AASHTOWare Bridge Design and Rating

2017 Modernization Update

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User Group Training Meeting
Kansas City, KS 2017

Modernization Update

*The modernization proposes to create **more powerful**, **easier to use** tools to assist agencies in designing and load rating their inventory in a **more cost-effective** manner.*

Modernization Update

Modernization began in July 2016

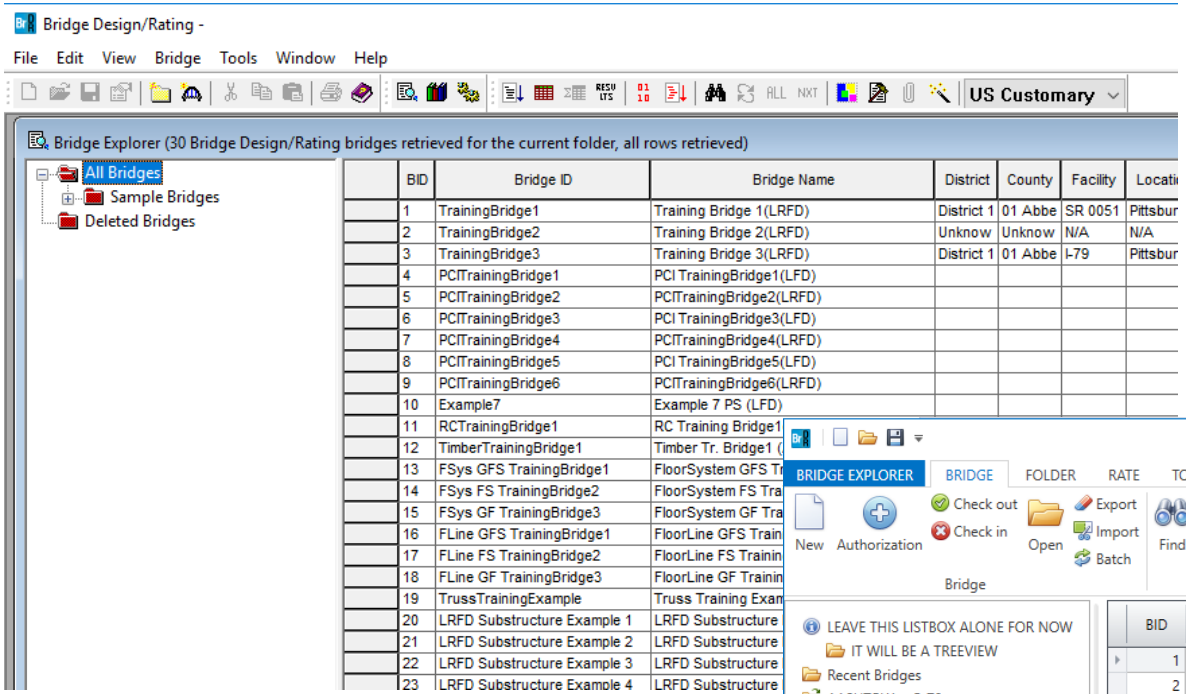
- User Interface Design and Development
  - Identified windows to be redesigned based on comments from the users
  - 90% of the windows will retain the Legacy look and behavior

Modernization Update

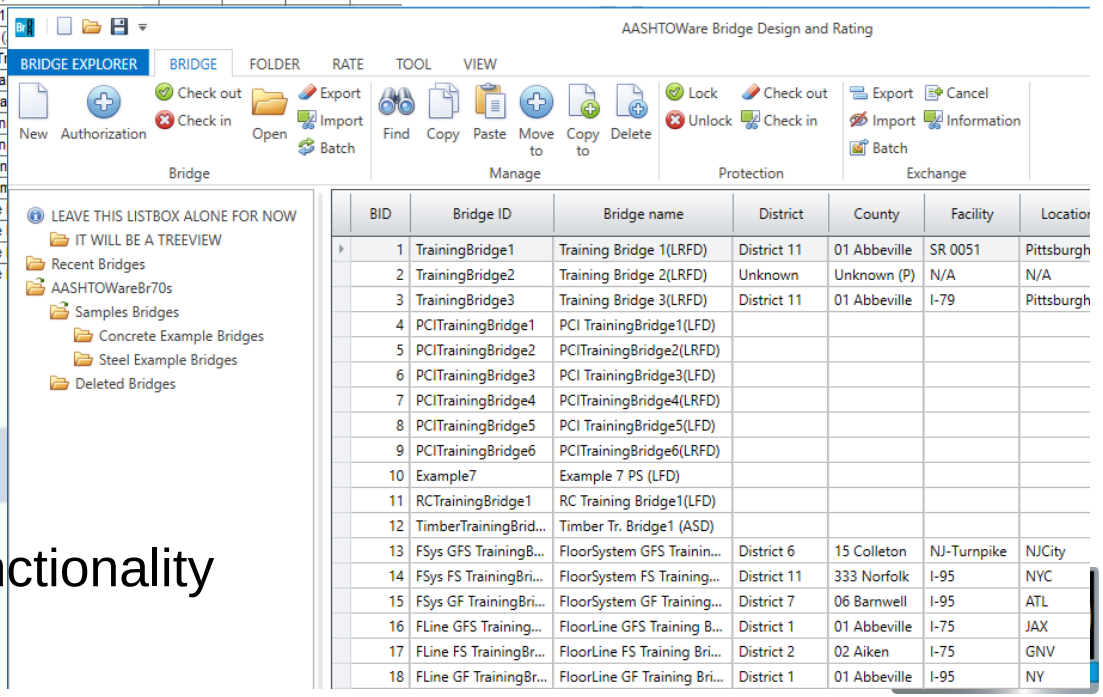
- User Interface Design and Development (continued)
  - Prepared mockups of windows for approval by the Modernization Technical Advisory Group and Task Force:
    - Detailed mockups of windows to be redesigned
    - Summary mockups of the windows that will not be redesigned
    - Numerous rounds of review by the TAG

Modernization Update

- Example of a redesigned Bridge Explorer



Legacy

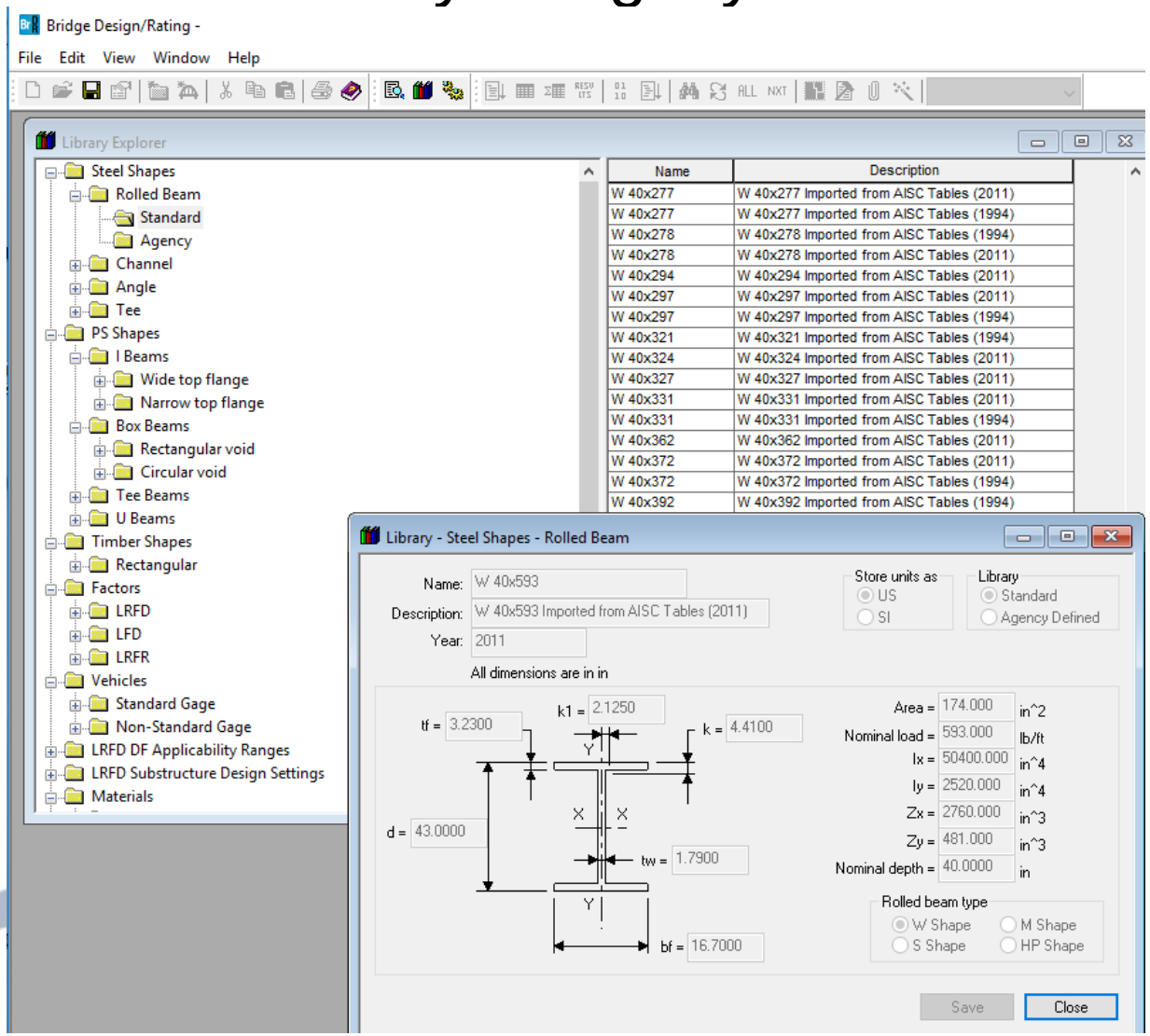


Modernized

Different appearance, same functionality

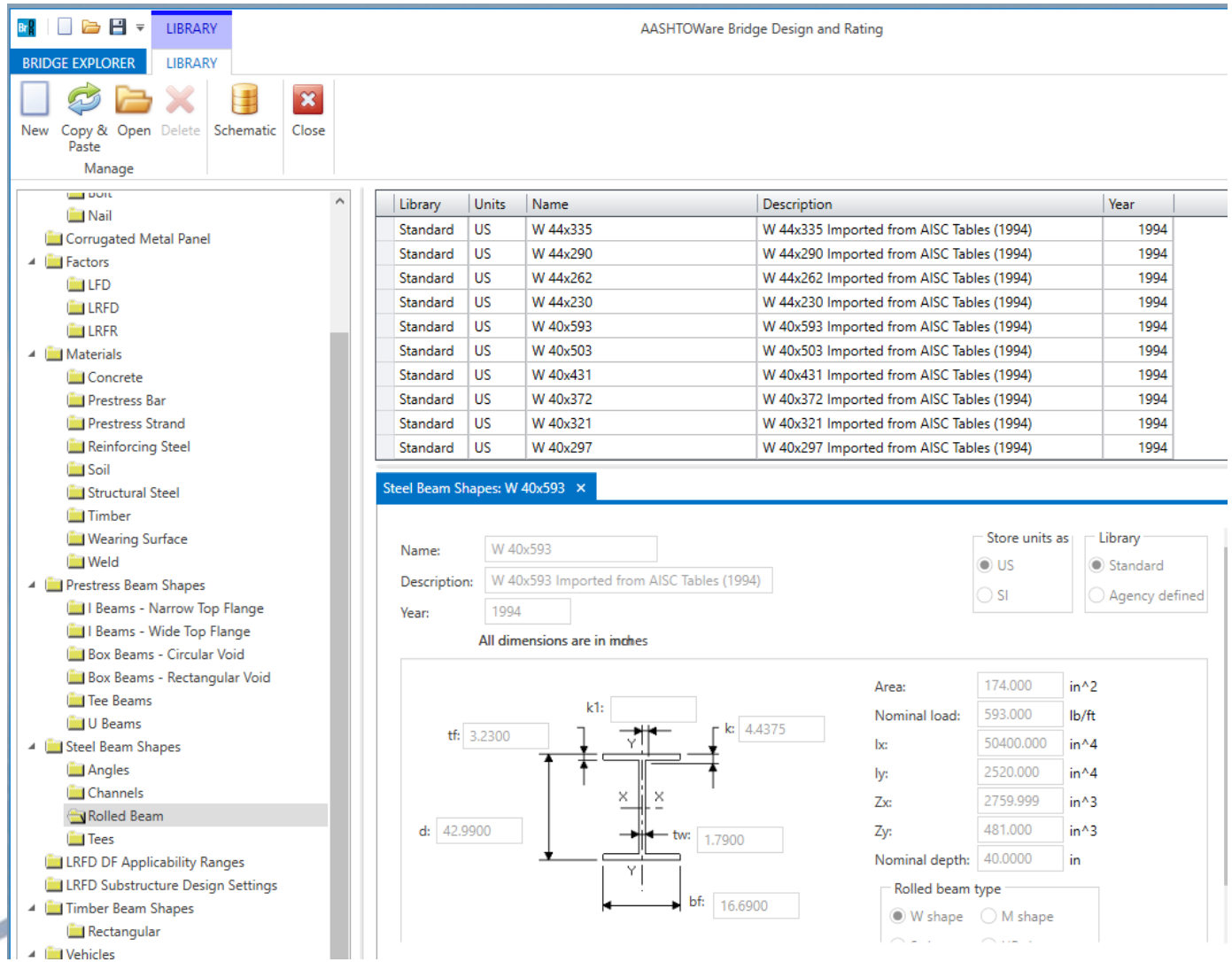
Modernization Update

- Example of the Library - Legacy



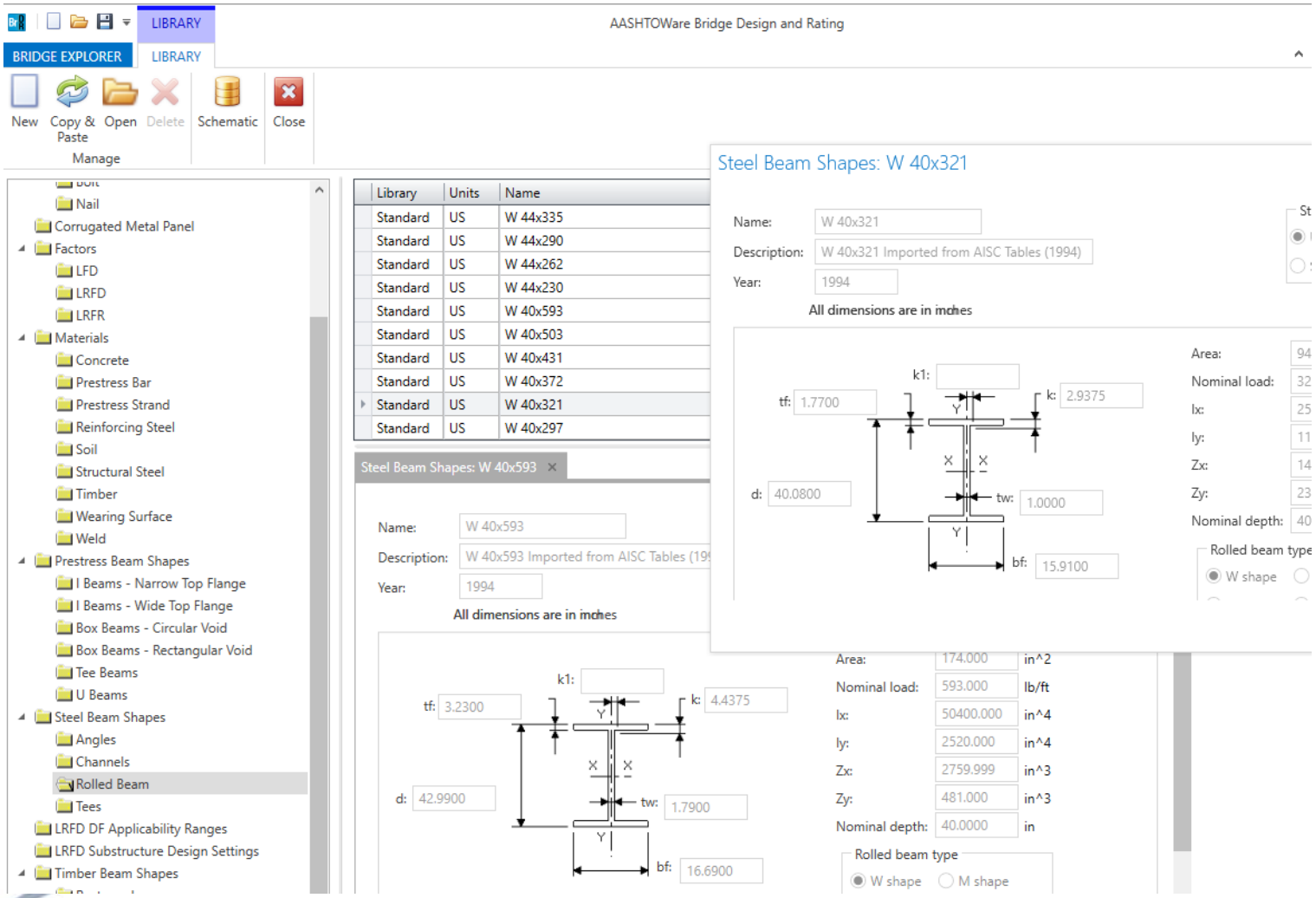
Modernization Update

- Example of the Library - Modernized



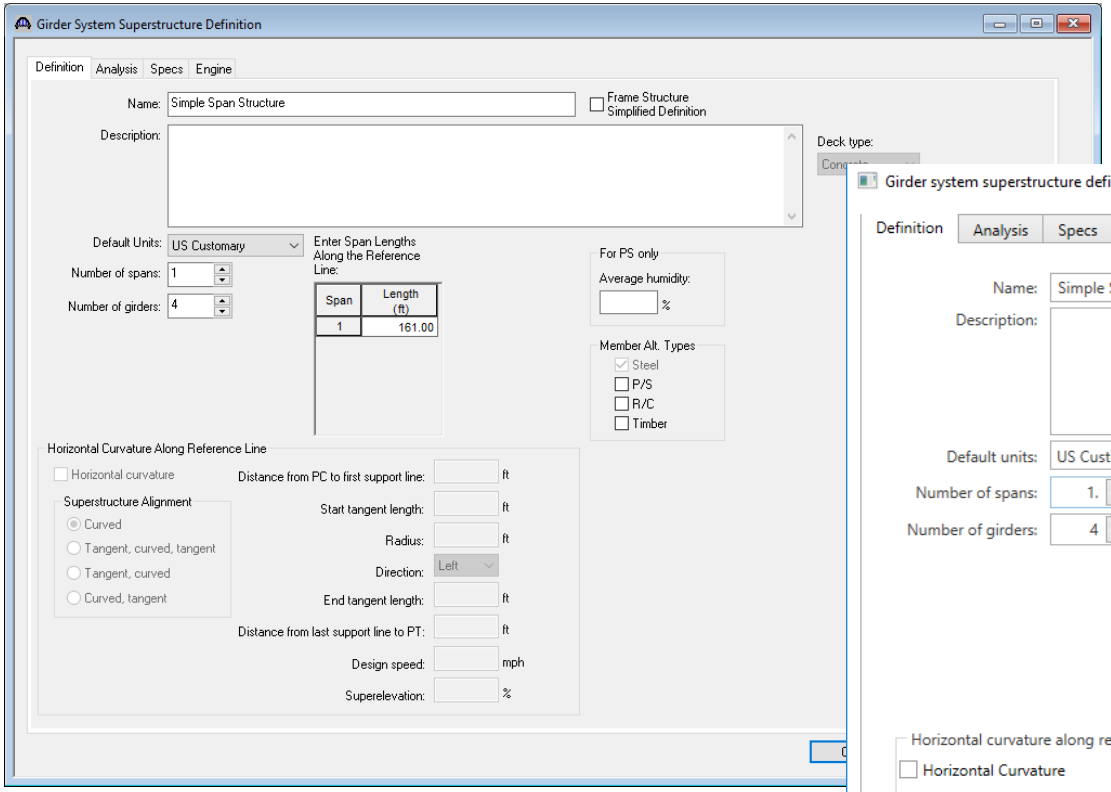
Modernization Update

- Example of the Library - Modernized

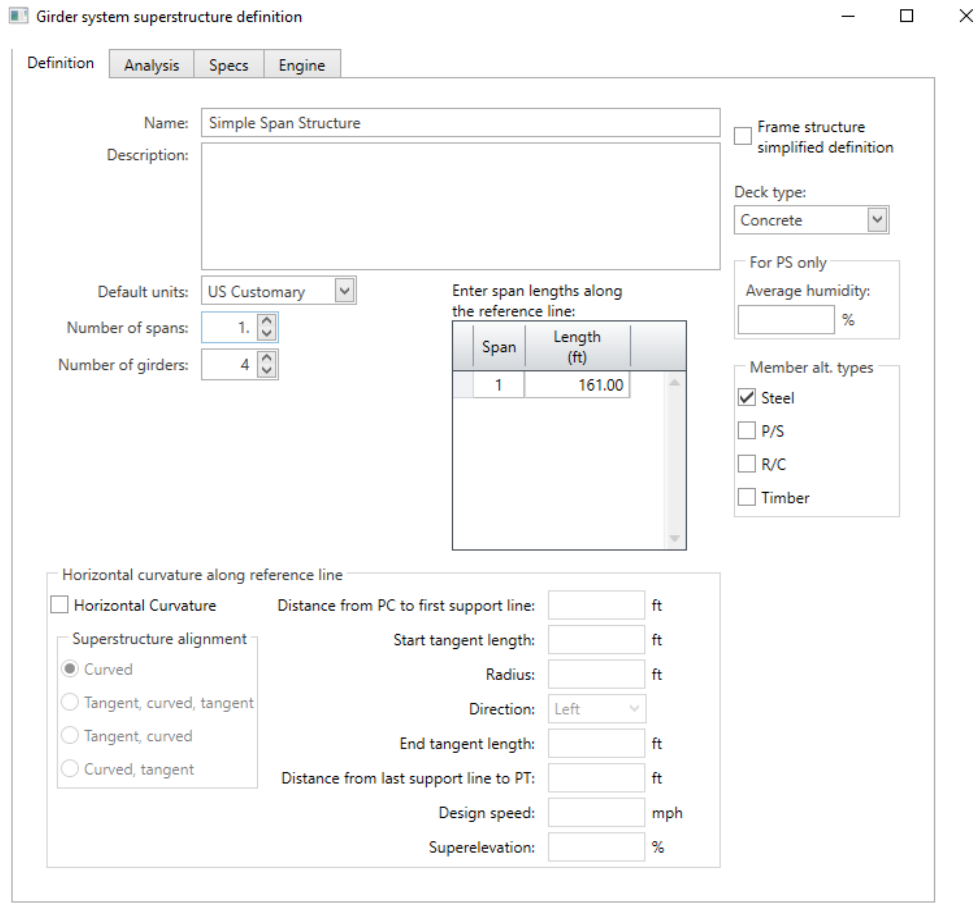


Modernization Update

- Example – Structure Definition



Legacy

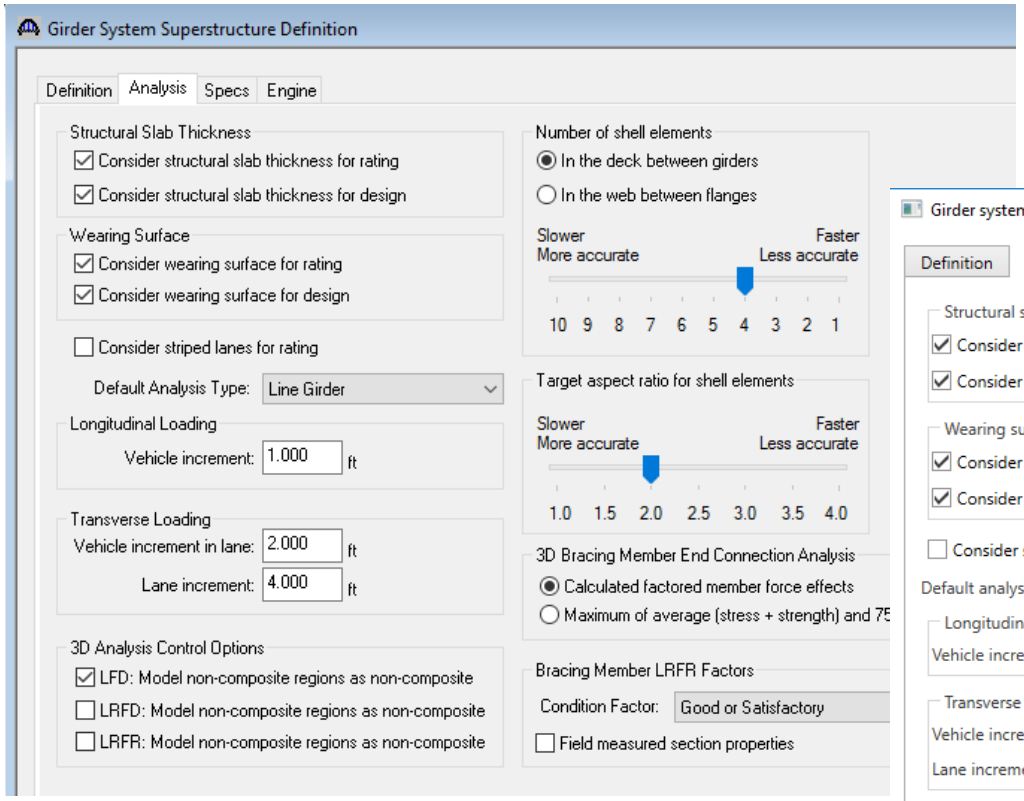


Modernized

Same appearance and functionality

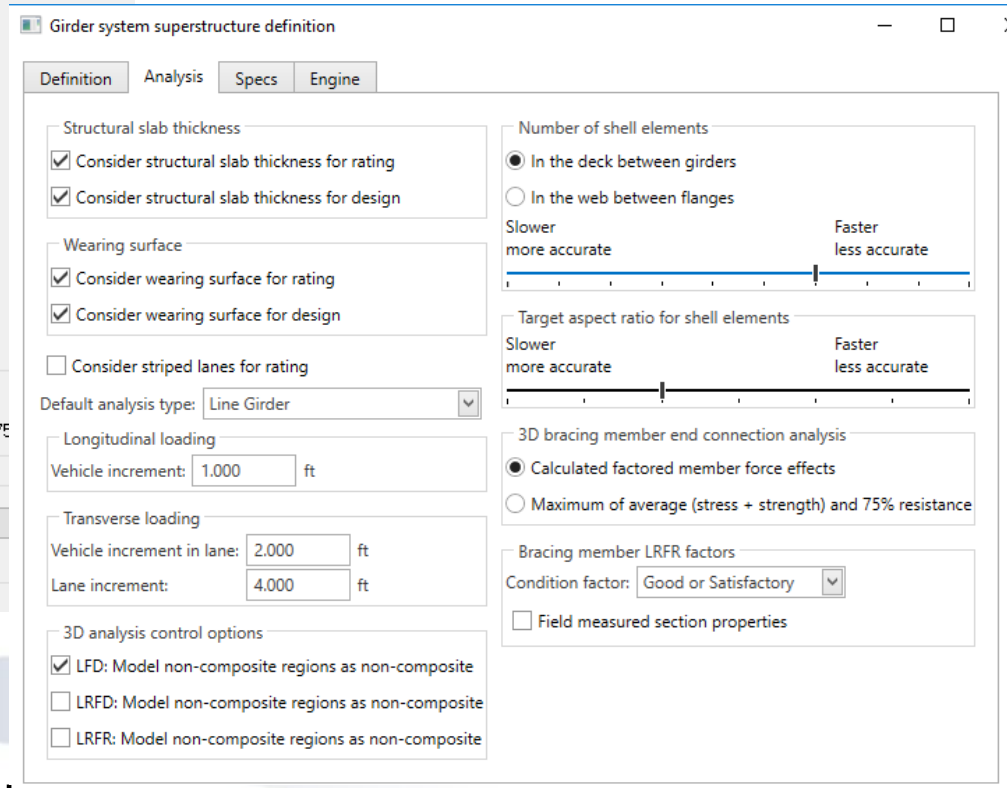
Modernization Update

- Example – Structure Definition



Legacy

Modernized



Same appearance and functionality

Modernization Update

- Analysis Module Development
  - Based on the pattern established for the P/S Design Tool released with 6.8.0
  - Initial development focused on implementing LRFR and spec-checking (LRFD) for P/S I multi-girder systems
  - Currently work has progressed to include reinforced concrete and steel multi-girder systems, concrete multi-celled boxes and substructures

Modernization Update

Timeline:

- Phase 1 – Modernize the analytical modules
  - ➢ Release June 2018 (includes Legacy maintenance release)

- Phase 2 – Modernize the user interface and the rest of the system
  - ➢ Release June 2019 (includes last Legacy maintenance release)

- Phase 3 – Implement selected user-requested enhancements
  - ➢ Release June 2020

Modernization Update

Timeline:

- Phase 1 – Modernize the analytical modules
  - Release June 2018 (version 6.8.3)
  - Includes Legacy maintenance release
  - Existing user interface with the modernized analysis engine
  - Both the modernized engine and the legacy engine will be available for use

(At this point, since no enhancements have been implemented, the analysis results of the modernized engine should (closely) match the legacy engine analysis results)

Modernization Update

Timeline:

- Phase 2 – Modernize the user interface and the rest of the system
  - Release June 2019
  - Includes last Legacy maintenance release 6.8.4
  - The modernized user interface and the modernized engine – i.e. ***the fully modernized system – version 7.0***

Modernization Update

Timeline:

- Phase 3 – Implement selected user-requested enhancements
  - Release June 2020 (version 7.1)
  - The fully modernized system with selected user-requested enhancements

Modernization Update

Software Design

Architecture Workshop conducted March 2014 - architecture design initiated

- Identified experiments for evaluation options
  - Data Access
    - Pure ADO.Net
    - ADO.Net – Strongly Typed
    - Entity Framework
  - Payload Serialization (Bridge Objects, Library Objects, etc.)
  - RESTful Web Services
  - User Interface
    - WPF / MVVM
    - 3rd Party User Controls

Modernization Update

Software Design

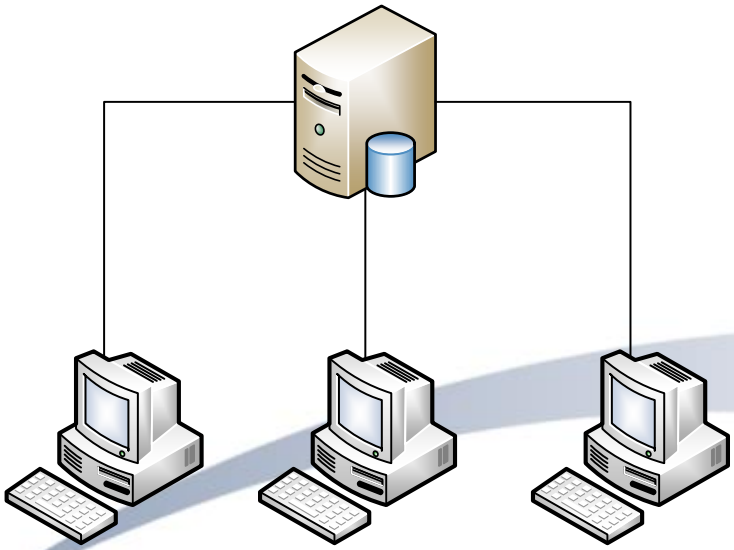
- Completed an architecture design to satisfy those requirements.
- Prepared conceptual mockups of the new user interface
- Continued the software design of the analysis engine based on the P/S Design Tool engine design

Modernization Update

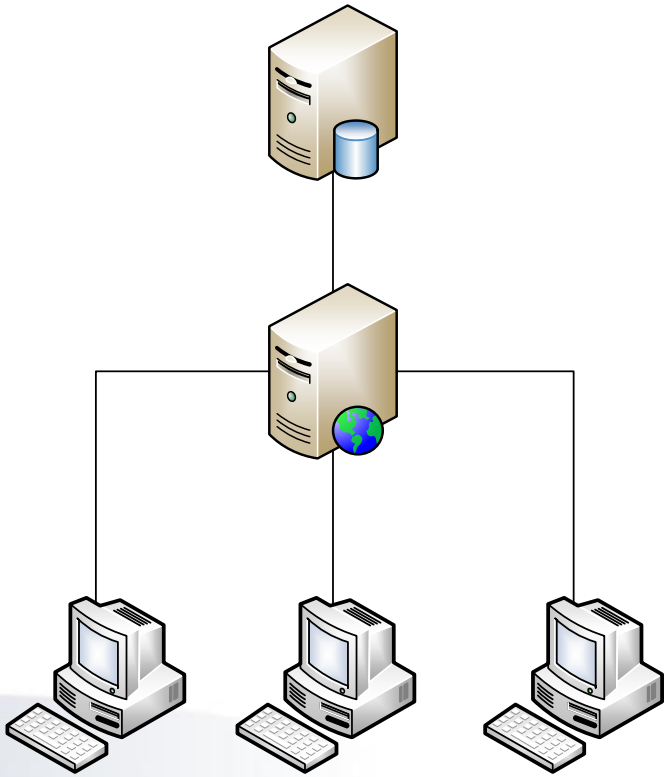
Software Design - Architecture

Client-Server with Local Database

Client-Server Architecture with Shared Database



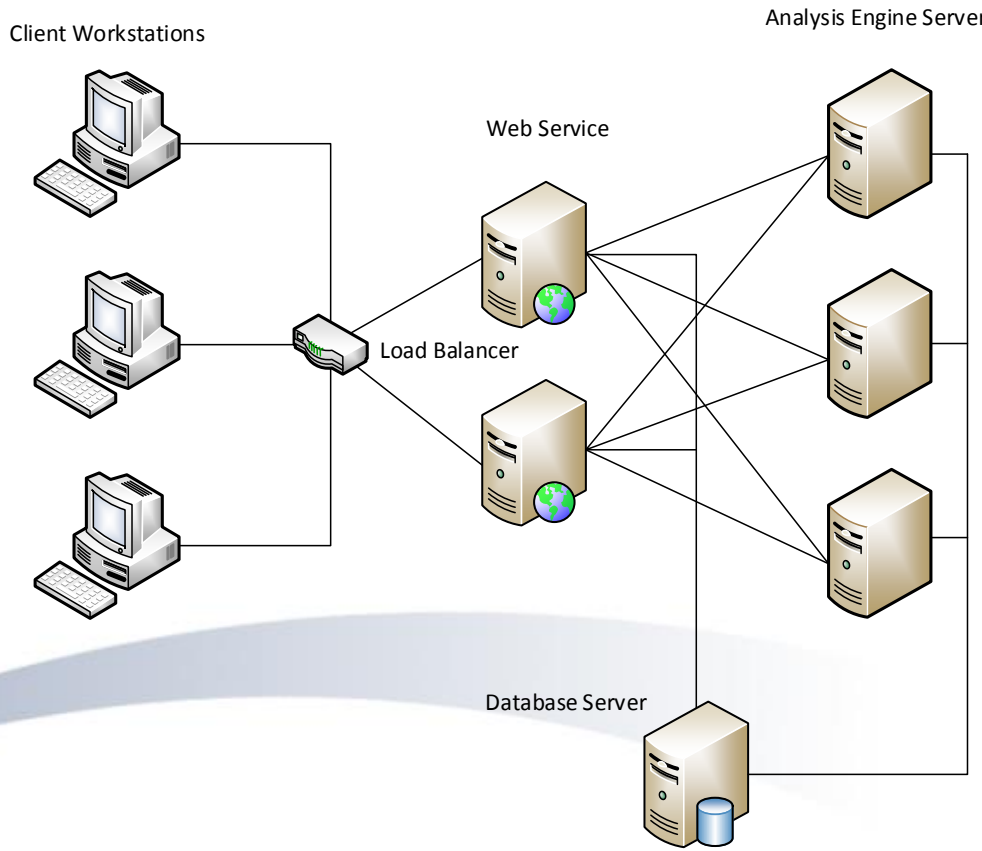
Service Oriented Architecture



Modernization Update

Software Design - Architecture

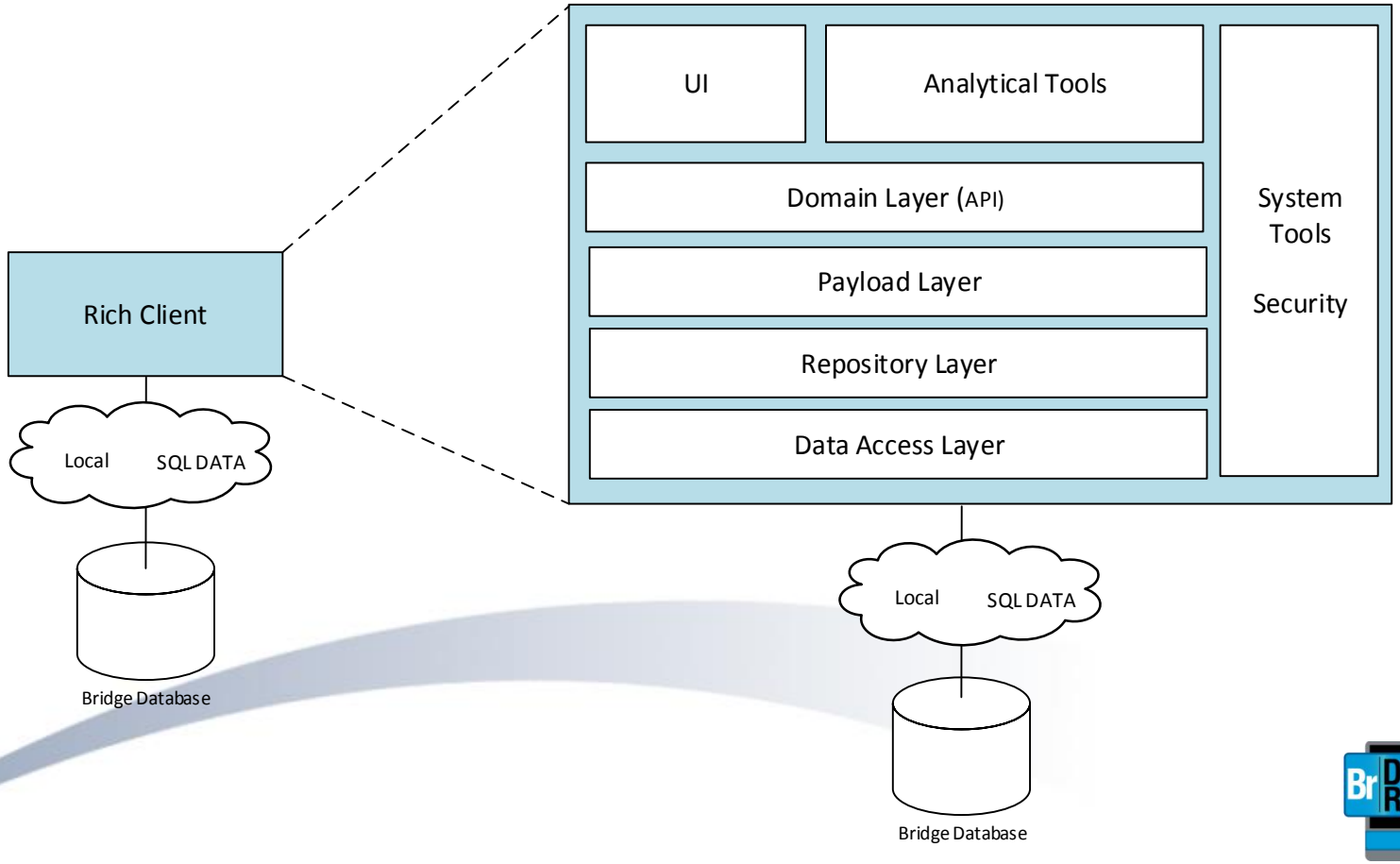
Proposed Architecture can be enhanced to support server side analysis



Modernization Update

Software Design - Architecture

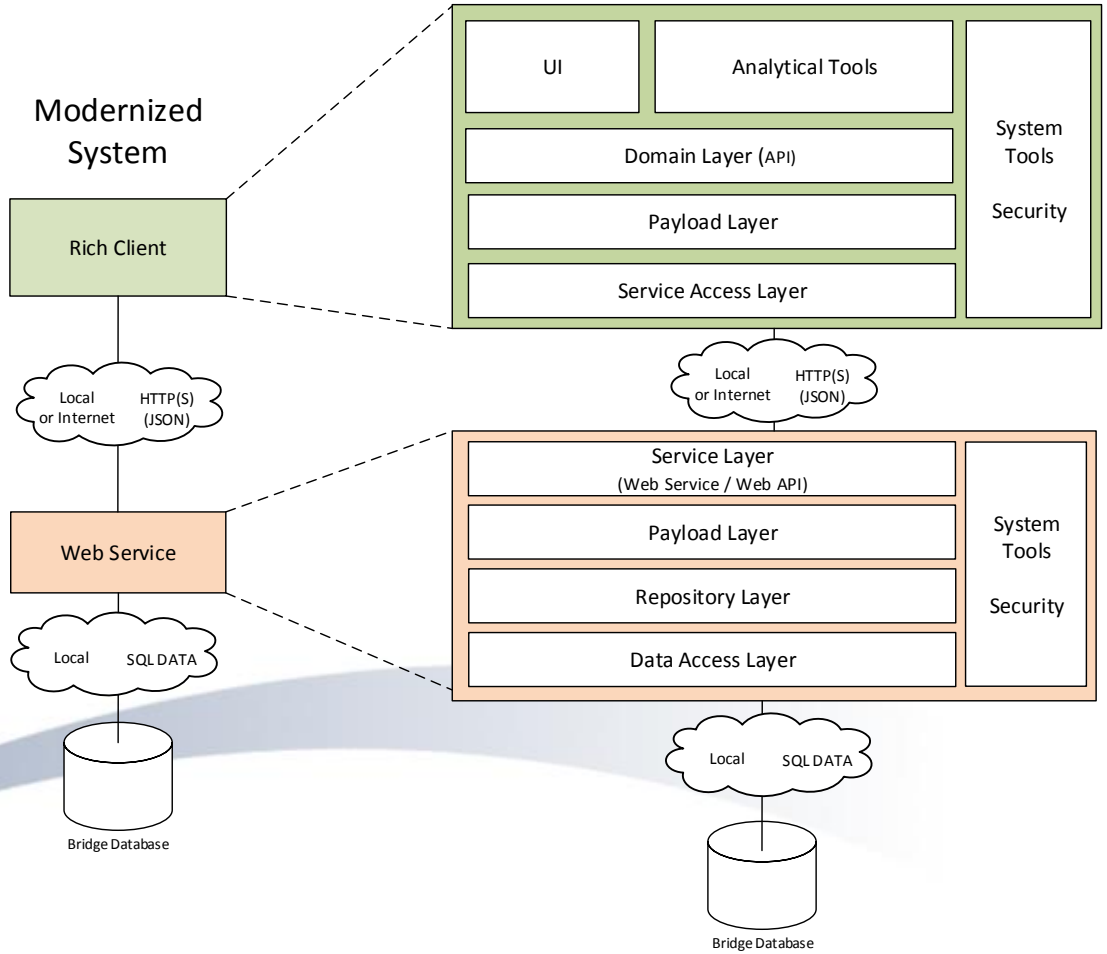
Architecture – Layered Views



Modernization Update

Software Design - Architecture

Architecture – Layered Views



Modernization Update

In conclusion…

Improve efficiency *for more than 500 consultants and 40 agencies.*

"It's all about the data!" *Licensing agencies have an enormous investment in their bridge data.* ***The data and your investment will be preserved.***

Thank you