OREGON DOT'S EVALUATION OF THE AASHTOWARE BrDR SOFTWARE

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Presentation Outline

- Evaluation background & timeline
- ODOT design/rating software
- ODOT BrD/BrR evaluation
- Evaluation findings
- Suggested enhancements
- Conclusions
- Recommendations to ODOT management

Evaluation Background & Timeline

- Objectives: Why is ODOT evaluating BrDR Software?
  - Uniform code-checking tool
  - Quick load rating
- Timeline of evaluation

8/2015
  - Michael Baker presented BrDR demo to ODOT
  - 4-month trial (evaluation) license
  - BrD software capabilities evaluated by ODOT bridge designer

11/2015
  - Committee formed to evaluate BrDR

12/2015
  - Load rating capabilities tested by ODOT load rater

1/2016
  - 90-day extension of evaluation license

1/2016 – 3/2016
  - Software evaluation

3/2016
  - Findings reports and recommendations submitted

ODOT Design/Rating Software

Design Software

Midas Civil
STLBRIDGE
PSBeam
Response-2000
PGSuper

Rating Software

BRASS-GIRDER (STD/LRFD)
Midas Civil
ODOT Spreadsheets
OSU Gusset Plate

ODOT Evaluation of BrD/BrR

- Evaluation Team
  - 3 managers
  - 2 bridge design engineers
  - 1 load rating engineer
- Weekly meetings
- Final reports

ODOT Evaluation of BrD/BrR

- Version 6.7.0
- Code-check of newly-designed bridges
  - PCPS concrete voided slab
  - Built-up (welded) steel plate girder
- Load rating of new & existing bridges
  - BRASS-GIRDER LRFD Engine
  - PCPS concrete voided slab (above)
  - Built-up (welded) steel plate girder c. 1960's

BrD Findings

- Detailed input/wizards
- Section library
- Analysis types
- Comprehensive specification check
  - Easy to identify non-compliances
  - Detailed calculations with references
- Helpful schematics/warnings (“Validate”)
- Detailed output
- Help, tutorials and support

BrD Findings

- Not intuitive
- Bridge Workspace tree
- Viewing results in Bridge Workspace
- GUI

BrR (BRASS) Findings

- BRASS Engine produces identical results as stand-alone BRASS
- Agency-defined vehicle library
- Live load factor override
- Adjacent vehicle
- Save settings
- Member deterioration/impact
- Points of interest

BrR Findings

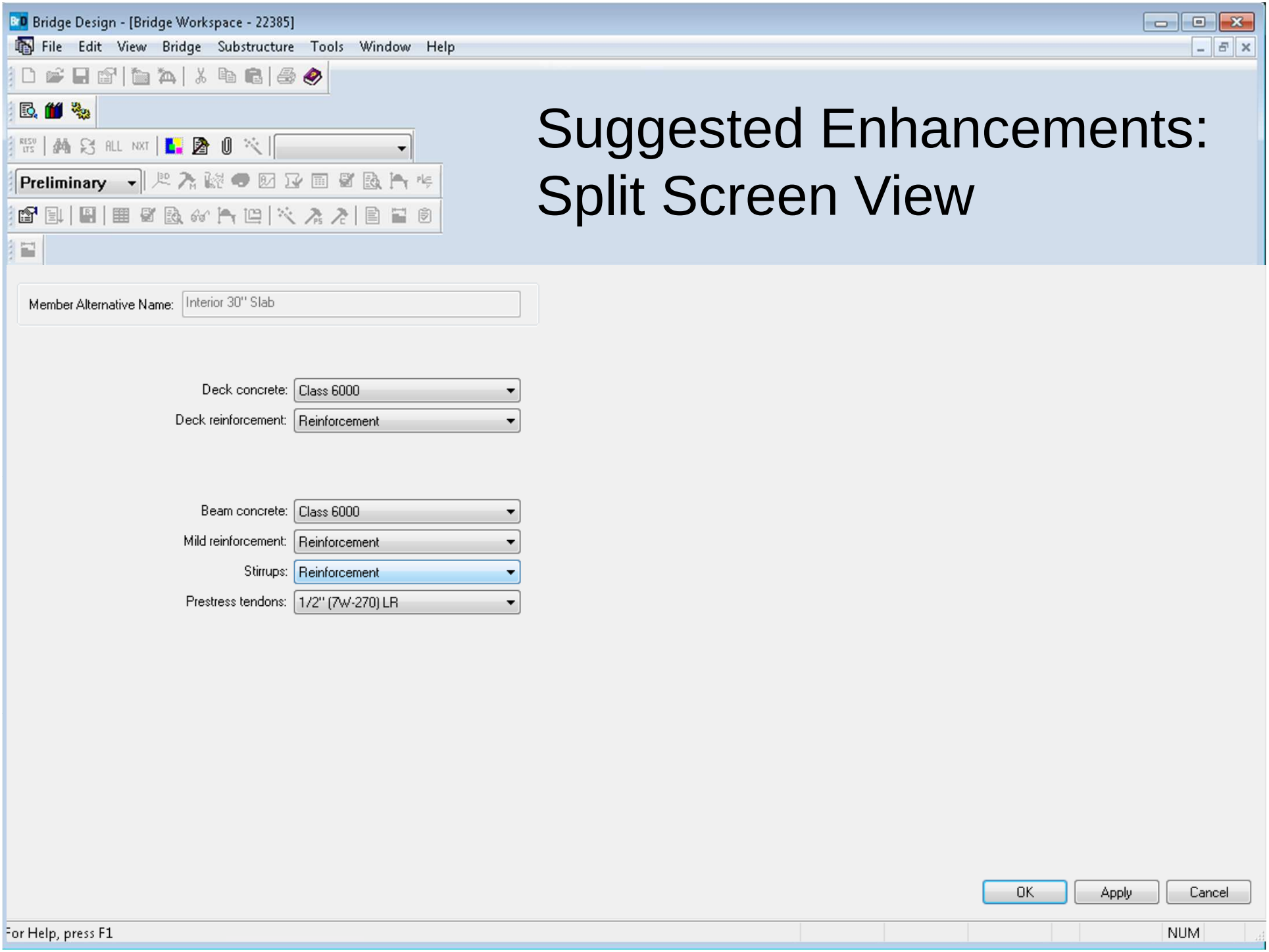
- No substructure ratings

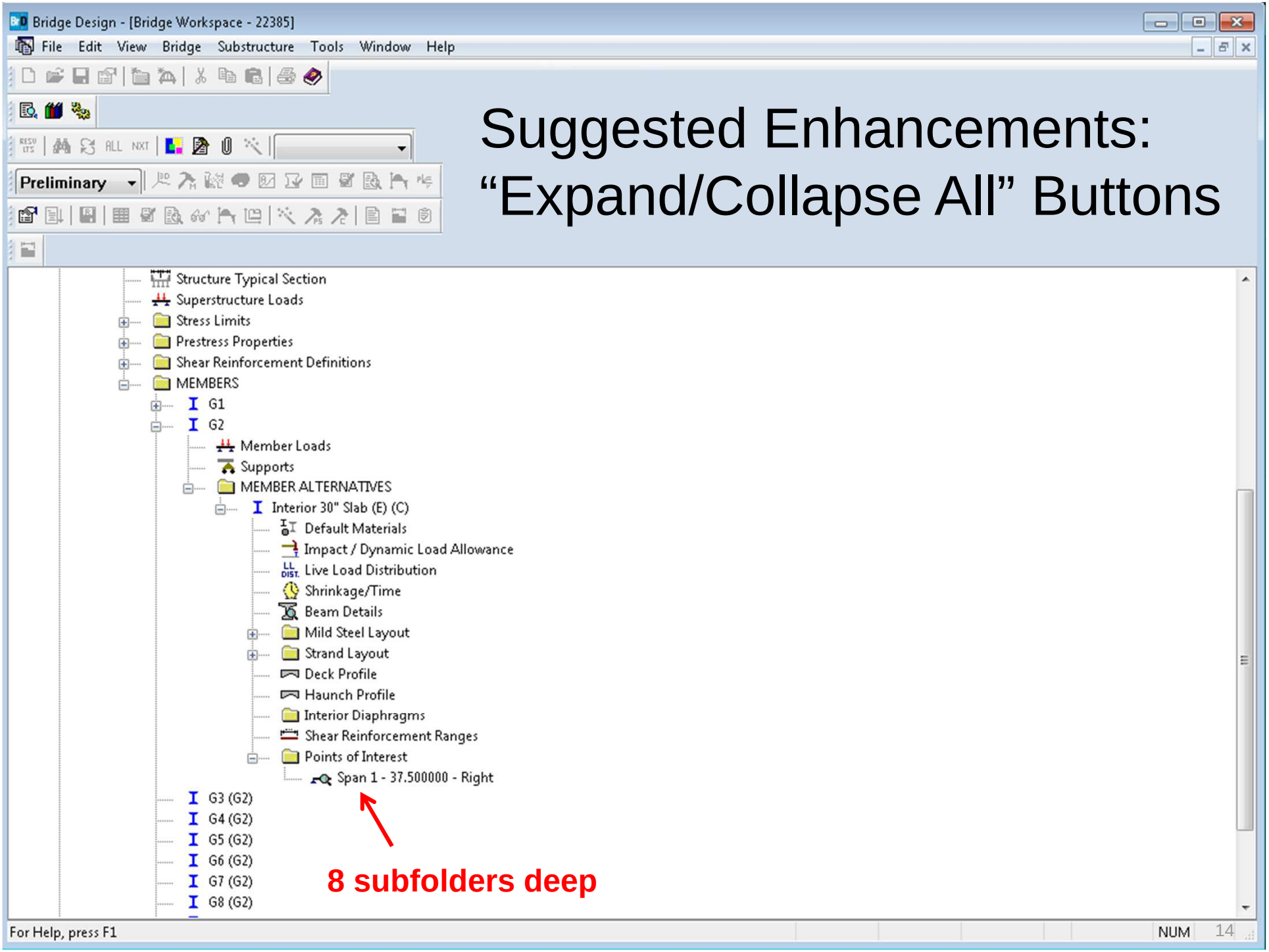
What ODOT did not evaluate

- Other structure types/systems
- Substructure/foundation elements (BrD)
- 3-D FEM
- BrR output/results

Suggested Enhancements

- “As-you-go” schematics
- Bridge Workspace split screen view
- “Expand/Collapse All” buttons
- 3rd party software import?
- Moving Load Tracer/Concurrent Forces


Bridge Design - [Bridge Workspace - 22385]
File Edit View Bridge Substructure Tools Window Help
Preliminary
Suggested Enhancements:
Split Screen View
Member Alternative Name: Interior 30'' Slab
Deck concrete: Class 6000
Deck reinforcement: Reinforcement
Beam concrete: Class 6000
Mild reinforcement: Reinforcement
Stirrups: Reinforcement
Prestress tendons: 1/2'' (7W-270) LR
OK
Apply
Cancel
For Help, press F1
NUM



Suggested Enhancements: "Expand/Collapse All" Buttons

Conclusions

- Thorough code-checking feature
- Produces quick load rating in ODOT format
- Training will be required

Recommendations to ODOT

- BrD should be added to list of design software
- BrDR could be used for code-checking and load rating
  - Finished designs
  - BRASS-GIRDER Engine for load rating
- Consult other DOT's
- Provide training

Thank You!

Questions? Comments?

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