

NCHRP 20-68A – “US Domestic Scan Program”
Scan 13-02 Advances in Civil Integrated Management (CIM)

Description of Scan:

Over the past 20 years there has occurred a dynamic evolution in the use of computers to assist in highway construction efforts. The application of computer driven total station, laser guidance systems, automatic machine guidance systems, 3D, 4D, or 5D modeling of complex construction strategies, or remote modeling of assemble of bridge elements, has resulted in more efficiency and accuracy than ever before. In addition, contract administration has evolved such that contract administration tools are being used that enhance partnering between owners, consultants, materials suppliers, and contractors to optimize just in time delivery of services and materials.

The purpose of this scan is to examine projects that utilize CIM technologies and partnering efforts between State DOTs, consultants, contractors, and materials suppliers. This scan will consider organization factors (e.g. size of program degree of centralization or decentralization, and outsourcing) that may influence a state DOT, consultant, materials supplier, or contractors’ ability to utilize CIM. The scan team will identify and examine CIM type projects from across the nation for the scan. Possible projects include the North Carolina Turnpike Authority Triangle Expressway, Dallas Fort Worth Connector, Multnomah Oregon’s Sellwood Bridge Project, the Dallas Fort Worth Connector, and the Wisconsin DOT Zoo Interchange.

The team should meet with project management, design, materials suppliers, and construction staff to assess the effectiveness of the technology and partnering efforts currently being used by the state DOT’s, consultants, materials supplier, and contractors. Specifically, the scan team will document:

- Identified proven intelligent construction technologies
- Construction project performance measures being used
- Successful partnering techniques including virtual meetings, wireless data sharing, and paperless communication as applicable.

The results of this scan will assist agencies in identifying when and where to effectively employ intelligent construction technology. The results will also identify successful partnering techniques being used by state DOT’s, consultants, contractors, and materials suppliers in utilizing intelligent construction technology. Finally, the results of this scan will serve as a valuable precursor to a new research project approved by the AASHTO Standing Committee on Research for inclusion in NCHRP’s FY2014 research program, problem statement D-12 “Civil Integrated Management: Benefits and Challenges”.

Agencies will benefit from this scan from gaining knowledge of the use of highway construction projects utilizing emerging intelligent construction technologies and partnering for the fast, efficient, and safe delivery of projects.

Original Scan Proposal Title(s): DSP-13-02 Civil Integrated Management (CIM)

Last Reviewed/Revised April 2, 2013

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Execution Schedule

Milestone	Anticipated Date
Chairs and Team Members Identified	August 2013
Desk Scan Completed	January 2014
Prescan Meeting Held	January 2014
Scan Conducted	April 2014
Draft PowerPoint submitted by SME	May 2014
Draft Report Delivered to NCHRP and Panel	June 2014
Final Report Delivered to NCHRP	October 2014

Estimated Scan Cost: \$150,000 (\$140,000 – type 2, \$125,000 – type 3)

Anticipated Duration: 1-1/2 weeks (6 days – type 2, 3 days type 3)

Last Reviewed/Revised October 23, 2013