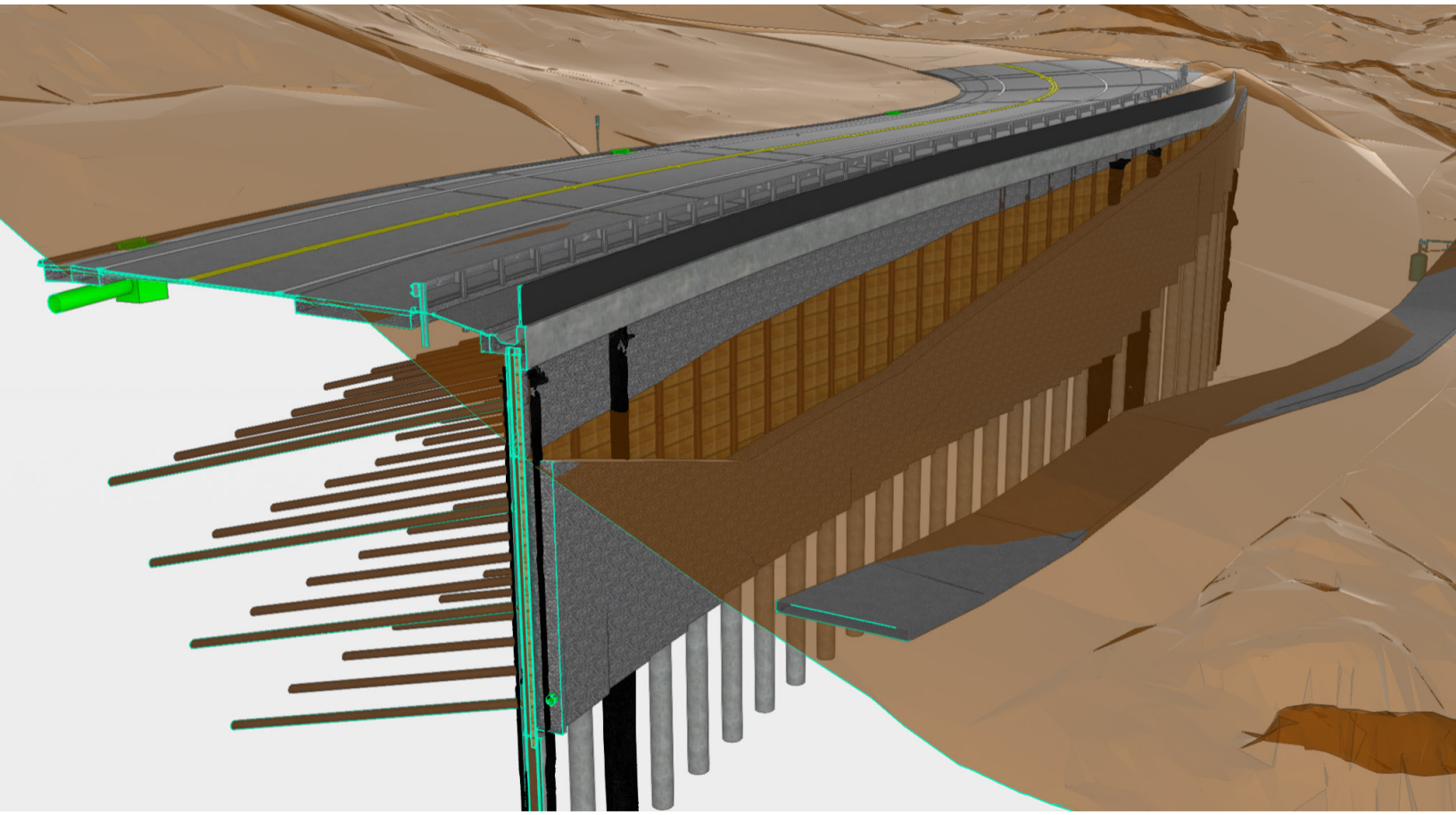
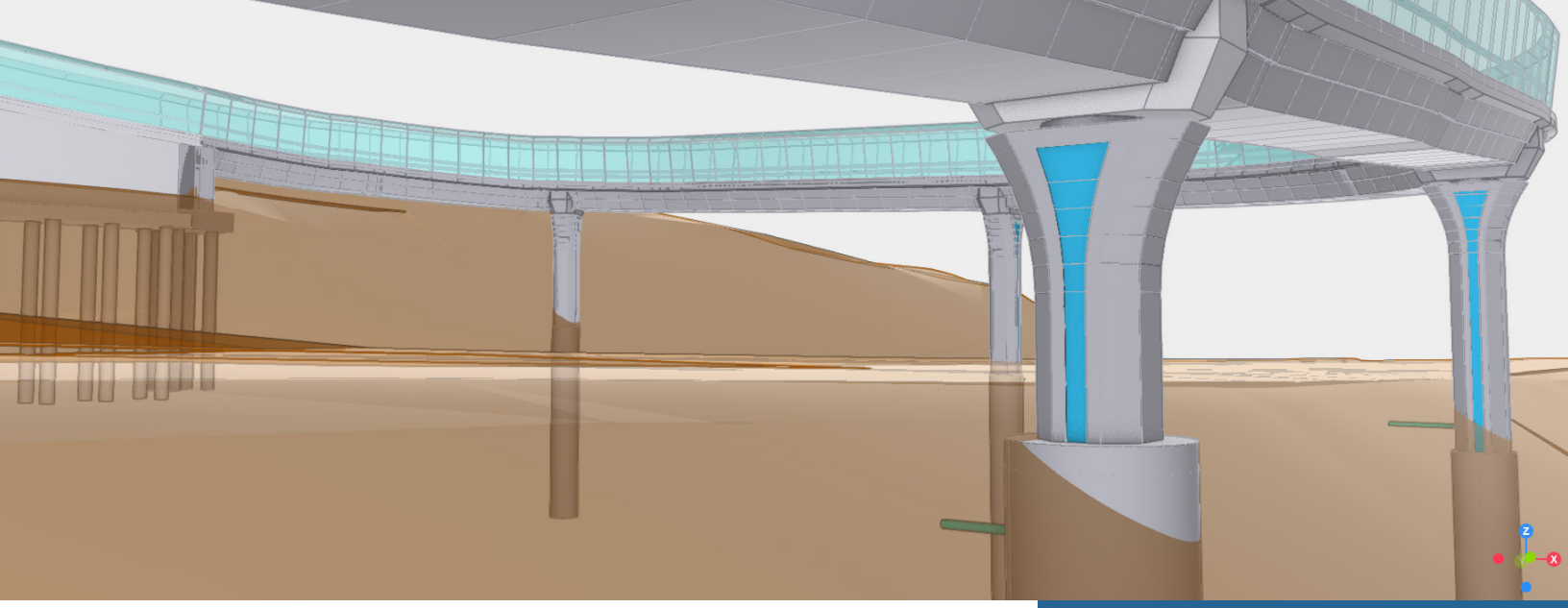


Caltrans BIM4I Program 2026-2030 Strategic Plan

JANUARY 2026



Introduction

Building Information Modeling for Infrastructure (BIM4I) represents a transformative shift in the way Caltrans delivers and manages projects and assets. BIM4I is a collaborative work method for structuring, managing, and using data and information about transportation assets throughout their lifecycle. This process is supported by technologies that create a digital representation of a project's physical and functional characteristics. These digital models integrate geometry, structured data, and documentation from multiple sources to support decision-making and information exchange throughout the asset lifecycle from planning and design through construction, operations, and maintenance.

Traditionally, infrastructure projects have relied on two-dimensional (2D) plans to represent complex, three-dimensional (3D) transportation system assets. BIM4I transitions this approach to a data-rich, digital process that improves coordination, collaboration, accuracy, and transparency. Within project delivery, the BIM4I work method is used to create a Project Information Model (PIM) – a 3D model that integrates geometry and asset data to reflect the design intent. As construction progresses, the PIM is validated or adjusted to reflect the built condition and enriched with valuable digital as-built information. At the end of construction phase, the digital as-built information is used to develop the Asset Information Model (AIM). The AIM will support long-term asset management, maintenance & investigations, operations, and performance monitoring. The PIM / AIM includes asset information such as, but not limited to, pavements, structures, utilities, and drainage systems, along with geometric features, alignments, right-of-way, construction materials, geospatial data, and digital contract information. By linking design and construction data to asset information needs, the holistic BIM4I work method creates valuable digital information for lifecycle-based infrastructure management.

BIM4I PROGRAM

Caltrans' mission, vision, and values form the foundation of its commitment to innovation, collaboration, and long-term stewardship—principles that are deeply embedded in the implementation of BIM4I.

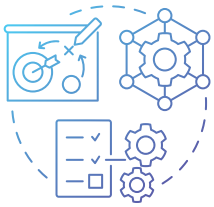
MISSION STATEMENT

Develop, implement, and maintain seamless digital project delivery and asset lifecycle management processes through collaboration with stakeholders.

VISION STATEMENT

Leading digital innovation by integrating BIM4I into Caltrans project delivery and asset lifecycle management practices.

Several factors are driving Caltrans' adoption of BIM4I, including the need for:



GREATER EFFICIENCY

DATA TRANSPARENCY

IMPROVED DATA INTEGRATION

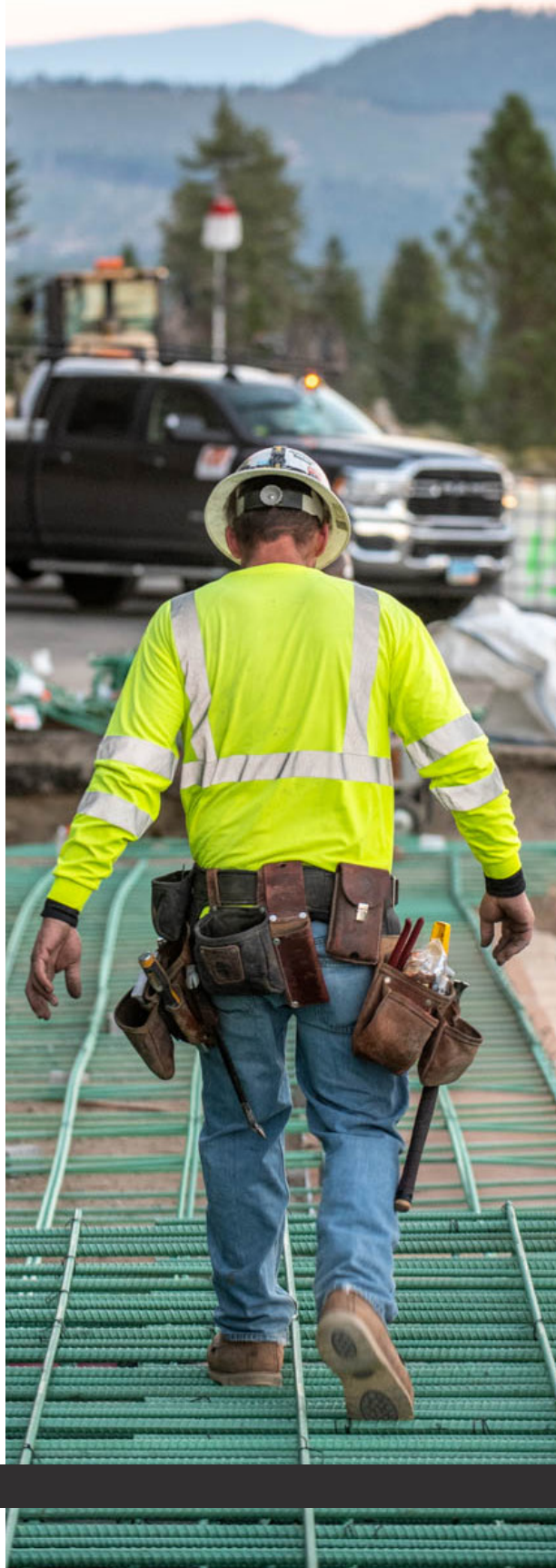
The shift supports Caltrans' goals to modernize project delivery, improve stewardship, improve safety, and improve long-term performance outcomes.

This strategic plan sets the direction for how Caltrans will advance BIM4I across project delivery and asset lifecycle management. This strategic plan is not intended to serve as a detailed implementation roadmap.

WHAT THE BIM4I PROGRAM DOES:

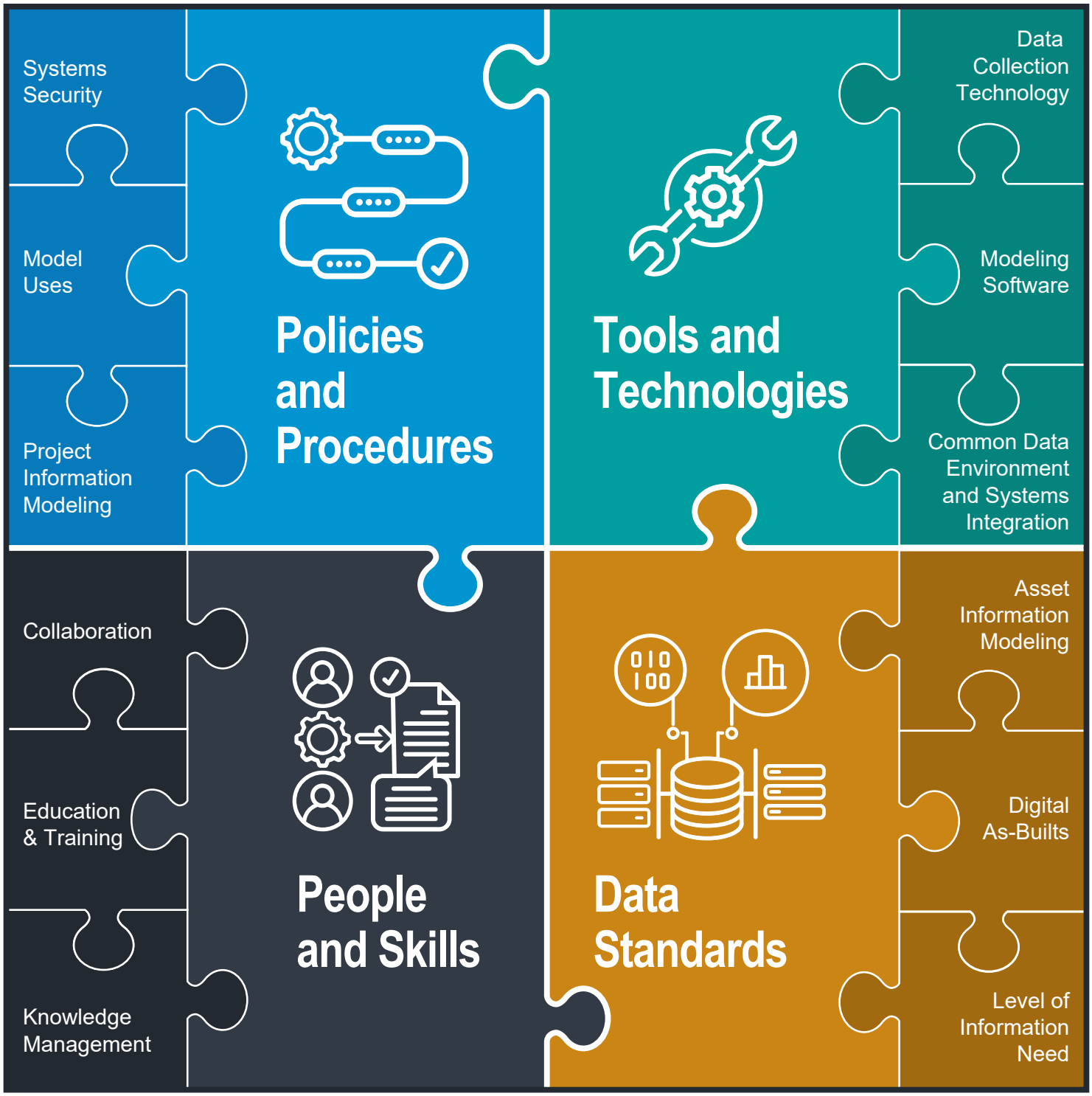
- Establish focus areas, foundational goals and guiding principles needed to align the agency and its partners in adopting and implementing BIM4I.
- Defines the what, why, and how of BIM4I adoption.
- Identify key milestones for implementation.
- Inform the development of the implementation roadmap outline which includes specific sequencing, actions, and responsibilities.

Education and outreach will also play a critical role in successful adoption. Caltrans has begun developing training, guidance, and communication strategies to build awareness and capacity among staff, as well as to conduct outreach to external stakeholders.



Building Information Modeling for Infrastructure (BIM4I)

BIM4I is a structured process for creating data-rich models that support the planning, design, construction, operation, and maintenance of infrastructure assets. The Caltrans BIM4I Program Strategic Plan outlines the goals, objectives, and strategies needed to put the pieces together.



BIM4I Program Values Aligned with Caltrans

BIM4I aligns with Caltrans' values and contributes to realizing those values. The table below illustrates how BIM4I embodies these values.

Collaboration

Caltrans Value: *We inspire and motivate one another through effective communication, teamwork, transparency, and partnership.*

BIM4I Program Alignment: A shared digital environment enhances collaboration, improves transparency among project stakeholders, and strengthens coordination between designers, contractors, fabricators, maintenance, operations, asset managers, stakeholders and communities.

Equity

Caltrans Value: *We strive to eliminate disparities while improving outcomes for all.*

BIM4I Program Alignment: BIM4I procedures enhance decision-making by integrating information models and GIS, improving long-term planning, identifying transportation needs in underserved areas, and providing better data access.

Innovation

Caltrans Value: *We are empowered to seek creative solutions and take informed risks.*

BIM4I Program Alignment: Leveraging digital tools and processes, advanced modeling, Automated Machine Guidance (AMG), e-Ticketing, unmanned aerial systems (UAS), and LiDAR enhances design, scheduling, cost estimates, streamlines construction processes, and improves asset monitoring and maintenance.

Integrity

Caltrans Value: *We promote trust and accountability through our consistent and ethical actions.*

BIM4I Program Alignment: Standard BIM4I workflows ensure reliable project development and compliance, while data management and cybersecurity policies protect data, and model-based contract documents enhance transparency and accountability in project delivery.

People First

Caltrans Value: *We consider how our work impacts people within the organization, within our communities, and throughout California.*

BIM4I Program Alignment: Data-driven risk mitigation & decision-making enhances safety in work zones and construction sites, reduces rework and disruptions to improve community experience, and create workforce development initiatives that equip employees with digital skills for career growth.

Pride

Caltrans Value: *As one Caltrans family, we are proud of our work and strive for excellence in public service.*

BIM4I Program Alignment: High-quality digital models, standardized processes, and data-driven decisions set a benchmark for project excellence, boosting efficiency, public confidence, and driving long-term success through ongoing training and new technologies.

Stewardship

Caltrans Value: *We efficiently, effectively, and equitably deliver projects, services, and asset management.*

BIM4I Program Alignment: Digital as-builts enhance long-term asset reliability and maintenance efficiency, while sustainable digital workflows reduce material waste and environmental impact. Proactive planning through BIM4I and GIS integration optimizes investment decisions.

Strategic Focus Areas

To successfully implement BIM4I, Caltrans has identified key focus areas that guide its efforts and investments. These strategic focus areas address the full lifecycle of infrastructure project delivery and asset lifecycle management—from early engagement and education to data integrity, digital standards, and workforce readiness. Each focus area supports the broader goal of integrating BIM4I into everyday practices, ensuring that Caltrans builds a foundation for sustainable, innovative, and data-driven transportation infrastructure.

Focus Area 1: Engagement, Transparency, Awareness, Education, and Outreach

The Engagement, Transparency, Awareness, Education, and Outreach focus area enhances understanding and adoption of BIM4I through educational resources, engagement sessions, and stakeholder collaboration. Key efforts include expanding online resources, hosting interactive sessions, and fostering knowledge exchange to align implementation with industry needs.

GOAL 1: INCREASE STAKEHOLDER AWARENESS AND UNDERSTANDING

Objective 1: Develop and distribute educational materials

Measured Outcome: Increased informational content available for Caltrans staff and stakeholders via the web. Increased visibility of BIM4I Program Webpage.

Strategies:

- Establish a Caltrans BIM4I Program webpage within the Caltrans internal and external website for news, documents, and resources.
- Create informational materials for internal and external engagements, workshops, and conferences, covering key BIM4I benefits, the vision and mission statements, and implementation roadmaps.
- Expand online resources, including forum/discussion boards, on-demand training, monitoring dashboards, help resources, and email support, ensuring accessibility for internal and external users.

Objective 2: Conduct targeted engagement sessions to enhance knowledge sharing

Measured Outcome: Number of sessions conducted and participant satisfaction survey scores.

Strategies:

- Create and manage a BIM4I informational email address to support user questions and needs regarding BIM4I implementation.
- Launch a BIM4I education initiative, where subject matter experts visit Caltrans Districts to present updates, address questions, and facilitate knowledge exchange around BIM4I.
- Coordinate industry-focused events and conferences that allow for direct feedback from internal and external stakeholders, facilitating discussions on model package practices and process improvements.
- Conduct ongoing, both in-person and virtual engagement, meetings and education sessions to address common questions and needs as BIM4I continues to be implemented and adopted.

GOAL 2: FOSTER COLLABORATION AND PROCESS IMPROVEMENTS THROUGH STAKEHOLDER ENGAGEMENT

Objective 1: Communicate BIM4I implementation materials with internal stakeholder needs

Measured Outcome: Documented communication plan of BIM4I implementation materials.

Strategies:

- Communicate BIM4I implementation guidelines, procedures, and workflows for downstream users.
- Centralize district data in a unified environment to create a hub for all BIM4I resources.

Objective 2: Strengthen engagement with external stakeholders and partners to align BIM4I implementation with industry needs

Measured Outcome: Number of external partners engaged with BIM4I, feedback collected, and shared practices adopted.

Strategies:

- Host and participate in industry-focused events and conferences to facilitate direct feedback from external stakeholders, contractors, and consultants, addressing model package practices and process improvements.
- Conduct peer exchanges with other Departments of Transportation (DOTs), developing targeted questions for all divisions to compare approaches and share lessons learned.
- Engage with national organizations to adopt proven strategies and workflows that enhance BIM4I implementation.
- Coordinate discussions with external partners, ensuring program updates align with evolving industry practices and stakeholder needs.

Focus Area 2: Data Management and Security

The Data Management and Security focus area ensures the integrity, accessibility, and protection of BIM4I information. It focuses on strengthening data validation, enhancing secure data-sharing protocols, and ensuring all users understand and comply with data security requirements.

GOAL 1: ESTABLISH DATA MANAGEMENT PRACTICES TO ENABLE SECURE, EFFICIENT, AND RELIABLE USE OF BIM4I DELIVERABLES

Objective 1: Strengthen data validation within BIM4I project deliverables

Measured Outcome: Compliance rate with validation standards and data quality improvements over time.

Strategies:

- Establish the role of District BIM4I Manager to oversee compliance of BIM4I deliverables with established data management standards.
- Form a task force with representatives from Division of Research, Innovation and System Information (DRISI), Project Delivery (PD), Districts, asset management, maintenance, and operations to evaluate data requirements and standardization.
- Data validation requirements, essential data protocols, and interoperability standards.

Objective 2: Enhance secure data-sharing protocols through a common data environment and enterprise data management system

Measured Outcome: Implementation of secure protocols and audit results showing compliance with access controls through a common data environment.

Strategies:

- Establish a standardized project data repository to help manage BIM4I deliverables.
- Implement secure protocols to maintain data integrity, controlled access, and long-term storage, while balancing retrievability and reuse of data.
- Integrate relevant industry standards, including the International Organization for Standardization (ISO), into Caltrans' BIM4I data-sharing protocols.
- Coordinate with national standards organizations, technology partners and FHWA to align security measures with industry best practices.

Objective 3: Provide data security requirements and compliance training to all BIM4I users

Measured Outcome: Cybersecurity training completion rates of BIM4I users and user competency assessment results.

Strategies:

- Establish clear guidelines for data access.
- Require cybersecurity training for all BIM4I users, with refresher courses as needed.
- Monitor cybersecurity training completion rates and integrate assessments to ensure understanding of security protocols.

Focus Area 3: Digital Workflows, Standards Development, and Compliance

The Digital Workflows, Standards Development, and Compliance focus area aims on establishing efficient digital workflows, creating data standards for BIM4I, and assisting project teams with compliance of relevant policies and regulations.

GOAL 1: DEVELOP AND IMPLEMENT DIGITAL WORKFLOWS AND PROCESSES

Objective 1: Develop and integrate digital workflows across all stages of project delivery

Measured Outcome: Time-bound deployment of standardized digital workflows.

Strategies:

- Develop high-level project delivery guidance, including BIM execution plan templates.
- Standardize digital workflows to improve design review processes and facilitate model-based constructability assessments.
- Implement standardized digital as-built (DABs) requirements and procedures to enhance asset lifecycle management through Asset Information Models (AIMs).

Objective 2: Assist BIM4I users with adotption of digital workflows

Measured Outcome: Adoption rates of BIM4I tools and technologies in project development.

Strategies:

- Develop digital workflow adoption strategies.
- Monitor the integration of BIM4I tools and technologies in project development.

GOAL 2: DEVELOP AND IMPLEMENT DATA STANDARDS

Objective 1: Standardize BIM4I data requirements, including modeling practices, metadata, and interoperability standards

Measured Outcome: Time-bound deployment of standardized digital workflows.

Strategies:

- Define Level of Development (LOD) and Level of Information Need standards to ensure consistency in BIM4I deliverables.
- Create and validate model element definitions, including file naming conventions and data structures.

Objective 2: Align BIM4I data standards with industry and regulatory guidelines

Measured Outcome: Measured progress towards and alignment with BIM4I data standards and industry standards.

Strategies:

- Integrate relevant industry standards into Caltrans' BIM4I data standards.
- Establish processes for ongoing updates and validation of BIM4I data standards.

GOAL 3: COMPLY WITH BIM4I REGULATIONS AND POLICIES

Objective 1: Monitor compliance with Assembly Bill (AB) 1037 from 2022 and other relevant regulations

Measured Outcome: Time-bound completion of AB 1037 compliance report and other relevant regulations.

Strategies:

- Establish tools for reporting and tracking AB 1037 compliance and any other relevant regulations.
- Provide report for AB 1037 compliance detailing implementation status, benefits achieved, and next steps in further implementing digital construction management technologies.

Objective 2: Establish a comprehensive compliance framework for BIM4I adoption

Measured Outcome: Number of compliance checks conducted and percentage of processes meeting standards.

Strategies:

- Develop compliance checks to ensure all BIM4I processes adhere to industry standards and regulatory requirements.
- Coordinate with stakeholders to align BIM4I adoption with national and international compliance frameworks.

Focus Area 4: Executing BIM4I Use Cases, Pilots, and Deployment

The Executing BIM4I focus area drives the phased adoption of BIM4I through use cases, pilot projects, and full deployment. It establishes clear success criteria, prioritizes high-impact pilot projects, and integrates BIM4I into standard workflows to enhance efficiency, cost savings, and asset lifecycle management.

GOAL 1: ESTABLISH A STRUCTURED APPROACH TO PILOTING BIM4I INITIATIVES

Objective 1: Define/prioritize BIM4I use cases to be deployed through project delivery phases

Measured Outcome: Number of use cases deployed, milestones met, and adoption rate.

Strategies:

- Deploy BIM4I Use Cases for project delivery and asset lifecycle management.
- Develop a process for assessing and approving projects with BIM4I requirements.
- Establish tools to track how the BIM4I Use Cases support project schedules, cost data, and asset tracking.

Objective 2: Identify and launch pilot projects based on defined selection criteria

Measured Outcome: Number of pilot projects launched, selection criteria applied, and alignment with agency goals.

Strategies:

- Establish selection criteria for pilot projects, prioritizing hybrid projects that transition from 2D to fully digital contract deliverables.
- Identify high-impact pilot project types including but not limited to ADA curb ramps, culverts, bridge and earth retaining structures.
- Create a centralized database to track pilot projects, including performance, cost variances, and lessons learned.

Objective 3: Define criteria and methods for evaluating pilot project success and transition to deployment

Measured Outcome: Criteria and methods created for evaluating pilot project success and full deployment of BIM4I.

Strategies:

- Establish common metrics and reporting structures to evaluate pilot projects.
- Develop a phased plan for deployment, defining when pilot projects transition to full implementation.
- Capture lessons learned for addressing implementation challenges.

GOAL 2: SCALE SUCCESSFUL BIM4I PILOT PROJECTS INTO FULL-SCALE DEPLOYMENT

Objective 1: Develop a structured plan for scaling BIM4I adoption

Measured Outcome: Percentage of pilot projects meeting benchmarks and transitioned to full deployment.

Strategies:

- Develop guidelines for transitioning from pilot project to full deployment.
- Build a clearinghouse of BIM4I policies, checklists, templates, and procedures to streamline deployment.
- Engage stakeholders early in the scaling process for successful adoption.

Objective 2: Integrate BIM4I technologies into standard project delivery

Measured Outcome: Percentage of projects using BIM4I technology.

Strategies:

- Identify projects to use information models as legally binding contract documents, reducing reliance on 2D plan sets.
- Expand adoption of Automated Machine Guidance (AMG) and e-Ticketing for construction efficiency and material tracking.
- Establish guidelines for integrating real-time field data capture tools into workflows.

Focus Area 5: Training and Workforce Development

The Training and Workforce Development focus area addresses equipping internal staff and external partners with the skills needed for successful BIM4I implementation. It includes role-based training for Caltrans staff, and targeted resources for external partners. Specialized working groups will also drive key technical activities, ensuring continuous improvement and effective adoption of BIM4I across all stakeholders.

GOAL 1: BUILD AND SUSTAIN INTERNAL STAFF COMPETENCIES

Objective 1: Establish structured, role-based training program for new and current employees

Measured Outcome: Number of employees trained, competency levels achieved, and training effectiveness based on performance metrics.

Strategies:

- Develop tiered training modules, aligned with Caltrans' training tools and procedures, covering BIM4I tools, processes, and integration into project delivery.
- Implement onboarding and continuous learning programs to keep staff updated on evolving BIM4I practices.
- Assess training effectiveness through skill validation and performance metrics.

Objective 2: Develop BIM4I expertise across the districts

Measured Outcome: Number of districts with fully trained staff, frequency of recurring training sessions, and measured feedback of train-the-trainer programs.

Strategies:

- Implement a "train-the-trainer" program to build internal expertise and enable knowledge transfer across districts.
- Provide tailored training tools and resources that align with needs and workflows.
- Offer recurring training sessions to maintain consistent skill development and knowledge reinforcement.
- Establish BIM4I coordinators in each district to lead implementation efforts and align with workforce development initiatives.

GOAL 2: EXPAND BIM4I KNOWLEDGE AND ADOPTION AMONG EXTERNAL PARTNERS AND CONTRACTORS

Objective 1: Provide targeted training sessions tailored to external partners

Measured Outcome: Number of external partners and contractors trained, feedback scores, and the alignment of training content with agency standards.

Strategies:

- Offer specialized education and training workshops for contractors, consultants, and agency partners on Caltrans BIM4I requirements and best practices.
- Develop online and in-person training options to accommodate diverse learning needs.
- Track participation and feedback to refine training approaches.

Objective 2: Develop and distribute guidance materials to support contractor adoption

Measured Outcome: Number of resources distributed, usage rates, and the effectiveness of self-paced learning modules.

Strategies:

- Create digital library of BIM4I manuals, templates, and case studies for external users.
- Provide self-paced learning modules to enhance contractor proficiency.
- Establish support channels to address technical inquiries to ensure effective adoption.

GOAL 3: ESTABLISH WORKING GROUPS TO DRIVE BIM4I IMPLEMENTATION.

Objective 1: Form specialized working groups to lead technical activities within the Implementation Plan

Measured Outcome: Number of working groups formed and clarity of roles and responsibilities for the working groups.

Strategies:

- Organize working groups focused on project development, change management, software and hardware, workspace and data management, and external stakeholder coordination.
- Define clear roles and responsibilities for each group, aligning with BIM4I implementation objectives.
- Encourage cross-functional collaboration to drive both immediate improvements and long-term program enhancements.

Moving Forward

1. **CONDUCT A BIM4I MATURITY ASSESSMENT TO ESTABLISH A BASELINE**
   Initiate a formal assessment to evaluate the current state of BIM4I adoption. The results will serve as a baseline for identifying capability gaps and informing future actions.

2. **IDENTIFY GAPS AND DEFINE TARGETED INTERVENTIONS**
   Use the maturity assessment to pinpoint process, system, and capability gaps. Develop targeted actions to close these gaps, guided by the current state and the long-term vision outlined in this strategic plan.

3. **ESTABLISH A STRUCTURED, TIMEBOUND IMPLEMENTATION ROADMAP**
   Transition from the previous implementation plan to an updated roadmap that outlines specific, sequenced actions aligned with the updated strategic plan, mission, and vision. The roadmap should identify interim steps, target timelines, and responsible parties for advancing BIM4I across Caltrans.

4. **ENGAGE WORKING GROUPS TO LEAD PRIORITY AREAS**
   Activate and align working groups to guide efforts in key focus areas such as workflows, standards, data management, and systems integration. These groups will serve as implementation stewards, ensuring progress and consistency across the strategic plan focus areas.

5. **SUPPORT STAKEHOLDER ENGAGEMENT AND LONG-TERM ADOPTION**
   Provide clear guidance for internal stakeholders to support plan execution, including defined roles, responsibilities, and alignment with BIM4I goals. Continued engagement will help embed BIM4I practices into Caltrans' culture and operations.