Capabilities for Civil Integrated Management

The Design and Construction industry has experienced rapid vertical integration of disciplines across the entire facility planning, design, construction and maintenance lifecycle, requiring that information be available to multiple stakeholders within a single, accessible data system. Technology advances in cloud computing, virtual collaboration sites and distributed design tools have driven the adoption of Civil Integrated Management (CIM) and Building Information Modeling (BIM).

Historical construction practices for project delivery and management have relied on static data management—notably 2-D drawings, plans, printed specifications, and traditional location survey reports requiring each discipline to review and approve their portion of the work in a silo. However, intelligent 3-D software packages enabled by collaborative information platforms can overcome these limitations by providing an environment where design plans can adapt to real-life constructability issues and work can be time-sequenced to understand the impacts of each phase of a project:

- Construction managers and contractors view master-integrated schedules as well as time-sequenced plans in a customized information management environment to support constructability analysis, construction sequencing, cascading schedule impacts, 180-days look-ahead, risk based probabilistic schedule, fabrication, supply chain management, etc.

- Construction discipline managers plan and assess multiple aspects of the project, analyze risks, identify heavy equipment locations and routes, evacuation plans, and other critical components of the project

- Project owners realize reductions in time (and money) for rework by analyzing existing conditions and modifying plans and schedules to address incompatibilities that might not be taken into account in the initial design

- Construction and program managers view dashboards for aggregated critical metrics and program/project health across all of the contractor disciplines and phases of a project
WHY CRITIGEN

Critigen has both the technological and program management expertise to guide key stakeholders on the implementation of CIM for design, construction and eventual maintenance for the long-term use of the built facility. Our experience includes consulting and implementation of CIM for large and small design/construction/facility maintenance projects for over the past decade:

- Successfully implemented and supported a web-based project controls system comprised of commercial-off-the-shelf software for the ongoing $1.27B Dallas County Parkland Hospital expansion
- Full life-cycle systems integrator with expertise in incorporating field data collection systems
- Leveraging mobile devices to provide real-time mapping of spatial data
- Developed and implemented geospatial dashboards to desktops, browsers, and mobile devices, meeting customer needs for content, display and analysis and supporting program information for a variety of projects including expansion of the Panama Canal, London's storm water and sewer system overhaul, planning and construction of 2012 Olympic Games infrastructure and facilities management for all U.S. Air Force bases across the globe
- Experience in training all levels of professionals in the use of information technologies for civil infrastructure development

Critigen’s primary CIM consulting resources leverage extensive experience in the development of approaches for using CIM:

- Contribute to FHWA's Strategic Highway Research Program 2 (SHRP2) at high level Transportation Research Board (TRB) committees
- Sit on TRB’s Intelligent Construction Systems and Technology (ICST) – Program Review Committee
- By invitation, support AASHTO in implementation of CIM research products through various committees
- Frequently speak at FHWA, ARTBA, AGC, AASHTO and other CIM forums
- Contribute to many industry publications about the benefits of BIM/CIM
- Lead the industry in BIM implementations for Cost Management (5-D) and Facility Management (6-D)