



Engineering, Operations, & Technology Committee

Development of Building Information Modeling Project Design Technologies at Metropolitan

Item 6a

May 13, 2024

Item 6a

Building Information Modeling

Subject

Development of Building Information Modeling (BIM) design technologies at Metropolitan

Purpose

Informational: Provide update on Metropolitan Engineering Services Group's Building Information Modeling Initiative

Technological Advances in Engineering Design

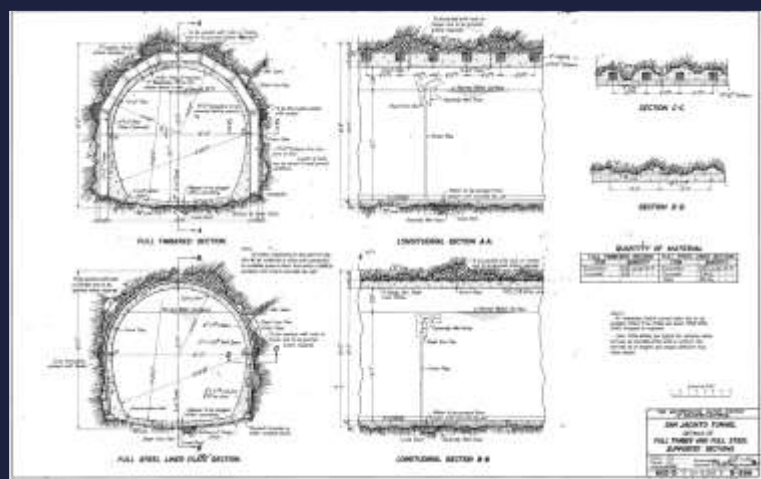
1930

1989

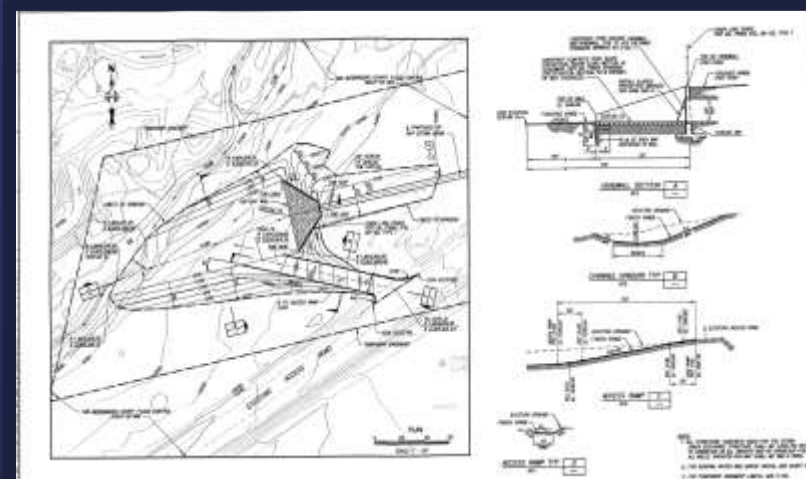
2020-
Present

BIM

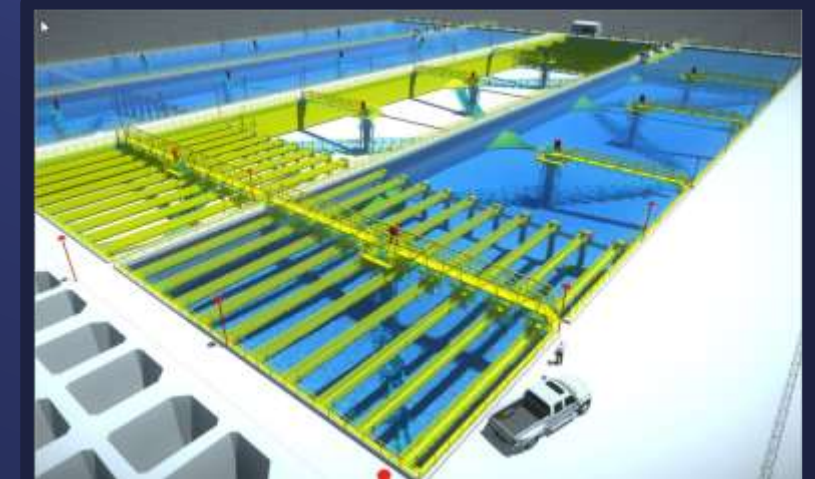
Digital Twins



Manual 2D Drafting



2D Digital CAD Designs



3D Modeling Design Visualization
Advanced Survey Technologies

Current Applications of Building Information Modeling (BIM) at Metropolitan



Building Information Modeling (BIM)

What is Building Information Modeling (BIM)

- New technologies
- Data rich
- 3D Modeling
- Business practice
- Process & tools
- Collaboration platforms
- Integration of systems
- Supports Progressive Design Build projects



Building Information Modeling (BIM) Shifting the Paradigm

- Industry in advancing
- Innovation
- New technologies
- Transformation
- Rethinking business practices
- Methodologies enhancing collaboration
- Staying competitive
- Progressing skill sets



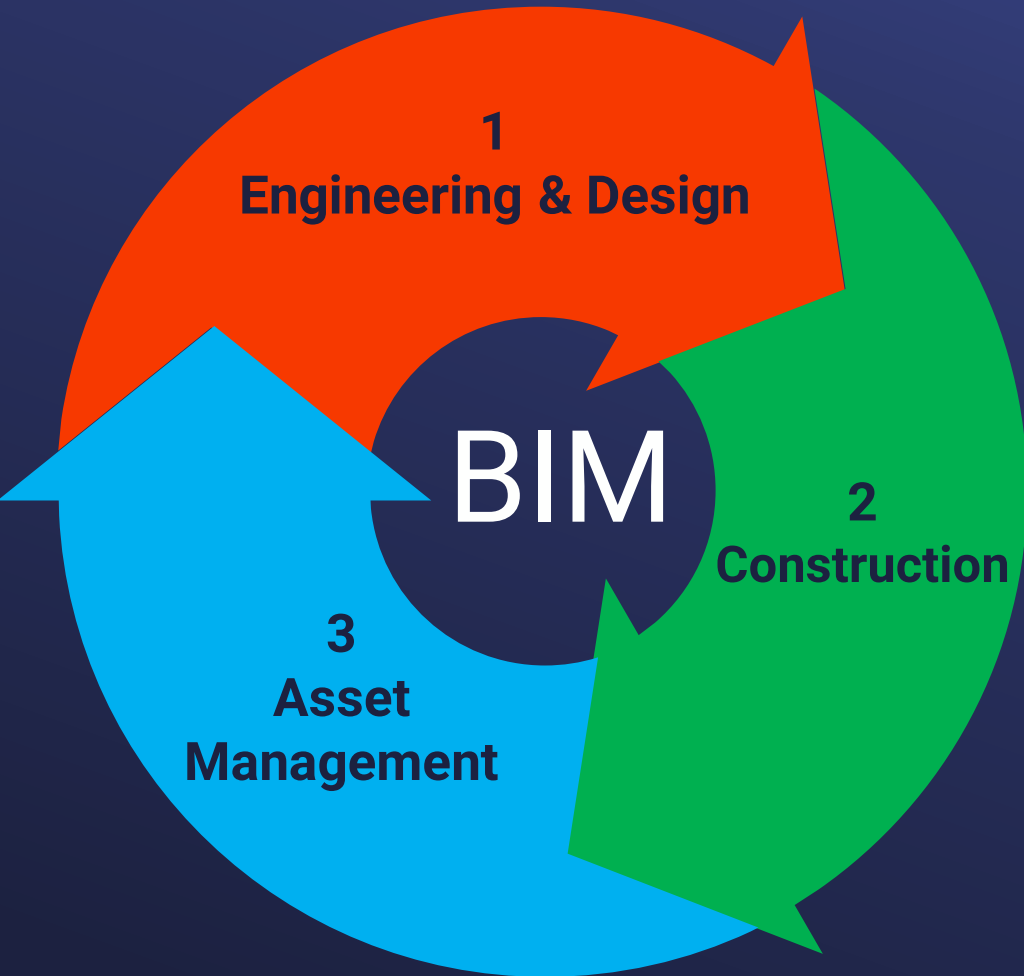
Building Information Modeling (BIM)

Industry Trends

- 2020 Industry Research
- Knowledge sharing with water agencies
 - United States
 - United Kingdom
 - Australia
 - Brazil



BIM Infrastructure Lifecycle Management



1 - Engineering & Design

- Better information management
- 3D design reviews
- Informed decisions
- Costs
- Reduce risks

2 - Construction

- Better information management
- Virtual planning & scheduling
- Constructability
- As-Built information

3 - Asset Management

- Better Information Management
- Effective collection of asset information
- Dashboards
- Improve lifecycle management of infrastructure
- Decommissioning planning
- Emergency Plans

Engineering Services Group's BIM Initiative

Building Information Modeling (BIM)

Building Information Modeling (BIM)



Traditional 2D Design



Future - Digital Twin

Building Information Modeling (BIM)

Infrastructure Digital Twin

- Digital facilities
- Virtual environments
- Data rich
- Access to information
- Efficiency
- Safety
- Maintenance
- Simulation
- Analyze
- Training resource



Next Steps

- Pure Water Southern California Program
- Sepulveda Feeder Pump Stations Project
- Deploying BIM software
- Establishing new protocols and guidance documents
- Training

