

# **A Path Forward in BIM:**

*A Road Map for Implementation To Support  
MILCON Transformation and Civil Works  
Projects within the U.S. Army Corps of  
Engineers*

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# Outline

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- **USACE Missions Overview**
- **Why USACE is going BIM**
- **What USACE is doing with BIM**
  - Military Programs
  - Civil Works
- **Where USACE is going with BIM**
  - The Road Map
  - The challenge to industry

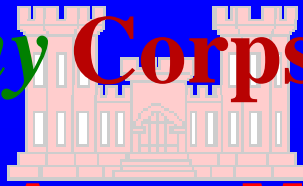
# U. S. Army Corps of Engineers



*In Support of the Army and the Nation*



# The U.S. Army Corps of Engineers



## USACE Army Missions

627 Shallow Draft Harbors



1/4 of Nation's Hydropower Production



383 Major Lakes & Reservoirs  
376 M Visitors/yr

299 Deep Draft Harbors



11,000 miles Inland Waterways

Emergency Operations



400 miles Coastal Structures



4340 Recreation Areas

276 Locks

\$500M Annual Dredging Costs

8500 Miles of Levees



11.7 Million Acres Public Lands

Environmental Stewardship



Regulatory Responsibilities



- ü US Ports & Waterways convey > 2B Tons Commerce
- ü Foreign Trade alone Creates > \$160 B Tax Revenues
- ü Cumulative Flood Damage Prevention > \$419 B



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# Military Programs

“To provide engineering, construction, environmental management and real estate services for the Army, Air Force, other assigned U.S. Government agencies, and foreign governments.”



U.S.  
Government  
Agencies



Foreign Govt's  
Worldwide

Army



Air Force





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# Why BIM?

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- **BIM Supports USACE Strategic Organizational Goals**
- **BIM Effectively Supports MILCON Transformation**
  - BIM benefits in design and construction
  - Goal to accrue O&M benefits
- **BIM Integrates With Current Applications and Programs**



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# USACE BIM Examples

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- **Fort Lewis Barracks, Seattle District**





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# USACE BIM Examples

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- **Information Technology Laboratory,  
Engineer Research and Development Center**







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# USACE BIM Examples

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- **Army Reserve Center, Louisville District**





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# USACE BIM Examples

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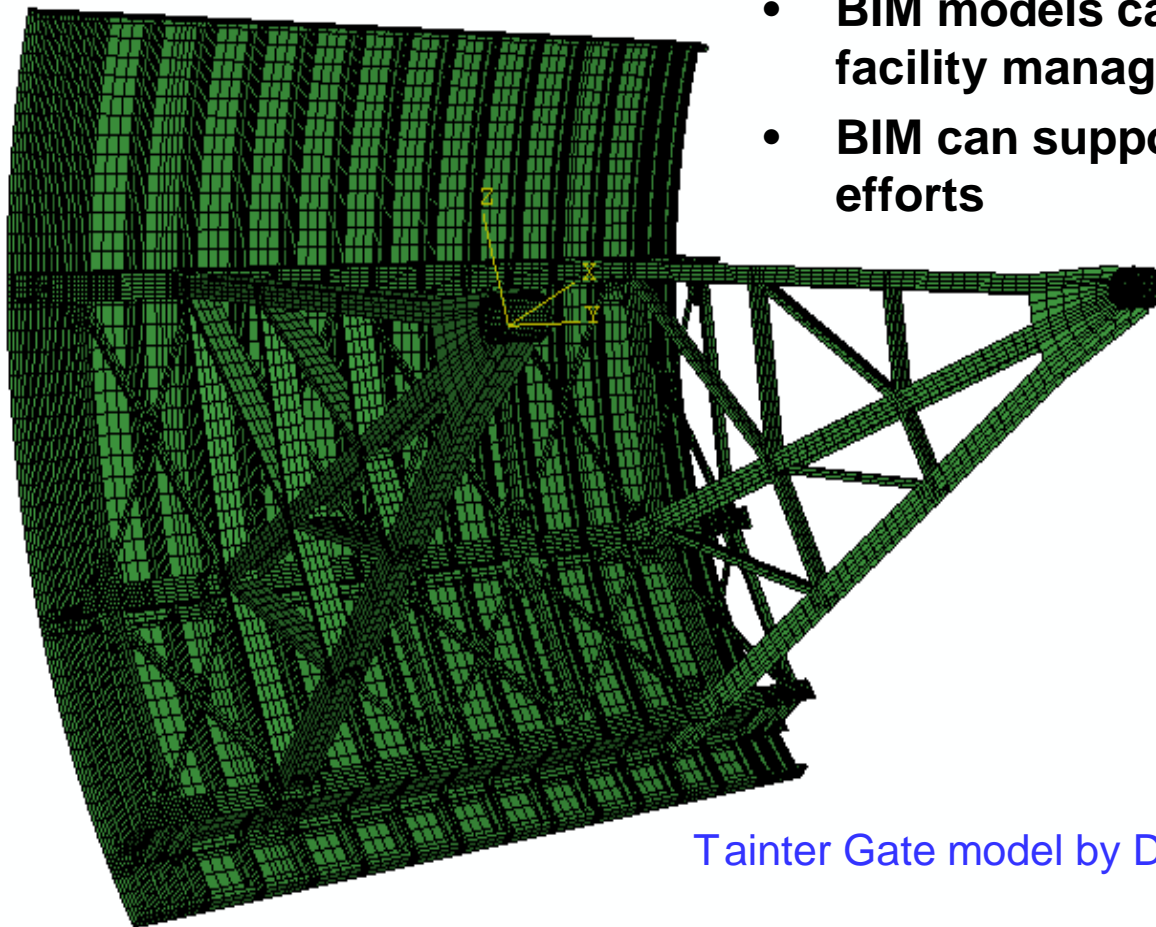
- **Iraq Prison, Gulf Region Division**





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# BIM in Civil Works



- BIM models can feed computer-aided facility management systems
- BIM can support asset management efforts

Tainter Gate model by Dr. G.A. Rivieros, P.E., ERDC-ITL



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# BIM Road Map Approach

- Phased approach
- Clearly states goals in adopting BIM
- Communicates intentions to industry
- Provide advice and lessons-learned in BIM adoption
- Anticipate technology, but plan to adjust to technology and industry risk
- Seek input and review by BIM Communities of Practice
- Living Document - Revise plan as technology matures

ERDC TR-06-10

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Engineer Research and Development Center

**Building Information Modeling (BIM)**  
A Road Map for Implementation To Support MILCON Transformation and Civil Works Projects within the U.S. Army Corps of Engineers

Beth A. Brucker, Michael P. Case, E. William East, Brian K. Huston, Susan D. Nachtigall, Johnette C. Shockley, Steve C. Spangler, and James T. Wilson

October 2008

Building Information Modeling  
Overview: U.S. Army Corps of Engineer Roadmap

Initial Operating Capability (IOC)	Establish Life-Cycle Interoperability	Full Operational Capability (FOC)	Automation of Life-Cycle Tasks
8 Centers of Standardization (COS) productive to ISM by 2008	90% compliant with National BIM Standard (NBIMS) All districts productive in NBIMS	NBIMS used for all projects as part of contract advertisement, award, submittals	Leverage NBIMS data for substantial reduction in cost and time of constructed facilities
2008	2010	2012	2020

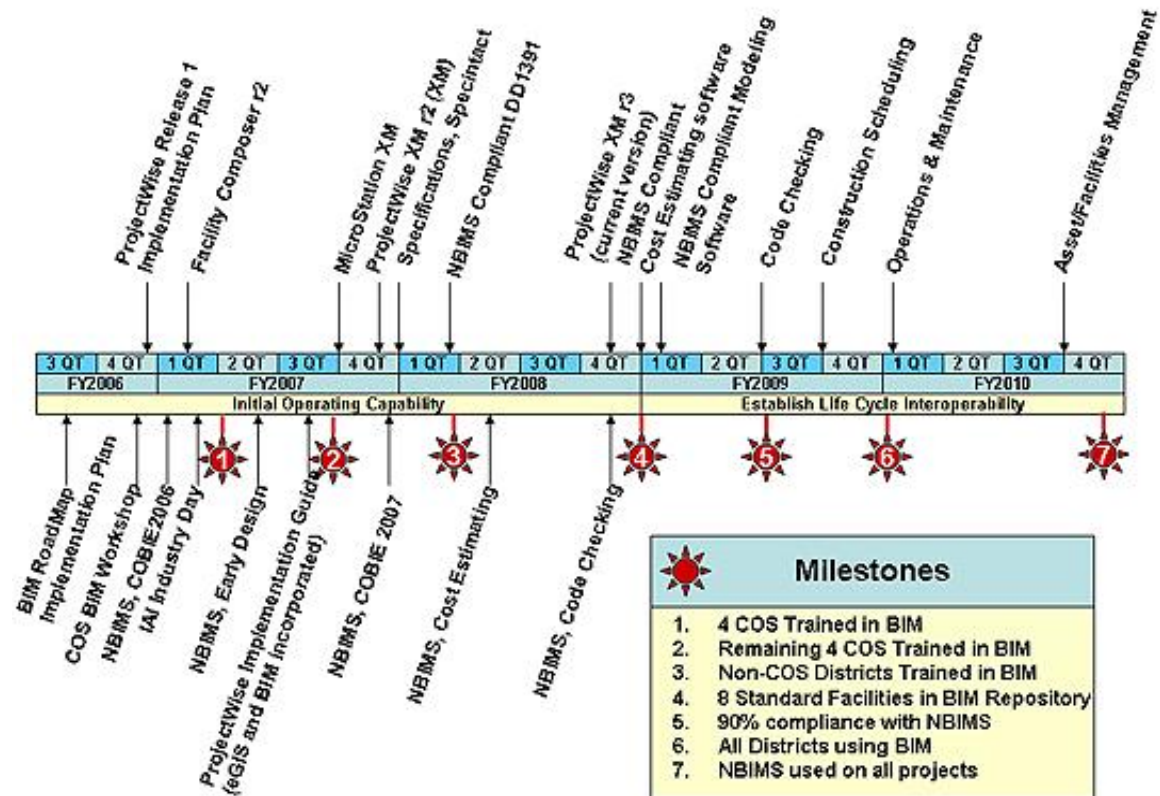
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# USACE BIM Road Map

- Addresses Short-term (FY08) and Long-term (FY12) goals
- Provides Implementation Guidance
- Addresses Military Transformation, Centers of Standardization, and Civil Works
- Address BIM in D-B and D-B-B
- Addresses O&M Requirements





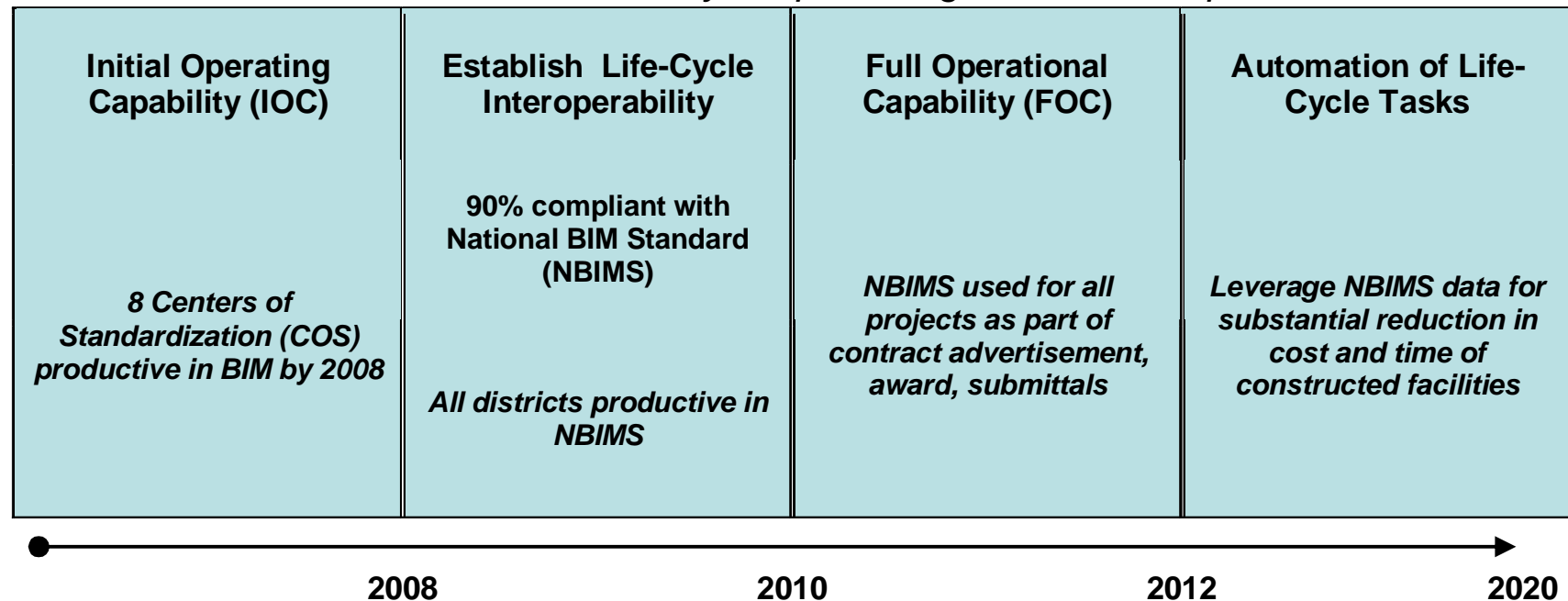
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# USACE BIM Road Map

*Achieve a coordinated move towards BIM while managing technology and business process risks*

## Building Information Modeling

*Overview: U.S. Army Corps of Engineer Roadmap*





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# USACE Challenge to Industry

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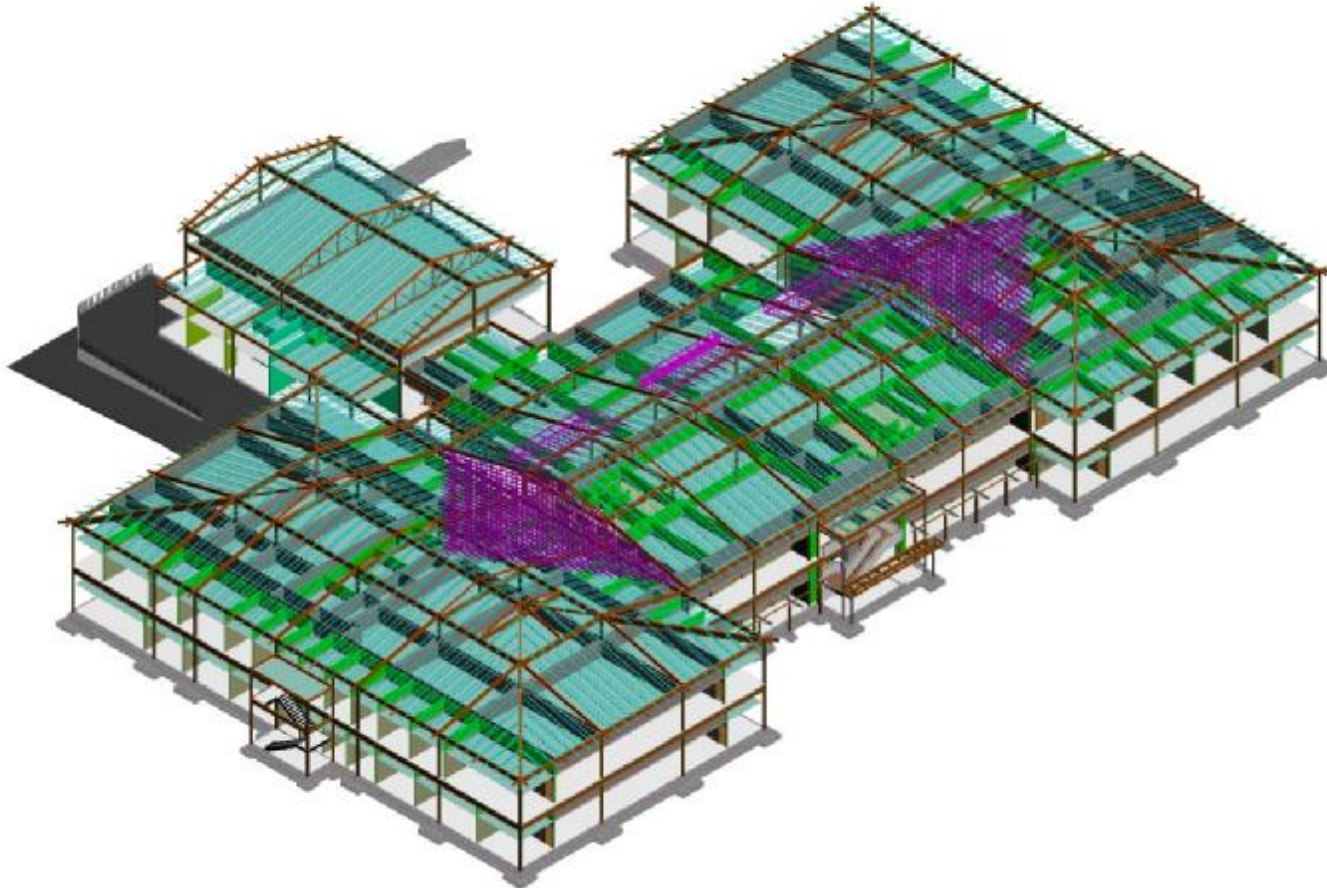
- **We expect our design and construction contractors to develop BIM capabilities**
- **We expect software vendors to use Industry Standards (e.g. NBIMS) and achieve interoperability**
- **We expect BIM-based deliverables**



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# BIM POC

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