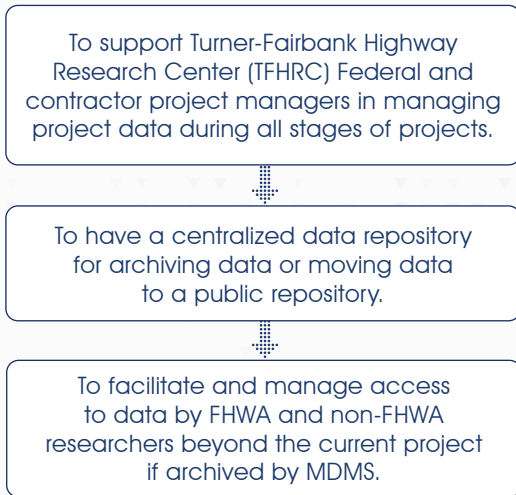## MULTIDISCIPLINARY DATA MANAGEMENT SUPPORT

The Multidisciplinary Data Management Support (MDMS) project supports Federal Highway Administration (FHWA) Federal and contract project managers in managing their data and current FHWA-sponsored projects and in archiving project data for future use.

The purposes of the MDMS project are the following:

To support Turner-Fairbank Highway Research Center (TFHRC) Federal and contractor project managers in managing project data during all stages of projects.

To have a centralized data repository for archiving data or moving data to a public repository.

To facilitate and manage access to data by FHWA and non-FHWA researchers beyond the current project if archived by MDMS.

REFERENCE

National Institute of Standards and Technology. 2020. *Security and Privacy Controls for Information Systems and Organizations, 2020-12-10 revision*. Gaithersburg, MD: National Institute of Standards and Technology. https://doi.org/10.6028/NIST.SP.800-53r5, last accessed March 6, 2024.

ABOUT TFHRC

TFHRC has many laboratories for research in different areas: safety; infrastructure and operations, including intelligent transportation system (ITS); materials technology; pavements; structures; and human-centered systems. The expertise of TFHRC scientists and engineers covers more than 20 transportation-related fields. TFHRC's laboratories are vital resources for advancing the body of knowledge created and nurtured by TFHRC researchers.

FHWA's Office of Research, Development, and Technology operates and manages TFHRC for conducting innovative research that yields solutions to transportation problems both nationwide and internationally.

TFHRC is located at:
6300 Georgetown Pike
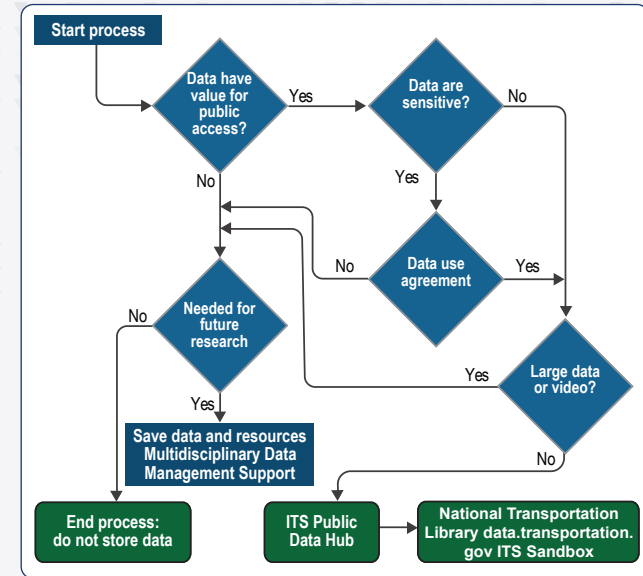McLean, VA 22101-2296

Turner-Fairbank
Highway Research Center

Source: FHWA.

U.S. Department of Transportation
Federal Highway Administration

Multidisciplinary Data Management Support

101 OVERVIEW

Source: FHWA.
ITS = intelligent transportation system.

Archive your data easily and efficiently for either public or restricted access

Turner-Fairbank
Highway Research Center

U.S. Department of Transportation
Federal Highway Administration

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WHAT KINDS OF DATA RESIDE IN MDMS?

The MDMS project may provide long-term storage of critical data in rare cases in which no repository is available that meets project requirements or when project requirements do not include storage of data in a public repository.

Research projects may deal with data from the data collection stage to the data manipulation, reduction, and analysis stages. Then the sharing of data begins with archiving the data. Depending on the research project, the generated or collected data may include foundational primary data (e.g., geometric data, traffic flow data, video data, and connected-vehicle data) or derived data (e.g., traveler information data, traffic operations analysis data, and safety analysis data). The MDMS project stores numerous data types such as PDF (portable document format), txt (text), csv (comma separated values), and JSON (JavaScript© Object Notation).

WHERE IS MDMS, AND HOW DO I DECIDE WHERE TO STORE DATA?

Initially, the MDMS project uses the local storage unit secured by TFHRC's information technology system. A cloud repository is in development under the MDMS program and will store all current and future project data. The MDMS support team will manage, grant access to, and support the cloud environment.

Using the decision process, the project manager must first determine whether the data are valuable to the public, whether the data are sensitive by their containing personally identifiable information, whether a data use agreement is required, and, last, whether the dataset is large.

Resources are in development to assist FHWA staff with managing data and determining what data may be appropriate to save, where those data could be archived, and who may be allowed to access and use the data and resources. The resources are:

- Detailed criteria on which data to save and for how long, as well as procedures regarding how to archive and access data stored in the MDMS project.

- A project checklist to assist in identification of the data's lifecycle throughout the duration of the research project.

- Scope-of-work requirements and issues to consider during procurement of documents for research projects involving the collection, storage, and availability of data.

- Guidelines and templates for the development of data management documents such as a data management plan.

WHAT HAPPENS TO DATA?

Once project data have been stored in the MDMS cloud repository, a tracking utility provides status updates on activity. The MDMS support team will work with project managers to either transfer managers' data to a public repository or keep the dataset in the MDMS cloud repository. MDMS provides security as well as access to data stored in the MDMS cloud repository.

ARE THE DATA SECURE?

The MDMS project follows the National Institute of Standards and Technology (NIST) Special Publications (SP) 800-53 guidelines. The guidelines list certain controls that support the development of secure and resilient Federal information systems. A disaster and recovery plan has been developed to recover all vital information. A system security plan focuses on protecting the confidentiality of Controlled Unclassified Information (CUI) in non-Federal systems and organizations by using security control baselines published in SP 800-53 based on CUI regulation.

Project managers whose data are stored in the MDMS repository are responsible for determining whether their data will be accessible to users external to FHWA. Based on those decisions, the MDMS project will grant access to authorized parties, track uses of the data, and share that information with project managers. Users will be encouraged to share any further development of the data with the MDMS project, project managers, and other users interested in the same data.