

June 2019



**Special TLR:**  
***U.S. DOT Public Access and Data Management Review***

Leighton Christiansen & Charles Ducker

<https://transportation.libguides.com/TLR>



# U.S. DOT Public Access and Data Management Review

Leighton L Christiansen <https://orcid.org/0000-0002-0543-4268>

Data Curator, National Transportation Library

[leighton.christiansen@dot.gov](mailto:leighton.christiansen@dot.gov)

Charles Ducker, Jr. <https://orcid.org/0000-0002-7535-5258>

Sr. Intellectual Property Counsel, Office of General Counsel

[charles.ducker@dot.gov](mailto:charles.ducker@dot.gov)

Persistent link to this webinar:

<https://doi.org/10.21949/1503909>



# Topics to Cover

- Opening U.S. Government-Funded Research Data
- U.S. DOT Public Access Review
- Submitting Final Reports and Final Datasets
- Benefits of Data Management
- Writing Data Management Plans
- Implementing Data Management Plans



# **Opening U.S. Government-Funded Research Data**

# Opening U.S. Government-Funded Research Data

**DATA.GOV** DATA TOPICS IMPACT APPLICATIONS DEVELOPERS CONTACT

The home of the U.S. Government's open data

Here you will find data, tools, and resources to conduct research, develop web and mobile applications, design data visualizations, and [more](#).

SEARCH OVER

Monthly House Price Indexes

BROWSE TOPICS

- Agriculture
- Climate
- Consumer
- Health
- Local Government
- Manufacturing

**Transportation.gov**  
U.S. Department of Transportation

Home Catalog User Guide Developer

Data.Transportation.gov

Welcome to Data.Transportation.gov, the U.S. Department of Transportation's public data portal

- Railroads
- Roadways & Bridges
- Pipelines & HAZMAT
- Trucking & Motor Carriers
- Aviation
- Public Transit
- Automobiles
- Maritime & Waterways
- Research & Statistics
- Bicycles & Pedestrians

115TH CONGRESS  
1ST SESSION

## H. R. 4174

IN THE SENATE

115TH CONGRESS  
1ST SESSION

## S. 760

[Report No. 115-134]

To expand the Government's use and administration of data to facilitate transparency, effective management, and innovation, and for other purposes.

**SECTION 1. SHORT TITLE.**

This Act may be cited as the "Open, Public, Electronic, and Necessary Government Data Act" or the "OPEN Government Data Act".

H. R. 4174

One Hundred fifteenth Congress  
of the  
United States of America

AT THE SECOND SESSION  
*Began and held at the City of Washington on Wednesday,  
the third day of January, two thousand and eighteen*

An Act

To amend titles 5 and 44, United States Code, to require Federal evaluation activities, improve Federal data management, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

**SECTION 1. SHORT TITLE; TABLE OF CONTENTS.**

(a) SHORT TITLE.—This Act may be cited as the "Foundations for Evidence-Based Policymaking Act of 2018".



# **U.S. DOT Public Access Review**

# U.S. DOT Public Access Plan Guidance Website



The screenshot shows the website interface for the U.S. DOT Public Access Plan. At the top, it identifies the United States Department of Transportation and the Bureau of Transportation Statistics. The main heading is the National Transportation Library, with navigation links for About NTL, Networks, Policies, and Public. A left-hand navigation menu lists various topics, with 'Public Access' and 'Plan' highlighted. The main content area features the title 'DOT Public Access' and a detailed paragraph explaining the plan's origin and purpose. A section titled 'Overview of the Research Process and Public Access' is partially visible at the bottom.

United States Department of Transportation  
Bureau of Transportation Statistics  
National Transportation Library  
About NTL Networks Policies Public

Public Access  
Plan > DOT Public Access  
Info. For Researchers ▾ The USDOT Public Access Plan is issued in response to the February 22, 2013 Office of Science and Technology Policy (OSTP) Memorandum for the Heads of Executive Departments and Agencies entitled "Increasing Access to the Results of Federally Funded Scientific Research". Through this memorandum, OSTP directed all Executive Departments with greater than \$100 million in yearly research and development expenditures to prepare a plan for improving the public's access to the results of federally funded research.  
How To Comply  
Creating a Data Management Plan  
Evaluating Repositories for Conformance  
Managing Rights  
Request An Embargo  
Info. for USDOT Evaluators  
Info. For Repositories  
FAQs  
Training Resources

This plan establishes objectives to ensure public access to Publications and Digital Data Sets arising from DOT-managed research and development (R&D) programs. DOT already provides access to intramural and extramural research in progress and technical reports, as well as many final publications through partnerships with organizations such as the Transportation Research Board (TRB). Many DOT R&D programs are already making data sharing a priority. DOT's intramural research programs have a long history of making data available to the Public. On an incremental basis, DOT's extramural research programs are taking steps to increase data sharing. The purpose of this plan is to scale and institutionalize those intramural and extramural R&D access practices across the Department.

**Overview of the Research Process and Public Access**

<http://ntl.bts.gov/publicaccess/>

# U.S. DOT Public Access Policy

## Plan to Increase Public Access to the Results of Federally-Funded Scientific Research (2015-12-15)

<https://www.transportation.gov/mission/open/official-dot-public-access-plan-v11>

### Plan to Increase Public Access to the Results of Federally-Funded Scientific Research Results

Version 1.1



December 16, 2015

U.S. Department of Transportation

- **Affirm and enhance DOT's commitment to Public Access to Scientific Research results, including digitally formatted scientific data without charge to the maximum extent possible.**
- Support governance of and best practices for managing Public Access to peer-reviewed Publications and Digital Data Sets across DOT.
- **Ensure continuous access to and reliable preservation of DOT-funded Publications and Digital Data Sets for research, development and education purposes, within available resources.**
- Preserve and increase the use of Scientific Research results to enhance scientific discovery and deployment of research results.
- Enhance the use of Scientific Research results to promote innovation and economic competitiveness.
- Affirm DOT's support for the reproducibility of Scientific Research results.
- Make DOT's research portfolio available to the public at the project level.



# U.S. DOT Public Access Policy from 30,000 feet

## Plan to Increase Public Access to the Results of Federally-Funded Scientific Research Results

Version 1.1



December 16, 2015

U.S. Department of Transportation

- DOT-Funded Scientific Research
  - Not goods, services, or construction
- Three Components
  - Publications
  - Digital Datasets
  - Research Project Record
- Links to Final Digital Datasets
- Data Management Plan (DMP)
  - Explain case for long-term preservation and sharing; **OR**,
  - Justify case against long-term preservation and sharing
- Include preservation costs in proposals

# Repository Characteristics Review

The screenshot shows the website for the United States Department of Transportation, Bureau of Transportation Statistics, National Transportation Library. The page title is "Guidelines for Evaluating Repositories for Conformance with the DOT Public Access Plan". The page content includes a list of 10 characteristics for evaluating data repositories. A sidebar on the left contains navigation links such as "Public Access", "Plan", "Info. For Researchers", "How To Comply", "Creating a Data Management Plan", "Evaluating Repositories for Conformance", "Managing Rights", "Request An Embargo", "Info. for USDOT Evaluators", "Info. For Repositories", "FAQs", and "Training Resources". A "Share" section on the right includes social media icons for Facebook, Twitter, Google+, and a plus sign for more options.

United States Department of Transportation  
Bureau of Transportation Statistics  
National Transportation Library

Search BTS site GO

About NTL Networks Policies Public Access Research Tools

Public Access  
Plan  
Info. For Researchers  
How To Comply  
Creating a Data Management Plan  
Evaluating Repositories for Conformance  
Managing Rights  
Request An Embargo  
Info. for USDOT Evaluators  
Info. For Repositories  
FAQs  
Training Resources

## Guidelines for Evaluating Repositories for Conformance with the DOT Public Access Plan

Researchers evaluating data repositories as the option(s) for storing and preserving their data should examine evidence demonstrating that the repository:

1. Promotes an explicit mission of digital data archiving;
2. Ensures compliance with legal regulations, and maintains all applicable licenses covering data access and use, including, if applicable, mechanisms to protect privacy rights and maintain the confidentiality of respondents;
3. Has a documented plan for long-term preservation of its holdings;
4. Applies documented processes and procedures in managing data storage;
5. Performs archiving according to explicit work flows across the data life cycle;
6. Enables the users to discover and use the data, and refer to them in a persistent way through proper citation;
7. Enables reuse of data, ensuring appropriate formats and application of metadata;
8. Ensures the integrity and authenticity of the data;
9. Is adequately funded and staffed, and has a system of governance in place to support its mission; and
10. Possesses a technical infrastructure that explicitly supports the tasks

Share  
f t G +

1. Explicit mission of digital data archiving
2. Protect privacy rights and maintain the confidentiality of research subjects
3. Enables the users to discover and use the data, and refer to them with a persistent identifier
4. Ensures the integrity and authenticity of the data



# **Submitting Final Reports and Final Datasets**

# Submitting Final Reports and Final Datasets

<https://ntl.bts.gov/public-access/how-comply>

## 10. Send one email to Research Hub, NTL, and TRB:

- Final Report URL(s) or PDFs;
- URL(s) to final datasets and descriptive metadata;
- Funding agreement number;
- The Research Hub Display ID;
- ORCIDs (unique researcher IDs) for all author(s); and,
- Any other documented project outputs or outcomes.

### *Dataset Differences*

- Final datasets used to draw conclusions in report, NOT all raw data gathered;
- URLs to datasets, NOT electronic copies
  - Choose a conformant data repository  
<https://ntl.bts.gov/public-access/data-repositories-conformant-dot-public-access-plan>
- Dataset & documentation

# Documenting Data

## Data Package Guidelines

- **Dataset**
  - .csv or other open format
- **Readme.txt**
  - Includes Data Dictionary
  - Notes standards used
  - Defining Zero, Null, & Unknown
  - FAQs and other notes
- **Metadata file** in Project Open Data .json and/or other schema
- **Data Management Plan (DMP)**
- *Code or scripts* used in data analysis
- *Supporting files, tables, etc..*  
(**Bold** = Required; *Italics* = Optional, or Required if Applicable)

A “Data Package” is the dataset, the DMP, and all other documentation needed to contextualize the dataset for any and all users.

```
bts_american_travel_survey_1995_DATA_20190328.csv  
bts_american_travel_survey_1995_DMP_20190328.txt  
bts_american_travel_survey_1995_Metadata_20190328.json  
bts_american_travel_survey_1995_README_20190328.txt  
bts_american_travel_survey_1995_DATA_DICTIONARY_20190328.txt  
bts_american_travel_survey_1995_SUPPORTING_coded_values_20190328.csv
```

American Travel Survey (ATS) 1995

<https://doi.org/10.21949/1503648>



# **Benefits of Data Management**



# Data Management Definitions

“In the context of research and scholarship, **‘Data Management’** refers to the **storage, access and preservation** of data produced from a given investigation. Data management practices cover the **entire lifecycle of the data**, from planning the investigation to conducting it, and from backing up data as it is created and used; to long term preservation of data deliverables after the research investigation has concluded.”

- University Library, Texas A&M <http://guides.library.tamu.edu/DataManagement>

“Data management is the **compilation of many small practices that make your data** easier to find, easier to understand, less likely to be lost, and **more likely to be usable during a project or ten years later.**”

- Kristin Briney. 2015. Data management for researchers: organize, maintain and share your data for research success.



# Benefits of Managing Data

- Extend data's useful life
- Plan for software and hardware
- Plan for storage size & cost
- Save time
  - Documented file storage paths
  - Documented file naming convention and version control
  - Documented data roles
  - Data access levels
- Find data for follow-on research
- Backup and disaster recovery plan
  - 3-2-1 Strategy
- Increase funder confidence
- Improve data sharing culture

**Citation:** Vines, Timothy H., Arianne YK Albert, Rose L. Andrew, Florence Débarre, Dan G. Bock, Michelle T. Franklin, Kimberly J. Gilbert, Jean-Sébastien Moore, Sébastien Renault, and Diana J. Rennison. “The availability of research data declines rapidly with article age.” *Current biology* 24, no. 1 (2014): 94-97. <http://doi.org/10.1016/j.cub.2013.11.014>





# **Writing Data Management Plans**

# DOT DMP Resources

The screenshot shows a web browser window with the URL <https://ntl.bts.gov/public-access/creating-data-management-plans>. The page is titled "Creating Data Management Plans (DMPs)" and is part of the "National Transportation Library" website. The page content includes a navigation menu on the left, a search bar at the top right, and a main content area with the following text:

**Creating Data Management Plans (DMPs)**

A data management plan (DMP) describes how researchers will handle digital data both during and after a research project. DMPs will also describe how the research proposal conforms to DOT policy on the dissemination and sharing of research results.

Your approach to data management planning may differ based on your relationship to the U.S. DOT. Therefore, the NTL has created DMP guidelines for intramural research activities (i.e., those led by federal government employees and funded directly as a part of the U.S. Department of Transportation's budget, including salaries, laboratories, technical research centers, and other resources) and for extramural data research activities (i.e., those undertaken as the result of an award of a grant, contract or cooperative agreement to an outside institution or individual).

Based on your relationship to U.S. DOT, follow the link below for DMP guidance.

DMP Guidance for Extramural Research  
Activities: <https://ntl.bts.gov/public-access/creating-data-management-plans-extramural-research>

<https://ntl.bts.gov/public-access/creating-data-management-plans>



# DOT DMP Overview

A data management plan (DMP) describes how researchers will handle digital data both during and after a research project. DMPs will describe how the research proposal conforms to DOT policy on the dissemination and sharing of research results. Each plan should include a 2-3 page narrative description covering:

- 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.

DOT-funded research projects are expected to be conducted pursuant to the approved DMP. A DMP may evolve as the research project evolves and should be reviewed for possible revision whenever a data management procedure is changed.



# **DOT DMP Sections**

- 1. Data Description**
- 2. Standards Used**
- 3. Access Policies**
- 4. Re-Use, Redistribution, and  
Derivative Products Policies**
- 5. Archiving and Preservation Plans**



# DOT DMP Section: Data Description

## Section Description

- Provide a description of the data that you will be gathering in the course of your project.
- Address the nature, scope, and scale of the data that will be collected.
- Describe the characteristics of the data, their relationship to other data, and provide sufficient detail so that reviewers will understand any disclosure risks that may apply.
- Discuss value of the data over the long-term.

## Helpful Prompts

1. Name the data, data collection project, or data producing program.
2. Describe the purpose of the research.
3. 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.).
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. 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.
7. List potential users of the data.
8. Discuss the potential value of the data have over the long-term for not only your institution, but also for the public.
9. If you request permission not to make data publicly accessible, explain rationale for lack of public access.
10. Indicate the party responsible for managing the data.
11. Describe how you will check for adherence to this data management plan

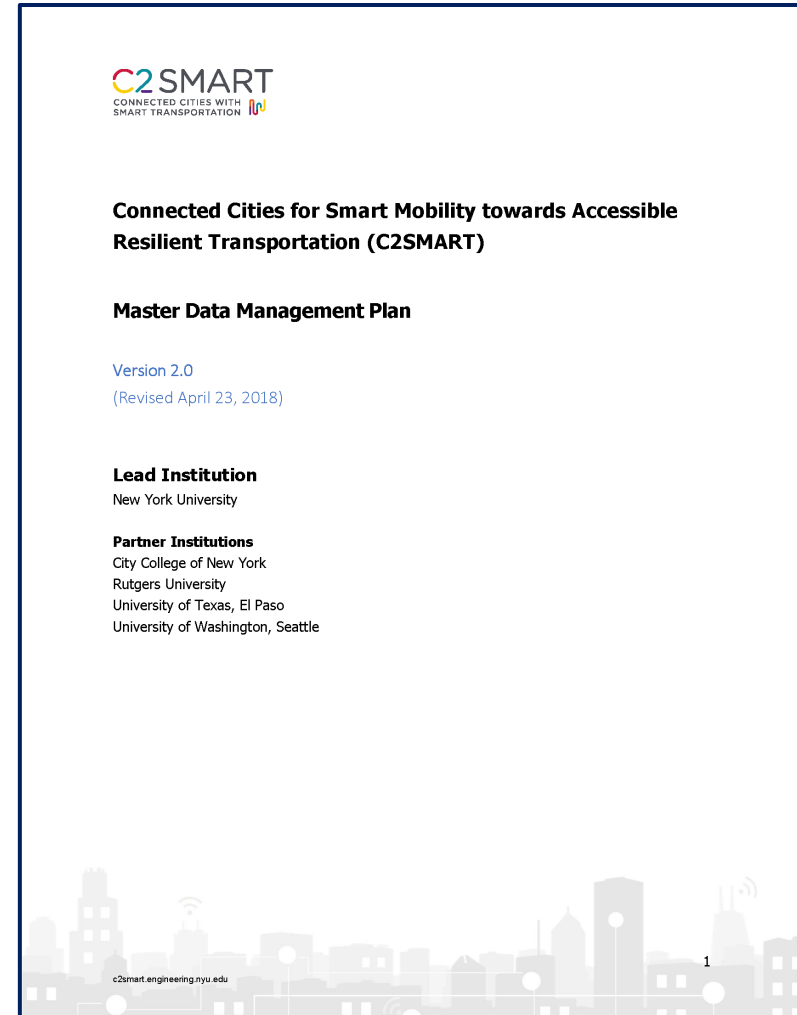
# Submitted U.S. DOT Public Access Data Management Plans

The screenshot displays the ROSAP (Repository & Open Science Access Portal) website. At the top, it identifies the United States Department of Transportation and the Bureau of Transportation Statistics. The main header is 'National Transportation Library'. Below this is a navigation menu with 'Home', 'Collections', 'Recent Additions', 'Public Access', and 'Submit Content'. A search bar is present with the text 'US DOT Public Access Data Management' and a search button. The main content area features a collection titled 'US DOT Public Access Data Management Plans' with a description: 'Content to come in early May 2018: This collection of data management plans (DMPs) includes plans written as a deliverable for U.S. DOT-funded scientific research, since January 1, 2016. This collection is mandated by the U.S. Department of Transportation "Plan to Increase Public Access to the Results of Federally-Funded Scientific Research." Users will be able to use these DMPs as examples for their own research DMP. Bookmark this collection: [https://rosap.ntl.bts.gov/collection\\_pa\\_dmp](https://rosap.ntl.bts.gov/collection_pa_dmp)'. Below this is a 'Search Results' section showing 1 - 20 of 32 results, sorted by 'Published Date(Desc.)'. A 'Narrow Results' sidebar shows 'Data Management Plan (32)'. The main result shown is 'Connected Cities for Smart Mobility towards Accessible Resilient Transportation (C2SMART) : Data Management Plan', published on 2018-04-23. The abstract states: 'This is a data management plan for the Connected Cities for Smart Mobility towards Accessible Resilient Transportation (C2SMART) University Transportation Center (UTC). This data management plan was created in compliance with the US Department of Tra...'. The file type is listed as PDF - 406.36 KB.

[https://rosap.ntl.bts.gov/collection\\_pa\\_dmp](https://rosap.ntl.bts.gov/collection_pa_dmp)

# Lessons from Submitted DMPS

- Author/Creator missing from sections
- DMPs can stand alone
  - **Solution:** Add organizational information; branding
- Single research organization; many DMPs; lots of duplicated information
  - **Solutions:** Master DMP for common responses
  - Project level DMP for project-specific info, link to Master
- DOT Narrative DMP not as detailed as needs to be for researchers
  - **Solution:** Robust project DMPs



<http://c2smart.engineering.nyu.edu/c2smartpublications/#1534358159826-cb5e9a6e-27fc>

<https://rosap.ntl.bts.gov/view/dot/36367>



# **Implementing Data Management Plans**





# Implementing DMPs

- DMPs are Living Documents
  - Quarterly reviews
  - Record changes
    - Changes in research plan are expected
  - Version Control
  - Submitted updated DMPs to DOT
- Plan to manage and share data from the beginning
  - Many small practices
  - Data more useful to you
  - Longer shelf life for data
  - Data more easily shared



# Topics Covered

- Opening U.S. Government-Funded Research Data
- U.S. DOT Public Access Review
- Submitting Final Reports and Final Datasets
- Benefits of Data Management
- Writing Data Management Plans
- Implementing Data Management Plans

**Questions or feedback? Email: [public.access@dot.gov](mailto:public.access@dot.gov)**

# Resources & Works Cited

- United States Department of Transportation. Plan to Increase Public Access to the Results of Federally-Funded Scientific Research. 2015. <https://www.transportation.gov/mission/open/official-dot-public-access-plan-v11>
- United States Department of Transportation, National Transportation Library. DOT Public Access [guidance website]. 2015. <https://ntl.bts.gov/public-access>
- United States Department of Transportation, National Transportation Library. Repository & Open Science Access Portal. 2017. <https://rosap.ntl.bts.gov>
- University Library, Texas A&M University. “Data Management Defined - Research Data Management - Guides at Texas A&M University.” Research Data Management, October 1, 2013. <http://guides.library.tamu.edu/DataManagement>
- Briney, Kristin. 2015. Data Management for Researchers: Organize, Maintain and Share your Data for Research Success.
- Vines, Timothy H., Arianne YK Albert, Rose L. Andrew, Florence Débarre, Dan G. Bock, Michelle T. Franklin, Kimberly J. Gilbert, Jean-Sébastien Moore, Sébastien Renaut, and Diana J. Rennison. “The availability of research data declines rapidly with article age.” Current biology 24, no. 1 (2014): 94-97. <http://doi.org/10.1016/j.cub.2013.11.014>
- Connected Cities for Smart Mobility towards Accessible Resilient Transportation (C2SMART). 2018. Master Data Management Plan. <http://c2smart.engineering.nyu.edu/c2smartpublications/#1534358159826-cb5e9a6e-27fc>

**Thank you for watching!**



***To provide feedback or pose questions related to this TLR, please email:  
public.access@dot.gov***

**For this and other webinars, visit the TLR Archive at:  
[https://rosap.ntl.bts.gov/collection\\_tlr](https://rosap.ntl.bts.gov/collection_tlr)**