

MTO Digital Twin & Building Information Modeling (BIM)

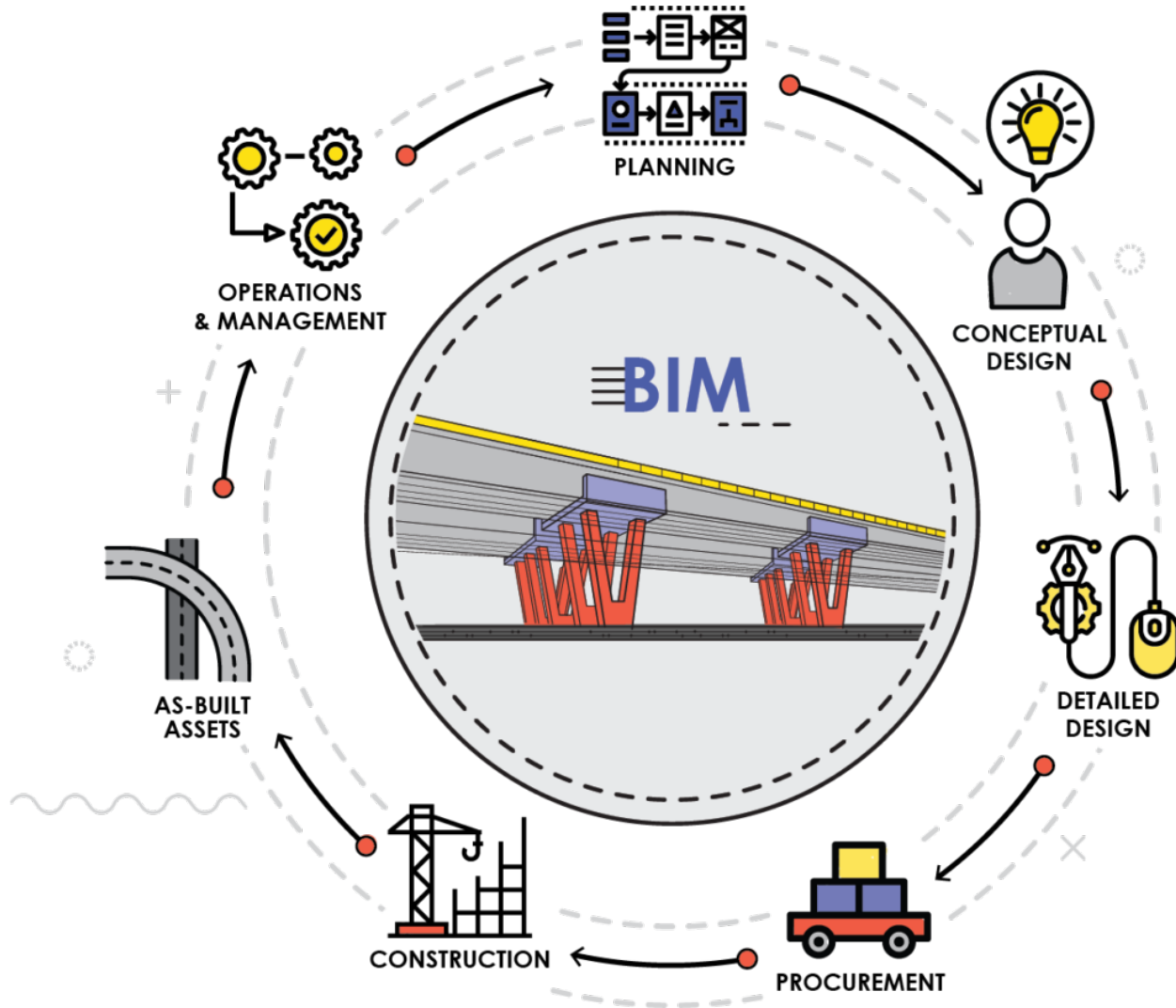
MTO/ACEC-O Contract Administration
Subcommittee Meeting

Ministry of Transportation

March 2026

Ontario 

Building Information Modeling (BIM)



BIM Lifecycle : From Design to Maintenance

BIM is a collaborative process that uses digital models to support the planning, design, construction, and management of infrastructure.

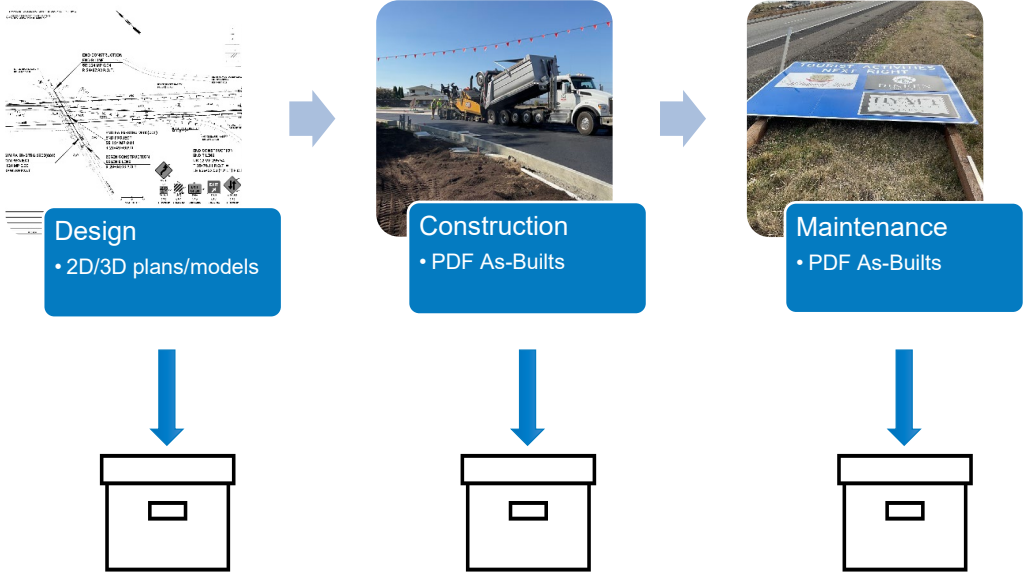
Why it matters:

- Single, intelligent 3D model combining design, construction, and operational data.
- Real-time, structured data from design through maintenance.
- Improved schedule, cost, and risk management.
- Foundation for digital twins and data-driven decisions with transparent, reliable information.

Building Information Modeling (BIM)

Current Practice

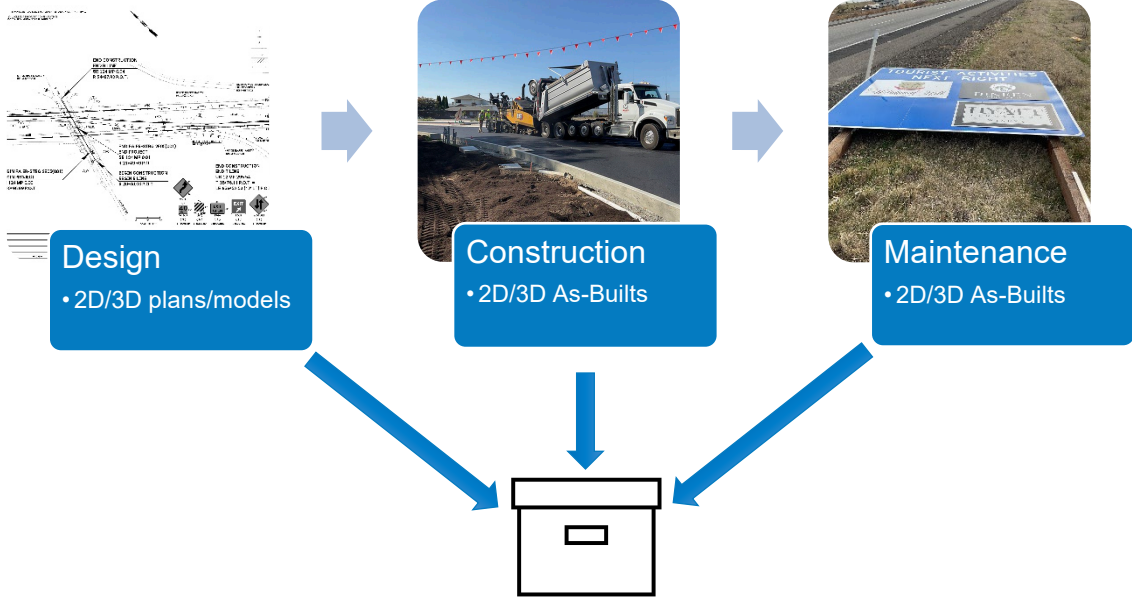
Manual PDF Handoffs



Different data/model

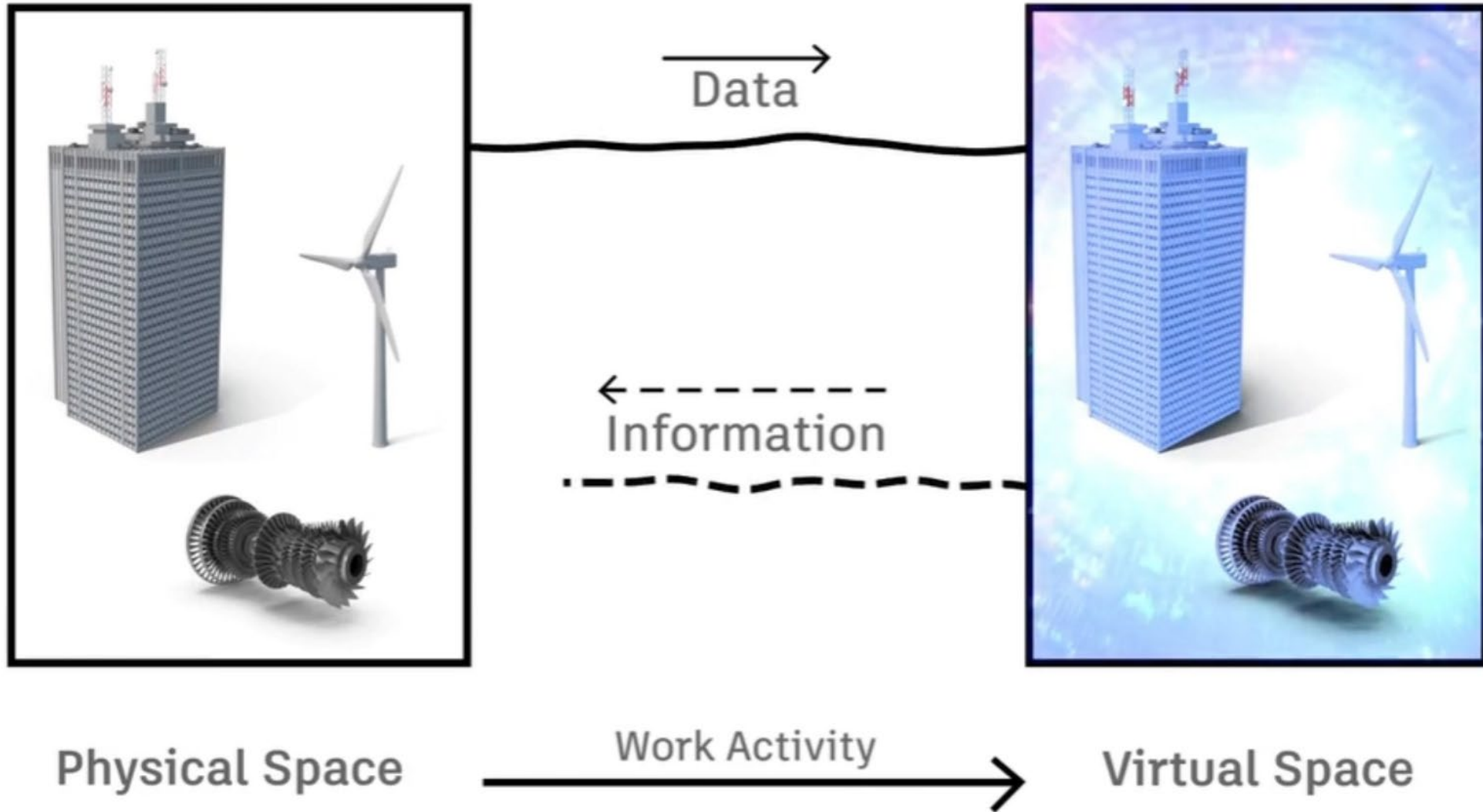
BIM Practice

Automated Handoffs



Same data/model

Digital Twin Model



MTO BIM Roadmap:

Implementation Plan

2034 Level ∞

- Have fully integrated systems during all phases of an asset's life cycle
- Digital twins in all contracts

2026 Level 1

- Consult with external stakeholders
- Procure a new 3D Highway Engineering Design Software solution
- Potential additional pilot projects

2034

2030

2028

2026

Target: Full digital twin integration in all contracts by 2034

2030 Level 3

- All MTO staff trained in BIM
- Stakeholders understand their BIM roles

2028 Level 2

- Build expertise in open standards and software

Highway Infrastructure Innovations Funding Project (HIIFP)

- MTO procured a 1-year agreement with Western University to explore enhancing the usage of BIM and Digital Twins technologies for MTO (March 2025 – March 2026).
- Part of this HIIFP work includes an upcoming workshop that will be held in May 2026 with academia, MTO and industry (ORBA and ACEC-O).
 - Possible dates: May 20 and/or 21
- Professor Ayan Sadhu and his research team are here to present to you today a high-level overview of the work they have done to date to create a digital model of a current bridge replacement project.



Thank you

Sayna Yaghooby, Design and Contract Standards Engineer (Sayna.Yaghooby@ontario.ca)

Susanne Chan, Head, Highway Design Office (Susanne.Chan@ontario.ca)

Mireya Hidalgo, Head, Construction Contracts (Mireya.Hidalgo@ontario.ca)