

Freight Mobility Research Institute

Data description

The Freight Mobility Research Institute (FMRI) will generate data resulting from different sources such as sensors, videos and by using existing data from various originators such as ATRI, Transportation Data and Statistics, National Transportation Library, RITIS, etc. Next, the metadata that is described in the proposed research generated by simulation techniques and mathematical modelling will be produced and stored. The collected data, will be updated as soon as, the projects requires an extension. Our collected and produced data will be useful for any federal, state, and local agencies related to transportation and logistics as well as in the freight transportation industry. The Director of the FMRI center, the center coordinator and IT College of Engineering and Computer Science director at FAU will take the responsibility for leading, coordinating and assuring the data storage and access. All the investigators involved in the proposed project(s) have equal rights to access the data generated through this sponsored project. Furthermore, they also have the same obligation to share their data and to publish the results in a timely manner.

The FMRI requires that all the awarded projects for funding must submit a detailed data management plan. This requirement will also be available on the FMRI official website.

This deliverable should include the following elements:

1. Name of the data, data collection project, or data producing the program.
2. Describe the purpose of the research.
3. Describe the data of your project which will generate in terms of nature and scale (e.g., numerical data, image data, text sequences, video, audio, database, modeling data, source code, etc.).
4. Describe methods for creating the data (e.g., simulated; observed; experimental; software; physical collections; sensors; satellite; enforcement activities; researcher-generated databases, tables, and/or spreadsheets; instrument generated digital data output such as images and video; etc.).
5. Relevant to your project, discuss the period of time data will be collected and frequency of update.
6. If using existing data, describe the relationship between the data you are collecting and existing data collected prior.
7. List potential users of the data.
8. Discuss the potential value that the data generated by your project will have over the long-term for the FMRI and for the public agencies.

9. If you request permission not to make data publicly accessible, explain the rationale for lack of public access.

10. Indicate who will be responsible for managing the data at your institution and how will they interface with the FMRI Center's Coordinator and Associate Director of Research.

The FMRI's coordinator and associate director of research will monitor all final reports to ensure they contain a DMP.

Data format and metadata standards

Data gathered from transportation and logistics related research projects varies and includes, **but is not limited to** the following: freight volume, TEU's, port & intermodal data, truck volumes, travel times, vehicle miles traveled, incidents, signal timings, video logs, infrastructure sensors, driver behavior, O/D matrixes, and trip generation

The data is typically found in the formats listed below:

- MS Excel (.xls) and • MS Excel Macro (.xml)
- Video files (.mpg, .avi, .mov, .wmv)
- Joint Photographic Experts Group (.jpg) and Portable Document Format (.pdf)

Researchers from the partner institutions will be required to include the following information in their project-specific DMPs:

1. List in what type of format(s) the data will be collected, and indicate if they are open or proprietary.
2. Data should not be proprietary in nature. If you anticipate using proprietary data, you must explain why are you doing so.
3. Describe how and which versions of the data will be signified and/or controlled.
4. If the file formats in your research are not standard to transportation (or to your related field), tell us how you will document the alternative you are using.
5. List what all documentation you will be creating in order to make the data understandable by other researchers.
6. Indicate the type of metadata scheme you are using in the project and describe the data. If the metadata scheme is not one that is standard for your field, clarify your rationale for using that specific scheme.
7. Describe how the metadata will be managed and stored during the collection process.
8. Indicate what tools or software are required to read or view the data.
9. Describe the quality control measures to ensure its accuracy, etc.

Policies for access and sharing

For the proposed collaboration research, the FMRI director, the center coordinator and IT college director at FAU will take the lead and will be responsible for data storage, access and sharing. All the investigators involved in the proposed project along with the center director and center coordinator have equal rights to access the data generated in FMRI sponsored research project(s).

All investigators who receive FMRI support to conduct freight mobility research are expected to submit to the FMRI center coordinator/data repository descriptive information about their studies for inclusion in an open access portion of the FMRI repository. In addition, we strongly encourage the submission of freight mobility research, and education data as appropriate to the FMRI data guidelines, as soon as, quality control procedures have been completed at the local institution. These detailed data will be made available through a controlled access process according to the FMRI data access procedures.

Investigators submitting data are expected to: a) provide descriptive information about their studies, b) submit a data submission for providing assurance that all data are submitted to FMRI in accordance with applicable laws and regulations. External users of our consortium must sign a registration and use agreement form before obtaining the data.

In addition, for any partner institution in the DMP, please indicate how you will address the following:

1. List the roles of the data creation team members on your project will have in data management, including any limitations on team member access due to the presence of personal or confidential information.
2. State whether the data can be shared with the public.
3. Mention in your plan, what data will be shared, how data files will be shared, and how others will access them.
4. Does your data contain private or confidential information? If they do:
 - Describe any privacy and/or confidential business information.
 - Describe the processes you will follow to provide access to participants, and who is responsible for protecting the data.

Policies for re-use, redistribution, derivatives

Re-use and re-distribution of data is allowed only after taking permission from the center's director. In the case of invention or pattern with the direct connection of the data, access to the data will be granted upon request once appropriate invention and patent filings are made.

In addition, any consortium member in DMP's, please include the following:

1. List the names of those who have the rights to manage the data.
2. Inform us who holds the intellectual property rights to the data.
3. List copyrights to the data, if any. If there are copyrights, indicate who owns them.
4. Discuss any rights to be transferred to the data archive.
5. Describe how your data will be licensed for reuse, redistribution and derivative products.

Plans for archiving and preservation

The FMRI project publications should be available at the FAU Digital repository (http://www.library.fau.edu/depts/digital_library/collections.htm)

Moreover, the FMRI will use the Zenodo repository for storing its data. Zenodo is powered by the invenio open-source digital library framework (<http://invenio-software.org/>) and supported by CERN (<http://home.cern/>). Zenodo (<https://zenodo.org>)

1. When the DRAFT FINAL REPORT is delivered to the FMRI research center coordinator please allow time for review and uploading in Zenodo.
2. The lead investigator on each FMRI-funded project should be ensured that the data are to be archived and secured temporarily at their home institution.
3. The lead investigator on each FMRI-funded project should also describe in their DMPs how they intend to prevent loss of data, and how the data will be backed up? Also, what are the security measures that will be implemented at the partner institution? FMRI at FAU will back up the data daily. Furthermore, at Zenodo the data is backed up each night.
4. Investigators must describe how data will be protected from accidental or malicious modification or deletion prior to receipt by the archive.
5. As indicated above, the FMRI has an option to use the Zenodo repository for storing data.
6. Data in Zenodo is guaranteed for at least 20 years as articulated via Zenodo FAQ, <https://zenodo.org/faq>.
7. Datasets in Zenodo are given unique Digital Object Identifiers (DOIs) by DataCite (<https://www.datacite.org/>). DOIs enable data access, linking, and sharing between publication systems.
8. Zenodo confirms with the National Transportation Library's Guidelines for Evaluating Repositories for Confirmation with the DOT Public Access Plan as listed at <https://ntl.bts.gov/publicaccess/repositories.html>.
9. Zenodo is partially an Open Archive Information System (OAIS) model for data archiving (ISO14721 - http://www.iso.org/iso/catalogue_detail.htm?csnumber=57284). Zenodo is working on a Data Seal of Approval (See: <http://www.datasealofapproval.org/en/>) compliance.