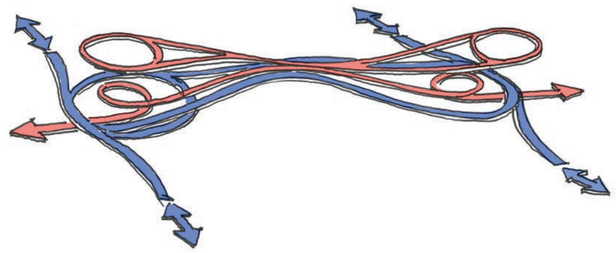
INTEGRATING CYCLE AND PEDESTRIAN TRAFFIC

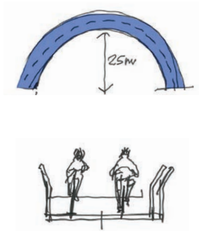
In order to address the challenge of successfully integrating cyclists and pedestrians in the bridge design, it is important that the anticipated forecast demand for each mode is appreciated. The bridge will be providing a link across the Thames for a forecast daily total of 9,000 cyclists and 9,000 pedestrians. These figures, and recent best practice guidance, suggest that segregation of modes will be critical for the success of the bridge.

Our design provides full segregation of modes from each landing point north and south of the river with the Thames path, Grosvenor Road and Nine Elms Lane. New signal controlled segregated cyclist junctions will be provided the bridges junction with Grosvenor Road (Cycle Superhighway 8) and the new proposed Nine Elms Lane. The proposed design also provides accessible direct connections to the bridge, without the use of lifts or steps being necessary, providing excellent pedestrian connectivity for all users.

Transport for London's existing and planned cycle superhighways



Pedestrians and cyclists are fully segregated with dedicated access points north and south of the river, reducing potential conflict.



Wide two-way walkway and cycleway both maintain a 1:20 slope accessible to all users.

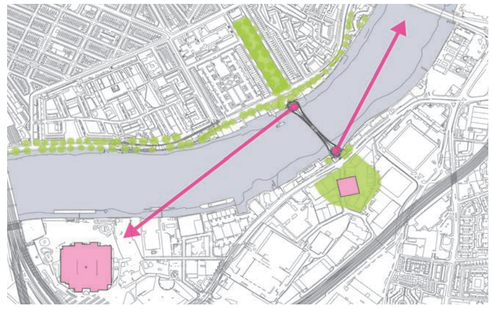
PLACEMAKING ACROSS THE BRIDGE AND AT ITS LANDING POINTS

Taking advantage of the structural height required to meet the clear height and span distances, the bridge creates two elevated parks which become part of the bridge public realm experience.

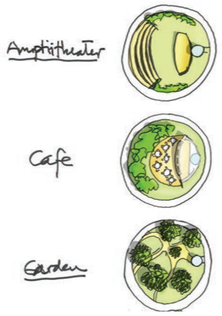
At the top of each abutment, circular parks provide an opportunity for respite and recreation and offer opportunities for social interaction in the form of an amphitheatre, a cafe or a garden.

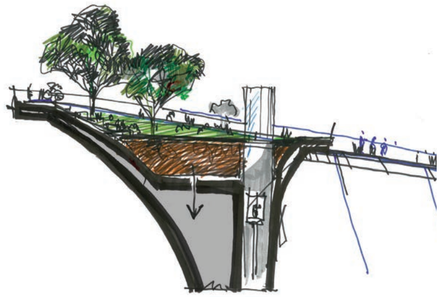
Where pedestrian and cycle routes meet mid-span and a controlled crossing is positioned, an additional resting place and viewing point is created.

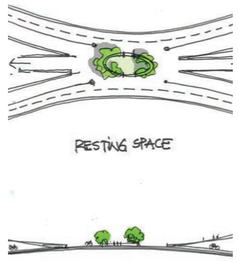
The compact nature of the abutments the slender nature of the access points mean that existing public realm at grade will be preserved and enhanced: Trees and park space along Grosvenor Road at Pimlico Gardens will be preserved, and the Nine Elms Lane pedestrian way shall be widened as a result of this scheme.



Views from elevated parks to Battersea Power Station and Westminster





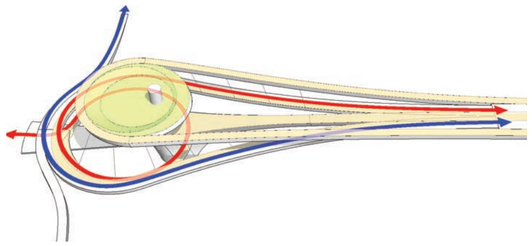


Potential uses at elevated parks and midpoint

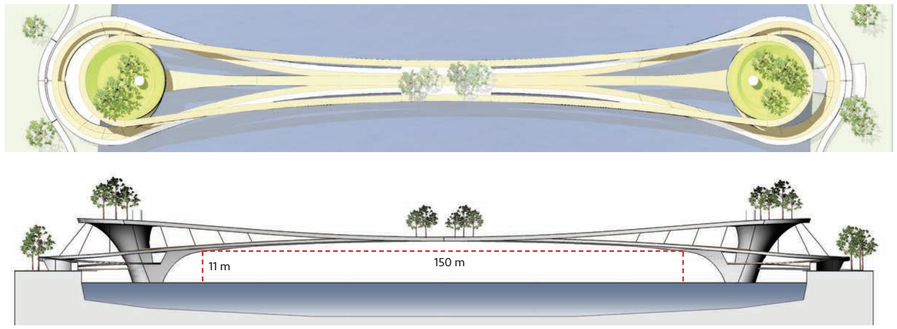
HEIGHT ACROSS THE RIVER AND THE INHERENT ACCESS ISSUES

The required height across the river is constrained by the desirable navigation zone requested by the Port of London Authority. Based on the precedents at Chelsea and Vauxhall Bridges the proposed bridge clearance will need to be at least 11m AOD. The challenge to design an appropriate gradient of slope to enable level access for cyclists and pedestrians whilst also gaining the height required over the river will be addressed through the use of sloped circular approaches to the bridge at a maximum of 5% gradient.

Access is addressed through dedicated new signalised junctions introduced at the intersection of the bridge with both Grosvenor Road and Nine Elms Lane. To reinforce cyclist priority, the new junctions will include an arm specifically for cyclists, complete with their own green light phase and "storage" at the stop lines to facilitate waiting. Additional dedicated left turn slip lanes will prevent delay to cyclists by permitting a left turn onto the bridge in advance of the stop line. Pedestrians are also catered for with signalised crossings across all arms, improving pedestrian accessibility between the new developments on the south and the established residential properties on the north.



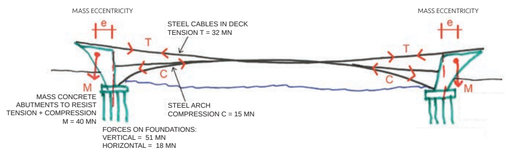
Assuming a maximum grade of 5% the ramp will need to be approximately 90m long on the northern side of the river and approximately 100m long on the southern side of the river.



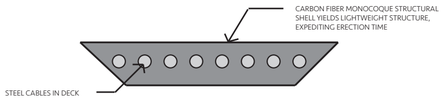
APPROACH TO CONSTRUCTION TO MINIMIZE IMPACT ON THE RIVER TRAFFIC

The bridge structural concept utilizes a series of suspension cables of approximately 150mm in diameter embedded within a carbon profile that in turn provide a very lightweight upper deck. The suspension cables will be anchored in concrete abutments forming the main access, interchange and viewing platforms for the bridge at either end. The lower deck forms a steel compression arch also restrained by the mass of the concrete abutments. The steel deck being formed with an efficient steel monocoque structure providing strength, stiffness and form. The concrete abutments not only serve as the ability to offer raised viewing platforms but also perform a vital structural role in counter balancing the tensions generated from the suspension cables. The mass of these abutments will be used in order to efficiently balance the tension and compression forces generated in the spans.

The River Thames traffic is significant and critical to the economy of the city, with that firmly in mind an approach to the construction that limits disruption to river traffic is critical.



Structural Scheme - Permanent + Live Loads



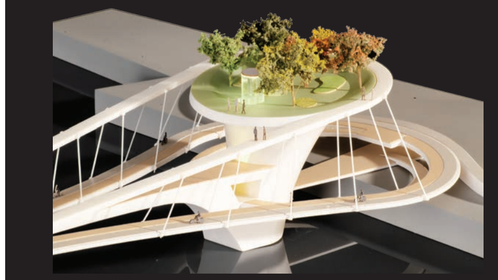
Structural Scheme - Bridge Deck Composition

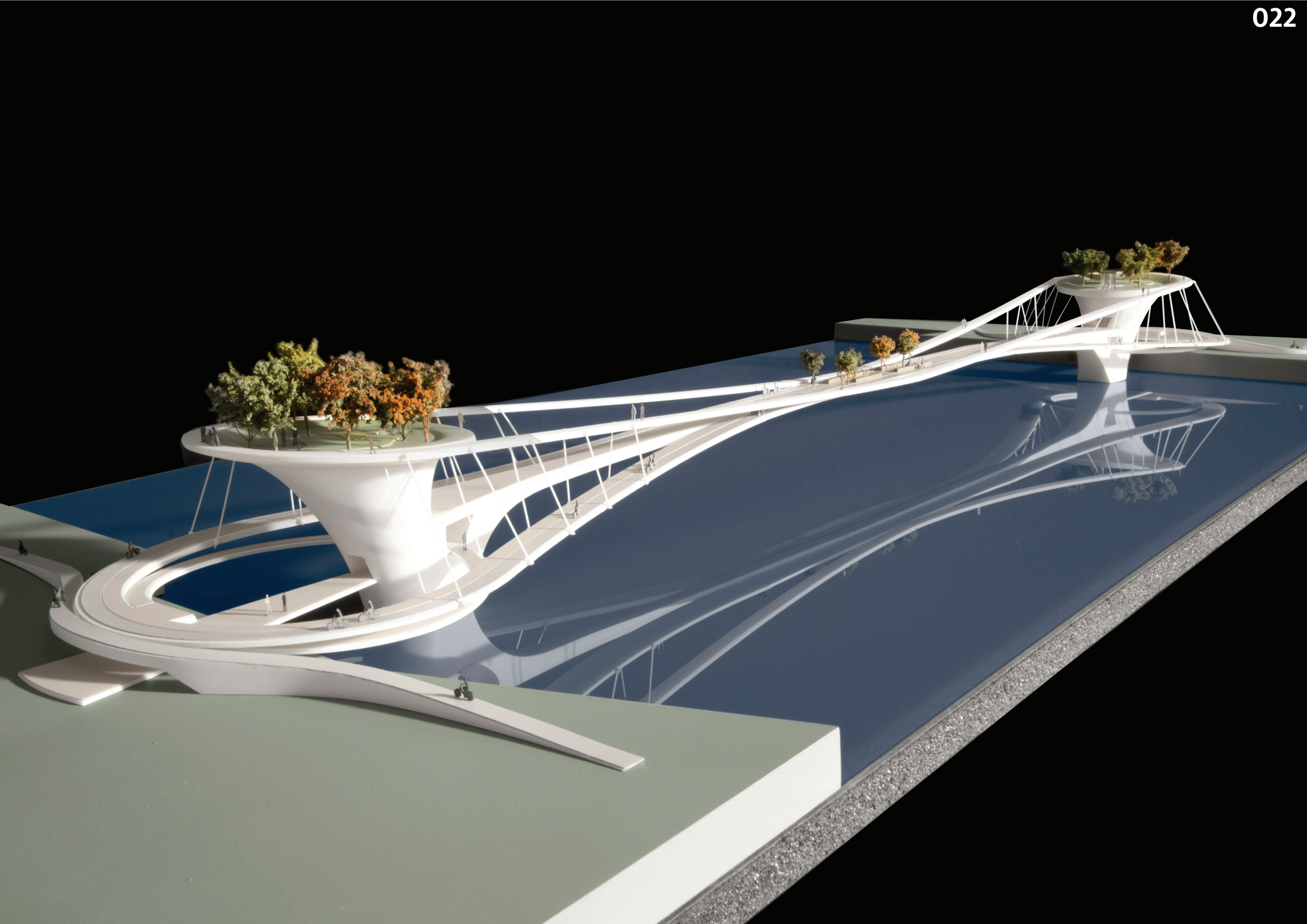
Phase 1. *The abutments can be constructed without any impedance to river traffic.*

Phase 3. *The lower deck is a steel arch constructed for each side towards the middle eliminating the need to obstruct the river below.*

Phase 2. *The suspension cables are spun across the river and tensioned to ensure they are not within the navigation zone.*

Phase 4. *The upper cables connected to the lower deck at the mid point of the span will be tensioned: the structure is in its final position.*





022 DESIGN CONCEPT: A BRIDGE WITH NO STEPS

The structure of two elevated parks counterbalance the tension of the suspension bridge cables designed as a double loop system of ramps at a maximum slope of 1:20.

Cyclists and pedestrians reach the clearance height of the navigation channel through spiraling ramps of different radii suspended over the river.

The 8-shaped circuit allows for multiple patterns of circulation that come together at the center of the bridge and converge at a viewing platform.

The elevated parks are reached by ramps positioned over suspension cables as well as public elevators and provide strategic vantage points with panoramic views of the Thames River.

The bridge is a place to rest, promenade and exercise as much as means to cross the river on a fluid system of ramps with no obstacles for cyclists, pedestrians or users with limited mobility.

The model shows the configuration on the Option 1 site.

The bridge has the potential to become a visual landmark for the area given its specific curvilinear geometry which is derived from circulation requirements and its location connecting the existing public realm of the north bank – Pimlico Gardens and St. George's Square – with the emerging public realm in development on the south bank – at the U.S. Embassy, along Nine Elms Lane, and at the Battersea Power Station Park.

The bridge can also become a landmark renowned for its functionality and safety achieved through the segregation of pedestrians and cyclists with a uniform 1:20 slope that ensures accessibility for all.

The compact footprint of the bridge abutments allows for maximum preservation of the public realm at the northern landing point, for the creation of a new activated node within the emerging public realm near the southern landing point, and for integration with existing and proposed pedestrian paths along the River.

The tree canopy at Pimlico Gardens along Grosvenor Road can be preserved, and by providing landscaped public spaces along the length of the bridge, the bridge offers new public amenities and enhances the area overall.

By maintaining a low vertical profile as it crosses the River, the bridge minimizes impacts on existing views within the surrounding communities.