

## CE 270 Honors Project for Mr. Kevin Mueller

### Topic

In light of the recent collapse of the I-35W bridge in Minneapolis, the importance accurate analysis of trusses is clear. Although students in CE270 have a basic understanding of truss analysis for determinate simple trusses, the response of real indeterminate continuous trusses is beyond the scope of the course. Hence, it is proposed for Mr. Mueller to construct a 2-D model of the 35W truss and perform dead and live load analysis of the truss using the structural analysis program SAP2000

Specifically, the following tasks will be performed and reported on:

- Analysis of a 2-D model of the truss under the following loads
  - Dead loads
  - Live loads (with influence lines for selected members)
  - Temperature loads
- Comparison of the effects of altering boundary conditions
  - Pinned bearings
  - Roller bearings
  - Support settlement
- Determination of loads from deck, stringers, etc and how to apportion them to each truss.

The above will further Kevin's understanding of the following aspects of highway truss bridges:

- Truss analysis procedures using computer modeling
- AASHTO design loads for highway bridges
- The response of large trusses to the above loads
- General truss analysis and response.