

Mountain Plains Consortium

Region 8 University Transportation Center

North Dakota State University

Data Management Plan

2/24/2017

Types of data that the Center anticipates gathering in the course of conducting research activities, including whether the data should be preserved for long-term access.

The Mountain Plains consortium will be engaged in a broad variety of research during the course of the grant period. Although the principal focus is on infrastructure preservation and maintenance, research may encompass topics ranging from bicycle lanes to transportation's impacts on livability. Sources of primary data may include field sensors, vehicle sensors, lab experiments and tests of materials, surveys and other collection methods that result in new and original datasets. Primary data may range from sensor-based flex data from load tests on bridge components to qualitative survey responses. Other data may be generated from models and simulations. In some cases, secondary data may be used from previous projects conducted by MPC or other researchers. Additionally, secondary data may be provided by collaborating organizations such as state departments of transportation, state and local law enforcement agencies, and state and local road agencies.

A proposed outline of the standards and machine-readable formats that will be used for the entire scope of research activities.

Because of the breadth of research conducted by MPC researchers, the kinds of research data will be also be broad and variable. As much as possible, MPC research data will be maintained in non-proprietary form in a machine readable format such as CSV, JSON, XML, etc. Researchers using proprietary data formats must provide a rationale for doing so. Metadata will be provided with primary data in order to provide context and increase usability. Researchers will indicate what tools or software is required to read or view the data. They will also describe their quality control measures.

A description of any data access policies that govern (and prevent) the disclosure of identities, confidential business information, national security information, etc., and whether public use files may be generated from the data.

Researchers must comply with their university's policies for providing informed consent statements to participants and for protecting the privacy and confidentiality of research subjects. If researchers are not able to identify the data in a manner that protects privacy and confidentiality while maintaining the utility of the dataset, they will identify necessary restrictions on access in use. If an individual research project includes human subject research, researchers will be required to obtain approval and follow guidelines established by their university's Institutional Review Board.

In most cases, primary data will be available as soon as research is published. Release of data may be embargoed to protect information related to proprietary information provided by private party cooperators or for copyright or patent protection. PIs will comply with their university's requirements for protecting the privacy of research subjects. If possible, identifying information will be removed from datasets to allow anonymity of subjects involved in research.

Where secondary information is used, data may be subject to legal and policy restrictions imposed on those providing the data.

A general discussion of policies for re-use and re-distribution of research data

- Access to data will be by email request to the PI or the host university's data manager.
- Email responses to requests will include instructions on how to access and download data.
- Intellectual property rights will be held by the PI's university.
- Access to data will require proper citations when publishing.
- Data should not be re-released by third parties.

A high level description of how, when and where the Center plans to archive, preserve, and deposit the research data.

Primary data will be preserved and archived at an approved site of the USDOT such as on CERN, <https://cds.cern.ch/>. When submitting a final report, researchers will have 60 days to archive their data. Researchers will be responsible for maintaining data until it is uploaded. Before uploading to the archive, researchers will implement redundant data storage strategies to ensure the security and integrity of their data.

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