

**Engineering and Operations**  
**Session 6**



## 3D Design and Civil Integrated Management (CIM)

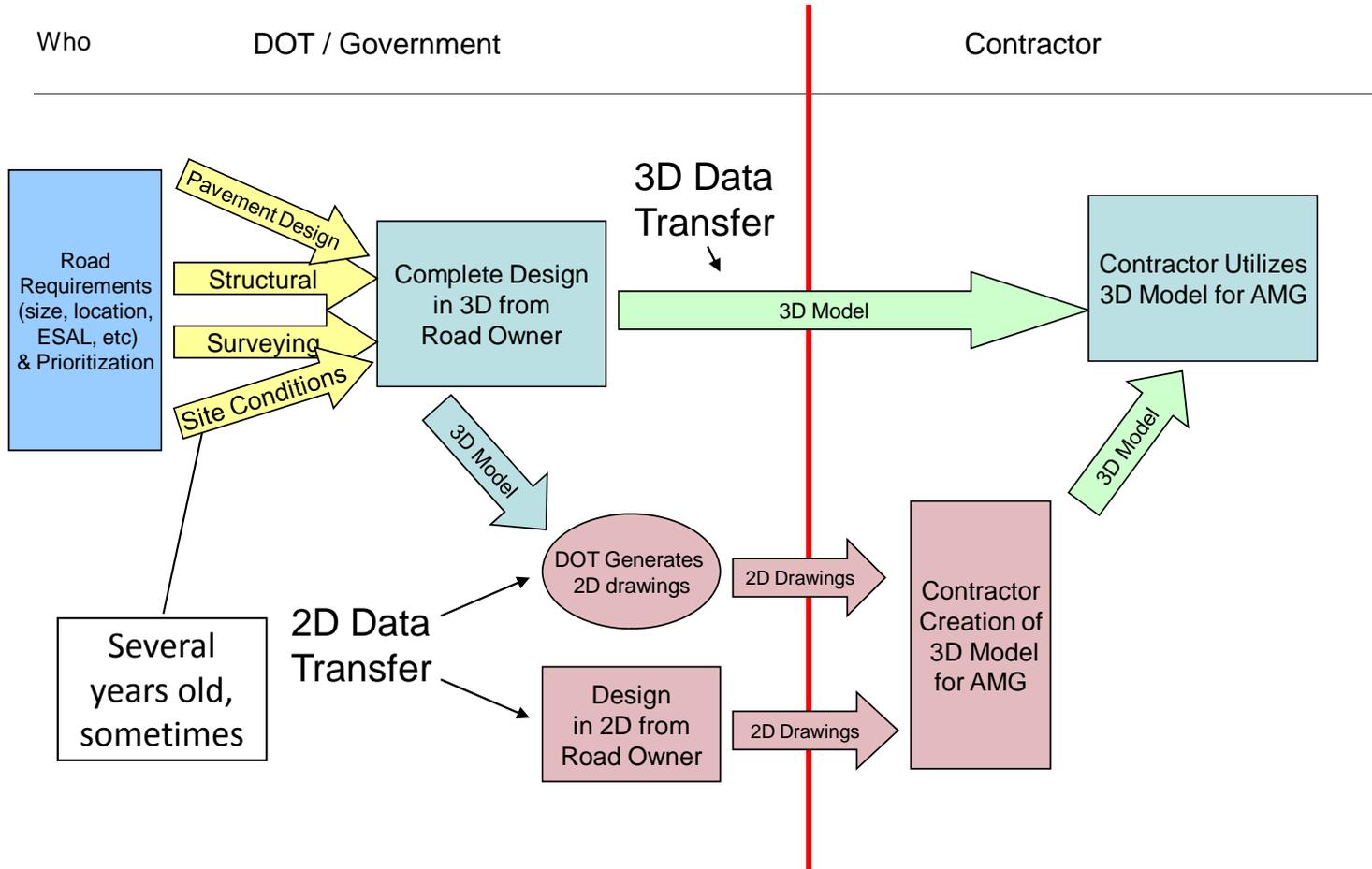
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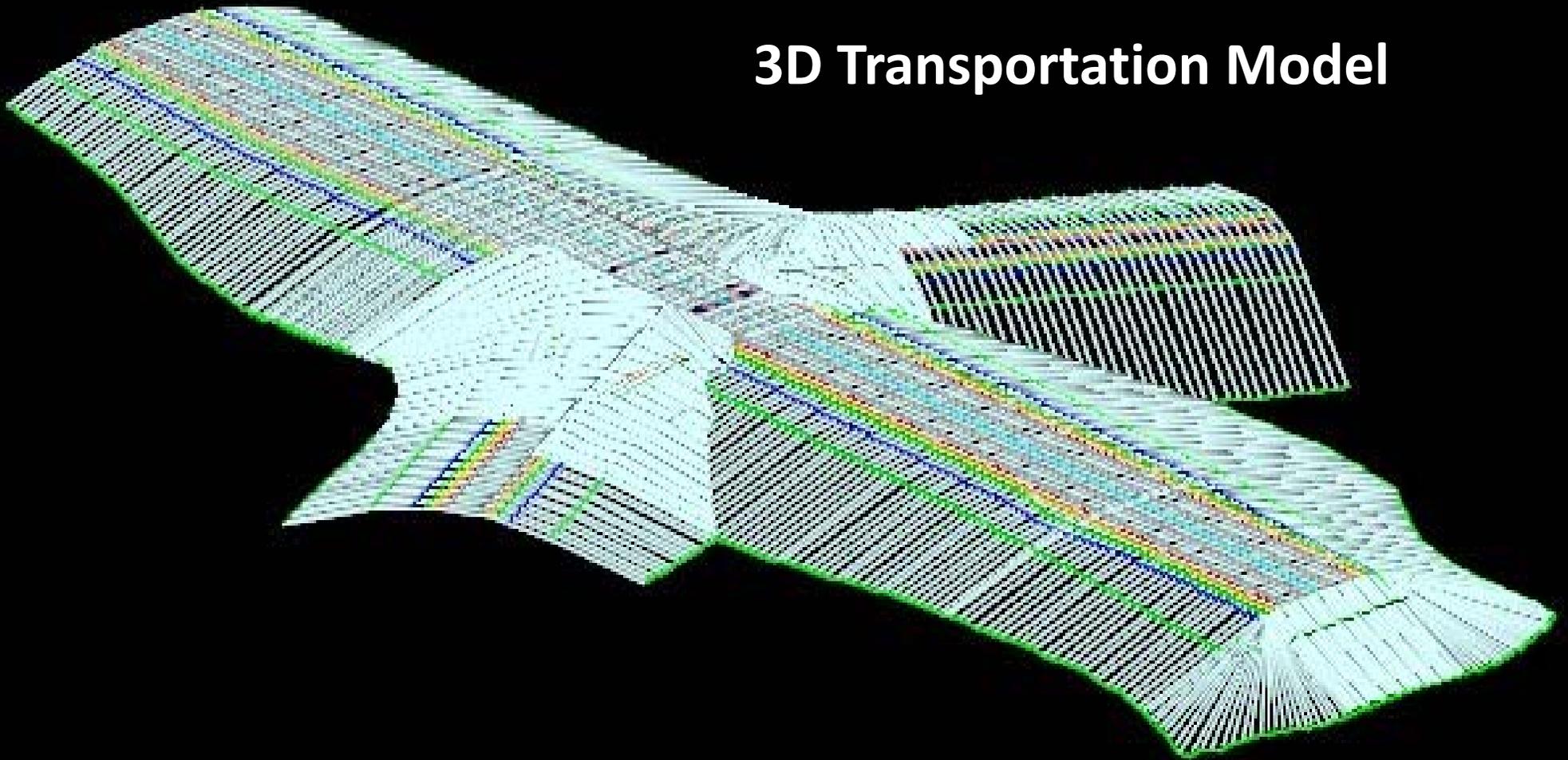
# What is 3D Modeling?

- Using a collection of intelligent computer objects that represent an original surface, in our case the design surface of a highway segment. The objects know their position in space and in some cases what they represent.
  - Supported by dense model of the existing surface and objects. LiDAR and Photogrammetry (Air, Ground based)
  - Offers perspective design and views of existing vs. purposed.
  - Enhanced collaboration among partners, customers, and owners to visualize impacts to safety, quality, time, and money.
  - This after all is how we see things.
  - Implementation through EDC2.

# Key Stakeholders and Process Elements



# 3D Transportation Model





## Grading (Milling and/or Paving as well)



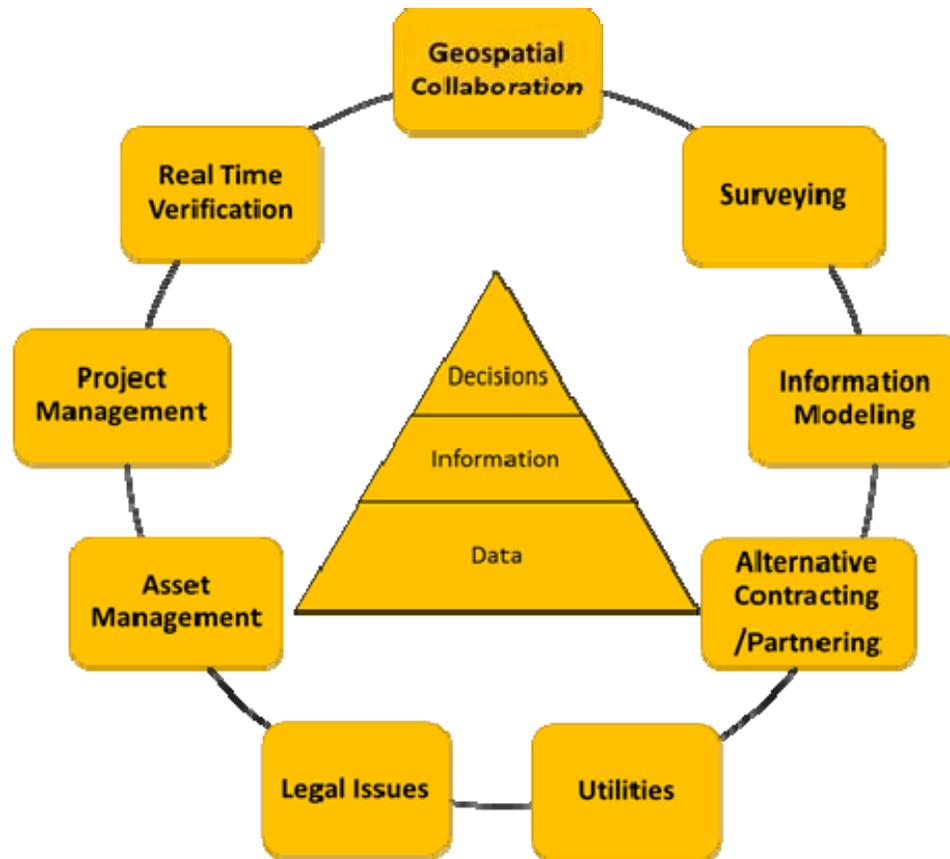
Equipment is utilizing guidance and automation linked to the design model or specifications. Less stakes, fuel, and rework.

# Quality Assurance With 3D Modeling



Photo courtesy of David White, Iowa State University

# Civil Integrated Management



Goal

