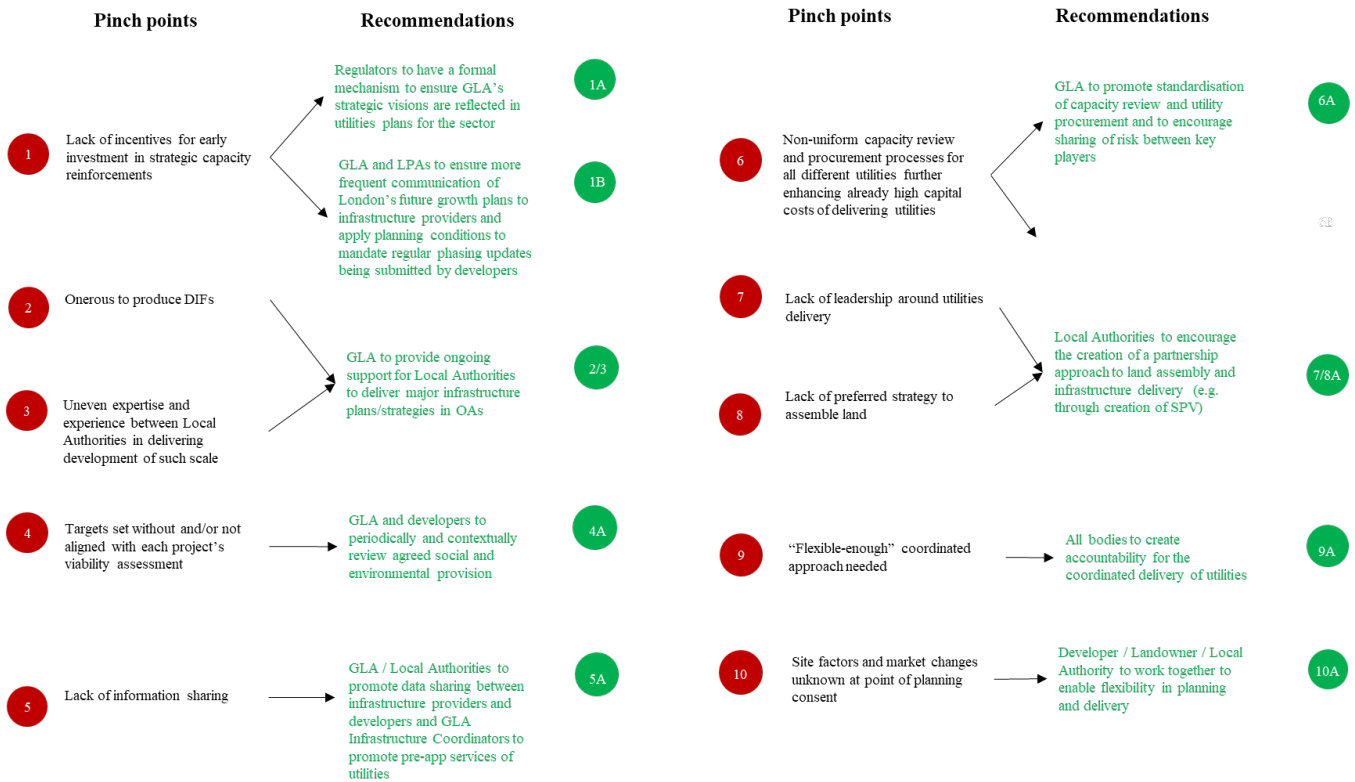
and utilities providers were consulted across the OAs to learn what worked well, what did not, and what can be gleaned from their experience. A scoring matrix was implemented to take into account the sites’ pre-existing conditions against the 13 factors identified in this study, the actions taken by the bodies, and the final outcome.

The lessons from these OAs and a broader literature review shaped a roadmap of key infrastructure decisions and actions taken across the pre-development phases and actionable bodies. This roadmap was created using an analysis of the root market failures – such as information asymmetries – that lead to problems in the path to development. These market failures were found to manifest themselves as ‘pinch points’ in the system, and the knock-on effects can be thought of as the ‘symptoms’ of the problems which rear their head as big issues that actionable bodies have to manage or mitigate. It is important to note the effects (or symptoms of the issues), but ultimately, this report maps the pinch points and provides solutions for how to minimise or remove them.



Stages of analysis informing the Roadmap

Importantly, taking this approach of identifying the market failure, its manifestation into a pinch point and the resulting knock-on effect, we are able to present recommendations that seek to correct the market failure. A high-level summary of the key pinch points and recommendations alongside the development roadmap are set out below.

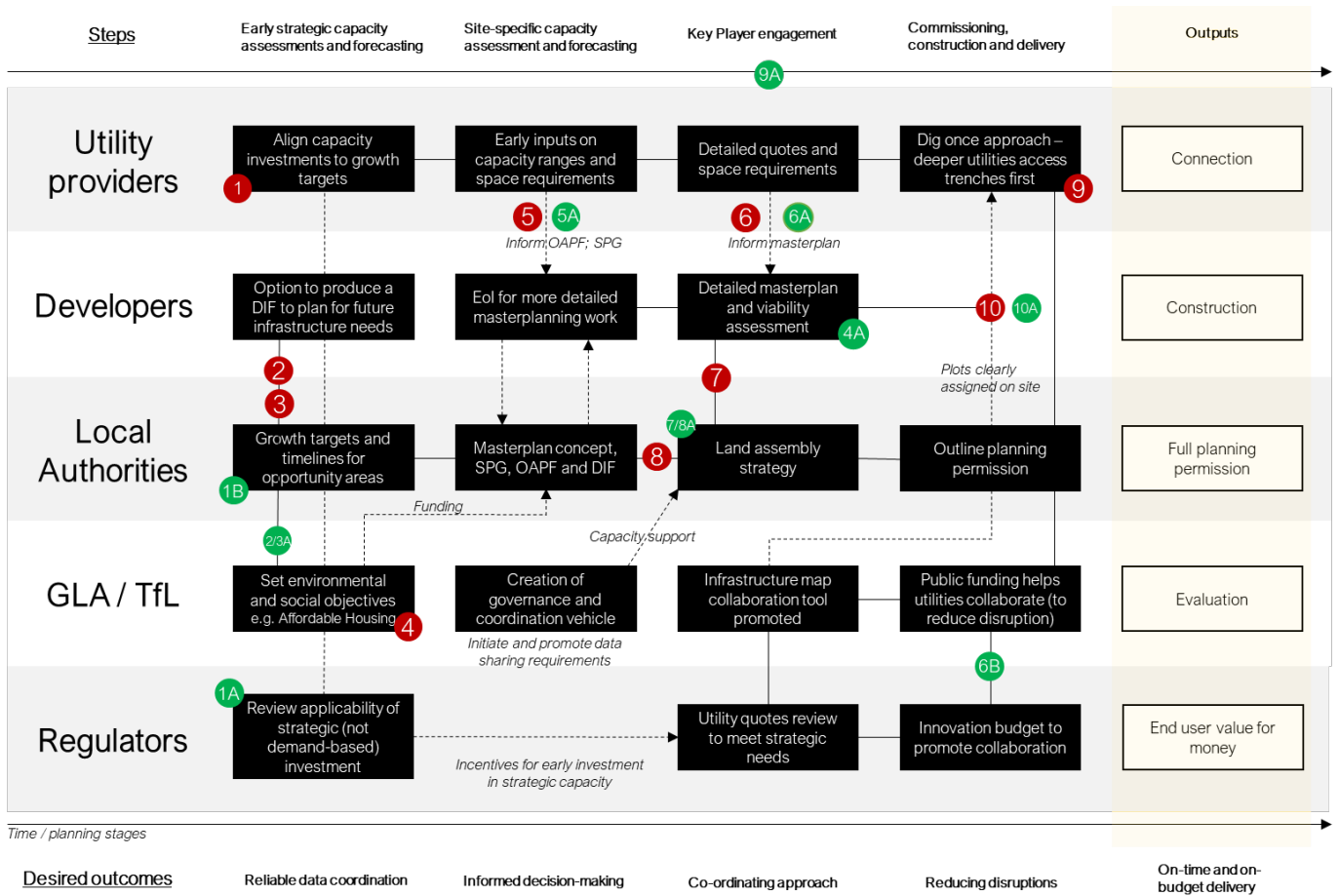


Key pinch points and recommendations summary

The roadmap brings all elements together and presents:

- the key players in delivering OAs and associated infrastructure;
- the key stages in the development process;

- the desired outcomes at each stage;
- the actions the key influencers take along the way; and
- the pinch points and their knock-on effects.



The Roadmap

This roadmap and recommendations take lessons from existing OAs which have already achieved substantial development, and they should be used as tools to support future development of other OAs across London. Ultimately, many of the recommendations rely on greater collaboration and engagement between the actionable bodies throughout the development process. There is a key role for the GLA to continue to lead on these efforts to further demonstrate the benefits of collaboration in the delivery of infrastructure. However, this also requires a concerted effort from developers, local authorities and infrastructure providers, as well as a suite of rules, tools and incentives to break through the market failures facing infrastructure delivery. Using this roadmap can, ultimately, help the GLA deliver on its goals for OAs and support the principles of good growth through the efficient delivery of essential infrastructure to unlock development in the sites with the most potential.

# 1 Introduction

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## Aim of the report

In 2018, the Mayor of London's 'London Infrastructure Group' agreed to establish the London Infrastructure Coordination Service. This service, provided by the Greater London Authority (GLA), aims to support improved coordination of utilities infrastructure planning and delivery across London in order to achieve 'good growth' - a key policy objective of the new London Plan.

A pilot has been established in the Isle of Dogs, in partnership with the GLA and the London Borough of Tower Hamlets, to demonstrate the benefits of co-ordinating infrastructure planning across utilities and other infrastructure/developer activities (water, wastewater, electricity, gas and broadband). A principal focus is on ensuring plans are put in place ahead of demand materialising as well as built on OAPFs as a wider context, promoting integration across sectors and considering options for best-practice delivery.

In order to evaluate the benefits of the approach, the GLA has commissioned Arup to research and understand the recent experiences of three Opportunity Areas (Vauxhall, Nine Elms and Battersea (VNEB); King's Cross; and Elephant and Castle). This research aims to provide a baseline against which to measure benefits that accrue from better coordination and to inform the design of future efficiency initiatives.

As part of this research, we wanted to understand the relationship between infrastructure planning tools and practices, funding arrangements and managing stakeholders - with the delivery of sustainable development and wider place-based objectives around good growth.

This understanding will in turn help to determine the benefits that can be generated from a more coordinated approach and the application of certain principles to infrastructure delivery in Opportunity Areas (OAs) and other major regeneration sites across London.

## Methodology

Taking a case study approach, this analysis and report was undertaken in four stages.

In order to identify themes and drivers/barriers to effective infrastructure delivery in high-growth areas, including OAs, **(activity 1) desk-based literature review** were conducted. These were followed by a series of **(activity 2) interviews** conducted between 28<sup>th</sup> April and 23<sup>rd</sup> June 2020, detailed in Table 1 overleaf. These were carefully chosen in order to understand the recent experiences of stakeholders with experience from the (three) OAs in question and gather viewpoints associated with all stages of the infrastructure delivery lifecycle. All interviews were organised by the GLA and Arup and were conducted jointly.

The Arup team then organised and led **(activity 3) a charrette/workshop to discuss preliminary elements of analysis from activities 1 and 2** with a panel of Arup domain experts from urban design, water and other utilities, digital cities and regulatory and electric vehicles economics, as well as members of the GLA planning team. This workshop took place on June 3<sup>rd</sup>, 2020 over Microsoft Teams. The challenges (for example, market failures and regulatory issues) associated with infrastructure delivery were discussed, as well as potential solutions to overcome them. Workshop participants also highlighted key interdependencies between stakeholders and processes which have been sources of delays and cost overruns in the past.

The OAs were then **(activity 4) assessed against 13 themes** identified in the literature review and a selection of **ways to overcome challenges** were identified. Most of the information gathered for assessing the OAs was sourced from stakeholder interviews and desk-based research. Not all factors were covered separately in the interviews, therefore some are excluded from our assessment and key summary tables. Given the qualitative nature of this study, we cannot draw definitive conclusions from the domains which were not discussed in detail with key stakeholders. However, given the nature of the interviews, we are confident the most important issues were discussed and analysed for the purposes of this report.

Table 1: Interview List

<b>Area / Utilities</b>	<b>Type</b>	<b>Date</b>
OA Vauxhall Nine Elms Battersea	Local Authority	April 28 <sup>th</sup>
OA King's Cross	Developer	May 7 <sup>th</sup>
OA King's Cross	Local Authority	May 14 <sup>th</sup>
OA Elephant & Castle	Developer	May 12 <sup>th</sup>
OA Elephant & Castle	Local Authority	May 12 <sup>th</sup>
Meridian Water	Local Authority / Developer	April 28 <sup>th</sup>
Utilities	Gas	May 11 <sup>th</sup> and follow-up on June 1 <sup>st</sup>
Utilities	Water	June 1 <sup>st</sup>
Utilities	Electricity	July 21 <sup>st</sup>
Other	Overarching vision on transport infrastructure	June 23 <sup>rd</sup>

## 2 Key issues for infrastructure delivery in high-growth areas: literature review

The literature review identified recommendations from the National Infrastructure Commission (NIC) and other relevant bodies as to how to best deliver infrastructure for new developments. This activity informed the definition of clear objectives for infrastructure delivery across 13 factors which influence successful delivery of infrastructure in high-growth areas. These factors sometimes fall entirely inside, partially inside and outside key players' (i.e. local authority / GLA, developers, utilities providers) control, and are considered with a focus on what they might be able to influence.

### Scene setting: Recommendations from the NIC and other key bodies

The current London Plan seeks to ensure the housing need identified is met through the provision of at least an annual average of 42,000 net additional homes across London<sup>2</sup>. The new London Plan increases this target to 66,000 additional homes a year, an even greater demand for the next ten years<sup>3</sup>. To overcome London's limited opportunities for accommodating large-scale development and therefore meet these challenging annual housing targets, suitable areas (i.e. brownfield land which has significant capacity for development) have been identified (in several London Plans) as OAs. The scale of growth needed and the pace at which new development has to be delivered puts pressure on utilities delivery, essential to make housing functional and livable.

Good growth in London must therefore be supported and enabled by the efficient delivery of essential infrastructure; utilities (water, wastewater, electricity, gas and broadband) and transport. As a result of a combination of factors (including London's growing population, the age and reliability and lack of understanding of the location and age of existing assets), the complex existing network of these infrastructure services is under pressure. Due to the high number of stakeholders involved in the delivery of growth throughout London's OAs, effective coordination between the infrastructure and real estate development processes is required to match the pace of delivery with growing needs for housing in London. A better alignment between infrastructure and housing delivery will ultimately lead to the creation of better, more sustainable places.<sup>4</sup>

The London Plan identifies the need for proper planning of utilities and communications capacity well in advance of new development<sup>5</sup>. A lack of integrated planning between different infrastructure providers is experienced across England, but the issue is more pronounced in areas of high growth and increasing demand. Maintaining the quality and delivery of services in these areas is essential to support the rapid growth required.

As part of the National Infrastructure Assessment 2018, the NIC highlighted that providing utilities for new housing developments can often be a cause of delay to construction due to the siloed planning and delivery of utilities and housing as well as piecemeal land ownership most of the time. The NIC identified three causes for this:

- A tension between the requirements on regulators to protect consumers from price rises and to invest in future infrastructure provision, leading to a lack of incentives amongst utility companies to provide increased capacity in advance of development.
- Division and poor communication between the organisations involved in planning, design and delivery of utilities infrastructure.
- Limited mechanisms to improve coordination between housing and infrastructure for smaller-scale housing developments<sup>6</sup>.

<sup>2</sup> Mayor of London, The London Plan, Policy 3.3. Increasing Housing Supply access July 2020

<<https://www.london.gov.uk/what-we-do/planning/london-plan/current-london-plan/london-plan-chapter-three-londons-people/policy>>

<sup>3</sup> Mayor of London, the London Plan Intend to Publish Version, December 2019 access August 2020 <[https://www.london.gov.uk/sites/default/files/intend\\_to\\_publish\\_-\\_clean.pdf](https://www.london.gov.uk/sites/default/files/intend_to_publish_-_clean.pdf)>

<sup>4</sup> Institute of Civil Engineers (ICE), State of the Nation 2019: Connecting Infrastructure with Housing, September 2019

<sup>5</sup> Mayor of London, The London Plan – Intend to Publish Version, December 2019, Para 2.0.4

<sup>6</sup> National Infrastructure commission (NIC), National Infrastructure Assessment, July 2018



In March 2020, the NIC conducted further analysis into this issue and found four key issues with infrastructure delivery to support housing, as summarised in Table 2.<sup>7</sup>

Table 2: National Infrastructure Commission review of barriers to effective infrastructure delivery

<b>Transparency and Information</b>	<ul style="list-style-type: none"> <li>Limited accessibility of information on location and quantity of new homes, capacity of utility networks and costs of connections.</li> <li>Inadequate information flows between main parties.</li> <li>Lack of clarity on roles and accountability.</li> </ul>
<b>Charging and Service</b>	<ul style="list-style-type: none"> <li>Timelines and detail of information provision to developers can be poor.</li> <li>Confusion around charges for information provision.</li> <li>Limited monitoring and reporting from regulators on information provision.</li> </ul>
<b>Coordination</b>	<ul style="list-style-type: none"> <li>Engagement and coordination not available ahead of the development starting.</li> <li>Coordination needed to support preparation of sites.</li> </ul>
<b>Risk and Investment</b>	<ul style="list-style-type: none"> <li>Infrastructure providers and developers are reluctant to carry the risk of investment in infrastructure until there is certainty that it will be used and the investment can be recouped.</li> <li>Lack of incentive to manage risk differently and shift the balance.</li> </ul>

The majority of the issues highlighted by the NIC revolve around the actions of key players and the effectiveness of their co-ordination at important stages of development, for example, during viability and capacity testing. In 2014, the government recognised the need for utilities providers to be ‘better connected’ and created a guide for these key players to reduce complexities, uncertainties and time for delivery. Figure 1 below highlights the key stakeholders that need to work together to deliver infrastructure and new developments.

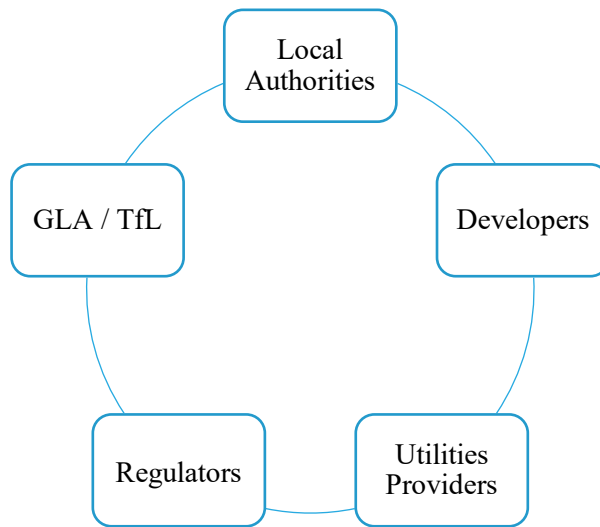


Figure 1: Key stakeholders involved in infrastructure and real estate development in London’s Opportunity Areas

In recognition of this need for greater collaboration and coordination of infrastructure delivery, the GLA and London Borough of Croydon published the 'Collaboration Handbook' in 2019<sup>8</sup>. The 'Collaboration Handbook' focuses on the impact of utility delivery on streets and promotes a move towards a 'dig once approach' through

<sup>7</sup> National Infrastructure Commission (NIC), Infrastructure to support housing, March 2020

<sup>8</sup> Greater London Authority (GLA), LB Croydon, Atkins and Flux, The Collaboration Handbook, A Guide to the Coordinated Delivery of Utility Infrastructure.

enhanced collaboration. The ‘collaborative streetworks’ approach focuses on end-to-end delivery and prioritises actions such as focusing on the one “end customer” (i.e. the public using the infrastructure in some way) for all utilities to align objectives. This echoes the ICE recommendations for infrastructure and housing providers to identify a common objective – ‘to provide the essential services that people need both in the initial communities created and the prospering places they will become’.<sup>9</sup> In working toward this ‘end user’ objective, the Collaboration Handbook focuses on data, people and fairness. The handbook promotes early visibility of data and a positive, problem-solving mindset which focuses on collaborating rather than the process and the pursuance of fairness in benefit distribution.

Whilst there is a dependency between provision of utilities and new development at a functional level, the interrelationship between infrastructure and housing goes beyond practicality. It is also essential in supporting the development of ‘liveable communities’ through placemaking and delivering more sustainable, connected (through public transport or active mobility amenities), lower carbon and resilient development<sup>10</sup>. This relationship is even more impactful in the face of new challenges.

Recognising that, as the UK economy moves towards net zero greenhouse gas emissions by 2050, new demands will emerge on the way that infrastructure is used, delivery of infrastructure today needs to be agile, flexible and resilient. Both the Committee for Climate Change and the NIC have already called for increased investment in clean heating technologies, such as heat pumps using renewable energy or switching from natural gas to hydrogen, which will require innovation and coordination for delivery. The ambition to ‘build back better, greener and faster’ after the Covid-19 crisis demonstrates the need for utilities providers to work with developers to invest in long-term resilience of their assets.

### Defining clear objectives for infrastructure delivery in Opportunity Areas

Building on the issues and objectives identified in the literature review above and building on previous experience of the London Infrastructure Co-ordination Service, Arup and the GLA have (as noted earlier) identified 13 themes to consider for effective infrastructure delivery and set out desired/undesired outcomes within each. These provide a framework for assessing the challenges experienced and the actions that were taken as part of the infrastructure delivery process in our three case study OAs.

As this report is centred on practical solutions for infrastructure delivery, the 13 themes have been organised around the extent to which ‘actionable bodies’ can influence them. For this purpose, these ‘actionable bodies’ are the following: Local authorities, developers, utility providers and the GLA. We acknowledge that some challenges lie on the regulators’ side and that they could play a key role in improving the efficiency of infrastructure delivery in OAs. However, the core purpose of this report is not to recommend changes to the regulatory framework.

Three core categories are identified; those generally within the control of actionable bodies, those partially within actionable bodies’ control, and those outside their control which need to be managed and/or mitigated. We set out for each theme what the desired outcomes are (i.e. ‘what good looks like’) and what suboptimal outcomes look like.

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<sup>9</sup> Institute of Civil Engineers (ICE), State of the Nation 2019: Connecting Infrastructure with Housing, September 2019

<sup>10</sup> National Infrastructure Commission (NIC), Congestion, Capacity, Carbon – Priorities for National Infrastructure – Consultation on a National Infrastructure Assessment, 2017

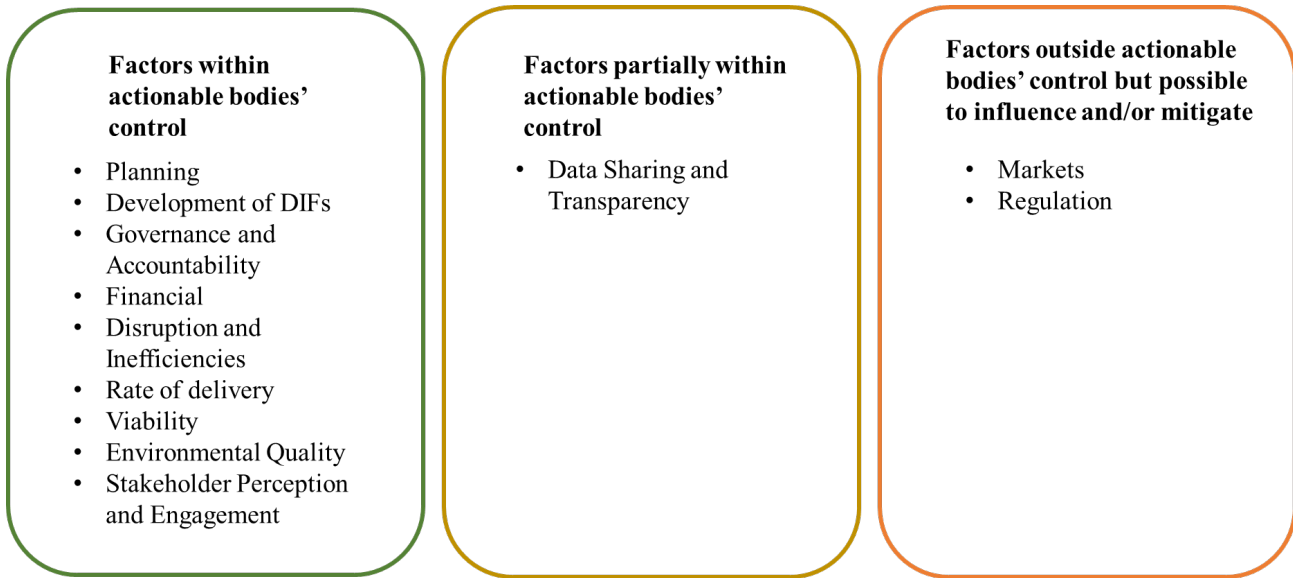


Figure 2: Factors within, partially within and outside key actionable bodies' control

**Factors generally within actionable bodies' control**

*Planning*

Planning for efficient infrastructure delivery requires assessment of existing infrastructure provision and analysis of future demand to understand what is required to support growth in line with planning obligations and environmental standards. This assessment and analysis needs to be done early enough to inform decision-making and prevent disruption and inefficiencies at later stages of the development process.

Undesired Outcomes (not aligned with Isle of Dogs interventions)	Desired Outcome (aligned with the Isle of Dogs interventions)
<ul style="list-style-type: none"> <li>Utility planning and delivery not integrated in the OAPF / masterplanning</li> </ul>	<ul style="list-style-type: none"> <li>OAPF and masterplanning including utility requirements and the phasing of their delivery</li> <li>Baseline understanding of planning obligations and implications of environmental and social objectives</li> </ul>

*Development Infrastructure Funding Studies (DIFS)*

The development of DIFS<sup>11</sup> allows for early integration of infrastructure thinking in a scheme development by estimating the costs for the required infrastructure and associated work (e.g. creation of working groups to coordinate infrastructure delivery) and identifying appropriate sources of funding. Developers and planning authorities are not required by law to produce these studies.

Undesired Outcomes (not aligned with Isle of Dogs interventions)	Desired Outcome (aligned with the Isle of Dogs interventions)
<ul style="list-style-type: none"> <li>DIFS (or similar assessment) not prepared for major development sites</li> </ul>	<ul style="list-style-type: none"> <li>DIFS that helps coordination between relevant stakeholder (e.g. funding working groups or partnerships)</li> </ul>

<sup>11</sup> Development Infrastructure Funding Studies (DIFS) are assessing the infrastructure requirements of growth from a specific development / in a defined area; when the demands for infrastructure arise, how much those infrastructure requirements cost; and how those infrastructure requirements might be paid for. It looks at a range of transport, social infrastructure (e.g. open spaces) and utilities. This document is usually produced in parallel to the Opportunity Area Planning Framework and is at the expense of the developer.

*Governance and accountability*

The scale of OA development schemes and associated infrastructure delivery requires defining clear roles for each key player to ensure effective governance and accountability and therefore supporting an efficient delivery of the whole development. There are various governance and accountability arrangements that should be chosen to suit local conditions (e.g. piecemeal landownership *versus* sole ownership through a partnership agreement). Good governance prevents uncoordinated work often leading to disruption, delays and cost overruns.

Undesired Outcomes (not aligned with Isle of Dogs interventions)	Desired Outcome (aligned with the Isle of Dogs interventions)
<ul style="list-style-type: none"> <li>No one taking ownership of / held accountable for the coordinated delivery of utilities throughout the site</li> </ul>	<ul style="list-style-type: none"> <li>One stakeholder / a group of stakeholders taking ownership of utilities delivery matters with clear terms of reference</li> <li>Formal governance structure and information sharing agreements</li> <li>'Operationalisation' of solutions</li> </ul>

*Financial*

The role of accurate budgeting to avoid cost overruns and losses to London’s economy as a whole, including effective incorporation of uncertainties and potential inefficiencies early on is highly important. Financial outcomes are intrinsically linked to risk, governance arrangements, timing and pace of development as well as other factors. Positive financial outcomes are best facilitated through effective coordination and appropriate balance of power and influence throughout the planning process.

Undesired Outcomes (not aligned with Isle of Dogs interventions)	Desired Outcome (aligned with the Isle of Dogs interventions)
<ul style="list-style-type: none"> <li>Project overbudget or without sufficient pre-determined funding</li> <li>Stakeholders make significant losses</li> <li>Losses to wider London economy</li> </ul>	<ul style="list-style-type: none"> <li>Stakeholders make long-term efficiency savings</li> <li>Savings to the local and London Economy; reduced length of disruption</li> <li>Project within budget</li> </ul>

*Disruption and inefficiencies*

The delivery of infrastructure on time and in its best “shape”, subject to accurate scheduling and design. Uncoordinated work may result in non-optimal processes and delays to delivery of various elements of the masterplan, planning permissions, infrastructure and ultimately completion of the project.

Undesired Outcomes (not aligned with Isle of Dogs interventions)	Desired Outcome (aligned with the Isle of Dogs interventions)
<ul style="list-style-type: none"> <li>Retrofitting of utilities, streets and public realm post-development</li> <li>Piecemeal connections process and uncoordinated works</li> <li>Delays and time lost</li> </ul>	<ul style="list-style-type: none"> <li>Coordinated and integrated works</li> <li>Prior planning and aligned programme between stakeholders</li> <li>Medium to long-term view on capacity requirements – strategic capacity investment rather than short term capacity provision</li> <li>Days saved from disruption</li> </ul>

*Rate of delivery*

The delivery of utilities is an essential and an enabling factor for the delivery of the whole development. Uncoordinated work may result in inaccurate planning of phasing and/or inability to deliver at the initial rate of development build-out. At the same time, a realistic rate of delivery set out by the developer(s) and Local Planning Authority must be considered in line with the capacity and capabilities of local infrastructure providers.

Undesired Outcomes (not aligned with Isle of Dogs interventions)	Desired Outcome (aligned with the Isle of Dogs interventions)
<ul style="list-style-type: none"> <li>• Development stalls, annual targets missed</li> <li>• Inaccurate phasing and missed targets fail to convince regulators and utilities to invest ahead of demand</li> </ul>	<ul style="list-style-type: none"> <li>• Detailed and accurate development phasing</li> <li>• Housing delivery meets annual target</li> <li>• Developer confidence to build-out at fast rate and increase in completions</li> <li>• Reduced exposure to market risk</li> </ul>

*Viability*

As mentioned earlier, the efficient delivery of infrastructure is about delivering it on budget, supported by well-evidenced plans. Budget is incorporated into viability plans. Uncoordinated work may result in the need to reassess viability plans and in the loss of some scheme benefits for the community, as negotiated with the Local Planning Authority either through S106 obligations or other mechanisms.

Undesired Outcomes (not aligned with Isle of Dogs interventions)	Desired Outcome (aligned with the Isle of Dogs interventions)
<ul style="list-style-type: none"> <li>• Loss of scheme benefits for community (affordable housing, planning obligations) as capital has to be diverted to fund needed infrastructure.</li> </ul>	<ul style="list-style-type: none"> <li>• Periodic independent review of viability assessments</li> <li>• Meet or exceed affordable housing target</li> <li>• Multiple community benefits from development</li> <li>• Reduction in subsequent planning applications on same site</li> </ul>

*Environment*

Utilities play an essential role in making a development as sustainable as possible. Uncoordinated work may result in worsening the already detrimental effect of construction on the environment and in not optimally delivering the scheme, particularly through ‘whole-system’ solutions. Changing environmental standards and the long-term nature of OA development can put pressure on all parties to ensure the right balance is struck between environmental considerations, innovation, affordability, and futureproofing. Environmental best practice can often change during the lifecycle of a development.

Undesired Outcomes (not aligned with Isle of Dogs interventions)	Desired Outcome (aligned with the Isle of Dogs interventions)
<ul style="list-style-type: none"> <li>• Poor construction logistics increase vehicular trips</li> <li>• Increased use of unsustainable building materials</li> <li>• Increase in poor air quality from increased works</li> <li>• Whole-system solutions not explored</li> </ul>	<ul style="list-style-type: none"> <li>• Improved construction logistics efficiency reduces the number of vehicular trips required to deliver infrastructure in question</li> <li>• Improved sustainable building practices and integration of circular economy principles</li> <li>• Energy efficiency measures (use of best available trialled and tested technologies)</li> <li>• Performance monitored against plans</li> <li>• Whole-system solutions developed, particularly in energy and water sectors, leveraging local assets and opportunities</li> </ul>

*Quality*

Uncoordinated work may result in poor overall site design (e.g. placemaking) and recurring disruptions. Placemaking and quality of the built environment are important for social outcomes for the community, and they will ultimately have an effect on the economic value of the development in the long-term. Poor quality infrastructure, lack of consumer choice, high consumer costs and persistent disruption could all have negative impacts on the social, economic and environmental value of the development.



Undesired Outcomes (not aligned with Isle of Dogs interventions)	Desired Outcome (aligned with the Isle of Dogs interventions)
<ul style="list-style-type: none"> <li>• Poor quality public realm lack of placemaking</li> <li>• Poor site design to consider and accommodate infrastructure</li> <li>• Little consideration given to developer connections process and fixtures and fittings</li> </ul>	<ul style="list-style-type: none"> <li>• Thought given to how site can be thoughtfully designed to accommodate infrastructure needed (utility corridors, integrated into public realm)</li> <li>• Consideration on multiple developer connections, high quality development and design integration</li> <li>• Clear delineation of plots within the site</li> </ul>

*Stakeholder perception and engagement*

Stakeholder engagement is a critical step in the efficient delivery of infrastructure. A holistic approach allows key players to grasp the big picture, and buy into the vision for a place, and ensure the right stakeholders are engaged at the right time to discuss the right topics. Stakeholder engagement can help guide key players in decisions around consumer choice, environmental sustainability and other factors with lasting impacts on delivery and use.

Undesired Outcomes (not aligned with Isle of Dogs interventions)	Desired Outcome (aligned with the Isle of Dogs interventions)
<ul style="list-style-type: none"> <li>• Siloed approach, key stakeholders involved too late in the process and not bought into the vision</li> </ul>	<ul style="list-style-type: none"> <li>• Multiple community benefits from development through consensus building and early joined-up understanding of vision</li> <li>• Multiple community groups involved</li> <li>• Fewer changes and amendments in subsequent planning applications on same site as early stakeholder engagement should have allowed for the development of a single holistic masterplan</li> <li>• Early identification of all external stakeholders involved (e.g. landowners)</li> </ul>

**Factors partially within or outside actionable bodies’ control**

***Controllable but lengthy to influence***

*Data sharing and transparency*

The right balance of data sharing may be difficult to achieve whereas it could bring significant benefits (including preventing unforeseen delays). There are some long-standing sharing capacity review standards in the infrastructure sector that prevent effective sharing of timely information that is required/necessary to ensure the delivery of schemes at pace and on budget. However, utilities have worked hard in recent years to scale up their pre-application service offering to better inform developers ahead of submitting planning applications, providing new opportunities.

Undesired Outcomes (not aligned with Isle of Dogs interventions)	Desired Outcome (aligned with the Isle of Dogs interventions)
<ul style="list-style-type: none"> <li>• Anticipated level of new capacity requirement not shared between stakeholders in a timely manner</li> <li>• Too expensive for utilities providers to undertake a full capacity assessment prior to official planning approval</li> </ul>	<ul style="list-style-type: none"> <li>• Good flow of information between all utilities providers and between utilities providers and developers / LPAs</li> </ul>

***Uncontrollable but possible to mitigate or influence***

*Regulation*

The role of the regulatory framework is to provide an overarching influence over the level and timing of investments taken by actionable bodies. The impacts of regulations are various; for example, it incentivises both

strategic investments to deliver infrastructure ahead of demand or coordination between different utilities providers through a move towards the standardisation of procurement processes.

Undesired Outcomes (not aligned with Isle of Dogs interventions)	Desired Outcome (aligned with the Isle of Dogs interventions)
<ul style="list-style-type: none"> <li>• Investment after the materialisation of demand</li> <li>• Misalignment with utilities providers’ business plan</li> </ul>	<ul style="list-style-type: none"> <li>• Strategic investments allowed ahead of demand</li> <li>• Early budget allocated for greater collaboration on sites of major growth</li> <li>• Regulators’ early approval of investments based on well-evidenced phasing trajectories</li> <li>• Accounting for the higher potential costs of working in London on brownfield sites</li> <li>• Alignment of strategic planning and development investment in utility business plans and viability assessment and <i>vice versa</i></li> </ul>

*Markets*

Real estate markets and economic cycles are hard to predict. However, stakeholders can take action in order to best mitigate risks and uncertainties associated with market shocks and fluctuations.

Undesired Outcomes (not aligned with Isle of Dogs interventions)	Desired Outcome (aligned with the Isle of Dogs interventions)
<ul style="list-style-type: none"> <li>• Developer at risk, overly reliant on economic certainty to deliver the scheme</li> <li>• Low confidence with short-term vision and commitment to the project</li> </ul>	<ul style="list-style-type: none"> <li>• Flexible delivery to meet evolving market demand and maximise developer’s confidence</li> <li>• Risk re-assessment</li> <li>• Use of incremental planning vehicles</li> <li>• Providing <i>just enough</i> utilities capacity at the right time</li> <li>• Periodic independent review of viability assessment assumptions</li> </ul>

*Vision versus reality*

From reflection on the myriad of challenging factors and different potential outcomes, it is clear that the final delivery of a development can often differ significantly from the objectives of the original vision. There are a number of complex moving parts that may influence the outcome along the stages of development. In pursuing these ‘desired outcomes’ it is important to be aware of the reality of implementation and the many conflicting priorities that may arise between various infrastructure providers.

The OAs in London often include complex urban environments which can increase pressures around viability, developability and deliverability. These sites often face ‘pressure points’ or trade-offs such as at the margin, the cost of infrastructure delivery versus affordable housing. In addition, the development industry is significantly exposed to market fluctuation and regulatory and policy changes. This reduces the level of certainty infrastructure providers operate in, regardless of how much ‘collaboration’ and ‘coordination’ is achieved. It must be recognised that these external factors can make it difficult to achieve the desired outcome even when all positive action is taken.

### 3 Place-based context and case studies

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In this section, three OA case studies are presented to enable an understanding of how the 13 factors identified in the section above have played out in reality. The case studies include:

- Vauxhall, Nine Elms, Battersea (VNEB) Opportunity Area
- King's Cross Opportunity Area
- Elephant and Castle Opportunity Area

Each case study includes a summary of local context (assets and challenges), action taken by stakeholders, and an assessment of outcomes. In addition, a micro-case study of a remarkable action is included for each case study to illustrate a unique approach taken to an issue. A summary assessment table using a scoring framework is provided for each case study which evaluates each of the OAs against the most relevant of the 13 factors.

The information for the case study analysis was taken from a literature review of key documents and interviews with key stakeholders, as detailed in Section 1.

#### Vauxhall, Nine Elms, Battersea (VNEB) Opportunity Area

The VNEB OA aims to create a large-scale 195 hectares high-density mixed-use development across many sites / plots due to be fully delivered by 2030. In 2012, the OAPF set an ambition for 16,000 new homes and 20,000 - 25,000 jobs. These totals have risen to a minimum of 20,000 homes as the planning applications have been submitted<sup>12</sup>. Both a DIF (2010) and an OAPF (2012) were produced for the area. Due to the complexities of the site and the number of landowners / developers, there has been a significant number of planning applications for the OA between 2013 to present.

Wandsworth Council is leading the regeneration programme and administers the Nine Elms Partnership (NEP) with all actionable bodies being members. As the site is characterised by its piecemeal landownership and the involvement of multiple developers, the NEP acts as the coordinating body.

The development is supported in transport terms by a two-station extension of the Northern Line (NLE) from Kennington to Battersea via Nine Elms (planned opening: Autumn 2021) as well as by a range of other transport amenities (new bus stops, additional walking and cycling facilities).

The area features industrial heritage with protected wharves and a Grade II\* listed building: Battersea Power Station. Before redevelopment, the area was suffering from poor quality of public realm and "legibility" of the area as well as poor connectivity.

Some elements of the scheme are already delivered or are under construction including Battersea Power Station, the US Embassy, DAMAC Tower, Graphite Square, The Dumont and New Covent Garden Market.

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<sup>12</sup> Mayor of London website, Vauxhall, Nine Elms, Battersea Opportunity Area page, accessed on July 2020 on <https://www.london.gov.uk/what-we-do/planning/implementing-london-plan/opportunity-areas/opportunity-areas/vauxhall-nine-elms>

Positive actions and local challenges

What positive actions were taken?

**Governance and Accountability:** Nine Elms Partnership, working groups and NERC

The Nine Elms Partnership was created and funded through the DIF and Community Infrastructure Levy (CIL). It identified the need for a governance body relatively early in the process. The partnership was set up to allow key players to coordinate and ensure good delivery of the development as a whole. The partnership was administered by LB Wandsworth with stakeholders (owners, developers, utilities providers) being members. This mechanism unlocked a lot of what needed to be achieved.

Through this partnership, some working groups were also created to coordinate on specific issues (initially including public realm, waste, energy, housing, non-NLE transport and employment). All these different sub-groups reflected the amount of work to be done in the early days. The structure of these groups as well as their focus changed over time, reflecting maturity in approach. The groups allowed stakeholders to come together to find solutions as well as operationalise solutions. The partnership also helped form a company (NERC: Nine Elms Regeneration Company) to provide a single entity which then engaged with utility companies.

Ultimately, these innovative hybrid and bespoke governance vehicles (partnership, single-entity company and working groups) unlocked the delivery of a new primary sub-station.

**Financial / Environment:** delayed opportunity with the district heating network

A combined Cooling and Heating District Network was planned in the OAPF and was set to be delivered under a S106 agreement. The high capital cost associated with the delivery of such “district-coordinated” infrastructure was set to be justified by the economies of scale post-installation. An Environmental Services Company (ESCO) was procured very early on for a 20-year contract to build and operate the network.

However, despite the early procurement, the district network is yet to be delivered, which has had an impact on delivery costs of developments. Indeed, developers have had to put individual boilers in for the interim period. The ESCO (Engie) have now been successful in reaching commercial agreement with the original parties as set out to provide a viable network in the Embassy Quarter. The delivery of the infrastructure was due to commence late 2020 with a view to connecting two developments to the network by April 2021.

What were the challenges?

**Regulation / Planning / Data Sharing and Transparency:** the linear park

One key aspect of efficient infrastructure delivery is to allocate adequate space for its provision. VNEB ultimately did this well, including utilities-thinking at the masterplanning stage.

One of the main elements of the masterplan was a linear park which was intentionally designed not only for public realm but to be used as a conduit for utilities. Indeed, through the S106, a 6 metre wide corridor was safeguarded to mitigate the effect of utility construction on arterial road routes and/or the rail network. This also presents long-term benefits for future maintenance and repair works.

To ensure usage maximisation, AECOM was commissioned to develop a 3D model of all utility infrastructure that could fit under this linear park.

By planning for utilities “ahead of the game” and putting all infrastructure that could possibly fit in under the linear park, capital cost was incurred upfront and then leases were agreed to landowners and sub-leases to utilities providers.

**Market:** uncertainties around next stages developments

There have been some uncertainties about the scale of developments in the whole OA. Indeed, beyond some of the largest developments in the area including Battersea Power Station, the US Embassy, New Covent Garden Market and some luxury apartments buildings, there is limited knowledge about the remaining development plots, making utilities providers nervous about committing time and resources to upgrade capacity under such uncertainties.

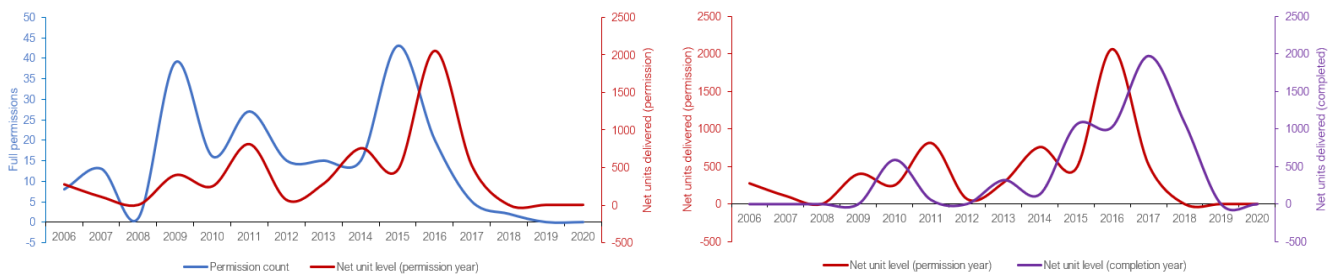
Apart from the full planning application, no specific action was taken forward to ensure developments will go ahead as planned. This is exacerbated by piecemeal landownership which means it is not possible to create a holistic view of the full delivery schedule.

**Good practice example: innovative funding mechanisms used to pay for the linear park**

The linear park was intentionally designed not only for public realm, but to be used as a conduit for utilities or a “utility spine”. This design element was included at the masterplanning stage, incorporating utilities-thinking early enough to mitigate disruption from utilities upgrades and delivery later on. Planning “ahead of the game” means spending capital upfront. Some innovative funding mechanisms were used and/or put in place on top of funding through CIL:

- **TfL “Lane Rental Scheme” (TLRS):** The opportunity to bid for this scheme came up while planning for the linear park. The TLRS is initially designed to control the carrying out of specified works in specified traffic-sensitive locations by applying a daily charge for each day that the street is occupied by the works. In the case of VNEB, the scheme was updated slightly, and some funding was granted on the basis that the linear park will take pressure off the road network both during the construction phase and later for maintenance and repair. Building under a green corridor was said to be a mitigation strategy to minimise short and long-term disruption.
- **SuDS (Sustainable Drainage System) match-funding scheme:** In the first instance, SuDS responsibilities for individual sites were dealt with and funded by the developers as they build out their parcels within the OA. Later, a “20 for 20” match-funding scheme was introduced: a £20m matched contribution by both the council and the developers to fund the construction of a sewer system underneath the linear park that will serve most surrounding developments.

**Timing of full planning permissions and residential units’ delivery in VNEB**



- Peaks in full planning permissions are consistently followed by peaks in residential unit completions.
- Higher number of completed units (6,219), compared to permitted units (5,996), which suggests that several amendments to full planning applications have occurred (Section 73 or Section 96a amendments to the original permissions).

**King’s Cross Opportunity Area**

The King’s Cross OA extends to 54 hectares of land including mainline stations and two conservation areas. Regeneration began in 2000, when Argent LLP was selected as development partner to the King’s Cross Central Land. The King’s Cross Opportunity Area Planning and Development Brief (2004) provided a minimum requirement for 1,900 new homes and an indicative employment capacity of 25,000 jobs. However, the real vision was to create a new neighbourhood which provided employment, retail, leisure, housing and education opportunities with firm links to the local area and an enhanced public realm.

The development is solely owned and led by King’s Cross Central Limited Partnership (KCCLP) which includes the developer Argent and two pension funds, one of which purchased the share in the partnership from London & Continental Railways (LCR) and DHL in 2015. This single ownership structure and long-term investment partners is a significant characteristic of the King’s Cross OA development that worked to its advantage.

The development is supported in transport terms by significant improvement at King’s Cross Station and King’s Cross St Pancras (including new entrances), providing underground, national and international connections.

The area features a strong industrial heritage, including two conservation areas. Prior to development, the Central Lands were predominantly underused industrial lands with limited connectivity between the north and south and east and west. It provided a barrier to the integration of surrounding neighbourhoods.



Most elements of the scheme are now delivered including: Granary Square, Coal Drops Yard, Gasholder No.8 and the Triplet, and King’s Cross Station.

**Positive actions and local challenges**

**What positive actions were taken?**

**Governance and Accountability / Markets:** King’s Cross Central Limited Partnership (KCCLP) were the sole landowner and developer, working closely with LB Camden, willing to deliver long-term value.

The single ownership of KCCLP brought a number of benefits; it allowed for coordination from the outset, flexibility in design across the site and a single point of contact and decision-making for utilities providers.

The assembly of the land was supported by LB Camden, providing an additional element of coordination across a complex agreement. It allowed the developer, local authorities and infrastructure providers to take a holistic view of the site and discover innovative and creative solutions.

KCCLP included pension fund investors who took a long-term view on investment and therefore had a built-in incentive, alongside the developer, to deliver long-term value. This long-term investment and partnership structure allowed for around £150 million of upfront infrastructure investment required to deliver the project, including decontamination.

**Planning / Stakeholder Perception:** The developer has a strong and trusted relationship with the Council, working toward a single vision which enabled the creation of a flexible planning permission.

The relationship between landowner/developer and the Council was significant at King’s Cross. Argent developed a strong relationship with LB Camden based on transparency, clarity and honesty over a number of years. They worked with LB Camden to create a vision for what the development will be and worked with them to make decisions within a long-term horizon. This meant that both the developer and the Council were working toward the same vision, for example affordable housing was prioritised by both parties throughout.

This trust and mutual understanding allowed them to develop a flexible planning permission which provided a masterplan with an overall quantum and various mixed uses. The Section 106 was significantly trust based and very unique, including a selection of choices of delivery dependent on continuous collaboration. This allowed Argent to take account of market changes that occurred within the long delivery timescale. Argent took a careful approach to the link between asset management and development management to ensure good decisions could be made around design and delivery.

**What were the challenges?**

**Quality / Markets:** Independent infrastructure procurement limited choices for a telecoms provider.

The decision was taken to procure independent infrastructure providers across the King’s Cross Development. This was in the view that they provide a better service and are typically more engaging. This decision was successful for most utilities. However, the pursuance of an independent provider for telecoms caused unforeseen issues as it resulted in a limited choice for residents and businesses. Anecdotally, the limited choice of provider has been a negative for potential tenants. Although the provision of infrastructure (duct provision) was effective under the independent provider, it limited consumer choice because of the economics for other firms to try and enter the market, resulting in significant difficulty in getting large brand names on to site.

**Market:** Difficulty to adapt to future demand, e.g. climate change.

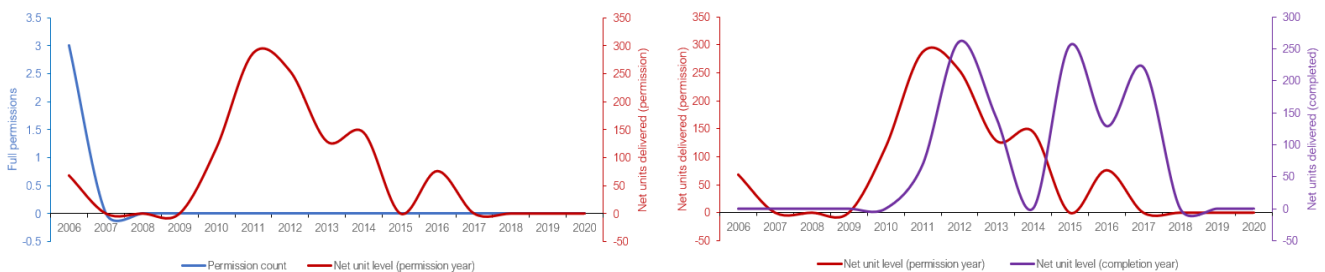
The priorities and options for delivery of utilities in terms of climate change is an ever-evolving topic. In the case of King’s Cross, there are certain elements of the development which were not fully future proofed. For example, the delivery of a large car park under King’s Cross station is no longer seen as the most efficient use of space due to modal shift and climate change requirements. Argent and LB Camden continue to have discussions around how to address this today and increase the sustainability of the development. However, there were limited requirements embedded into the original permission and Section 106, and limited flexibility factored into infrastructure design which has posed challenges in adapting to new demands and technologies in pursuance of net zero carbon.

**Good practice examples: framework for the King’s Cross development in a dedicated LB Camden Policy and use of an inset provider for water**

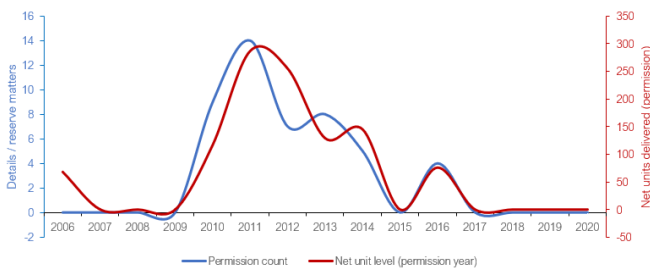
There was a dedicated LB Camden policy within the development plan that set the framework for the King’s Cross development, though it was always intended to provide a long-term flexible approach. To facilitate this, LB Camden created one single planning team for King’s Cross, including policy officers and development management officers. The planning applications and associated Section 106 agreements for the development were large and complex. This combined team worked together to review the planning applications to ensure they met the policy standards and precedent of previous applications. This level of oversight was important to facilitate the flexible permission required for such a long-term approach to development and investment, and to ensure that policy standards were met. The team existed until 2012, once the majority of development had started to be built out. However, LB Camden have always had a Planning Performance Agreement (PPA) with Argent which continues today to ensure a certain level of delivery. Today, LB Camden and Argent have quarterly meetings regarding the Section 106 to provide an update on the current status, clauses and trigger points.

On another note, Argent made use of an inset utility provider for water. This allowed the traditional water provider to transfer risk and responsibility to the inset provider who could focus efforts on King’s Cross, but in doing so it gave up some of their assets. This was a significant step in the efficient delivery of utilities on site as it saved the traditional water provider from getting involved early but allowed Argent to plan water more effectively across the OA in a more joined up fashion. This in practice made Thames Water a wholesaler working together with inset providers to achieve water efficiency and other aims.

**Timing of full planning permissions and residential units’ delivery in King’s Cross**



**Timing of “details / reserve matters” planning permissions and residential units’ delivery in King’s Cross**



- No completions in 2014.
- Residential units’ delivery does not follow a symmetrical pattern with the granting of full planning permissions, as observed in VNEB.
- High number of detail / reserve matters planning applications – which could reflect the benefits of flexibility that may come with unified ownership (three major full planning applications at the beginning of the programme – followed by a series of smaller reserved matters applications – where exact details of utilities connections would be determined).

## Elephant and Castle Opportunity Area

The Elephant and Castle (E&C) OA aimed to create a new pedestrianised town centre with a market square, 5,000 either new or replacement homes, up to 450,000 sq. ft. of retail space, an integrated public transport hub and new green spaces. Both an OAPF and a SPG (2004) were ultimately produced for the area but no DIF. The planning application was approved in 2012-13.

There have been two distinct phases in the development of the project:

- 1998-2002: In 1998, Southwark Council decided to explore options to redevelop the estate. It found a single partner to develop the area, however the negotiations failed. Two lessons were learned and shared by the Council on this false start: 1) before you go out and find a partner, make sure you have a clear plan of your vision for the area and 2) for projects of this scale, recognise the need for a plan-led scheme rather than working with a single partner.
- 2002 – 2007: Much progress was made during this second phase. The Council shared its vision and ambition with the GLA and an OAPF and SPG were produced to make the area a mixed-used town centre with enhanced public transport and better accessibility with its surroundings. Following this work, the borough started to look for commercial partners. In 2007, the Council carried out an OJEU procurement process and selected to redevelop the estate in a joint-venture arrangement with the council. The Council remained the freeholder of some of the sites (e.g. Heygate Estate land) and granted the developer a long lease to facilitate the regeneration.

Southwark Council is now leading the regeneration programme along with two main developers:

- Delancey: set to design a town centre, replacing the area’s current shopping centre.
- Lendlease: focused on new residential-led masterplan where the Heygate Estate once stood and planned to connect Elephant Park to the new town centre through major public realm improvements.

Before re-development, the area was perceived as “impenetrable” by road users other than car drivers with poor placemaking and poor liveability.

### Positive actions and local challenges

<b>What were the positive actions taken?</b>	<p><b>Rate of delivery and coordination / Governance and Accountability:</b> the developer taking full ownership of utilities delivery</p> <p>The site took a master developer approach, with two developers (one for residential and one for commercial development) leading the work, along with the Council. The residential developer took ownership for coordination and the lead for infrastructure, giving it control over its delivery.</p> <p>It employed civil works contractors who delivered all civil works (incl. both roadworks and utilities).</p> <p>The developer also appointed independent heat, power and gas asset owners so it could provide a multi-utility approach to coordination.</p>	<p><b>Quality:</b> enhancement of public real to reverse perceptions of the area as “impenetrable”</p> <p>Public realm enhancement was one of the key drivers of redevelopment of the area. Removed roundabouts and realignment of road junction aimed at making the area safer and more amenable to pedestrians and cyclists, enhancing traffic flow and providing better visual amenities.</p> <p>The developer’s commitment to improve public realm was reiterated when it requested TfL to re-route their proposed Cycle Superhighway 6 in order to prioritise pedestrians and the public realm: “The proposed development is designed to support leisure cyclists rather than being used as a commuter route through the development which may discourage less confident cyclists and conflict with pedestrian movement”.</p>

What were the challenges?

**Environment:** abandoned MUSCo renewable Energy Plant

The original regeneration plans proposed a single organisation to provide a Multi-Utility Services Company (MUSCo) approach, including renewable energy plant supplied from biomass. However, the project was not taken forward for various reasons stemming from both the 2008 economic downturn and the potential environmental impacts of the construction of a major biomass-handling and combustion plant in an inner city location.

The master-developer pivoted to the provision of a coordinated multi-utility approach through the appointment of independent asset owners, delivering a low-carbon combined heat and power plant.

The “energy centre” is now operational and - whilst it does not generate energy through biomass sources as originally required by the SPG - ensures that the operation is zero-carbon, utilising green gas for the heat and power plant as opposed to solid biomass that would require handling and transporting in London.

In the energy statement in its planning application, the developer acknowledged that its proposal failed to meet the Council’s original 20% on-site minimum renewable energy requirement from biomass, but instead met its obligations through the procurement of green gas.

**Viability:** challenging relationship between viability assessment and affordable housing planning requirement

There is always a competing demand in planning processes as to where developers’ contributions should go.

Originally, only 9.4% affordable housing was deemed to be viable because of the level of infrastructure that was required for the development, as well as payments to be made to TfL for the E&C station capacity upgrading.

Therefore, a compromise was found through the viability process whereby the scheme delivers a good amount of affordable housing plus a significant amount of infrastructure. This allowed the regeneration of Elephant & Castle, which had many false starts before Lendlease’s involvement, to get off the ground.

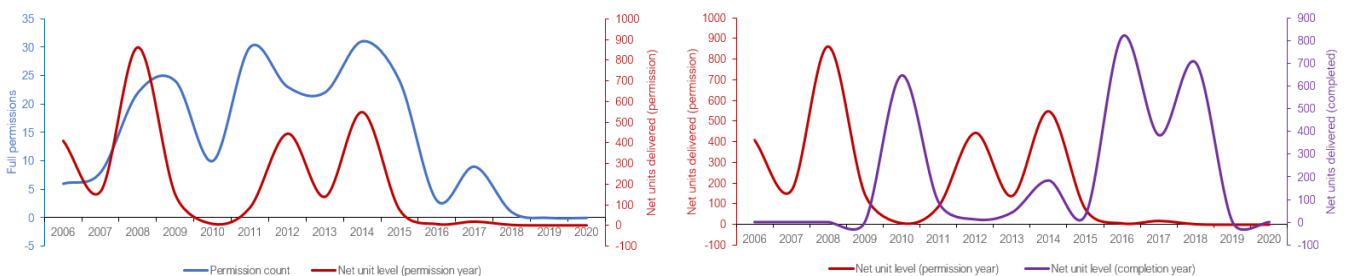
Viability assessment was locked in from 2013 at 9.4%, which ultimately provided certainty to the developer who, in return, was prepared to deliver more than agreed as far as possible without any public sector grant. In the end, around 25% affordable housing was delivered, which was below policy ambition but well above the original viability assessment.

*Good practice example: infrastructure delivery as the developer’s responsibility: choice of a civil work contractor and use of a general site logistics tracking app*

At the initial stages, before Lendlease was appointed as master developer, LB Southwark undertook a substantial amount of work to create a well-defined masterplan with a clear understanding of existing infrastructure. The delivery of infrastructure was then the developer’s responsibility. In order to ensure optimal coordination, the developer employed a civil works contractor, responsible for coordinating most of the delivery of work unless utility providers wanted to install their own apparatus and/or wanted to inspect it.

In terms of general site logistics, the developer trialled a tracking app to monitor the location of delivery vehicles and assist in the efficient coordination of delivery. It allowed the developer to manage the pace at which material was delivered on site and mitigate delays in deliveries when needed.

*Timing of full planning permissions and residential units’ delivery in Elephant and Castle*



- Impact of financial crisis on delivery of residential units 2011-15
- Delayed completions 2015-19 of residential units with full planning permission achieved 5-6 years prior

### Tables with scoring system for each OA

To support a multi-OA assessment, we have established a scoring system based on a three-stage approach for each factor: circumstances – actions - outcomes.

Building on the initial analysis, we have found that the contextual circumstances of a site are influential in the overall outcome of the approach. In addition, we have applied an institutional filter to the actions to identify areas where there are actions for public sector management that can influence positive outcomes. The assessment of the case studies will build upon the desired/undesired outcomes for each factor identified in our literature review.

This system allows for each of the OAs to be scored against the 13 themes but not against themselves, making the scoring system ultimately outcome focused but also reflective of the local context.

We did not go through each of the factors one-by-one during interviews, therefore some are not covered for one or more OA. Also, there might have been more than one topic discussed within one factor. But only one topic, that we found the most relevant, was added in the scoring table. Finally, some topics fit under more than one factor and are therefore discussed together.

Figure 3: Scoring Table

Local site circumstances	Actions taken by stakeholders	Outcomes achieved	Score
The favourability of the contextual circumstances of the site e.g. land ownership, site conditions.	The actions taken to address the impacts of the factors.	The extent to which the outcome meets the desired/undesired outcomes defined.	
+	+	+	<b>Positive circumstances, actions and outcomes</b>
+	-	+	<b>Overwhelmingly positive circumstances</b>
+	-	-	<b>Unmet potential</b>
+	+	-	<b>Unforeseen outcome</b>
-	-	-	<b>Insurmountable challenges</b>
-	+	+	<b>Surmountable challenge</b>
-	-	+	<b>Unforeseen positive outcome</b>
-	+	-	<b>Insurmountable challenges but positive actions taken</b>
+	+	~	<b>All positive but could have done better</b>
+	~	~	<b>Good alternative achieved through compromise</b>
-	~	~	<b>Negative circumstance managed through compromise</b>



	Disruption and inefficiencies / Rate of delivery and coordination	Financial	Regulation / Planning / Quality / Data Sharing and Transparency	Viability	Market	Development of DIFS	Governance and Accountability	Stakeholders Engagement	
<b>Circumstances</b>	Utility providers initially receiving piecemeal requests from various developers. -	High capital cost of installation of centralised heat generation plant but could be overcome by economies of scale. -	Inherent problem for the delivery of utilities: without a firm commitment demonstrated through the planning process, utilities providers were reluctant to commit any resources to a comprehensive network review. -	Aspirational affordable housing target could have hindered the viability of the project. It is easy to set targets and never have project getting off the ground. -	Uncertainty about the level of development. -	Piecemeal ownership and various developers. -	Piecemeal ownership and various developers and lack of power/ownership to drive coordinated infrastructure delivery. -	Large-scale development with a significant impact on residents and local businesses but relatively low number of contestation as compared to other developments as the area was not very densely populated pre-development. -	+
<b>Actions</b>	Nine Elms partnership and working groups created, funded through DIF. Vehicles that led developers to form a single company to make single connection applications for utilities. +	Early procurement of 20 years ESCO contract for Combined Cooling and Heat Network (district heating) to build and operate it. +	Utilities-thinking integrated in the masterplan despite no proper capacity assessment. +	Deliberate and explicit action by the borough: infrastructure requirement (incl. northern line extension) funded entirely from the development, which meant reduced affordable housing. +	No specific action taken. Beyond the Battersea Power Station, American Embassy, the New Covent Garden Market and a few other private residential building, there is little knowledge about the remaining areas. +	DIF study undertaken, informing advancement of S106. -	Some working groups set up: the key for these groups was to be reactive to change (e.g. change focus of the group overtime) covering the right things with the right people in the room as demand changes. The groups may be with the same people but a new focus. +	Stakeholders engaged early and relatively often. +	+
<b>Outcomes</b>	Approach that triggered the investment for a new power sub-station as UKPN responded to a combined request. +	Despite early procurement, delivery not yet started (2018-9) and developers had to put individual boiler in for interim. -	A linear park was intentionally designed not only for public realm but to be used as a conduit for utilities. -	Development delivered and revised proportion of affordable housing along the way as viability turned better than expected. +	Nervousness of utilities providers to commit time and resources. +	S106 tariff funding the full range of infrastructure required to support new development, as well as funding the Nine Elms partnership along with CIL. -	NERC (joint body created through the working groups) set up to operationalise solutions discussed in the working groups. This allowed them to overcome the coordination challenges of having multiple landowners and developers. +	Out of these relationships came trust and opportunities (e.g. Wood carved parks or the Happy Street Festival). +	+
	<b>Surmountable challenge</b>	<b>Insurmountable challenges but positive actions taken</b>	<b>Surmountable challenge</b>	<b>Surmountable challenge</b>	<b>Insurmountable challenges and nothing done to mitigate</b>	<b>Surmountable challenge</b>	<b>Surmountable challenge</b>	<b>Positive circumstances, positive actions</b>	

# Scoring table King's Cross

	Financial	Markets	Planning	Governance and Accountability	Quality	Rate of Delivery	Data and Transparency	Stakeholders Engagement
<b>Circumstances</b>	Pension funds form part of King's Cross Central Limited Partnership and provide long-term investment horizons.	Single ownership allowed for site-wide load testing and site-wide approach to infrastructure procurement.	Local Plan Policy and vision-led development rather than opportunity area framework.	Single land ownership.	Limited character of site or sense of place before development and lots of surrounding competing development.	Complex site with significant constraints.	Limited long-term information available from utilities providers to inform long-term approach.	Single ownership and one developer providing a single point of view.
<b>Actions</b>	Entirely privately funded with initial costs of upfront infrastructure provided for. 'Hand to mouth' delivery model applied.	Procurement of independent providers across the site with exclusivity.	Developer worked to develop relationship with local council and ensured a shared vision approach. Council created an integrated planning team to provide efficient service to developer and facilitate a flexible permission.	One party led creative discussions had with stakeholders and utility providers in relation to the entire site.  Council worked closely with single landowner.	Positive approach to meanwhile use of the site to develop a sense of place. Looked carefully at existing assets and the masterplan to decide which opportunities could be pursued e.g. Granary Square.	Long-term view taken to phasing and delivery, prioritised delivery of central spine of critical infrastructure to allow for future plot connection. Provided flexibility.	Limited meaningful engagement with utilities to provide detailed insights into a 15-20 year development. Lack of consideration of strategic scale and impact of development. Developer needed to engage in intervals in line with 2-3 timescales.	Stakeholders engaged early and often with support from the council.
<b>Outcomes</b>	Removed barriers to provision of upfront infrastructure. 'Hand to mouth delivery' meant cash flow flexibility was critical but allowed for reaction to market.	Some plot developers stated that they required a larger load, which went against site-wide testing and resulting in additional provision being installed. Independent provision of telecoms not considered to be effective.	A flexible planning permission which allowed for reaction to market circumstances within a long development process. Delivery that meets planning requirements.	One point of decision making, limited need to balance interests or negotiate. Allowed for creative and innovative site-wide solutions. Effective and reliable phasing to enable positive conversations with utilities.	Created an identity for the site and development whilst it was being built-out, factored into future infrastructure plans; provided for community cohesion.	Flexible and coordinated approach to phasing and delivery which could react to unforeseen challenges.	Limited holistic infrastructure forecasting and planning for long-term development possible.	A 'single source of truth', a clear site wide plan and a continued relationship to allow for the development of trust.
	Positive circumstances, positive actions	Unforeseen outcome	Surmountable challenge	Positive circumstances, positive actions	Surmountable challenge	Surmountable challenge	Insurmountable challenges	Positive circumstances, positive actions

# Scoring table Elephant & Castle

	Disruption and Inefficiencies	Environmental	Regulation	Rate of delivery and coordination / Governance and Accountability	Quality	Viability	Stakeholder Engagement	Planning
<b>Circumstances</b>	Elephant Park obligated through S106 to upsize the energy centre to enable developments directly outside to connect to it.	The original regeneration plans proposed a Multi-Utility Service Company (MUSCo) renewable energy plant.	E&C is in relatively central urban context, so it benefits from being able to "plug" into existing statutory utilities network.	Master developer for the whole development.	Former perception of the area as being "impenetrable" to road users other than car drivers.	Only 9.4% affordable housing was deemed to be viable because of the level of infrastructure that was required for the development.	Master developer for the whole development.	Before the developer was brought on board, the council had undertaken much initial work to make sure the utility infrastructure that was available was understood as best it could be.
<b>Actions</b>	Lot of investment and work on the commercial structure to develop and manage this through the energy strategy, concession agreement with utilities provider and negotiations with the council.	MUSCO was not progressed due to a) market ability to provide a single entity across all utilities and b) environmental risk linked to the handling and transporting of biomass in London. The developer proceeded with a coordinated low-carbon delivery approach for a new power plant.	Phasing more straightforward than if the development was located with very little existing infrastructure.	Developer employed a coordinated multi-utility delivery model where it self-delivered civil works and a coordinated spatial plan to ensure utility asset owners were incentivised to work together.	Removed roundabouts and realigned road junctions.	A compromise was found through the viability process whereby the scheme delivers an acceptable amount of affordable housing (but still below planning requirements) plus a significant amount of infrastructure. The percent of affordable housing was locked in 2013, to give certainty to the developer.	Developer to have a one main point of contact with each utility company and frequent meetings with them to ensure they were aware of plans.	Utilities were considered from the outset of the scheme and during the masterplan development, although specific arrangements for phasing and delivery were not firmed up until after the masterplan was fixed.
<b>Outcomes</b>	Whilst the network has been upsized to enable connection to external schemes, no external developer has taken up on this opportunity to date. This is due in part to other schemes not being sufficiently progressed to connect and partly through the commercial terms and conditions (such as surety of supply).	Despite not following initial plans, the combined heat and power energy centre is operational. Elephant Park is zero-carbon for all regulated energy through the procurement of green gas for all heat generation.	Utilities delivered on time but arguably not in the most sustainable manner.	Developer took full ownership in installing the civil works and infrastructure and then handed it over to the utility companies, giving the developer a greater element of control. It also tried using "Utility Spines" which was successful.	Making the area safer and more amenable to pedestrians while improving safety for cyclists, enhancing traffic flow and providing better visual amenity overcoming formerly negative perceptions of the area.	Over 2,300 homes (around 25% affordable) and required infrastructure were completed in eight years without any form of public sector grant, in part thanks to certainty on level of affordable housing, locked in very early,.	'Big picture' understood; history and how everything inter-connected.	Utility delivery was not a major challenge for this development.
	Unforeseen outcome	Good alternative achieved through compromise	All positive but could have done better	Positive circumstances, positive actions	Surmountable challenge	Negative circumstance managed through compromise	Positive circumstances, positive actions	Overwhelmingly positive circumstances

## 4 Navigating pinch points and knock-on effects

This section is informed by the literature review, interviews conducted with OA stakeholders (local authorities, developers and utilities providers) and the charette / workshop hosted by Arup on June 3<sup>rd</sup>, 2020 with Arup experts and members of the GLA teams (Infrastructure Coordination and Planning).

Taking the complex issues identified by an analysis of the 13 factors set out in Section 2 and analysed in the three OAs in Section 3, we have created a roadmap towards ‘desired outcomes’. As discussed above, the context of each site has a significant influence on the outcome of this process. This roadmap is therefore not a one-size-fits-all solution. Whilst some site-specific issues, local stakeholder relationships or regulatory challenges may be insurmountable in the timescale and scope of a development, we have used the roadmap to identify key ‘pinch points’ in the process where issues have arisen as a result of broader market failures. The potential knock-on effects of these issues have been identified, informed by our case study research. In Chapter 5, we provide a series of recommendations related to each pinch point to help address the broader market failure identified and reduce the potential knock-on effects.

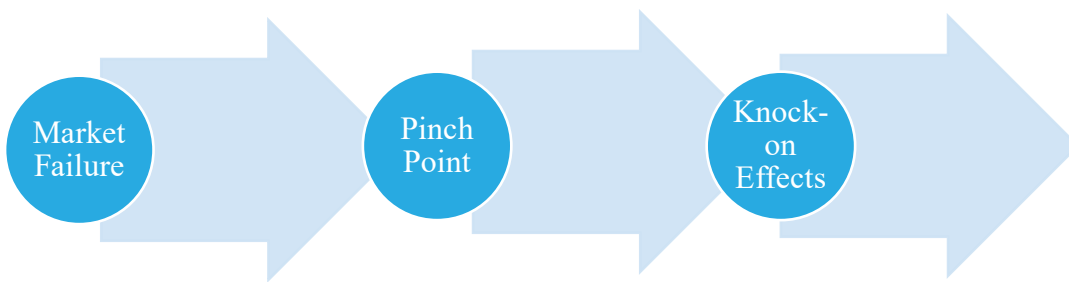


Figure 4: Navigating market failures

### Market failures

Throughout the research, a number of market failures became apparent which prevent the effective and efficient delivery of infrastructure. A market failure is the inefficient allocation of resources in a free market in general terms. Once identified, addressing remedies to market failures are the basis for government intervention. This is particularly relevant for this report as we are aiming to provide actionable recommendations to key players, including public bodies.

We have identified five key market failures below, the majority of which relate to the information required to proceed with complex infrastructure delivery and the number of competing factors that are required for consideration by various stakeholders.

**1. Imperfect Information/ Information Asymmetries<sup>13</sup>** – Although the information required for stakeholders (landowners, developers, LPAs and utilities providers) is the same, there is limited coordination and uncertainty around infrastructure provision and availability. Infrastructure providers do not have levels of certainty to review capacity to feed into the masterplanning stage and developers/LPAs therefore make decisions on development with limited utilities consideration.

**2. Misalignment or time lag between payee and beneficiary<sup>14</sup>** – Infrastructure provision for large sites requires a substantial upfront cost to unlock a given site. Large financial outlays are required at the outset of the project; however, benefits can be long-term and are not necessarily realised by the investor. This impacts risk allocation and leads to a lack of ownership and accountability for delivery between stakeholders.

<sup>13</sup> A market failure caused by imperfect information and/or information asymmetries arises when the market participant(s) do not have *perfect knowledge* (i.e. inaccurate, incomplete, uncertain or misunderstood information) or *asymmetric knowledge* (i.e. when a participant knows more than the others) preventing them to take fully evidenced-based decisions.

<sup>14</sup> A market failure caused by misalignment between payee and beneficiary occurs due to inefficiency in the allocation of costs, goods and/or services.

**3. Government/regulatory failure** – There is a lack of incentive to provide utilities information at the masterplanning stage. Following this, the lack of standardisation of regulations and processes between different regulators/utility providers reduces the certainty of information to be received at later stages in the process. As a result, developers must factor in greater risk or changes to cost estimates due to uncertainty across different providers. The standards and regulations applied nationally also limit the flexibility required to reflect central London challenges and changes.

**4. Negative externalities<sup>15</sup>** – Disruption is considered at the marginal rather than the aggregate scale during the development process. Limited account is made for wider economic impacts e.g. landowners seeking to ‘land bank’ and wait for land value uplift as a result of another impacts/stakeholder action.

**5. Merit goods<sup>16</sup>** – In relation to environmental and social standards, what is viewed today as the right solution may not be tomorrow – how to maintain enough flexibility to allow for more sustainable solutions to be incrementally integrated in energy strategies is a material challenge.

These market failures are broad issues inherent in the infrastructure delivery and planning system, which cause a series of ‘pinch points’ within the process.

### Pinch Points

A ‘pinch point’ is where the market failure plays out in context and can lead to a series of knock-on effects that may be contextually specific. The pinch points identify a key point of decision-making, where a compromise or point of action must be taken in order to proceed along the development process.

<i>No.</i>	<i>Pinch Point</i>	<i>Knock-on Effects</i>
1	Lack of built-in regulatory incentives for utilities providers to deliver early investment in strategic capacity reinforcements / investment ahead of materialised demand.	<ul style="list-style-type: none"> <li>• Limited information available on strategic capacity to inform growth targets and site assessments.</li> <li>• Growth targets set with little consideration for utilities capacity.</li> <li>• Few strategic investments ahead of demand.</li> </ul>
2.	For DIFS to be effective, they must be created before the planning application has been granted. However, they are onerous and costly to produce whilst the planning application has not been granted due to lack of certainty and they can quickly become out of date.	<ul style="list-style-type: none"> <li>• Reduced ability to formulate contingency strategies and scenarios to factor in changes to plans in development.</li> <li>• Lack of robustness of funding plans for utilities leading to unforeseen costs and potential renegotiation of developer contributions.</li> <li>• Utility service thinking comes late in the process and increases risks of disruption.</li> </ul>
3.	For early strategic capacity assessment and forecasting to provide level of certainty required, a high level of local authority expertise and experience in delivering development of such scale is needed.	<ul style="list-style-type: none"> <li>• Limited institutional knowledge to look forward and identify potential obstacles/warning signs.</li> </ul>
4.	Environmental and social objectives are set without and/or not necessarily aligned with viability assessment and contextual appreciation of costs.	<ul style="list-style-type: none"> <li>• In later stages of the development, environmental and social requirements can impact projected viability.</li> </ul>

<sup>15</sup> Market failure caused by negative externalities arises when consumer and/or producers (e.g. developers or landowners in this case) may fail to take into account the effect of their actions on third-parties (e.g. individuals, organisations, communities).

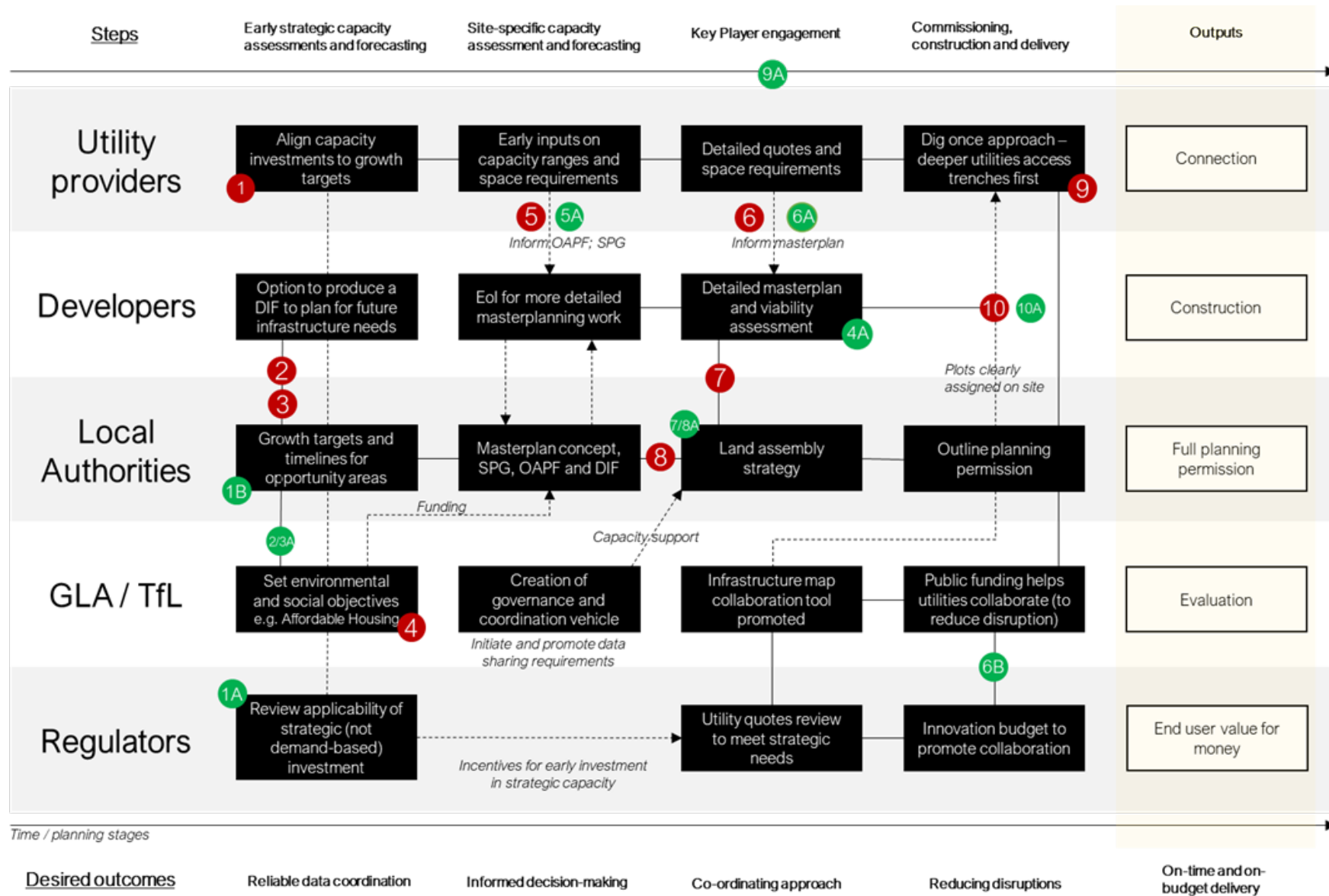
<sup>16</sup> Market failure associated with merit goods arises when consumer and/or producers (e.g. developers or LPAs in this case) fail to estimate the true benefit and value of a good or an action (e.g. setting high environmental standards).

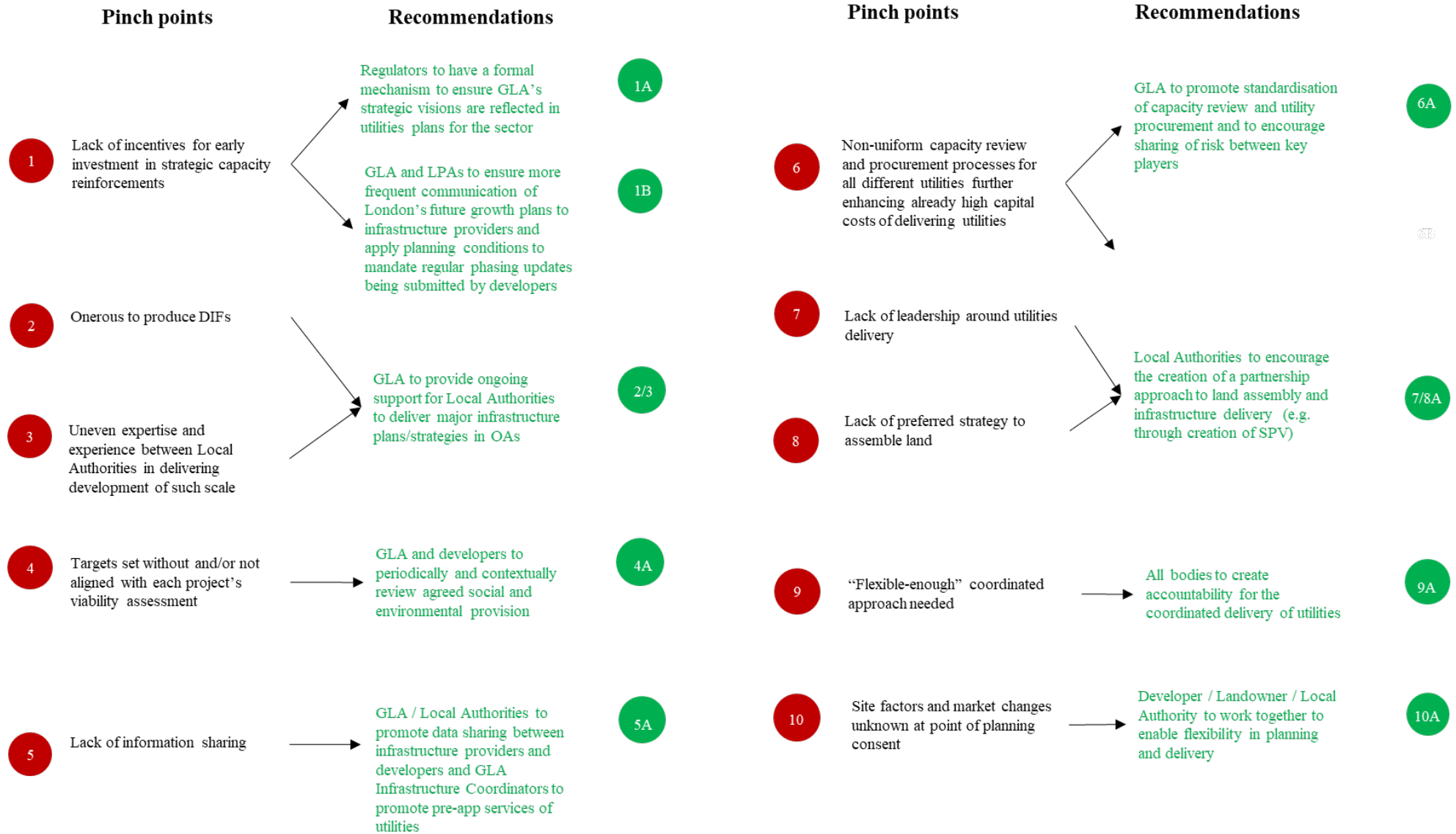


5.	During site-specific early assessments, a lack of information sharing between utility providers and developers leads to the risk of an uninformed masterplan and unclear governance arrangements.	<ul style="list-style-type: none"> <li>• Restricts ability to plan for capacity upgrades early enough to avoid disruption at the development stage.</li> <li>• Can lead to a misleading viability assessment of development as key upgrades/costs may not be accounted for.</li> <li>• Can lead to a significant number of design changes later in the process to incorporate required infrastructure.</li> </ul>
6.	During engagement between developers and utility providers, there is a lack of standardisation of the capacity review processes between different utility providers and high capital costs of delivery.	<ul style="list-style-type: none"> <li>• Can lead to a misleading viability assessment of development as key upgrades/costs may not be accounted for.</li> <li>• Can require amendments to design and approach if developer changes provider.</li> <li>• Difficulty in coordinating delivery requirements with different utility providers.</li> <li>• High capital costs can lead to delay as no one party wants to take on the upfront risk without further security.</li> </ul>
7.	During key player engagement, leadership around utilities delivery (e.g. who is taking ownership) is required across the site to inform the land assembly strategy and governance requirements for future phasing.	<ul style="list-style-type: none"> <li>• Can lead to a fragmented approach with significant information inefficiencies.</li> <li>• Lack of one clear phasing and delivery plan with accountability and responsibility can lead to disruptions in delivery.</li> <li>• Can cause significant delay to planning applications as statutory consultees may not agree due to lack of cohesive site-wide approach – there may be conflicting outcomes.</li> </ul>
8.	When engaging with utilities providers, a consistent approach to complex land ownership is required to inform viability assessments and the outline masterplan.	<ul style="list-style-type: none"> <li>• In cases where there is a piecemeal, complex, land ownership structure across a large site, a lack of consistency in approach with utility providers, forecasts and assumptions can lead to a fragmented, uncoordinated development.</li> <li>• Can lead to significant delays at planning application stage due to a lack of cohesive approach.</li> </ul>
9.	During construction and delivery, the coordination of different utilities construction must be sufficiently flexible to allow for delivery without increasing costs but coordinated enough to avoid unnecessary delays.	<ul style="list-style-type: none"> <li>• Delays and inefficiencies on site.</li> <li>• Long negotiations or disagreements around site access.</li> <li>• Unforeseen site circumstances can exacerbate problems.</li> <li>• Significant access issues and impacts on neighbours.</li> <li>• Inflated costs.</li> </ul>
10.	Site factors and market changes can significantly impact delivery; however, these are unknown at the point of planning consent which can limit the flexibility to include mitigation strategies.	<ul style="list-style-type: none"> <li>• Restrictive phasing plans may not allow for other stakeholders or unforeseen changes.</li> <li>• Viability and delivery of the site may be impacted by restrictive planning consents.</li> </ul>

## Roadmap

The roadmap overleaf sets out the key steps in the development process, the actions the key influencers take along the way, and the pinch points and their knock-on effects as set out above. While this diagram cannot be exhaustive, it highlights the value of overcoming these key pinch points for delivering at pace and scale and to a high standard.





## 5 Detailed Recommendations and Conclusion

This section provides detailed recommendations that could help navigate the pinch points identified in the previous section. These same recommendations have been reproduced in the roadmap above.

### Pinch Point 1

#### How to address the lack of incentives for early investment in strategic capacity reinforcements.

**Recommendation 1A** **Regulators to have a formal mechanism to ensure the GLA’s strategic visions are reflected in utilities plans for the sector.**

**How to implement:** Factor-in contextual costs and local needs in strategic capacity investment requirements.

Regulators must ensure that their regulatory frameworks enable anticipatory investment where appropriate to facilitate new developments on OA sites, where this can be shown to have an overall benefit to consumers. Regulators should engage with the GLA and local authorities to understand the likely impact on infrastructure planning of large, strategic developments so that these can be planned for in future price control settlements. Regulators should also specifically require infrastructure providers to demonstrate how they have taken the strategic vision of the GLA and local authorities into account where this has material impacts for network investment.

Regulators should look to the GLA for the strategic direction (including through the London Plan, OAPFs and DIFS), they would otherwise receive from the UK government. The regulators should have a formal mechanism to ensure the strategic vision of the GLA and LPAs are reflected in plans for the sector, rather than the onus sitting with the utility company. Where powers held by the GLA and local authorities interact with reserved matters, regulators should be able to demonstrate how they have taken consideration of the strategic vision of the GLA and local government where this has material impacts for network investment. In some cases, the GLA or local authorities may be better placed to reflect the public’s views on specific matters. In these circumstances, regulators should consider evidence from the GLA, alongside other sources of insights into the public’s and consumers’ preferences.

A memorandum of understanding between regulators and the GLA could commit them to consult with the GLA on strategic priorities in the London Plan or specific OAPFs/DIFS, and set out the process, where legislation allows, for the GLA to appoint a suitable qualified member to a regulator’s board following consultation.

**Who owns?** Regulators and the GLA

**Who benefits?** Developers, local authorities and utilities providers that benefit from more localised strategies.

**Recommendation 1B** **The GLA and LPAs to ensure more frequent communication of London’s future growth plans to infrastructure providers, including updates to phasing plans on permitted schemes.**

**How to implement:** The GLA and LPAs to communicate future growth plans to utilities providers so that they align their strategic capacity upgrade investment to growth targets. This can be done during yearly or bi-annual “information request pooling” sessions where all players from the London’s development ecosystem are invited. Additionally, the GLA could develop an SPD around infrastructure information which requires LPAs to inform them of updated phasing plans for development that is permitted. This would

allow for the LPA to request updated information, where not provided. The GLA can then analyse this data and feed it through to the utilities providers.

Regulators need to engage with consumers’ views. Currently they do this directly through a range of tools and mechanisms including consumer panels and research, customer groups, consumer expert challenge panels, surveys and workshops. In addition, they ask the infrastructure providers they regulate to engage with stakeholders to understand what their infrastructure needs are. The GLA would also be very well placed to represent future residents i.e. consumers of utilities on OA sites to the regulators.

This enhanced information sharing would allow the GLA to become an integral consultee on business plans for utility infrastructure providers and for utility providers to give more weight to GLA growth trajectories inputted into scenarios submitted by utilities for investment.

In future price controls, regulators should demonstrate how they have taken consideration of the strategic vision of the GLA, local authorities and local infrastructure providers, where this has material impacts for network investment.

**Who owns?** GLA Infrastructure Policy Team and infrastructure providers.

**Who benefits?** Developers and local authorities who ‘operationalise’ the developments in later phases who may face less disruption from utility delivery if properly planned for, at a more strategic level, in advance.

Pinch Point 2 and 3

**How to encourage the production of DIFS and address the uneven expertise and experience between local authorities in delivering development of such scale.**

**Recommendation 2/3** **The GLA to provide ongoing support for local authorities to deliver major infrastructure delivery in OAs.**

**How to implement:** Develop institutional knowledge across local authorities through establishment of a ‘Local Authority Practitioners Network’ to be led by the GLA. The network can create online tools to support better planning and encourage better infrastructure outcomes.

This would allow the GLA to share “lessons learned” that could be easily applicable to other OAs and provide support to local authorities that may lack planning and delivery capacity through OA-specialised GLA teams seconded to LPAs. For instance, this research could be informed by and shared with LPAs and any future networks such as a Local Authority Infrastructure Practitioners Network. The GLA could provide an overarching support role and early grant funding for the initial production of DIFS – to ensure consistency of approach throughout OAs.

**Who owns?** GLA Infrastructure Coordination Team

**Who benefits?** Local authorities

## Pinch Point 4

## How to encourage the alignment of delivery targets and project viability assessments.

**Recommendation 4A** The GLA and developers to periodically and contextually review viability assessments and agreed social and environmental targets, with the help of a third-party independent reviewer.

**How to implement:** A third- party independent reviewer should be commissioned (when a developer is appointed) to periodically review assumptions on values, infrastructure costs, and social and environmental targets set out in the OAPFs and associated studies. This will function as a periodic viability health check based on market circumstances. At present, schemes which do not meet the affordable housing requirement must submit an updated viability assessment to the GLA at different stages. This could be expanded to schemes that also do not meet environmental standards or social requirements.

The independent reviewer would then make recommendations on the necessary trade-offs between plan targets and market viability, which would have to be formally addressed by developers, local authorities and the GLA.

**Who owns?** GLA Planning and Infrastructure Coordination Teams and developers.

**Who benefits?** Local authorities and developers as it allows them to take more evidenced-based decisions.

## Pinch Point 5

## How to address the lack of information sharing between utility providers and developers.

**Recommendation 5A** The GLA / local authorities to promote data sharing between infrastructure providers and developers and GLA Infrastructure Coordinators to promote pre-app services of utilities.

**How to implement:** Enable and promote data sharing requirements and/or guidance as part of the planning application and intervene through relationships with regulators and utilities providers when data and timely information is not shared.

Utilities and Developers should use the Infrastructure Mapping Application (IMA) collaboration tool to share spatial data externally with other organisations involved in infrastructure delivery in OAs. Non-commercially sensitive information can be shared to improve collaboration and realise efficiencies.

The IMA tool can help to harmonise data, standardise attributes, visualise insights and established a common data environment between all stakeholders. The IMA allows organisations to publish and consume future investment data. It will also allow organisations to systematically identify opportunities to collaborate by providing functionality that highlights overlaps in space and time between these future investments. Ultimately, organisations can only be compelled to share data if they can see the benefits (cost saving opportunities) of doing so.

Pursue pilot projects to demonstrate the value of sharing data to various stakeholders (e.g. through communicating the benefits as revealed through the GLA Streetworks Evaluation).



<b>Who owns?</b>	GLA Infrastructure Data Team and local authorities.
<b>Who benefits?</b>	Developers that can incorporate evidenced utilities thinking in their timeframes and local authorities that can effectively plan for utilities upgrades. Reduced disruptions through ‘dig once’ approach.

## Pinch Point 6

### How to improve the capacity review processes and high capital costs for delivering utilities.

**Recommendation 6A**    **The GLA to promote standardisation of both capacity review and utility procurement and to encourage sharing of risk between key players.**

**How to implement:**    Promote standardisation of capacity review and procurement among utility providers to allow for greater efficiency and certainty around quotes for utility requirement, provision and procurement.

Risk-sharing could be achieved by using innovative funding mechanisms (e.g. by encouraging risk sharing among key players when necessary). This could include full upfront payment shared between beneficiaries through partnership agreement, SPV or match-funding mechanism used by local authorities to incentivise developers and/or utilities providers to pay for infrastructure/capacity upgrade.

**Who owns?**    Local authorities, GLA Infrastructure Policy Team / developers / utilities provider as a group.

**Who benefits?**    All as it is providing increased certainty around capacity needs and costs for procurement and triggering the necessary investment to pay for infrastructure required for the development.

**Recommendation 6B**    **Make the case for fiscal devolution and central Government grant funding to cover for upfront development costs.**

**How to implement:**    Continue to lobby central Government for greater fiscal devolution to recycle resources from growth as a mechanism to pay for upfront development costs. Continue to make the case for ‘good growth’ in London in order to access MHCLG grant funding e.g. Housing Infrastructure Fund (HIFs).

**Who owns?**    GLA

**Who benefits?**    All

## Pinch Point 7 and 8

### How to address lack of leadership around utilities delivery and lack of preferred strategy to assemble land

**Recommendation 7/8A**    **Local authorities to encourage the creation of a partnership approach to land assembly and infrastructure delivery (e.g. through creation of SPV).**

<b>How to implement:</b>	<p>Encourage the creation of special purpose vehicles that unify land and property ownership by allocating equity to stakeholders based on the extent of their contribution.</p> <p>This ‘equity investment approach’ involves the creation of a development entity, such as a limited liability corporation, to acquire control of the assembled properties. Existing landowners receive shares in the future development in return for selling their land to the development entity. This approach would reduce incentives for ‘land banking’ and delays to development. If a development corporation is in place, CPO powers could be utilised if required to ensure successful creation of a partnership. This would be more difficult for a local authority to implement. However, the local authority could encourage and demonstrate the benefits of taking this partnership approach e.g. through a specific planning performance agreement.</p>
<b>Who owns?</b>	Local authorities advised by the GLA.
<b>Who benefits?</b>	All directly involved in the development’s operations (developers, local authority and utilities providers).

<b>Pinch Point 9</b>	
<b>How to allow for flexibility whilst enhancing coordination.</b>	
<b>Recommendation 9A</b>	<b>Creating accountability for the coordinated delivery of utilities by creating a governance mechanism representing all stakeholder interests.</b>
<b>How to implement:</b>	<p>Create a governance structure (a strategy board) that assembles all participating bodies and organisations involved in the development of an OA site.</p> <p>Amongst other objectives, such a governance structure can help to plan and provide space for utilities trenches early in the development process, favouring “dig once” approach when possible and making use of advanced technology during construction to mitigate delays (e.g. material logistics tracking app).</p>
<b>Who owns?</b>	All participating bodies.
<b>Who benefits?</b>	All participating bodies.

<b>Pinch Point 10</b>	
<b>How to address the unknowns at the point of planning consent.</b>	
<b>Recommendation 10A</b>	<b>Developer / landowner / local authority to work together to enable flexibility in planning and delivery.</b>
<b>How to implement:</b>	Utilise incremental planning where possible to enhance flexibility and carefully develop Section 106 agreements (or their equivalent) to allow for adjustment to changing market circumstances and longer delivery timescales. Create flexible phasing plans with mitigation and contingency plans to factor in market changes.

<b>Who owns?</b>	Developer / landowner / local authorities.
<b>Who benefits?</b>	Developer / landowner /local authorities who deliver a future-proofed development. End-user can enjoy a development that meets their “current” need.

## Conclusion

This report provides a baseline to assess the benefits and challenges of a coordinated approach to infrastructure delivery and informs the design of initiatives through actionable recommendation to be taken forwards by key players identified in the literature review. In assessing the desired outcomes of infrastructure delivery, thirteen factors were identified with related desirable outcomes. A detailed review of recent experience in three OAs in London (Vauxhall, Nine Elms and Battersea; King’s Cross; and Elephant and Castle) highlighted the impacts of these factors and actions that can be taken to impact the desirability of the outcome. The review of the three OAs highlighted the essential role of governance - i.e. making sure there are the right people and resources to take infrastructure delivery forward. It also highlighted the need for a coordination/expertise body within the GLA to support the key players delivering development of such scale.

There is a whole host of players including the GLA, local authorities, developers, regulators and utility providers involved in delivering large development schemes and supporting infrastructure. The actions of these key players in relation to the four key issues of infrastructure delivery to support housing (as set out by the NIC)—transparency and information; charging and service; coordination and risk; and investment—requires their coordination at important stages of development.

Delivery of good growth in London’s OAs must be supported and enabled by the efficient delivery of essential infrastructure; water, wastewater, electricity, gas and broadband. This requires effective coordination between the infrastructure and real estate development processes to deliver high-quality sustainable places in line with the pace of growing housing needs in London. Across England, at present, the integration of planning for utilities infrastructure capacity and future growth areas is limited. This is exacerbated in areas of high growth and increasing demand such as London’s OAs where the use of ‘one-size fits all’ centralised approaches and policies is particularly problematic.

In addition to the processes involved in delivery, the case study review highlighted the influence of external factors and competing stakeholder interests across the development cycle. At present, a series of market failures in the process results in ‘pinch points’ within the development cycle which can cause a number of knock-on effects in different circumstances.

Overall, this report is perhaps starting a wider conversation around the testing and trialling of new approaches. It could help to inform a blueprint for engaging in more coordinated approaches in utility delivery for the Isle of Dogs and other OAs in London.

# ARUP

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