Three-dimensional modelling of the City of London cluster

The City promotes the principle of clustering tall buildings in a disciplined and focussed manner explains Gwyn Richards

There can be few cities internationally which is the subject of a more complex web of views constraints on developments than the City of London. These include the Protected Vistas, the London View Management Framework Assessment points, St Paul's Heights, Monument views and key views of the Tower of London World Heritage Site as well as other local townscape views as well as the setting of Listed Buildings, Conservation Areas and other Heritage Assets. These view issues are also impacted by aviation height limits.

Six Protected Vistas converge on St Paul's from the north, east and west placing significant height constraints on developments within certain areas of the Square mile and on the eastern side of the City another Protected Vista focusses on the Tower of London.

Locations for tall buildings in the City are limited. The City promotes the principle of clustering tall buildings in a disciplined and focussed manner in the Eastern Cluster. This ensures that this area of the City is dynamic in the manner in which it is able to evolve and can respond to the ever changing economic environment. The City cluster functions as a pressure valve to accommodate growing demands for additional commercial floorspace which is less easy elsewhere. Absorbing growth in this area helps to protect the historic townscapes which are of such universal appeal and importance to the City.

The location of the City cluster of tall buildings towards the eastern side of the City is a direct response to these diverse visual constraints. The permitted schemes of the last few years (many of which are currently under construction) will start to pull together the existing rather disparate series of towers. It is the aspiration of the City, supported by the GLA, to consolidate the cluster as a comprehensible urban form on London's skyline resulting in a more articulate relationship between St Paul's to its west and the Tower of London to its east.

The 3D modelling work focusses on the Eastern Cluster policy area and is intended to enhance our understanding of the future form and envelope of the Eastern cluster. At a time when the debate about tall buildings in London has never been livelier (and often polarized), a more meticulous and rigorous approach to assessing their impact on views is desirable. We already have a understanding of the impact of individual views (for example, the Assessment points of the London Views Management Framework) but three dimensional modelling will enable a more refined understanding of the dynamic inter-relationship and overlapping of these series of viewpoints to provide a complete and kinetic picture.

The inter-relationship of these layers of constraints is complex and changes from view to view. Some of the constraints, such as the Protected Vistas have clear height restrictions

whilst others require a more qualitative assessment. An enhanced three dimensional understanding of these constraints will enable the City to better understand how the cluster can be consolidated as an urban form with a convincing logic.

At this point, the work is intended to enhance our understanding of the interface between the constraints as opposed to a prescriptive policy to inform the City's response to submitted proposals. As the initiative is work in progress, it is still an internal exercise and likely to remain so until a degree of clarity of the results are reached. Even then, the model will only be an indicative insight as to the development capacity of parts of the cluster as the impact of any proposals on a myriad of other planning considerations will need to be factored in.

The existing townscape has been mapped in a three dimensional model and consented development schemes inputted as the base. The next step is to apply the existing view and other constraints resulting in a very basic envelope. For example, the distant Protected Vistas from Greenwich, Richmond Park, Kenwood etc and applying the guidance to these views set out >>>

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RIGHT:
Existing and Consented schemes from the 3D model (copyright GMJ)

in the LVMF. Other central London views are then inputted, again interpreting the guidance of the LVMF. In addition, Listed Buildings and Conservation Areas are inputted along with other factors Much of this work involves a detailed qualitative assessment. These are the first steps in enhancing our understanding.

There are already specific issues informing the clusters future development. These include the aspiration to shape its profile with a higher element at its core, diminishing in scale to the north, east and south. Another is the manner in which the cluster should slope respectfully away from St Paul's and the Tower of London ensuring a breathing space of sky is retained around these landmarks to ensure their prominence. Safeguarding the view of St Paul's from the processional route of Fleet Street and Ludgate has important implications on the form of the cluster. In addition, there is an aspiration that the rising profile of the cluster reflects the rising contours of the land, especially in views from south of the river, key to a contextual understanding of the City's topography.

The modelling initiative is still being developed but has already given us an enhanced overview of how these constraints will inform the future profile of the cluster of towers. It has raised a number of issues which are being explored in more detail. One of which is to assess the visual relationship of 20 Fenchurch Street (which lies outside the cluster) with the emerging cluster of towers to its north. Key to this assessment is to understand the implications of certain scenarios not just in distant views but also in the local environment

Additional work is proposed to explore how other non view related planning issues will inform the profile of the cluster. For example, understanding daylight / sunlight constraints to residential buildings around the cluster. An assessment of existing and future wind patterns on pedestrian comfort levels at ground floor will help the City identify existing and future environmental issues informing the cluster's development. Other more detailed assessment of the cumulative impact of the cluster's towers on the public realm at a local level, such as daylight and sunlight to pavements helps to refine our understanding. These future possible workstreams would further enhance our contextual understanding.

3D modelling has the potential to be an important tool in understanding how the City cluster could develop in the future. This important initiative can provide a robust and clear context for future planning decisions ensuring that the City is able to inform change rather than react to it, facilitating its Future City vision.