

Plan Overview

A Data Management Plan created using DMPTool

DMP ID: <https://doi.org/10.48321/D1ZH16>

Title: Replacement of Cushions in Energy Absorbing Seats – Use of Modeling to Better Understand Test Variability

Creator: David Moorcroft - **ORCID:** [0000-0002-9709-1150](https://orcid.org/0000-0002-9709-1150)

Affiliation: United States Department of Transportation (DOT) ([transportation.gov](https://www.transportation.gov))

Funder: Federal Aviation Administration ([faa.gov](https://www.faa.gov))

Template: Federal Aviation Administration (FAA) Data Management Plan (DMP) Template v1.1

Project abstract:

Aircraft seat cushions play a crucial role in the protection of occupants during crash landings. Testing has shown that only changing the material composition of the cushion can change the risk of injury to the occupant from less than 5% to greater than 50%. Dynamic testing of aircraft cushions shows significant variability that makes evaluation of replacement cushions risky. This project will use a physics based numerical model of a seat system to evaluate the effect of the variation seen in physical testing of the cushions.

Start date: 08-17-2022

End date: 08-31-2023

Last modified: 05-12-2023

Copyright information:

The above plan creator(s) have agreed that others may use as much of the text of this plan as they

would like in their own plans, and customize it as necessary. You do not need to credit the creator(s) as the source of the language used, but using any of the plan's text does not imply that the creator(s) endorse, or have any relationship to, your project or proposal

Replacement of Cushions in Energy Absorbing Seats – Use of Modeling to Better Understand Test Variability

Persistent Link

Include the persistent identifier (PID) that is associated with the dataset.

Question not answered.

Recommended Citation

The recommended data citation to be used when citing the dataset.

Question not answered.

Change Log

Document the changes that are made to the DMP, any and all changes should be noted to ensure a more complete documentation.

Question not answered.

Table of Contents

Optional table of contents included here, in order to better organize the DMP.

Question not answered.

0. Dataset and Contact Information

Please provide the following information:

- **Name of the dataset or project for which data is being collected.**
- **Name of the FAA Line-Of-Business/Office for which the associated dataset is being generated.**
- **Email for the FAA Line-Of-Business/Office (key field).**
- **If applicable and as reference, project number, contract number, or other number used**

to link this DMP.

0. Dataset and Contact Information:

Name of Project: Replacement of Cushions in Energy Absorbing Seats – Use of Modeling to Better Understand Test Variability

Project Number: 12.4

PI: David Moorcroft - ORCID #0000-0002-9709-1150

Contact Information: 6500 S. MacArthur Blvd, AAM-632, Oklahoma City, OK 73169,
ian.t.hellstrom@faa.gov, 405-954-5767

U.S. Department of Transportation, Federal Aviation Administration, Civil Aerospace Medical Institute,

URL:https://www.faa.gov/about/office_org/headquarters_offices/avs/offices/aam/cami/

Initial DMP: 4/26/2023

1. Data Description

Name the data, data collection project, or data producing program. Provide high level narrative.

This data set includes physics based modeling data and component test results for cushions used in energy absorbing seats.

Describe the purpose of your research and whether results will be documented in a published document or report. How will it be used?

This project will document the impact of cushion variability on sled test results using a physics-based model. Project will be published in an Office of Aviation Medicine report

Describe the data that will be generated in terms of nature and scale (e.g., numerical data, image data, text sequences, video, audio, database, modeling data, source code, etc.).

Modeling data is generated by a physics-based model built in Madymo. Includes numerical data and animations. Component data is from a high-rate load frame, includes numerical data and pre-test

photos.

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).

Modeling data is simulated. Component data is from sensors (load and displacement).

Describe the period of time over which the data will be collected and frequency at which it will be updated.

Modeling data generated in 2023. Component data generated in 2018.

If using existing data, describe the relationship between the data you are collecting and existing data.

N/A

Describe potential users of the data and the expected manner in which they may use it.

Seat designers may use the data to better understand the effect of foam properties on the dynamic performance of the aircraft seats.

Discuss the potential value of having the data available not only to your institution but also for the public, e.g., might be renewed interest and value in reanalyzing the data with updated and more universally comparable metrics or recently developed analytical methods.

Data from this project could be used to simplify the replacement of cushions on aircraft.

State clearly if data can be shared publicly or not. If you request permission not to make data publicly accessible, explain rationale for lack of public access.

Data will be made publicly available.

Indicate the party responsible for managing the data.

Unless otherwise noted, refer to "Section 0: Dataset and Contact Information", the FAA line-of-business (LOB) is identified, which is responsible for generating the data, and is also responsible for managing the data initially, and by default long-term, the FAA's Enterprise Information

Management (EIM) will manage and catalog the data. Refer to the [FAA Data Governance Center](#), this is landing page and access point to EIM uploaded datasets.

Describe how you will check for adherence to this data management plan.

Unless otherwise noted, refer to "Section 0: Dataset and Contact Information," the FAA line-of-business (LOB) is identified, which is responsible for generating the data, and is also responsible for managing the internal project management processes to ensure adherence to the published data management plan (DMP). Details of the particular FAA LOB's DMP adherence processes can be provided on-demand. Typical processes require management review and sign-off at project start and close-out.

2. Standards Employed

List in what format(s) the data will be collected. Indicate if they are open or proprietary.

2. Standards Employed:

Unless otherwise noted, this FAA research project has descriptive project data posted in <https://rip.trb.org/> at project launch and while under development and <https://researchhub.bts.gov/> database beyond. These databases have published standards. The project's metadata will be posted in [Catalog.Data.Faa.Gov](#). This catalog follows the DCAT-US Schema v1.1 (Project Open Data Metadata Schema) <https://resources.data.gov/schemas/dcat-us/v1.1/> – a set of required fields (Title, Description, Tags, Last Update, Publisher, Contact Name, etc.) for every data set displayed on [Catalog.Data.FAA.gov](#).

If you are using proprietary data formats, discuss your rationale for using those standards and formats.

No proprietary data formats will be used.

Describe how versions of data be signified and/or controlled.

Unless otherwise noted, refer to "Section 0: Dataset and Contact Information", the FAA line-of-business (LOB) is identified, which is responsible for generating the data, and is also responsible for version control initially. Once uploaded by default upon project completion and long-term, the data is managed by FAA's Enterprise Information Management (EIM), which also applies configuration control on dataset versions. Refer to the [FAA Data Governance Center](#). This is the internal FAA landing page and access point to EIM uploaded datasets and processes.

If the file format(s) you are using is(are) not standard to your field, describe how you will document the alternative you are using.

Data's file formats are standard formats.

List what documentation you will be creating in order to make the data understandable by other researchers.

Unless otherwise noted, this project's metadata will describe the data and formats and by default should be understandable by other researchers and on the FAA's Enterprise Information Management (EIM), which requires application of published standards like DCAT-US Schema v1.1 (Project Open Data Metadata Schema) <https://resources.data.gov/schemas/dcat-us/v1.1/> – a set of required fields (Title, Description, Tags, Last Update, Publisher, Contact Name, etc.). Most data sets use open standard and common formats (e.g., CSV, XML, JSON) and if not, described in this DMP.

Indicate what metadata schema you are using to describe the data. If the metadata schema is not one standard for your field, discuss your rationale for using that scheme.

This project's metadata and associated data schema is posted with its data on the FAA's Enterprise Information Management (EIM), which requires application of published standards like DCAT-US Schema v1.1 (Project Open Data Metadata Schema) <https://resources.data.gov/schemas/dcat-us/v1.1/> – a set of required fields (Title, Description, Tags, Last Update, Publisher, Contact Name, etc.).

Describe how will the metadata be managed and stored.

Unless otherwise noted, refer to "Section 0: Dataset and Contact Information", the FAA line-of-business (LOB) is identified, which is responsible for generating the data, and is also responsible for generating the metadata. Once uploaded by default upon project completion and long-term, the data and its associated metadata is managed by FAA's Enterprise Information Management (EIM). Refer to the [FAA Data Governance Center](#). This is the internal FAA landing page and access point to EIM uploaded datasets and processes.

Indicate what tools or software is required to read or view the data.

Unless otherwise noted, open data formats are used as much as possible. If not possible, the researcher shall list proprietary data formats and associated tools and software required to read/view the data here. Citations to the required tools and software would be included.

Describe your quality control measures.

Refer to "Section 0: Dataset and Contact Information", the FAA line-of-business (LOB) identified is responsible for managing quality control standards in the data generation and initial creation of the associated metadata. Once uploaded by default upon project completion and long-term, the data and its associated metadata is managed by FAA's Enterprise Information Management (EIM). Refer to the [FAA Data Governance Center](#). This is the internal FAA landing page and access point to EIM uploaded datasets and processes. Thus, all data uploaded to the EIM platform follows the quality control measures set forth in managing FAA datasets, where EIM states "FAA Data Stewards publish data thru the FAA Data Governance Center hosted and managed by the FAA Chief Data Office. Here the metadata is curated and validated for quality and accuracy. The FAA Data Steward enters metadata and verifies quality and accuracy before publishing to data.faa.gov."

3. Access Policies

Describe what data will be publicly shared, how data files will be shared, and how others will access them.

Consistent with the previous two sections, "Section 1. Data Description" and "Section 2. Standards Employed," the default long term storage and access location for the data documented in this DMP is the FAA's Enterprise Information Management (EIM). Refer to the [FAA Data Governance Center](#), which is the internal FAA landing page and access point to EIM uploaded datasets and processes.

Indicate whether the data contain private or confidential information. If so:

- **Discuss how will you guard against disclosure of identities and/or confidential business information.**
- **List what processes you will follow to provide informed consent to participants.**
- **State the party responsible for protecting the data.**

Data does not contain private or confidential information.

If applicable, describe how you will deidentify your data before sharing. If not:

- **Identify what restrictions on access and use you will place on the data.**
- **Discuss additional steps, if any you will use to protect privacy and confidentiality.**

Not applicable.

4. Re-Use, Redistribution, and Derivative Products Policies

Name who has the right to manage the data.

Unless otherwise noted, the data described in this DMP is generated and managed by the Federal Aviation Administration. The data are in the public domain, and may be re-used without restriction.

Indicate who holds the intellectual property rights to the data.

Unless otherwise noted (e.g., data is partially proprietary by an external entity, where intellectual property is shared), this data is required to be made available in open, machine-readable formats, while continuing to ensure privacy and security in accordance with the OPEN Government Data Act, which is Title II of the Foundations for Evidence-Based Policymaking Act.

List any copyrights to the data. If so, indicate who owns them.

Unless otherwise noted, there is no shared copyrights on the data described in this DMP.

Discuss any rights that are transferred to a data archive.

There are no rights transferred to the permanent archive or repository to accompany this dataset described in this DMP.

Describe how your data will be licensed for reuse, redistribution, and derivative products.

Unless otherwise noted, there is not a need for the data in this DMP to be licensed for reuse, redistribution, and/or its derivative products.

5. Archiving and Preservation Plans

Discuss how you intend to archive your data and where (include URL).

Unless otherwise noted, the data described in this DMP will be uploaded to the FAA's Enterprise Information Management (EIM) through the [FAA Data Governance Center](#). This is the internal FAA landing page and access point to EIM uploaded datasets and processes. Here the metadata is curated and validated for quality and accuracy. The FAA Data Steward enters metadata and verifies quality and accuracy before publishing to data.faa.gov, which is the FAA's clearinghouse site for publicly available FAA data and managed and hosted by the FAA's, IT Shared Services organization - Chief Data Office, see <https://catalog.data.faa.gov/about> for more information.

Indicate the approximate time period between data collection and submission to the archive.

The data is expected to be submitted to the archive within six (6) months of publication of the final report.

Identify where data will be stored prior to being sent to an archive.

Unless otherwise noted, the permanent archive of the data described in this DMP shall be uploaded, stored, and managed permanently by the FAA's Enterprise Information Management (EIM) platform. However, until the upload upon completion of the project or at a convenient time before, the data will reside locally by the researcher. Refer to "Section 0: Dataset and Contact Information", the FAA line-of-business (LOB) is identified, which is responsible for generating the data, and is also responsible for managing the data initially.

Describe how back-up, disaster recovery, off-site data storage, and other redundant storage strategies will be used to ensure the data's security and integrity, initially and for the long-term.

Unless otherwise noted, the data described in this DMP shall be uploaded, stored, and managed permanently by the FAA's Enterprise Information Management (EIM) platform. This platform is managed and hosted by the FAA's, IT Shared Services organization - Chief Data Office and all back-up, disaster recovery, off-site data storage, and other redundant storage strategies are managed internally by this office and adhering to all FAA mission support policies. For more information and details on these processes, see [FAA EIM Platform](#) or contact the FAA line-of-business (LOB) that is identified in "Section 0: Dataset and Contact Information," which is responsible for generating the data.

Describe how data will be protected from accidental or malicious modification or deletion prior to receipt by the archive.

Unless otherwise noted, the data described in this DMP will initially (prior to receipt into the FAA's Enterprise Information Management (EIM) platform) be generated and managed by the FAA line-of-business (LOB), identified in "Section 0: Dataset and Contact Information." The FAA LOB will maintain (3) copies of the data within protected and monitored FAA government servers, facilities, and cloud platforms.

Indicate how long the chosen archive will retain the data.

Unless otherwise noted, the long term storage of the data described in this DMP will persist

indefinitely in the FAA's Enterprise Information Management (EIM) platform following standard government policies and best practices.

Indicate if the chosen archive employs, or allows for the recording of, persistent identifiers linked to the data.

Unless otherwise noted for the FAA researchers in this DMP, the persistent identifiers can only be linked to the Catalog.Data.faa.gov, which provides access to metadata. Access to the research data itself currently requires secure access, including a secure government credentialed sign-on, referred to as MyAccess. This is a role based security profile and intrusion detection monitoring policy to maintain a secure boundary for the EIM Platform that hosts the data.

Discuss how your chosen data repository meets the criteria outlined on the [Guidelines for Evaluating Repositories for Conformance with the DOT Public Access Plan](#) page.

Unless otherwise noted, the data described in this DMP shall be uploaded, stored, and managed permanently by the FAA's Enterprise Information Management (EIM) platform. The EIM Platform is an FAA-developed, cloud-based, big data platform that consists of two key items: (1) "Data Mall" – this is a large repository for FAA data. It is organized and catalogued for easy access, but safeguarded to preserve its integrity and protect data from unauthorized access. And (2) an "App Mall" – this is a collection of curated technologies and tools to enable FAA personnel to transform data into information. For more information, see [FAA EIM Platform](#). The platform's DATA.FAA.GOV is the FAA's clearinghouse site for publicly available FAA data and managed and hosted by the FAA's, IT Shared Services organization - Chief Data Office. It is public gateway to the Enterprise Information Management (EIM) platform that is dedicated to managing data and information to improve efficiency, reduce costs, promote transparency, and enable business insight across the FAA. Thus, this FAA repository meets all the criteria outlined in the DOT Public Access Plan above.

6. Policies Affecting this Data Management Plan

Include policies that the data management plan was created to meet, such as the DOT public access plan.

This data management plan was created to meet the requirements enumerated in the U.S. Department of Transportation's "Plan to Increase Public Access to the Results of Federally-Funded Scientific Research" Version 1.1 << <https://doi.org/10.21949/1520559> >> and guidelines suggested by the DOT Public Access website << <https://doi.org/10.21949/1503647> >>, in effect and current as of Month(Write out) Day(XX), Year(XXXX).

Planned Research Outputs

Data paper - "TBD"

A final report documenting the methods and results will be published.

Dataset - "TBD dataset"

Data will be uploaded to a public database.

Planned research output details

Title	Type	Anticipated release date	Initial access level	Intended repository(ies)	Anticipated file size	License	Metadata standard(s)	May contain sensitive data?	May contain PII?
TBD	Data paper	Unspecified	Open	ROSA P		None specified	None specified	No	No
TBD dataset	Dataset	Unspecified	Open	None specified		None specified	None specified	No	No