MODEL THE WAY
FROM PLAN TO PRACTICE
2024 INDUSTRY & CALTRANS
BIM4I SUMMIT

Summary Report

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Executive Summary

The Industry & Caltrans Building Information Modeling for Infrastructure Summit (BIM4I Summit) is designed to be an annual forum that fosters discussion, raises collective awareness, and generates construction industry feedback on the use of digital tools to assist in the delivery of transportation projects. With the help of industry representatives, the California Department of Transportation (Caltrans) hosted the 2024 BIM4I Summit on March 12 and 13, 2024, in Sacramento, Calif

The 2024 BIM4I Summit included presentations and feedback sessions on Caltrans' and industry representatives' BIM4I visions. Panels provided participants with opportunities to discuss BIM4I-related topics. The 2024 BIM4I Summit resulted in a list of working group topics to support continued growth of BIM4I on state highway projects.

The 2024 BIM4I Summit brought together nearly 120 participants from Caltrans and industry partner agencies, including the American Council of Engineering Companies (ACEC), Associated General Contractors of California (AGC California), the Federal Highway Administration (FHWA), Performance Contracting Inc. (PCI), Southern California Contractors Association (SCCA), United Contractors (UCON), and small business entities (SBEs).

The purpose of this report is to document the progression of activities that took place before, during, and after the 2024 BIM4I Summit that led to key takeaways and the list of BIM4I working group topics explored in "BIM4I Summit Outcomes" section of this report.

Next steps include identifying members and facilitating meetings for the selected BIM4I working groups.

Design Process

Three phases comprise the 2024 BIM4I Summit: pre-summit activities, 2024 Industry & Caltrans BIM4I Summit, and post-summit activities. Each phase and the associated activities are described in the following sections.

Pre-Summit

The pre-BIM4I summit phase included formation of the BIM4I Summit Planning Committee and a BIM4I Summit visioning session.

To kick off the pre-BIM4I summit phase, a planning committee was formed, and a visioning session held to develop the purpose of the 2024 BIM4I Summit by defining focus areas to be addressed by summit participants. The visioning session in November 2023 included representatives from Caltrans HQ Division of Construction, Caltrans HQ Division of Design, Caltrans HQ Division of Engineering Services, and industry partner agencies, including ACEC, AGC California, SCCA, and UCON. Participants determined that the 2024 BIM4I Summit should focus on aligning the industries' and Caltrans' visions for BIM4I and raising collective awareness for BIM4I implementation.

Members of the BIM4I Summit planning committee are:

2024 BIM4I Summit Champions

- Caltrans: Ray Hopkins, Rich Foley, Jeff Wiley, Lisa Ramsey

2024 BIM4I Summit Steering Committee

- Caltrans: Jeremy Peterson-Self, Sudhakar Vatti, Paul Chung, Ray Tritt
- AGC California: Chris Smith

2024 BIM4I Summit Planning Team

- Caltrans: Devin Porr, Ana Serrano, Jesus Mora, Lynn Hiel, Tony English
- Flatiron: Alicia Lopez
- WSP: Douglas Dunrud
- Salsbury Engineering: Jon Gauthier
- Teichert Construction: Tyler Tani
- Granite Construction: Mike Wills
- UCON: Ray Baca
- SCCA: Paul Von Berg

After the visioning session, the BIM4I Summit planning committee met bi-monthly, and then weekly from November 2023 through March 2024. The BIM4I Summit planning committee developed the BIM4I Summit agenda, presentation topics, and breakout discussion topics.

BIM4I Summit

Day 1

Day 1 of the BIM4I Summit focused on synchronizing the long-term visions for BIM4I of Caltrans and industry and raising collective awareness of industry's readiness for BIM4I solutions.

Synchronize Vision

Donna Berry, Caltrans' Chief Engineer, presented the Caltrans BIM4I vision and expressed why Caltrans was focusing on this effort. Rich Foley, Caltrans' Division Chief of Engineering Services, presented the Caltrans BIM4I roadmap of how Caltrans plans to bring the vision to life. Alicia Lopez, Flatiron Chief of Innovation Officer, collaborated with industry partners for her presentation of the industry's BIM4I vision.

After hearing the vision from the Caltrans' and industry's perspectives, participants in small groups discussed areas of alignment and misalignment between Caltrans and industry. Major themes were captured in word clouds, with common or duplicative ideas illustrated in Figure 1, "Alignment Word Cloud," by larger text:
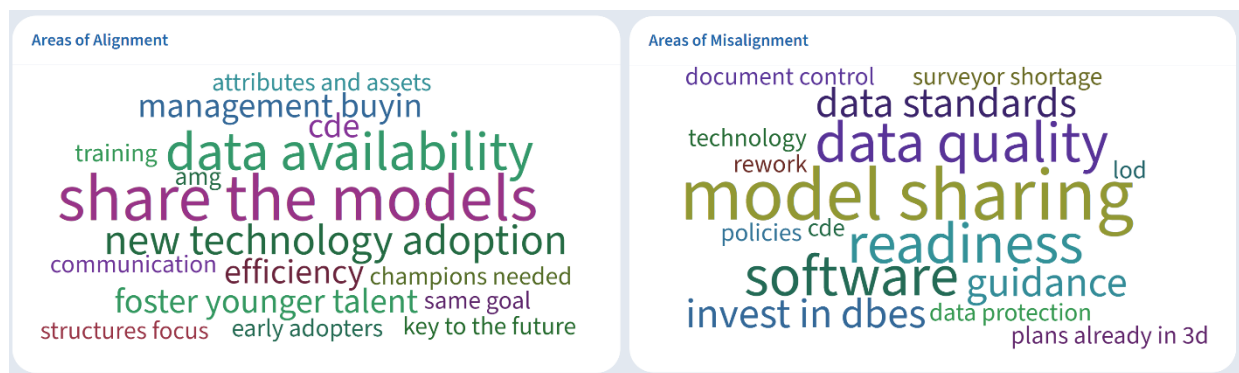

Figure 1: Alignment Word Clouds

Raise Collective Awareness

To further efforts in raising collective awareness of Industry's readiness to adopt BIM4I solutions, a panel of industry representatives addressed the question, "Where is industry heading with BIM4I?"

Industry panelists included:

- Colby Christensen, HDR
- Douglas Dunrud, WSP
- Jon Gauthier, SCCA
- Paul Pedini, Skanska
- Shaun Hansen, Fabricator
- Tyler Tani, UCON

The industry panel discussion was divided into two parts. In Part 1, panelists were asked predetermined questions relating to industry's readiness for BIM4I implementation. Afterward, small groups discussed what the group at large was learning and what they would be curious to learn more about. Topics elicited from these small breakout conversations informed Part 2 of the industry panel. In Part 2, panelists were asked a selection of the questions elicited in the breakout conversations. A full list of questions developed by participants can be found in Appendix D, "Industry Panel Questions."

Day 1 concluded with small breakout discussions, in which participants reflected on what they were learning and brainstormed potential BIM4I working group topics.

Day 2

Day 2 of the BIM4I Summit furthered participants' focus on raising collective awareness of readiness for adopting BIM4I tools through a series of project presentations and small breakout conversations. Presentation titles and presenter names are listed in Table 1, "Presentations"

Table 1: Presentations

Presentation Title	Presenter
1. Parameter-Driven Creation of 2D Traditional Style Drawings, 3D Models, and Analytical Models	Douglas Dunrud, WSP
2. Caltrans Project Team Proof of Concept Presentation and Lessons Learned	Cat Quach, Caltrans Juanah Koker, Caltrans
3. Bridges and Structures: Delivering Value to the Construction Team with BIM	Lynn Hiel, Caltrans Peyman Kaviani, Caltrans Soroush Mavandadi, Caltrans
4. Common Data Environment	Kourosh Langari, Caltrans
5. American River Bridge 3D Model for Girder and Anchor Bolt Layout	Anthony Abitz, Granite Construction Luis Guzman, Caltrans
6. Use of BIM/Civil 3D for Automated Machine Guidance	Jon Gauthier, SCCA
7. Digital Inspection and Use of Drones, Caltrans Construction	Aaron Chamberlin, Caltrans

Presentations shared during the BIM4I Summit are included in Appendix C, "Summit Presentations."

Following all project presentations, participants in small groups reflected on what the group had collectively learned over the summit's two days. They were encouraged to submit any final recommendations regarding what topics would best suit the BIM4I working groups' discussion over the next year. BIM4I working group topics were chosen to advance the adoption of BIM4I for projects. While brainstorming, participants were encouraged to think about submitting potential BIM4I working group topics that meet one or more of the following criteria:

- A topic that industry and Caltrans could commit to acting on in the next year
- Opportunities for collaboration between industry and Caltrans
- An area of readiness or a lack of
- A big goal or an easy win
- A hurdle or concern
- A risk to be mitigated

The BIM4I Summit resulted in more than 70 potential BIM4I working group topics that were further consolidated and pared down by members of the BIM4I Summit planning committee post-summit. A list of selected BIM4I working group topics is present in the "BIM4I Summit Outcomes" section of this report.

Post-Summit

The post-summit phase includes the selection of BIM4I working group topics and the development of this report.

BIM4I Summit Outcomes

The 2024 BIM4I Summit resulted in the identification of more than 70 potential BIM4I working group topics, which were then distilled to a list of selected topics.

BIM4I Working Group Topics

Following is an initial list of themes of the information gathered at the BIM4I Summit.

- Automated Machine Guidance (AMG) Committee
- Change Management
- Legal
- Level of Detail (LOD)
- Pilot Projects
- Roles and Responsibilities
- Software, Common Data Environments (CDEs), Data
- Standards
- Training
- Workflow, Process

Caltrans will organize and facilitate the progress of some working groups over the next few years. A full list of proposed BIM4I working group topics can be found in Appendix E, "Working Group Topics Raw Data."