“We’re committed to exporting our expertise and technology to the global marketplace. Autodesk Civil 3D lets us design more accurately and promptly, which gives us an extra edge in securing international contracts. We anticipate that Autodesk Civil 3D will help us save up to 20 percent in time and costs.”

Kun-Yeol Sung,
Structural Design Team Manager,
KRTC

Next Stop: Global Competitiveness

Railroad planner cuts design time by up to 20 percent with Autodesk Civil 3D

Project Summary
In 1965, South Korea’s Ministry of Transportation established the Korean Railroad Technical Corporation (KRTC), a subsidiary of Korea National Railroad, to help develop and modernize the Korean railroad system. Privatized in 2004, KRTC offers planning, feasibility studies, design, and supervision for major railroad construction projects across South Korea, including the national railroad, high-speed railroad, and subways. Seeking to maintain a leadership position domestically and to compete for more jobs globally, KRTC upgraded its design software to Autodesk Civil 3D. KRTC is using the dynamic modeling capabilities of Autodesk Civil 3D to:

• Reduce overall design time and costs by up to 20 percent
• Bid more competitively on large-scale projects and turnkey contracts
• Increase the efficiency of core civil engineering activities
• Integrate existing plans and third-party applications into a 3D design environment

The Challenge
Since establishing its Research and Development Center in May 2000, KRTC has played a major role in the development of Korea’s railroads. The company receives significant revenues by licensing its unique technology and processes to construction companies. With 37 solution sets available, KRTC seeks to become a leader in the world market. But until recently, the company used AutoCAD-based third-party applications that limited the company to 2D design.

“Because it was difficult to read 2D design plans for large-scale projects, miscommunication between designers and contractors was commonplace,” says Kun-Yeol Sung, Structural Design Team Manager, KRTC. “We gradually realized that upgrading our 2D design technique would only go so far in improving our technical know-how and efficiency. We decided to make a full-scale migration to 3D design tools.”
The Solution
In addition to railroads, KRTC creates civil engineering designs that range from roads and city projects to watercourses and harbors. KRTC chose Autodesk Civil 3D as its core design tool because the solution provides common functionality across these diverse fields. Autodesk Civil 3D also offered KRTC backward compatibility for plans created from older Autodesk software and third-party applications. As a result, KRTC continues to benefit from decades of accumulated know-how and proven processes while working in a more sophisticated 3D environment that enables faster design changes.

“Autodesk Civil 3D will greatly improve the efficiency of our core civil engineering functions of linear design, longitudinal and cross-sectional sampling, earth moving calculations, and structure design,” says Sung. “We chose Autodesk Civil 3D because it dynamically links each design object. That allows us to easily meet different requirements for each project or contractor in 3D—and to reduce the time and cost associated with modifying designs.”

When KRTC’s engineers complete a general plan with Autodesk Civil 3D, all parties involved in the project can view 3D renderings to see how structures will fit within surrounding landscapes. Engineers can also easily run simulations to communicate the “what-ifs” of a planned design. Working in 3D has dramatically reduced the need for time-consuming and costly duplicate designs.

Maintaining a Competitive Edge
Across Korea and around the world, KRTC is bidding on increasingly sophisticated design projects. Autodesk Civil 3D enables KRTC to differentiate itself from its competition by producing easily understandable designs that make clear communication possible between designers and contractors. Sung believes that KRTC’s move to Autodesk Civil 3D—ahead of the trend—will help the company maintain its market leadership.

“Technology upgrades are a critical aspect of consistently producing superior designs,” says Sung. “Being able to efficiently create and present more sophisticated 3D design alternatives will help us remain competitive as we target both domestic and international markets. For all these reasons, adopting 3D design software was inevitable for us.”

The Result
With Autodesk Civil 3D, KRTC quickly and easily modifies designs and offers alternatives—ranging from general plan-derived designs to environmentally friendly variations. Visualizations provided by Autodesk Civil 3D help KRTC’s customers make better-informed design decisions. And because it has streamlined its design processes, KRTC submits more competitive bids on large-scale projects and turnkey contracts, which require seamless collaboration with partners.

“We’re committed to exporting our expertise and technology to the global marketplace,” Sung concludes. “Autodesk Civil 3D lets us design more accurately and promptly, which gives us an extra edge in securing international contracts. We anticipate that Autodesk Civil 3D will help us save up to 20 percent in time and costs.”

For more information
Learn more about how Autodesk Civil 3D helps civil engineering firms streamline design. Visit us on the web at www.autodesk.com/infrastructure.