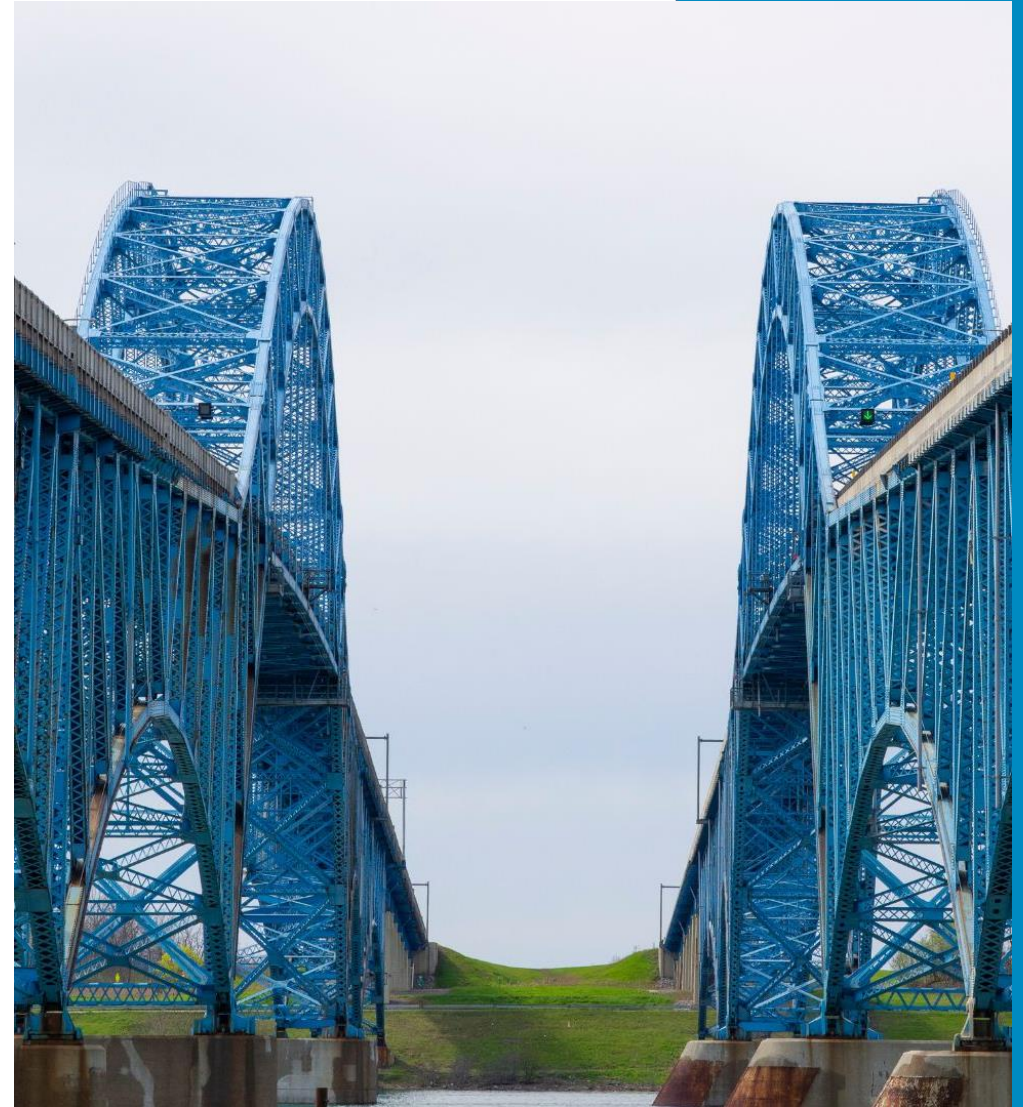


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# Kentucky Onboarding with BrR

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**RADBUG 2024 | August 6-7 | Buffalo, NY**



# KYTC: Kentucky Onboarding with BrR

Dora Alexander, P.E  
TEBM, KYTC

- Background on project
- Objectives
- Scope and Timeline
- Process for KYTC
- Current Status and Future Objectives



## Kentucky

### Background

- Late 2010's, KYTC finally got the initial Superload automated permitting system up and running.
- The initial contract was from almost a decade before- and only supported the permits at that time.
- OW/OD and our OIT both wanted a system that would allow faster updates based on changes in legislation.
- 2021 started discussions with ProMiles.
- ProMiles required the use of AASHTOWARE BrR- which we weren't using at the time.

## Kentucky

### Scope

- I refused to switch unless our entire database could be switched to BrR- including both state bridges and county/local bridges.
- ProMiles agreed to that.

### Objective

- Main priority would be to convert all of our .dat files to the BrR format.
- And then switch software for our automated permitting.

# Why is 6 afraid of 7?

- Because 7 8 9



## Kentucky

### Timeline

- Statement of Work/Contract with ProMiles was done around July 2021- with initial timeline for Production of ProMiles near end of 2021.
- That was impossible
- Initial snags on converting the files.
- December 2021- I took on more duties as TEBM
- 500+ files to change before they could be imported
- Summer 2022- massive flooding in Eastern Ky w/ 166 bridges destroyed or other issues.

A farmer had 298 cattle in the field,

- But when he rounded them up, he had 300.

## Kentucky

### Process

- Of the 500+ bridge issues- initial thought was to just correct them in-house with personnel and summer students.
- Running behind on schedule, so had to use consultants for about 150 bridges.

### Check on conversion

- Once most of the bugs were worked out of the conversion- selected a number of each bridge type for 2 different consultants to thoroughly check and verify they were imported correctly.
- Afterwards, our main process was to compare the capacities of 2 truck types with capacities in BrM (previous software) to capacities in BrR run by the ProMiles team.



# Kentucky

## Current Status

- Spring of this year, we officially switched our state files to BrR
- Currently working with ProMiles to start the testing on routing.

## Future Objectives

- Officially switch to ProMiles for automated permitting.
- Work with ProMiles Bridge team to convert all our county/local bridge files.
- Work with ProMiles to convert all our timber bridge files.

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Do you see that circle over there?  
He's really smart.

- He has 360 degrees.



# ProMiles: Kentucky Onboarding with BrR

Carolyn Kois, P.E  
Engineer, ProMiles

- Overview of file conversion process
- Capabilities and limitations
- Database modifications
- Results



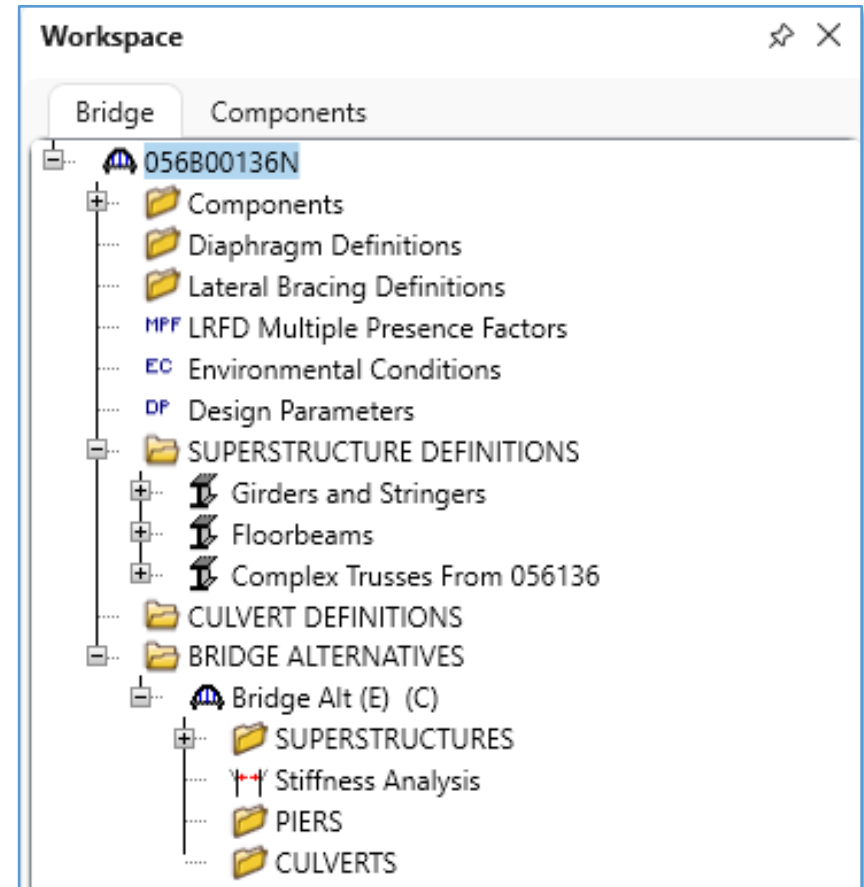
# Overview of File Conversion Process

- Converted files to consistent data format (.DAT)
- Used BARS Import Utility developed in the 1990's and maintained through BrR version 6.8.4
- Updated/modified the Import Utility based on KYTC preferences and settings requirements
- Wrote custom tools to parse different data formats for trusses and generate truss input command file
- Hosted Azure SQL Server database to maintain bridge models
- Database modifications

## Capabilities and Limitations

### Conversion Capabilities

- BARS Import Utility for .DAT files
  - Line Models (Girders, FBs, Stringers)
  - Steel, RC and PS Concrete
- Custom Truss Importer
  - Generate truss models from 2 different data formats
  - Combine truss with FBs and stringers created with Import Utility



# Capabilities and Limitations

## Data Limitations from Previous Format

- Line Models vs. System Models
- Member geometry in some cases is not as precise as what BrR requires
- Some files required manual update prior to import

# Database Modifications

## Process

- SQL Server update statements to modify bridge data

## Examples

- Custom Agency Fields
- NBI Structure ID's
- Control Options

# Database Modifications

## Process

- Used BrDR API to access specific bridges in the database and make changes

## Examples

- PS Shear Reinforcement
- Steel Stiffeners
- Single Lane LLDFs for LFR
- Material Properties from Date Built



# Results

## Results

- Converted 6000+ bridge models
- Set up hosted database
- Made additional database updates as needed

## Reasons for Differences

- Spec version differences
- Additional analysis points in BrR

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## Questions?