Bridge Load Posting Prediction Dataset
Dataset available at: https://digitalcommons.lsu.edu/transet_data/106/

(This dataset supports report **Bridge Load Posting Prediction**)

This U.S. Department of Transportation-funded dataset is preserved by the Transportation Consortium of South-Central States (TRAN-SET) in the LSU Digital Commons Repository (https://digitalcommons.lsu.edu), and is available at https://digitalcommons.lsu.edu/transet_data/106/

The related final report **Bridge Load Posting Prediction**, is available from the National Transportation Library's Digital Repository at https://rosap.ntl.bts.gov/view/dot/61732.

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Abstract: There are approximately 13,000 bridges in Louisiana facilitating movement of people, goods, and services. At present, about 12% of the bridges are load posted, i.e., they are deemed to lack the strength to safely carry all legal loads. With time bridges will age and deteriorate; at the same time, legal loads might increase. Load posted bridges disrupt the movement of goods and commerce. Therefore, objective of this research was to estimate the number of load posted bridges in Louisiana over the next 50 years. For this purpose, herein, a data based approach was used. For a given bridge type, the approach first developed three random forest models, to predict the future deck, sub-structure, and super-structure condition ratings of all the bridges of that type over the next 50 years. The inputs to these random forest models included a large number of bridge parameters obtained from the National Bridge Inventory (NBI). Herein, the bridge types were obtained from the Louisiana Department of Transportation and Development (LADOTD). Next, for a given bridge type, another random forest model was developed which used bridge parameters from NBI along with condition ratings to predict the load posting decision for a specific year in the future. The number of load posted bridge in each type were aggregated to obtain an estimate of the number of load posted bridge over the next 50 years. The random forest models identified several bridge parameters that significantly influence bridge load posting, e.g., condition ratings, age, span length, and roadway width among others. The results showed that while bridge types like light weight concrete pre-cast slab units and timber bridge had a large number of load posted bridges at present, concrete slab type bridge may be of concern in the future.
Comments: Tran-SET Project: 20STLSU01

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Dataset description:
This dataset contains 1 file described below.

NBI_data_filtered_files.zip:
- LA99_filtered_SK.xlsx
- LA98_filtered_SK.xlsx
- LA97_filtered_SK.xlsx
- LA96_filtered_SK.xlsx
- LA95_filtered_SK.xlsx
- LA94_filtered_SK.xlsx
- LA93_filtered_SK.xlsx
- LA92_filtered_SK.xlsx
- LA19_filtered_SK.xlsx
- LA18_filtered_SK.xlsx
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- LA02_filtered_SK.xlsx
- LA01_filtered_SK.xlsx
- LA00_filtered_SK.xlsx

File Type Descriptions:
- The .xlsx and .xls file types are Microsoft Excel files, which can be opened with Excel, and other free available software, such as OpenRefine.

National Transportation Library (NTL) Curation Note:
As this dataset is preserved in a repository outside U.S. DOT control, as allowed by the U.S. DOT's Public Access Plan (https://ntl.bts.gov/public-access) Section 7.4.2 Data, the NTL staff has performed *NO* additional curation actions on this dataset. NTL staff last accessed this dataset at https://digitalcommons.lsu.edu/transet_data/106/ on 2022-05-19. If, in the future, you have trouble accessing this dataset at the host repository, please email NTLDataCurator@dot.gov describing your problem. NTL staff will do its best to assist you at that time.