Pavement Life Comparison for Different Traffic Scenarios (02-008) Dataset

Dataset available at: https://doi.org/10.15787/VTT1/1QXWSN

(This dataset supports report **Pavement Life Comparison for Different Traffic Scenarios**)

This U.S. Department of Transportation-funded dataset is preserved by the Virginia Tech Transportation Institute (VTTI) in their data repository (https://dataverse.vtti.vt.edu/), and is available at https://doi.org/10.15787/VTT1/1QXWSN

The related final report **Pavement Life Comparison for Different Traffic Scenarios**, is available from the National Transportation Library's Digital Repository at https://rosap.ntl.bts.gov/view/dot/53941.

Metadata from the VTTI Repository record:
Description:

PavementLifeComparison Excel Data

- **Project Description:** The data was determined in 2017 in Texas A&M Transportation Institute using Texas Mechanistic-Empirical Pavement Design and Analysis (TxME) program. It presents the pavement damage such as rutting and cracking development with time. Three scenarios were compared: regular traffic, Automated vehicles (AV) which keeps narrow wandering within the lane, and AV-Optimal which assumes the AV wandering pattern is uniformly distributed within the lane. Two spreadsheets are included in the file to compare Regular Traffic with AV, and Regular Traffic with AV-Optimal, respectively.
- **Data Scope:** The data is modeling data which includes the rut depth in inches and the fatigue cracking area in percentage for each month. There are data of 240 months for AV and 600 months for both regular traffic and AV-Optimal scenarios.
- **Data Specification:** Each spread sheet has two tables. One table is the predicted rut depth table and the other is the predicted fatigue cracking area % table.
    - There are three columns in rut depth table:
        - Month Number: number of months starting from traffic opening
        - Regular Traffic: the rut depth in inches at the corresponding month number under regular traffic scenario
        - AV: the rut depth in inches at the corresponding month number under AV traffic scenario
    - There are three columns in fatigue cracking area % table:
        - Month Number: number of months starting from traffic opening
        - Regular Traffic: the fatigue cracking area percentage at the corresponding month number under regular traffic scenario
        - AV: the fatigue cracking area percentage at the corresponding month number under AV traffic scenario

PavementLifeofMixTraffic Excel Data

- **Project Description:** The data was determined in 2017 in Texas A&M Transportation Institute using Texas Mechanistic-Empirical Pavement Design and Analysis (TxME) program. It presents the pavement life such as rutting and cracking life under different mix traffic scenarios. Two scenarios were compared: mix traffic of regular traffic and normal Automated vehicles (AV) which keeps narrow wandering within the lane; and mix traffic of regular traffic with AV-Optimal which assumes the AV wandering pattern is uniformly distributed within the lane. Two spreadsheets are included in the file to show these two scenarios respectively.
- **Data Scope:** The data is modeling data which includes the fatigue cracking and rutting life in months. The cracking life is defined as the time (months) when cracking area percentage reaches the failure criteria (e.g., 30%). The rutting life is defined as the time (months) when rut depth reaches the failure criteria (e.g. 0.3 inches). There are 21 rows of data showing the results of different mixing percentages.
- **Data Specification:** Each spread sheet has one tables. There are three columns in the table of "NormalAV" spread sheet:
  - Normal AV Percentage (%): The percentage of normal AV traffic
  - AC Fatigue Cracking Life (Months): the month number when cracking area percentage reaches the failure criteria
  - Rut Life (Months): the month number when rut depth reaches failure criteria

  In the in the table of "AV-Optimal" spread sheet:
  - AV-Optimal Percentage (%): The percentage of AV-Optimal traffic

Subject:
Engineering; Other

Keyword:
Automated Vehicle, Wandering, Pavement Life, Rutting, Cracking

Recommended citation:
Hu, Sheng; Zhou, Fujie, 2019, "Pavement Life Comparison for Different Traffic Scenarios (02-008)", https://doi.org/10.15787/VTT1/1QXWSN, VTTI, V1

Dataset description:
This dataset contains 1 .zip file collection described below.

Pavement Life Comparison for Different Traffic Scenarios (02-008) Data.zip:
This collection contains 2 .xlsx files listed below.
- PavementLifeOfMixTraffic_Upload.xlsx
- PavementLifeComparison_Upload.xlsx

.xlsx: The .xlsx file is a Microsoft Excel file, 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://doi.org/10.21949/1503647) 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://doi.org/10.15787/VTT1/1QXWSN on 2021-02-01.

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.