Viaducts for the "General Paz" Avenue in Buenos Aires

Without an intermediate pier, the occupation of the carriageways beneath would be reduced when executing its foundation as well as the column and the both decks.

Thereby the deck span would be about 41.5 m. This span, in addition to the hard boundary conditions that can be frequently found in urban environments (such as high vertical clearance and restrictions to modify both vertical and plan alignments) brought a system with the working structure on the supported carriageway (half-through bridges).

Composite decks comprehend both this range of spans and structural system above the carriageways, consisting of a concrete slab on a framework of transversal steel beams, which are connected to the longitudinal sustaining elements located at both edges of the deck.

Thus the structural depth below the road surface is controlled by the distance between these longitudinal sustaining elements instead of the span between bents or abutments.

The different options were analyzed in one typical overpass (25 de Mayo Street) with a carriageway of 8.0 m. and two sidewalks of 2.0 m. The suggested alternatives tackled different configurations of the longitudinal sustaining elements:

1. Steel beams (constant depth)
2. Steel beams (variable depth)
3. Bowstring bridge
4. Steel truss (constant depth)
5. Steel truss (variable depth)
6. Steel truss (triangular)

Finally, Autopistas del Sol chose the last alternative (triangular steel truss), which was developed, in terms of construction, in the five overpasses: 25 de Mayo, Beiró I, Beiró II, López de Vega and Victor Hugo. Four of these bridges were assembled in the sides of the highway and were placed on its definitive position by powerful self-propelled bogies of the company ALE.

Argentina /2012-2014

Project data

Structural type:
steel truss
Characteristics:
the overall project involves 7 viaducts with total 36m to 43m total length
Location:
Buenos Aires
Owner:
Ministerio de Planificación Federal Inversión Pública y Servicios – Secretará de Obras Públicas
Client:
CONSULBAIRES Ingenieros Consultores
Scope:
detailed design and construction support