Current Software Usage

Design Software in Use:

- Merlin Dash (University of Maryland)
- Brass Pier (Wyoming DOT)
- Leap Bridge Suite - Conspan and RC Pier (Bentley Systems Inc.)
- ABLRFD (Penn Dot)
- Brass Culvert (Wyoming DOT)
- STADD (Bentley Systems Inc.)
- MATHCAD (Parametric Technology Corporation)

- OPIS/VIRTIS (AASHTO)

- MicroStation V8i (Bentley Systems Inc.)
Box Culverts

Problem Statement:

- FHWA Mandate for Box Culverts (October 1, 2010)
- VDOT Road and Bridge Standards Section 1000 Box Culverts had been designed using LFD.

- 1,749 Iterations based on size of box, number of cells, and fill height
- Reduced number of iterations to 954 and outsourced 63% of work.
Box Culverts

- Brass Culvert (Wyoming DOT) version 2.3.0
Box Culverts

Major Issues:

- Team (In-house and Consultant) needed to agree to design assumptions to be used in the program.
- Needed to use the same Modified Live Load Library for Analysis.
- Rating of Box Culverts
- Checking – Program underestimates Live Load Surcharge
Questions??

Contact karlw.larson@vdot.virginia.gov  804-786-7813