



Application Regional Planning



Territory planning in 3D thanks to LandSIM3D

The community of cities of St Quentin-en-Yvelines, based in the south west of Paris, chose LandSIM3D® to develop a 3D model of their territory.



The **Community of Cities of St Quentin-en-Yvelines** is made of a group of 7 municipalities in the department of Yvelines located in the South-West of Paris. They choose **LandSIM3D** to develop a 3D territorial model of the region in high resolution. We ask to Mr Laurent **CHARRIER**, Head of the GIS department and 3D project manager to explain the expected applications of such a 3D model and the reasons behind the

choice of **LandSIM3D** software to complete the project.

Why was the Geographic Information System (GIS) department in charge of the management of such a 3D project?

Mr. **CHARRIER**: Any development project is based on a preliminary mapping of the territory. GIS is therefore at the heart of the design of new projects which they feed in real accurate data. The development of our GIS began in 1989 and has continued to evolve. Today we have a complete and effective geographical database covering the 7 municipalities. It consists of a digital terrain model, of a small scale topographic database of buildings, parks, hydrology, roads and administrative boundaries and a descriptive alphanumerical database of each building covering the entire territory of the metropolitan area in vector format and 3D. Our ortho-photo is a definition of 12 cm. We also have a library of 147 territory patrimonial buildings modeled in 3D. Developers, engineers and politicians now use those tools everyday.

But 2D has shown its limits in terms of analysis and study of new projects, especially in urban areas. It is obvious that the accurate visualization of a project in 3D integrated into its real context is a vital asset for territory managers and planners like us. 3D becomes an essential tool in the decision making process for our projects managers as well as our city and regional officials. It responds very well to sustainable development issues and it is in the end a very logical evolution of our technical choices. The transition to 3D is a natural step for our GIS because it is part of a continuing recovery of our heritage map that covers 180 sq. km of which 75 sq. km covering the boundaries of our community of cities.



What are the services expected from such a 3D model?

Mr. **CHARRIER**: The first goal is to have a tool for decision support in the management and development of our territory using the real features of our landscape and our urban environment. For this, the models produced with **LandSIM3D** considerably improve the quality of services offered by our department responsible for the urban planning studies. The information we provide is more reliable, easier to read because it has become three-dimensional. In this sense, **LandSIM3D** also facilitates the dialogue and understanding of complex projects. Making projects more understandable has an immediate impact on our timeframe spent for analysis and study, which indirectly lowers their costs. Finally the **LandSIM3D** model becomes a 3D federation platform integrating all the components of the territory to centralize and share information in one place accessible by all.

What are the challenges behind such a 3D model?

Mr. **CHARRIER**: The major challenge to meet all the needs and requests of our different departments through a unique 3D model supported by the same software. On this aspect, **LandSIM3D** is particularly well built and suited to our needs and trades. We were looking for a 3D product in which we could collect all the symbolic components of our territory within single viewable 3D model including high levels of details like vegetation. We also wanted a 3D product capable of offering various forms of representation to meet all needs expressed by the departments of the Community of Cities in terms of site analysis, public consultation as well as project study: bird eye visualization, ground based

“ The LandSIM3D work flow, simple and based on geographic information coming from GIS, is a great benefit”.

Laurent CHARRIER – Head of GIS Department, 3D Project Manager.

visualization, symbolic or realistic display, mapping and visualization of thematic maps onto the 3D model; typo morphological identification of buildings in their real environment.



What were the main reasons to choose LandSIM3D?

Mr. **CHARRIER**: **LandSIM3D** is primarily a product on the shelf offered at a very reasonable budget that allows us to remain independent and autonomous in the daily management and updating of our 3D model. **LandSIM3D** answers very well to all the criteria cited above. Its work flow, based on geographic information in GIS, is remarkable.

Its operation is simple, quick and it does not require a high level of 3D expertise to be used. **LandSIM3D** does not only provides a visualization of GIS data but offers a multitude of services, as such as project integration coming from different project department of the Community of Cities developed by urban planners and landscape architects who work with specialized CAD software like AutoCAD®, Mensura®, Google Sketchup® or Datacad®. Projects designed and modeled with these products can fit into the **LandSIM3D** model without too much difficulty of integration.

His procedural modeling technology approach allows us to represent all components of the territory with very high levels of details we couldn't image with other real-time software. Its ability to simulate so realistic 3D vegetation on large scale is unique on the market and provides a real benefit for the landscape design and planning by mixing urban and rural areas. We find that the innovative technology incorporated into **LandSIM3D** solved many of the problems encountered in the more conventional approaches to 3D we tested before. We believe it is a young but very promising tool with great development potential for those who work in urban and regional planning.

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To read the other customer testimonies

Can you give us an idea of the next applications?

Mr. **CHARRIER**: Our first objective was the "global control & correction" of our GIS data (lighting - roads - rivers - sanitation - bridges ...) in order to view them interacting together 3D and in context, at large and small scale without loss of accuracy. The 3D visualization possibility increases our ability to analyze and allows us to more intelligently manage the development of our territory. For example, we can now avoid the trees to mingle with the many candelabra and we better understand the development of road crosses and aerial connections which are so complex to represent and understand in 2D.

A large stadium scheme is under development on our territory and the model allows us to visualize variants of the project developed by architects in context. It also offers a practical study base for the Department of Transportation which uses it to better design the new access roads to the stadium. The Sport Department uses the 3D model for the formalization of future projects on the hill of Elancourt. The Department of Environment and Green Spaces qualifies the blue and green frames of the landscape by subcontracting landscape studies to private consulting companies outside and visualize the results of their studies into the 3D model. The model of the territory has also been given to the City Museum. It promotes the 147 3D patrimonial objects we have into **LandSIM3D**. Those 3D models are integrated as geo-specific objects to achieve a map of heritage. The Museum of the City uses it for promotion of its heritage and its history to the general public.



Complementary information

The City Community of St Quentin-en-Yvelines acquired LandSIM3D in 2008.

Website: www.agglo-sqy.fr

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