**Bridge Design Problem using MD Solids**

Problem statement: *“Use MD Solids to design a truss bridge spanning a creek at a busy Summer Camp.”*

Design criteria

* Type: Truss bridge
* Span: At least 200-feet
* Supports: Due to the depth of the canyon, only the 2 ends of the bridge can be supported. No mid-span supports allowed.
* Load: Design the bridge to support what you think is a reasonable load for a busy Summer Camp. The design load might need to include 3-4 cars, a couple pickup trucks, several hundred humans, and maybe 3-4 horses. Research the weights of all these. Spread them out on the bridge. Model the loads on MD Solids either as point-loads or continuous-loads (up to you). Keep in mind that a bridge has 2 trusses; and each truss only needs to support ½ of the load in theory. Remember to factor-up the ‘actual’ loads with a suitable safety factor!
* Deliverables: Draw it up and make your report nice and neat! Think about the Florida International University bridge-proposal we studied in class… Show an artist’s rendering of what the bridge would look like, and attach the printout from MD Solids showing all the forces involved. Give an introduction. Explain what the goals of the bridge are (low cost, high strength, easy to build, won’t collapse, looks really “modern” and cool, etc etc.). Explain what the width of the bridge roadway should be, and what the roadway surface should be made of and why (concrete, blacktop, thick planks of wood, welded steel plating, recycled plastic planks, etc). Strictly speaking, you should also factor-in the weight of ½-width of your decking on MD Solids (use continuous-loading for this).
* Length of proposal: I’m looking for 2-3 pages of drawings, calcs, sketches, writing, and the MD Solids printout(s) showing the loads, internal forces of each member, and reaction forces at the ends.
* Truss ideas below: You can make your bridge extremely elaborate or very simple, it’s up to you. Try to make it unique in some way, so the Summer Camp owners will decide to go with your design.

