



PROJECT SUMMARY

Organization

Port of Long Beach

Vertical Market

Geospatial – Government

Location

Long Beach, California, USA

Project Objectives

- To introduce an interoperable portfolio of software to support the port's new engineering and GIS workflows
- To avoid lengthy and slow workflows using disparate technology with the attendant costly and error-prone file transformations
- To migrate from hard copy files to an online archive of all engineering files including validated and accurate views of the as-built infrastructure
- To be able to use the port's expert CAD resources more efficiently by starting projects faster and freeing them up from repetitive tasks, data validation

Bentley Products Used

MicroStation®, ProjectWise® Geospatial Management, ProjectWise® Connector for ArcGIS, ProjectWise® Web Server, ProjectWise® InterPlot®, ProjectWise® Publishing Server, Bentley® Geo Web Publisher™, Bentley Map™, Bentley® PowerMap Field, Bentley® Descartes, Bentley® MAPscript®, Bentley® CADscript®, InRoads® Suite, Bentley® CloudWorx, Generative Components®, WaterGEMS®

FAST FACTS

- The Port of Long Beach is the second largest port in the United States of America
- It handles more than 7 million containers worth \$140 billion per annum
- The CAD team is now enjoying the efficiencies of new workflows that bring immediate access to accurate views of the as-built infrastructure
- The port expects to make savings of more than \$3 million from CAD file management efficiencies alone

STANDARDIZING ON BENTLEY® CAD AND GIS PLATFORMS HELPS TO STREAMLINE INFRASTRUCTURE ENGINEERING PROCESSES

The Port of Long Beach, California, moves goods valued annually at more than \$140 billion, making it the second busiest seaport in the United States and this huge volume of cargo supports an impressive 1.4m jobs in the United States of America. In 2007 alone, the port handled 7,312,465 containers (13% of the US total) carrying everything from clothing and toys to furniture and consumer electronics. Specialized terminals also move petroleum, automobiles, lumber, and other products. Located 25 miles south of Los Angeles, the port provides terminals for nearly one-third of waterborne trade passing through the West Coast — a volume that is growing at a compound annual rate of 8.5 percent.

The port is really like a small city. It covers 13 square kilometers (3,200 acres). There are 7 separate container terminals, 10 piers, 80 berths and 72 Post-Panamax gantry cranes — these are the cranes that work 24x7 to extract or load the containers onto some of the 5,300 ships that enter the port every year.

The port is not only an impressively efficient commercial operation, but it has also been at the forefront of combining growth with a focus on making the operation environmentally sustainable with projects to reduce pollution from trucks, diesel locomotives and docked vessels.

The people charged with providing infrastructure to support this burgeoning sea trade are committed to becoming technology leaders in the port facilities industry. Standardizing on a common CAD/GIS platform was a strategic component of a \$26 million five-year technology plan initiated in 2007 for the Port of Long Beach, a department within the City of Long Beach. The CAD/GIS project will improve the quality, efficiency, and accessibility of engineering data as well as deliver interoperability with existing GIS data. A comprehensive standards manual will leverage and enforce the new platform thus ensuring accurate infrastructure 'as-builts'.

"The main objective of this project was to make the Port of Long Beach a leader in engineering design of infrastructure," said CADD Manager Michael Kolster. "We are already one of the largest ports in the world and seen as a leader in the port industry. We are recognized as a leader on environmental issues and port security, and it was time to lead in engineering technology as well."

One of the reasons why standardization on Bentley's interoperable software is such an advantage is because the port has to manage such diverse classes of infrastructure. Bentley's uniquely wide-ranging engineering and geospatial software allows the port to manage the entire portfolio of assets from bridges, roads, rail facilities, water and wastewater networks, the communications network, marine structures and more. Not only that, but Bentley provides the technology to create and edit the base maps on which all this infrastructure is located and designed.

The CAD/GIS project plan called for replacing multiple disparate engineering software programs that required the time-consuming re-creation of data and had no central storage for project files. The new platform seamlessly integrates the design processes and products. Based on the long-term financial and technical benefits, Kolster demonstrated to the Harbor Board of Commissioners the benefits and they approved department-wide conversion to the Bentley solutions platform.

"Bentley's commitment to interoperability should be used as a model for all engineering software developers. Their integrated CAD, GIS, BIM, and server technologies make our users more productive and allow our engineers to focus on design rather than technology," Kolster said. "This project will help our staff easily access accurate digital information for the first time since migrating from the drafting board. We are confident that these improvements will make us more competitive in the coming years."

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ABOUT BENTLEY

Bentley Systems, Incorporated is the global leader dedicated to providing comprehensive software solutions for sustaining infrastructure. Architects, engineers, constructors, and owner-operators are indispensable in improving our world and our quality of life; the company's mission is to improve the performance of their projects and of the assets they design, build, and operate. Bentley sustains the infrastructure professions by helping to leverage information technology, learning, best practices, and global collaboration – and by promoting careers devoted to this crucial work.

For more information, visit www.bentley.com

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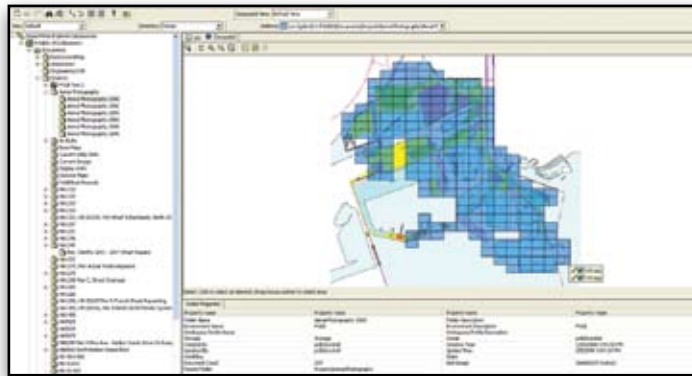
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The port's engineering documentation can be quickly accessed through the spatially-enabled version of ProjectWise (Bentley Geospatial Management).



Bentley Map supports the mapping and analysis of infrastructure assets – in this case the port's water network.

FIVE STEPS TO STANDARDIZATION

The Port of Long Beach signed an Enterprise License Subscription (ELS) and Enterprise Training SubscriptionSM (ETS) in February 2007 and kicked off the CAD/GIS project in October 2007. The project was divided into five subprojects: CAD Standards and ProjectWise® Implementation, Process Re-engineering, Data Remediation, Enterprise GIS, and Coordinate Systems. Project goals were achieved by analyzing as-is workflows and proposing future workflows that leverage the new Bentley configured software.

One workflow reform that illustrates the potential time savings is the transfer of mapping data from the survey department to engineering. The survey department had been creating terrain models that would be converted from electronic format, to PDF file format, to printed copies for field notebooks, and then these prints would eventually be scanned and manually recreated in electronic format. The cumbersome process involved several file conversion steps and ultimately placed duplicate files in multiple data storage areas. Finding files required searching 7 mapped drives.

Using integrated Bentley products, the survey department now processes GPS data in Bentley® InRoads®. Engineering designers use the ProjectWise® Connector for ArcGIS to pull as-built data and begin working with no data conversion. ProjectWise serves as the centralized document management system and requires just one mapped drive. Assuming a workload of about 200 projects per year, Kolster estimates that the improved workflows across all functions – from finding and assembling project data to as-built validation and clean-up – will save more than 200 man-weeks per year, for a total annual cost savings of about \$540,000.

The two-year process of standardizing on the Bentley platform involved developing the system's functional and technical specifications; migrating the current document management system data and as-built database; identifying new hardware and software specifications; creating a comprehensive CAD standards manual and consultant guidelines; deploying and configuring ProjectWise® Geospatial Management (the spatially enabled version of ProjectWise), the ProjectWise Connector for ArcGIS, and Bentley Map™; integrating applications; benchmarking results; and training users through the ETS program.

The ongoing engineering and construction projects managed by the Port of Long Beach provide the port industry with state-of-the-art seaport facilities. Sea trade and transportation is a major economic force, and the Port of Long Beach currently generates about \$16 billion in annual trade-related wages statewide and supports more than 1.4 million jobs throughout the United States. As the Port of Long Beach becomes more efficient in its ability to design and build infrastructure, it will contribute to the growth of the local and national economy.