

Data Files: Green Waves, Machine Learning, and Predictive Analytics: Making Streets Better for People on Bikes

Dataset available at: https://pdxscholar.library.pdx.edu/trec_data/15/

(This dataset supports report **Green Waves, Machine Learning, and Predictive Analytics: Making Streets Better for People on Bikes**, <https://dx.doi.org/10.15760/trec.264>)

This U.S. Department of Transportation-funded dataset is preserved by Transportation Research and Education Center (TREC) in their data repository PDX Scholar (<https://pdxscholar.library.pdx.edu/>), and is available at https://pdxscholar.library.pdx.edu/trec_data/15/

The related final report **Green Waves, Machine Learning, and Predictive Analytics: Making Streets Better for People on Bikes**, is available from the National Transportation Library's Digital Repository at <https://rosap.ntl.bts.gov/view/dot/60041>

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Abstract:

The project builds on a prior app that was designed for Green Light Optimized Speed Advisory (GLOSA). This is more colloquially known as keeping a vehicle in the green wave: you are at a location and moving at a speed that will allow you to (theoretically) have a green light at each intersection you encounter along a corridor. Our long-term goal is to extend the FastTrack app described in the Background section to include actuated signals along a corridor. This project takes a first step by evaluating the effectiveness of machine-learning algorithms to predict the next phase of an actuated signal on a busy bike corridor, given information about the past K phases. In essence, this is what is called a time-series forecasting problem. If we find forecasting success here, then we can begin to incorporate these algorithms into a more comprehensive GLOSA app (post-grant). The project used data captured during the prior V2X project captured from the 18th and Alder intersection in Eugene OR during 12 days in June 2018. Loop detectors and advanced loop detectors currently exist in both directions on Alder to recognize the presence of bicycles and vehicles. The dataset consists of phase-change data for a complicated intersection that plays a key role in a bike corridor. The intersection has eight separate phases, all callable, that serve vehicles, bicyclists, pedestrians, and buses, all in various combinations. The data was taken from the month of June 2018. June is typically a heavy biking month near the University of Oregon campus.

Description:

The data and guide support a final report published on NITC's website "Green Waves, Machine Learning, and Predictive Analytics" (2021).

- List of files that are included with the data product:
 - NITC 1299 data guide _ pdf with steps for recreating the research.

- NITC 1299 csv_ file containing 42,920 rows of data; a new row was generated on each phase change.
- Guide is available online:
<https://colab.research.google.com/drive/12Q8Sn0JnNFEfYxelGJOU3dVP0X8P191w?usp=sharing#scrollTo=hmkJbQsKg2ZR>
- The final report can be found at: <https://dx.doi.org/10.15760/trec.264>

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Dataset description:

This dataset contains 1 file collection described below.

NITC1299 Intersection Data.zip:

- NITC1299 Intersection data.csv
- Nitc1299_data_guide.pdf

The .csv, Comma Separated Value, file is a simple format that is designed for a database table and supported by many applications. The .csv file is often used for moving tabular data between two different computer programs, due to its open format. The most common software used to open .csv files are Microsoft Excel and RecordEditor, (for more information on .csv files and software, please visit <https://www.file-extensions.org/csv-file-extension>).

The .pdf file format is an Adobe Acrobat Portable Document Format (PDF) file and can be opened with the Adobe Acrobat software.

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://pdxscholar.library.pdx.edu/trec_data/15/ on 2022-02-04. 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.