DATA MANAGEMENT PLAN

This section defines Tran-SET's plans for managing and archiving data from the proposed research education, and outreach activities, including the collection, testing, and analysis of new technologies. The archive will include raw and analyzed data, interpretation of collected data, documentation, and related figures and tables. To ensure successful transfer and management of the generated data, a number of activities are proposed.

1 DATA DESCRIPTION AND STANDARDS USED

The university transportation center "Tran-SET" expects to collect a significant amount of data to be generated from the different research projects the center will fund. All PIs will be required to produce a data management plan that will follow the guidelines defined in this Master Data management plan. Types of data collected may vary between quantitative data resulting from laboratory and field experiments to qualitative data resulting from surveys etc. These data may include any or all of the following:

- **Field Measurements:** e.g., traffic counts, weather parameters, etc. saved after analysis in spreadsheets, word, or pdf format.

- **Laboratory Measurements:** collected during laboratory testing under different operating parameters (to be retained for five years after completion of each project) saved after analysis in spreadsheets, word, or pdf format.

- **Numerical Modeling Data:** resulting from simulations and/or software analysis

- **Digital Image and Video Data:** include all instrument-generated digital data that can be used as supplementary to field and/or laboratory measurements or modeling and simulation, saved after analysis in jpeg, tiff, or pdf format.

- **Databases:** including all researchers' generated databases and spreadsheets, saved in mdb format.

- **Reports:** semi-annual and final project reports will be collected in either word and/or pdf formats.

- **Class Materials** for use in undergraduate and graduate courses (available upon completion of the project's implementation phase).

- **Multi-Media Tutorial** used to teach high schools and undergraduate students available upon completion of the project's implementation phase); and

- **Web- Based Courses** used to disseminate project findings to industry professionals and State and federal DOTs.

All types of data generated will be retained for 10 years after the completion of the project on a publicly accessible server at LSU (LSU Digital commons, http://digitalcommons.lsu.edu/transet/). Copies of all processed data will be uploaded to zenodo research data repository.

Data precision will be determined by the test standards and the calibration of the instruments and software's used. Data from the manufacturing and mechanical tests will be presented in the output format of the respective analysis software package. Only members of the research team (PIs, and research assistants) will have access to original data before analysis or quality control. After processing, all data will be released according to the plan highlighted in this document, see Table D-1.

Table D-1. Type of Data and Format of the Proposed Archive

Data Description	Frequency	Storage Format
Field measurements	Once	Spreadsheet format
Lab measurements	Once	Spreadsheet format
Software/Simulation measurements	Once	Spreadsheet format
Theoretical analysis of data	Once	Spreadsheet format
Multi-media tutorial	Once	PowerPoint
Lectures	Once	PowerPoint
Bi-annual Reports	Twice	Word or Pdf format
Final Reports	Once	Word or Pdf format

2. DISSEMINATION

A number of stakeholders including industrial and academic partners formed a consortium that runs this center. These stakeholders formed a leadership team and an advisory board. Through feedback and collaboration with our industrial partners, advisory board and stakeholders, research activities in this project will be influenced by the practical aspects of the subject. It will also ensure that cutting edge research is conducted in a way that may benefit the transportation industry and the society at large. The research team will also hold regular meetings with advisory board, partners and stake holders to obtain their feedback on the progress of the research and the results. Funded project PIs are also required to publish their findings in peer reviewed journals and conferences to get feedback.

Analyzed data from all funded projects including raw data, figures, and tables will be published through journal publications, presentations at related-conferences, and by maintaining a world-wide-web page "transet.lsu.edu" that presents our latest findings and how each research project funded is advancing. Each funded project research team will also prepare bi-annual and final reports documenting the entire research effort. The reports will summarize the findings and conclusions and will provide a detailed documentation of analyzed data and metadata for each type

of relevant measurements presented in Section D.1 and will be posted in the center's website. The proposed technology transfer, workforce development, and outreach activities conducted by the Center as well as the funded projects will also allow us to reach a broad and diverse audience and to educate young students on the benefits of research relevant to the mission of Tran-SET.

3. REUSE AND REDISTRIBUTION OF PRODUCTS

All intellectual property rights to the processed data, reports and products that result from projects funded by Tran-SET will be shared between the PI and their institution and the funding agency (Tran-SET and DOT). Intellectual property rights to raw data will be shared between the PI and the center. All project reports will be publically available on the center's website. Analyzed data will be made publically available upon written request.

PIs and other authors funded by the Center may copyright books, publications or other materials developed from Tran-SET's funding but DOT reserves a royalty-free, nonexclusive and irrevocable license to reproduce, publish, or otherwise use the work for public purpose.

All inventions and patents developed with Tran-SET funding must be reported through iEdison electronic system. PIs can retain the entire right title and interest for each innovation but DOT must have a nonexclusive, irrevocable, paid-up license to practice the invention throughout the world.

4. DATA ACCESS, STORAGE AND PRESERVATION

The data archive of all projects will be organized per year of funding. Each funded project will then be organized per data type and per phase period as collected during each project. Each data set will contain data collected for a specific time interval. The top level of a directory will contain sub-directories for each of the data set collection periods and sub-directories for each of the additional components of the archive.

Data for each project will be stored and preserved in spreadsheet and raw formats and will be stored in an independent hard drive that will be maintained by each project PI and submitted to the Tran-SET director at the end of each project with the final report. All hard drives will be stored on a server at LSU. All or any hard drive will be sent to the UTC program director if requested by OST-R.

Project bi-annual and final Reports will be publically available on Tran-SET's website http://transet.lsu.edu/ and on LSU digital commons, http://digitalcommons.lsu.edu/transet/. Analyzed data and data deposits following publication of peer-reviewed journal articles will be made available upon written request to Tran-SET. At the end of the center's life, copies of all processed data will be uploaded to zenodo research data repository https://zenodo.org/.

Any confidential/data related to personal identities or national security is out of scope of this project.