

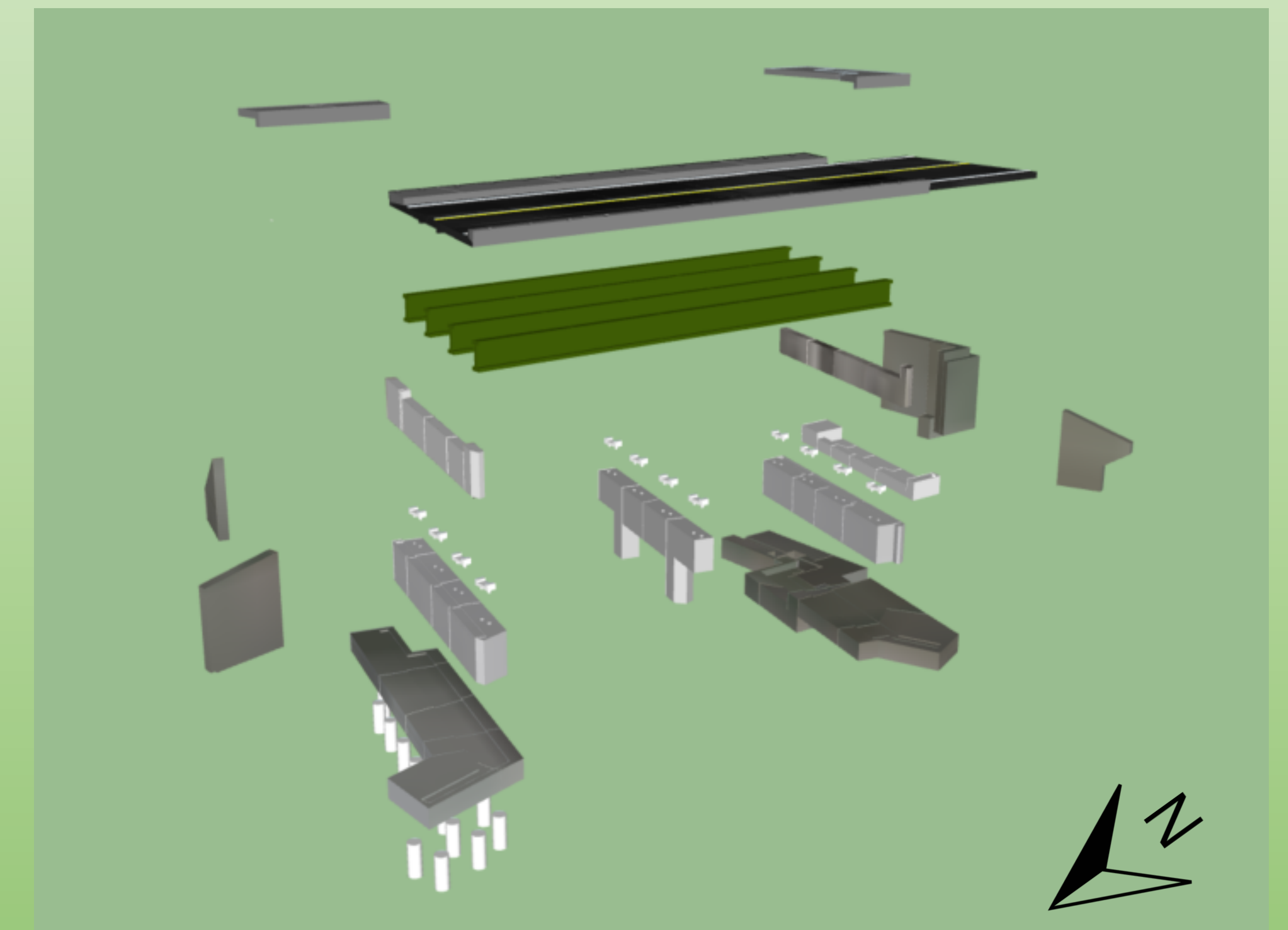
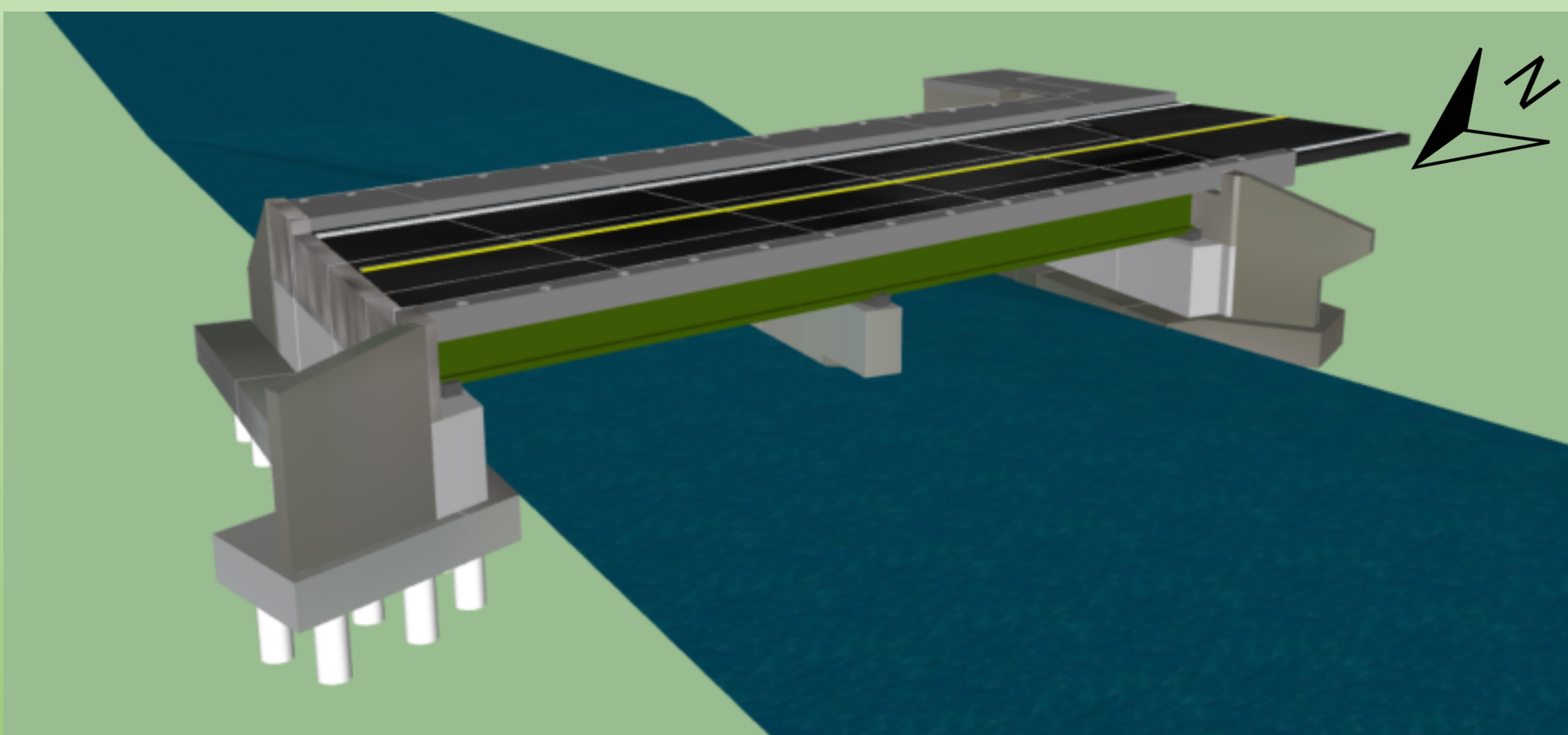
NHDOT 3D Bridge Puzzle

Evan Gwynne-Davies, Edward Mahoney,
Brenna Heinley, Nicholas Bouchard

Sponsor, Bill Saffian - NHDOT
Faculty Advisor, Dr. Robert Henry – UNH CEE Dept.

Purpose

- Educational Outreach - NHDOT will use this modeled 3D printed bridge puzzle to help students and adults understand different bridge aspects
- Software - Gaining experience with Revit and Procore
- 3D Printing - Familiarizing with 3D printing process
- Structural Education – Develop an understanding of various bridge components



Process

- 2D AutoCAD drawings of a typical NHDOT bridge
- Develop 3D Revit model of the bridge
 - Identify individual bridge components
- Produce 3D Printable files
 - Scale to the footprint of the 3D printer
- Printing the 3D bridge components

Challenges

- Social distancing
- Understanding bridge terminology
- Familiarizing with software (Procore and Revit)
- Familiarizing with 3D printing process (orientation, scaling, tolerances, etc.)

Results

- 3D Printed Half Model consisting of bridge north abutment, footing, wingwall, pieces of bridge deck, and pier
- Revit model of entire bridge
- Virtual presentation showing exploded view of whole model and individual components created in SketchUp