



**Innovative Bridge Technologies/Accelerated Bridge
Construction University Transportation Center
(IBT/ABC-UTC)
Tier 1 University Transportation Center**

Data Management Plan

Center Director:

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Lead Institution and Grant Identification:

Florida International University
UTC Grant Period: 06/01/2023-05/31/2024
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Partner Institutions:

University of Oklahoma
University of Nevada, Reno
University of Washington
Florida A&M University
University of Georgia
Texas A&M University

Overview/Background:

The Innovative Bridge Technologies/ Accelerated Bridge Construction University Transportation Center (IBT/ABC-UTC) is a Tier 1 University Transportation Center (UTC) funded by the Bipartisan Infrastructure Law (BIL). IBT/ABC-UTC focuses on the U.S. Department of Transportation's statutory research priority area of "Improving Durability and Extending the Life of Transportation Infrastructure".

The Accelerated Bridge Construction University Transportation Center (ABC-UTC) was established under the 2013 UTC competition, and re-selected in the 2016 competition. From 2013 to 2022, the ABC-UTC became the ABC centralizing organization for bridge professionals in the United States. Working in close collaboration with the AASHTO Committee on Bridges and Structures (COBS), FHWA, state DOTs and other bridge professionals, ABC was made a viable and valuable option to minimize traffic impacts and improve safety as the nation's aging bridge inventory is upgraded. The scope of ABC-UTC activities was expanded during the 2022 competition cycle.

As a result, the newly established Innovative Bridge Technologies/ Accelerated Bridge Construction University Transportation Center (IBT/ABC-UTC) will address the needs of all bridges and construction types.

The objectives of the IBT/ABC-UTC can be divided into seven areas:

1. Develop the next generation of innovative bridge technologies.
2. Continue to implement the ABC technologies developed by the ABC-UTC from 2013 to 2022 and by others.
3. Develop advanced technologies to address pressing challenges related to existing bridges.
4. Develop and implement innovative purpose-driven, transformative bridge engineering technologies and solutions that are resilient and socially equitable, thereby making U.S. bridge owners and industries globally competitive.
5. Effectively transfer the developed knowledge to the profession.
6. Train and develop a next-generation workforce that can implement the next generation of IBT and ABC and address the pressing challenges related to existing bridges.
7. Provide leadership in making contributions to solving national transportation issues.

These efforts will provide transformative technologies within bridge engineering practice that are resilient, socially equitable, and environmentally friendly; they will deliver bridges that can continue providing functionality without major maintenance for decades to come.

This Program-Level Data Management Plan (DMP) generally describes how IBT/ABC-UTC's researchers will handle digital data both during and after a research project is completed. As per USDOT guidelines for public data access, PIs for each research project will be responsible for submitting a Project-Specific DMP and will have overall responsibility for tracking and managing progress and adherence. PIs can use this Program-Level DMP to reference or quote

when developing their Project-Specific DMP. The PIs are required to create the DMP covering these key areas:

- The final research data to be produced in the course of the project;
- The standards to be used for data and metadata format and content;
- Policies for access and sharing the final research data, including provisions for appropriate protection of privacy, confidentiality, security, intellectual property, and other rights or requirements;
- Policies and provisions for re-use, re-distribution, and the production of derivatives; and
- Plans for archiving final research data and other research products, and for preservation of access to them
- Change log

Project DMPs are living knowledge management tools that need to be reviewed and updated regularly and each time there is a significant change in the research project, the data collected, or in project personnel. Updated DMPs will be presented to USDOT for review. DMPs should be made accessible and easy to read, using sans-serif fonts with minimum size 12 pt. font. Emphasis should be made by using **bold** type, not italic.

1. Training

At the start of the funding period the PIs, senior personnel, technician, and students on the project will convene a dedicated data management meeting. At this time the PIs will set out naming, processing and storage conventions for all data collected at the experimental and observational sites, as well as conduct training in annotating datasets with necessary metadata. All participants will be trained in data management best practices (e.g. Borer et al. 2009). This training will be reiterated at a yearly data management and analysis meeting, to remind participants of the conventions and train any new participants.

2. Data Description

The data created by this project will be in the form of simulation results, performance models, and experimental measurements relating to the Accelerated Bridge Construction. The data will be captured in Excel Spreadsheets and comma delimited raw text files. Data originally recorded on physical paper datasheets will be transferred into spreadsheets using non-proprietary software (e.g. open office platforms stored as ASCII files, .txt or .csv formats).

3. Data and Metadata Standards

Microsoft Excel will be used for data storage. Excel is the easiest program for keeping track of this kind of data. Also, there are open source equivalents and data can be easily exported to these for sharing. The metadata is mainly in the form of column heading and explanatory text. These will be created by scripts and hand annotations.

4. Policies for access and sharing and provisions for appropriate protection/privacy

The data will be made public subject to the applicable law and policy; resource constraints; U.S. national, homeland and economic security and those imposed by data quality and the need to protect individual privacy, and confidentiality. No additional resources are needed to run this website. The data will be updated twice a year. There will be no charge for accessing this data. The right to use the data will be retained by the researchers and IBT/ABC-UTC before opening it up to wider use. Once the project report is published the corresponding data will be released. Although extremely rare, in the case that a report is not published at end of project cycle or a project is modified or eliminated but some data was collected, the data would still be shared with industry through either a video, webinar, training-module, handbook or through sharing data with other universities or research institutions.

5. Policies and provisions for re-use, re-distribution

There will be no permission restriction placed on the data. Other computer architects are the most likely consumers of this data. The intended or foreseeable uses / users of the data would be those seeking to improve the efficiency and performance of supercomputers. And there are no reasons not to share or re-use data.

6. Plans for archiving and Preservation of access

Plans have been made for archiving data for preservation and access. The data will initially be stored within the UTC institutions. In addition, to ensure longterm curation and preservation, data resulting from UTC research will also be deposited to: <https://dataverse.fiu.edu/>.

References

Borer, E. T., Seabloom, E. W., Jones, M. B., & Schildhauer, M. (2009). Some simple guidelines for effective data management. *Bulletin of the Ecological Society of America*, 90(2), 205-214.

United States. Department of Transportation. (2022). *Creating Data Management Plans for Extramural Research*. <https://doi.org/10.21949/1520571>

Changelog

Version	Date	Description
1.0	December 01 2023	Original Draft
2.0	February 01 2024	Revised based on “Successful Tips” document provided by

		OST-R
3.0	February 20 2024	Address comments in NTL's feedback sent via email February 01 2024