

# ADEPT President's Awards 2025

Entry form

**Main contact name** Gwyn Richards

**Email** Gwyn.richards@cityoflondon.gov.uk

**Phone Number** (07872) 007972

**Award category** Innovation in Place-shaping

**Project Title** 3D modelling of Heritage constraints and Growth Capacity

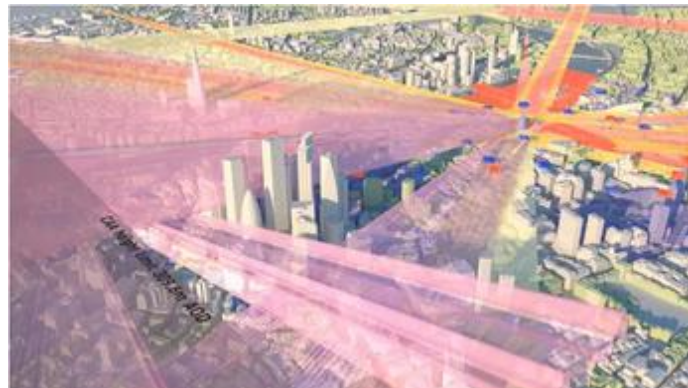
**Local authority entrant** City of London

**Partner/s if applicable** GMJ

## Headline summary (150 characters max.)

3D complex digital modelling maps the City's complex Heritage constraints, modelling Development Growth Capacity whilst minimising heritage impacts.

**Please note we need at least one supporting image per award submission. Upload your image/s below.**



## Video - please paste links to any video evidence here. (Leave blank if not relevant.)

<https://www.youtube.com/watch?v=CpUWbXuESIM>

## Innovation in place-shaping: How has this project used digital innovation and/or the imaginative use of new or existing technology? (150 words max.)

The entire City was 3D digitally mapped along with the immensely complex three-dimensional heritage views that criss-cross the City. This allowed the City to achieve a holistic understanding of the view constraints to identify areas and sites for tall buildings to deliver the floorspace needed to accommodate employment projections whilst limiting heritage impacts.

The 3D digital modelling work included highly complex kinetic modelling along Fleet Street and the river and bridges. The Growth Capacity modelling was complemented by Computer Fluid Dynamic Wind modelling of the tall buildings and pedestrian capacity modelling to understand the implications of the growth identified on the public realm and transport nodes.

The three-dimensional modelling work is one of the most complex and thorough use of urban modelling in the world. It is also delivers three-dimensional digital data, evidence for policies, strategies, and

assessment of development schemes. An exemplar in innovative planning delivering sustainable good growth

**Innovation in place-shaping: How has this project shown evidence of improved outcomes for users? (150 words max.)**

The 3D Digital modelling exercise for the first time, establishes a clear framework to understand the complex three-dimensional heritage and views constraints of the City. The resultant Growth Capacity modelling informs proposals for major developments and tall buildings in the City which minimises heritage and views impacts. This offers clarity and certainty to both the planning authority, applicants and stakeholders. This in turn saves resource and time in assessing height and massing scenarios for a site, This resultant de-risking of the planning of sites ensures more prompt determination of applications within a disciplined policy framework. The Capacity modelling work also led to the planning authority undertaking assessments on the growth capacity identified on meeting floorspace targets and employment growth and understanding the implications on the public realm and transport nodes. In addition, the massing scenarios identified enables the planning authority to model microclimate impacts. This holistic understanding delivers improved outcomes.

**Innovation in place-shaping: How has this project shown evidence of the transformation of a service/department/organisation by changing behaviours, delivering savings or improving ways of working? (150 words max.)**

The robust and forensic understanding of heritage view impacts and Growth Capacity for new tall buildings has been transformational in establishing a disciplined, evidence based framework for planning decisions in the City saving time and resources in assessing individual proposals for both the planning authority and applicants.

The 3D modelling work enables the City to understand the capacity for new floorspace to accommodate forecast employment growth to deliver economic growth. The modelling exercise significantly reduces the need for site-by-site assessments, saving time and resources but above all is an exemplar of proactive (not reactive) planning where future growth capacity is understood. The modelling work has resulted in a cultural transformation where City planners are more proactive and forward looking, establishing the parameters of future growth rather than a reactive response to individual emerging schemes resulting in an increased sense of purpose, motivation, focus and clarity of direction and holistic outlook

**Innovation in place-shaping: How can the innovation/technology in this project be applied in multiple sectors/areas? (150 words max.)**

The 3D modelling is a key project informing a wide area of City workstreams. As the Growth Capacity modelling predict future floorspace capacity, equating to employment space, the City has a robust evidence to predict future growth in the City worker population. Currently, with over 670,000 workers in the City, the modelling work enables the City to address the challenges from future increase in City workers. For example, the City can understand the pressures on pavements, public realm and transport infrastructure ensuring public realm schemes and transport improvements are developed to accommodate this growth.

From the Growth Capacity modelling of massing scenarios, the City carried out area wide Computer Fluid Dynamics modelling of future microclimatic implications in the public realm, air pollution modelling including Climate Change resilience through Thermal Comfort future modelling of heat stress based on the Growth Capacity modelling. The modelling work is an exemplar in proactive planning

**Innovation in place-shaping: How does this project demonstrate scalability and resilience - the ability to use technology in a wider scope and in a way that encourages longevity of use? (150 words max.)**

The 3D modelling project initially mapped complex heritage views as an evidence base to identify areas for growth capacity for new tall buildings. However, it became clear early on that the Growth Capacity modelling had immense potential for scalability and future resilience to wider planning implications to establish an understanding of the wider impacts of this growth. The Capacity modelling enabled an assessment of the floorspace delivered which in turn enabled an understanding of the employment growth accommodated within the growth envelope.

This evidence enabled a wider assessment on the future pressures on the pavements and public realm as well as the resilience of transport and service infrastructure which in turn directly informed negotiations on planning schemes. From the Growth Capacity modelling, the City carried out area wide Computer Fluid Dynamics modelling of future microclimatic implications, air [pollution including Climate Change resilience through Thermal Comfort future modelling of heat stress.

**All categories: please add anything else that supports your award entry**

The 3D modelling initiative is one of the world’s most complex City wide digital modelling projects. A complex, 3-Dimensional and overlapping modelling of heritage viewing planes and corridors were mapped including kinetic mapping of the Processional route along Fleet Street, London’s bridges and riverwalk, the Tower of London World Heritage Site as well as aviation heights constraints. This gave the City a ground-breaking holistic overview of the view and heritage constraints.

This understanding was then developed to identify two clusters of tall buildings with Capacity Growth modelling extruding massing scenarios (utilising Virtual Reality headsets) so the City can quantify future floorspace capacity and thus forecast employment and population growth and subsequent implications on transport infrastructure, pavement capacity involving digital pedestrian flow analysis, public realm and microclimatic impacts using Computer Fluid Dynamics.

The 3D modelling work is considered an exemplar of proactive, innovative, disciplined and future scenario forecasting using cutting edge digital technology to maintain the City’s economic growth prospects and international competitiveness as the engine of the UK economy