

Decision-Making Made Easy with RDV – Rapid Design Visualization

Ask any engineering professional what hurdles must be overcome to make a planned project become reality, and you will surely hear that facing the numerous planning committees, representing scores of interest groups, is a major obstacle. This is true any place in the world. In today's ecologically aware society, for example, "green" groups are on the lookout for environmental no-no's. And wherever you are in the world, local committees have their residents' fears, misconceptions and mistrust to deal with. Some interest groups are unique to specific areas. In Israel, for example, road construction must take into account the JNF, which plants and protects the country's forests. And, in a country sitting on 3000 years of biblical history that have a tendency to pop up at almost every step, the Department of Antiquities is a major force to contend with. Not to mention representatives of all faiths protecting their important holy sites. And then there's the ever-present water problem.

Water, Water Everywhere...?

"Water is a precious commodity in Israel," explains Ilan Turbiner, Infrastructure Manager of Baran Projects, the largest engineering company in Israel. Mekorot – the national water company – is justifiably vigilant regarding any hint of potential damage to the country's limited water supply and very receptive to any ideas that might give Israel an edge in its ongoing battle for water. "So if you visually show ecologists and Mekorot how building a bridge as part of a road will enable water to flow into Lake Kinneret (the Sea of Galilee), which is Israel's major reservoir, you've won an important battle," says Turbiner.

This is exactly what happened when Baran Projects, with a staff of 1400 professionals and branches in 15 countries around the world, screened a state-of-the-art interactive visualization of the planned upgrade of Highways 65 – 85 in northern Israel. It quickly became clear that road embankments which had been part of the original construction of Highway 85 well over 30 years ago were today actually blocking the flow of water from three streams, preventing it from reaching the Kinneret. Including bridges on the roads would release the flow and solve the problem. In cooperation with the Israel Nature and Parks Authority, a decision was taken to

dismantle the embankments blocking the Amud, Tsalmon and Akbara streams and build bridges in their stead.

More Battles to be Won

But Mekorot was only one hurdle. “There are many more stakeholders and many more battles to be won when trying to gain approval for the numerous aspects of road construction,” says Turbiner. “What makes it even more challenging,” he relates, “is that most of those on the stakeholder committees are unable to visualize (comprehend/understand) the final product when viewing an engineer’s two-dimensional plans.”

Bringing Designs to Life

That’s where RDV, Rapid Design Visualization, enters the picture. RDV’s user-friendly software installed on CAD platforms takes the lines and squiggles produced by professional engineers and smoothly incorporates them into a model integrating three-dimensional representations into the landscape, producing realistic simulations that enable stakeholders to view and analyze the planned project from the perspective of their areas of expertise. It allows companies to illustrate their designs so that they are clear not only to the engineers who design the projects, but to all concerned parties – developers and contractors, local and regional committees and the gamut of interest groups. “In fact,” confides Turbiner, “the visualization is even helpful for designers and planners who have been trained to visualize projects using only plans. I am convinced it is very advantageous to apply the RDV technology as early as possible in the design stage of the process.”

Highways 65 and 85 are a case in point. They serve as the main link between the verdant northeast of Israel and the bustling center of the country. Construction plans call for upgrading segments of the road to create a quick-way, of a standard on par with inter-city highways. Ultimately, the new road will feature three lanes in each direction, with broad islands and shoulders to enhance safety standards. Intersections will be replaced with interchanges. A special effort is being made to adapt the road to the topography, including open passages over watercourses and streams, and preservation of natural habitats and ecological corridors. Drivers on the road will enjoy the grandeur of the Galilee mountain views they are passing, as is

abundantly clear from the RDV visualization of the plans. The newly flowing streams on Highway 85 will now be open to hikers and tourists.

All this came to life in the RDV visualization which illustrated to all concerned stakeholders that their perspectives were taken into consideration. A two-lane road was being expanded into six lanes, dramatically reducing travel time between the north and the center of the country, and it was clear to all, from the lifelike visualization, that the end result would include green, well planned landscapes that would be a welcome sight to visitors in the area and to local residents now zipping through the countryside.

Green, Green, Green... and Green

“We are an ecologically aware company,” says Turbiner. “Once upon a time, roads were constructed as quickly as possible, with little or no attention to environmental factors. Today we are committed to ecological responsibility.” In addition to unblocking the flow of water to the Kinneret, the Highway 65 – 85 undertaking will also include an ecological bridge for wildlife crossing. When the work is completed, the wider, divided highway will not only dramatically cut travel time between Israel’s north and center, enabling an easy commute to and from the commercial centers of Israel, but will also provide travelers with views of the Galilee’s lush landscape to feast their eyes on as they traverse the new roads.

“Wows” Every Time

“Whenever we present an RDV visualization of our projects, we hear ‘Wow!’ from the audience,” says Turbiner. Without doubt those “wows” are nice to hear but more important is the comparative ease with which he gains approval from stakeholders when using RDV technology. “There are so many committees to get past, each with its own agenda, that it is a kind of Via Dolorosa to get all on board,” he says. “Seeing a visualization of the final product defuses objections, bringing all parties to a common ground.”

Also in the Works...

Baran Projects is also employing RDV technology on another project in the north of Israel, Route 77. This road is intended to eventually link up with Highway 6, the Trans-Israel Highway. A new

lane was added in each direction, the existing lanes were rehabilitated and preparations have been made for a third lane. The Highway 77 project includes retaining walls, rehabilitation of waterways, drainage, landscaping, irrigation, guard rails along the entire route and environmental development around the project. Six waterways have been lengthened and four agricultural passages have been added.

The RDV software facilitates changes in inclines, clearly illustrating waterways and positioning. “Today we use RDV as a tool for winning approval from interest groups,” relates Turbiner. But I am convinced it would be a great tool in the planning stage – even before the design is chosen. The technology brings the road and its surroundings to life. It does not create a different reality, but demonstrates how the end product will look and how the interests of all stakeholders have been met.”

Time is Money

This user-friendly technology is changing the way companies work. With RDV software, companies save both time and money. The amount of time saved when plans are approved quickly is swiftly translated into money. Projects are completed on schedule and fewer mishaps occur along the way. Turbiner is particularly complimentary about RDV Systems. “The company is always available when we need it. They never say ‘No.’ We’ve worked with other technologies but found that RDV offered many more advantages and we will certainly work with this company on future projects.”