Using 3D Models to Build Smarter Projects

Challenge: Build accountability and transparency into infrastructure investment programs.

Solution: Use digital 3D models to help improve program quality and identify, and fix project errors before delays occur.

Benefit: Projects are completed faster, more sustainably, and cost effectively; construction progress is more transparent.

Much of the public discussion on President Obama's green infrastructure investments has focused on enhancing the electrical grid, extending broadband penetration, and creating alternative energy sources. Another dimension of green infrastructure investment is using 3D modeling to help build smarter—and greener—roads, bridges, utilities, and public buildings. The benefits of 3D modeling even extend beyond sustainable design to enhancing the execution of infrastructure programs and improving project speed, accountability, and budget performance.

Using 3D modeling, project managers can visualize and analyze projects well before a shovel breaks the soil. Next-generation visualization tools help minimize waste during the construction process, enhance collaboration among government agencies, allow engineers test the environmental impact of designs and help prevent costly mistakes that slow projects down; 3D models can also:

- Enable "smart" construction, a digital rehearsal of a project's construction and assembly that can reduce on-site mistakes and delays.
- Support the tracking of cost and quantity information, facilitating transparency and accountability on infrastructure investments.
- Assist civil engineers in their assessment of environmental issues and impacts by speeding the analysis of drainage and storm water management systems to minimize flooding, erosion, pollution, and sedimentation.

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- Allow structural engineers to simulate structural loads and perform environmental analyses, helping to improve the structural integrity and minimize environmental impacts.

- Help architects run energy simulations to assist in the selection of the best sustainable options for building renovations.

- Facilitate design-build programs, integrated project collaboration methods, and building information modeling processes.

The economic recovery legislation provides a path to a smart way of investing in infrastructure. Encouraging the use of 3D modeling will help ensure that these investments produce well-managed, transparent, and sustainable programs.