

COMPANY

Maubertec-Planservi Consortium

LOCATION

São Paulo, Brazil

SOFTWARE

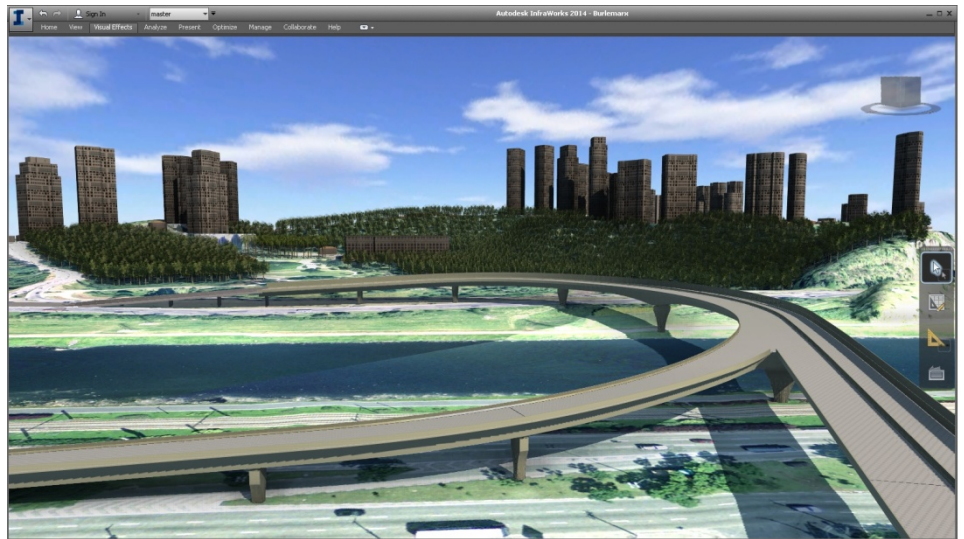
Autodesk® AutoCAD®**Autodesk® AutoCAD® Civil 3D®****Autodesk® AutoCAD® Map 3D****Autodesk® InfraWorks™****Autodesk® InfraWorks 360™****Autodesk® Revit®**

Resources used for the presentation of the project contributed significantly to the smooth running of the process of obtaining the necessary environmental permits.

— **João Leopoldo Wernek Camargo,**
Engineer
 Projects Superintendent
 SPObras

Burle Marx Park Bridge project aids urban transformation

3D visualization improves communication and speeds environmental permitting



The Laguna Bridge at Burle Marx Park—Image courtesy of Maubertec-Planservi Consortium.

Introduction

The Laguna Bridge in São Paulo, Brazil, was designed by Maubertec-Planservi Consortium using Autodesk® products to prepare design drawings and to facilitate communication with the public as part of the environmental licensing process. Urban Operations is an urban development program used by the city of São Paulo, based on medium- and long-term planning and supported by interaction with the private sector. The purpose of the program is to determine the best way to appropriate urban land.

The region for the Laguna Bridge project is the Santo Amaro District in the neighborhood known as Jardim Santo Antonio. This region is subject to an accelerated urban transformation process caused by changes in the city's zoning law, which extinguished an old industrial zone and promotes new uses more compatible with the site.

In this huge territorial extension, lots that were occupied by industrial warehouses are gradually being replaced by new forms of land use—often residential buildings—generating a greater population density and the need for new traffic connections.

In an effort to improve the region's traffic network, the Água Espraiada Urban Operation was created. In this context, they created the project of a new bridge over Pinheiros River, which will enable a two-way flow of traffic, establishing new functional connections.

The new connections provided by the Água Espraiada Urban Operation include the following:

- Connection of Roberto Marinho Avenue (formerly Agua Espraiada) from Estações Unidas Avenue (Pinheiros Riverside Avenue) to the Imigrantes highway in the direction leading to the coast
- Extension of Chucri Zaidan Avenue between Luiz Carlos Berrini Avenue—an important administrative and commercial region of the city—to João Dias Avenue—an arterial road that binds the city with the densely populated suburbs in the southwest region
- Road connection between the neighborhoods of Santo Amaro and Morumbi through two bridges over the Pinheiros River—one in the region of Burle Marx Park and another near the existing João Dias Bridge

Realistic 3D models provide compelling visual presentations to all stakeholders

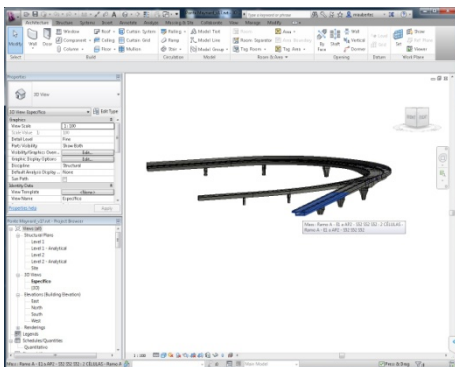
The connection between the neighborhoods of Santo Amaro and Morumbi will enable the connection of Giovani Gronchi Avenue, which runs to José Ramon Urtiza Street in the neighborhood of Morumbi, with Nações Unidas Avenue and the neighborhoods of the South through the extension of Dr. Chucuri Zaidan Avenue. The proposed Laguna Bridge is in the region of Burle Marx Park, and will enable the neighborhoods in the south to connect with the Morumbi neighborhood and Giovani Gronchi Avenue through Laguna Street and Pinheiros Riverside Avenue. At first, the extension of Avenida Chucuri Zaidan will reach João Dias Avenue. Later, it will be extended to the Interlagos neighborhood.

The challenge

Environmental requirements for the bridge included meeting the vehicle traffic demands, as well as allowing traffic of bikes and pedestrians. Also, the project was required to maintain the existing extensive green area in one of the river embankments where the bridge enters Burle Marx Park. The modern urbanization requirement was that the design of the bridge must be architecturally harmonious and compatible with the characteristics of the park, since its visibility will be extensive. In granting the Preliminary Environmental License for the Urban Operation, the City Secretariat of Green and Environment conditioned the license with the compliance of this series of recommendations. The bridge also needed to adhere to the traffic network system's improvement requirements.

The solution

This challenge led to the development of many design alternatives, which were submitted to the environmental agency for approval at every step.



The Laguna Bridge design in Autodesk Revit—Image courtesy of Maubertec-Planservi Consortium.

The environmental assessment process is a collaborative interaction between technical and nontechnical stakeholders. Since not all parties are familiar with technical project drawings, it was necessary to find a way to visually communicate that the Laguna Bridge would not interfere negatively in the region of Burle Marx Park.

Perspectives of the new bridge were prepared with Autodesk software so that the project could be fully understood by everyone involved. According to Engineer João Leopoldo Wernek Camargo, projects superintendent of SPObras, “resources used for the presentation of the project contributed significantly to the smooth running of the process of obtaining the environmental permits for the project.”

Using Autodesk® AutoCAD® 3D modeling software, designers were able to analyze all interference and restrictions relative to the existing site infrastructure, making it easier to define of the geometry of the bridge.

To create a realistic visualization of the bridge over the urban grid, the team used Autodesk® Revit® software to develop a 3D model derived from the creation of mass families that complied with the extreme variability of the geometry of the bridge.

Autodesk® AutoCAD® Civil 3D® software helped designers detail the visual impact of the bridge on Burle Marx Park, and AutoCAD® Map 3D software enabled them to read the database of the municipality of São Paulo, including detailed altitude data on lots, buildings, and the park itself.

The result

The team was able to integrate all project data, including orthogonal photos and the model created in Revit, by applying Autodesk® InfraWorks™ software.

Since the 3D model was uploaded via Autodesk® Infracworks 360™ cloud-based service, the project could be analyzed remotely by stakeholders, which contributed significantly to speeding up the process of obtaining the necessary environmental permits for the project.

Autodesk software helped us increase productivity, integrate different elements of the project, and improve communication. And Autodesk Infracworks 360 allowed the project to be analyzed remotely by stakeholders, which contributed significantly to speeding up the process of obtaining the environmental permit for the project.

— **João Leopoldo Wernek Camargo,**
Engineer
 Projects Superintendent
 SPObras