Design Project #1

Replacement of Vehicle Bridge over Spring Creek

Centre County, PA

Introduction to Engineering Design

EDGSN 100 Section 001

Steel Works

Design Team 2

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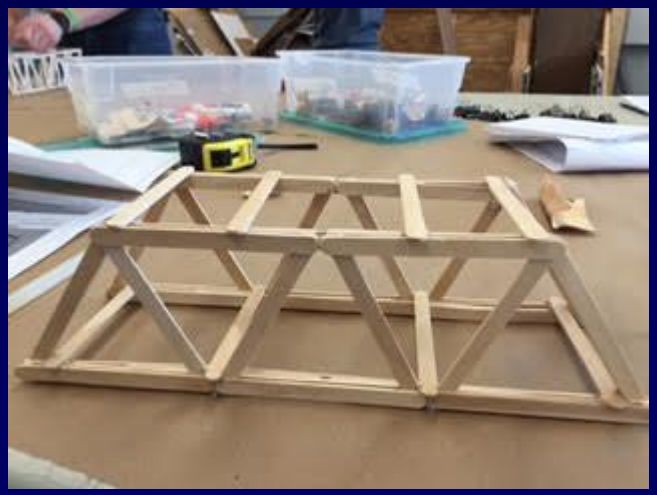

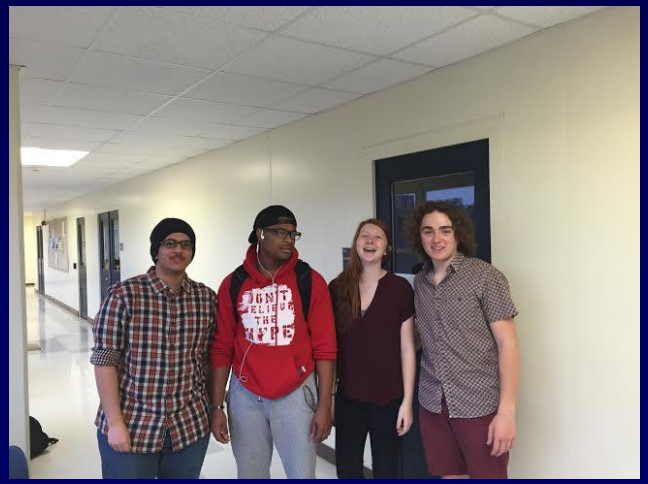

Presented to:

Prof. Berezniak

Spring 2016

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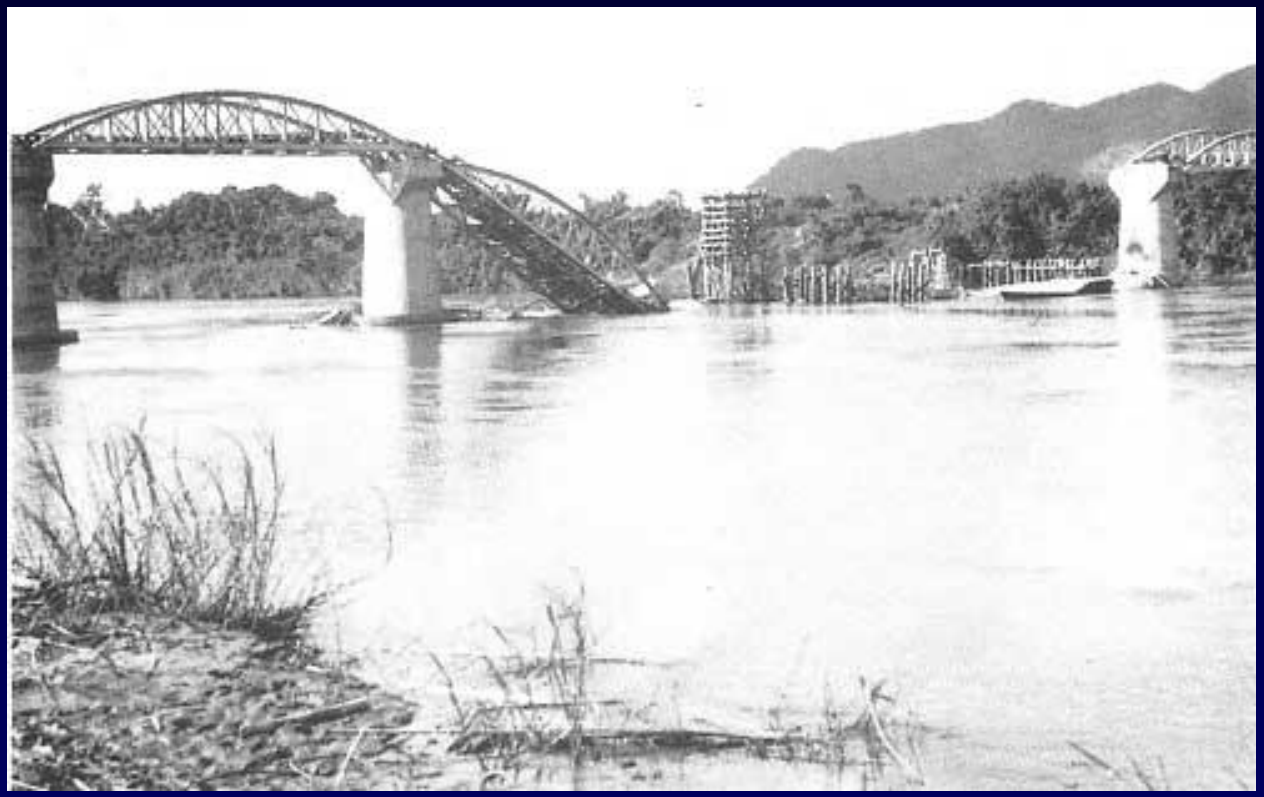
Statement of Problem



- Located over Spring Creek (along Puddintown Road in College Township, Centre County, PA) a structurally deficient vehicle bridge has been destroyed.

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Objective

- Our objective is to quickly design a bridge that will be structurally efficient from both the flooding issues along with heavy traffic.

Design Criteria

- A PennDOT District 2-0 engineer has recommended that the replacement bridge only has a single span and no piers placed in Spring Creek.

Technical Approach Phase 1: Economic Efficiency

Using Engineering Encounters Bridge Design 2015 (EEBD 2015), we will design a bridge that is economically efficient, along with being stable.

Technical Approach Phase 2: Structural Efficiency

Using our models we load tested both the Howe and Warren Truss Bridges then calculated the structural efficiency.

Results Phase 1: Economic Efficiency

Using the EEBD 2015 program we were able to calculate the amount and price of the material used.

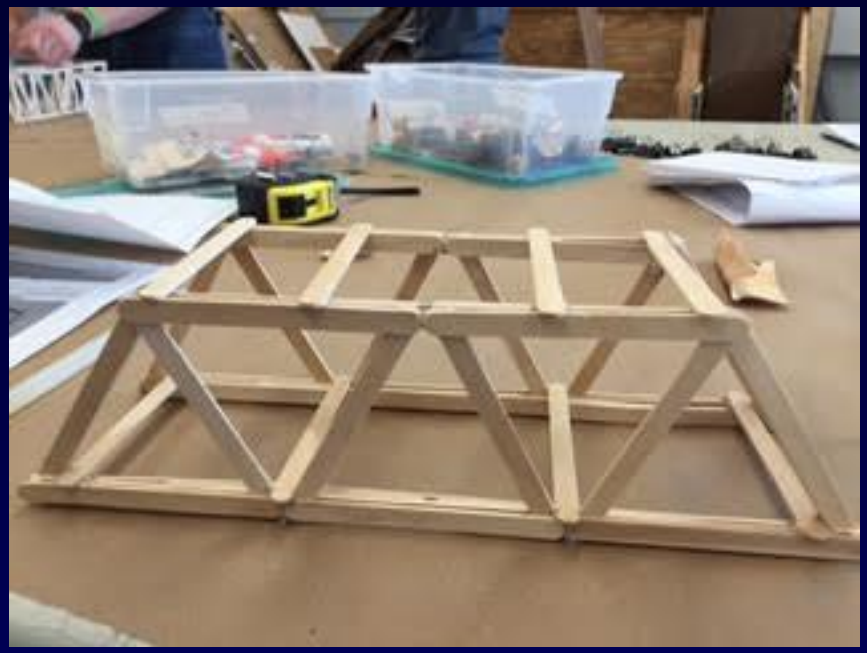
WARREN TRUSS	HOWE TRUSS
$195,803.83	$207,502.56

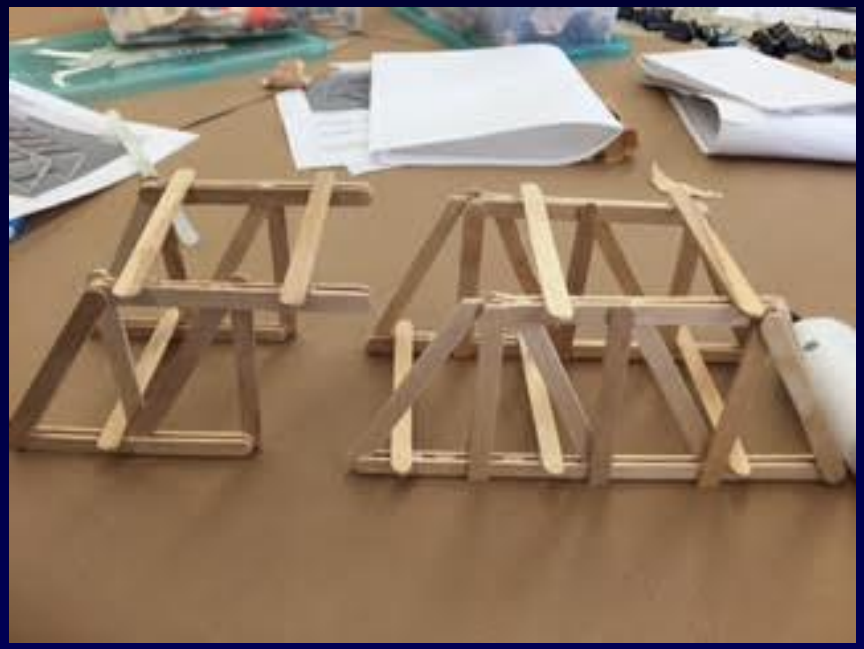
Results Phase 2: Structural Efficiency

WARREN TRUSS= 430.5

HOWE TRUSS= 267.8

Best Solution

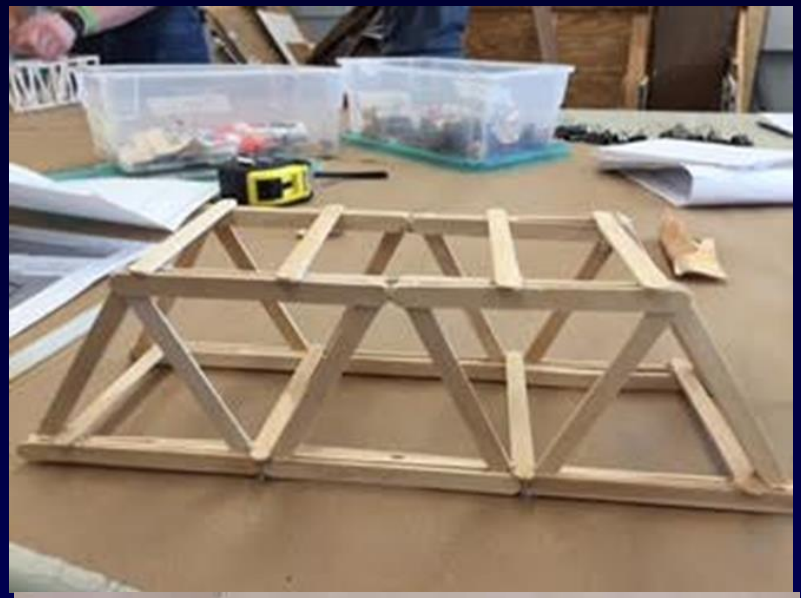


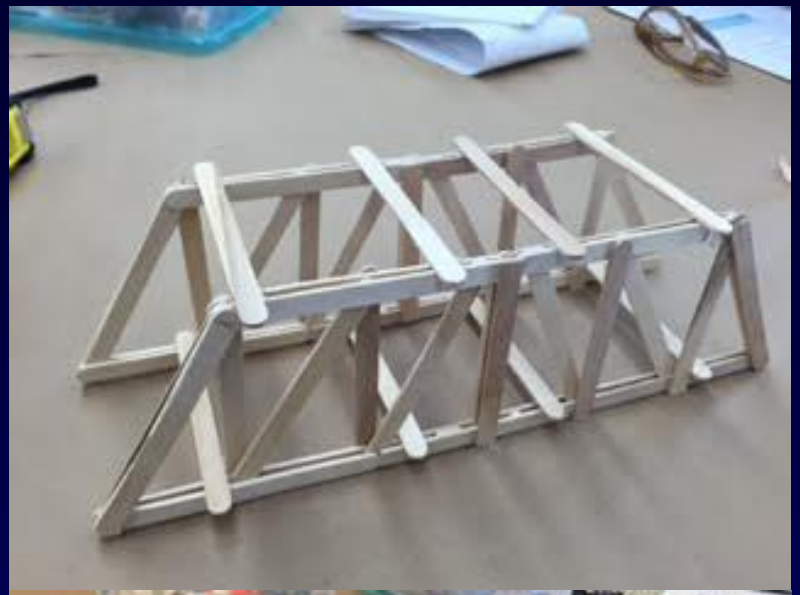


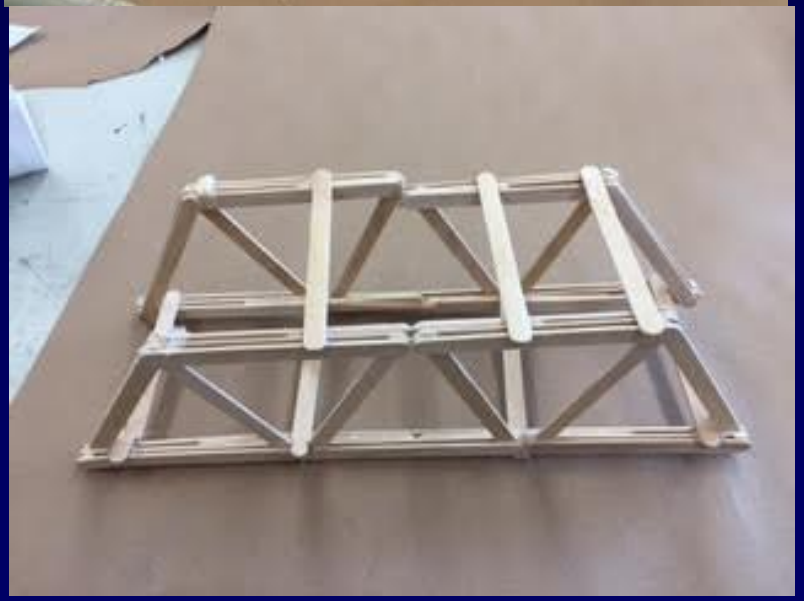
HOWE TRUSS BRIDGE

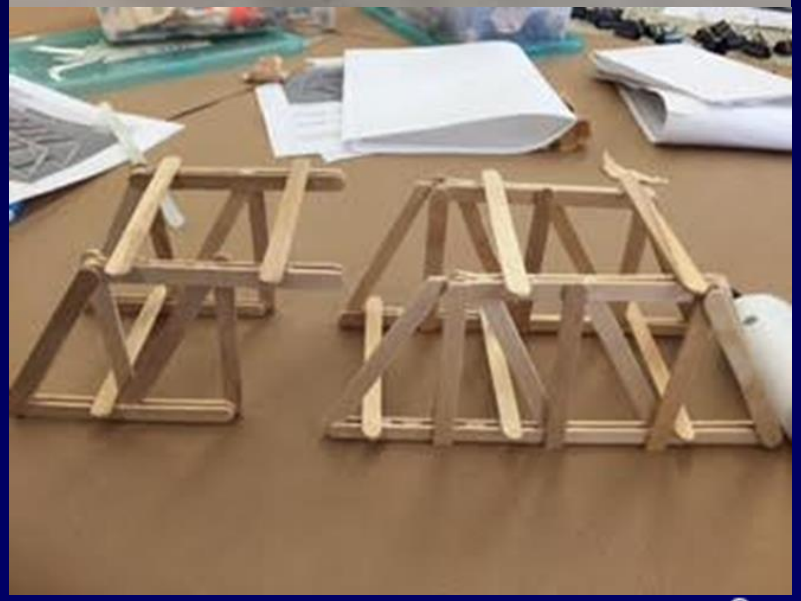
WARREN TRUSS BRIDGE

Conclusions









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Recommendations