

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

Version 1.1



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U.S. Department of Transportation

1.0 Background and Purpose

This 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.

Information is the fundamental currency of transportation research, and drives the advances in safety, state of good repair, economic competitiveness, livable communities and environmental sustainability that such research enables. Information must be accessible and shared, and research collaboration encouraged, to successfully address our constantly evolving transportation system challenges. This plan sets out a framework for enhancing the tracking of the complete research lifecycle at the project level, from project initiation to the submission of project deliverables, and on to research implementation through the deployment of research outputs and products. Having Department of Transportation (DOT) Operating Administrations and the public work together within this framework enables synergies and innovations no single Operating Administration or research program can achieve alone.

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.

This plan promotes the following objectives:

- 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.

2.0 Scope

All Operating Administrations and Secretarial offices will adhere to the following directives:

- Moving Ahead for Progress in the 21st Century Act: *National Transportation Library* (MAP-21; P.L. 112-141, July 6, 2012; 49 U.S.C. 6304).
- OSTP Memorandum: *Increasing Access to the Results of Federally Funded Scientific Research* (February 22, 2013).
- OMB Memorandum M-13-13: *Open Data Policy - Managing Information as an Asset* (May 9, 2013).

“Scientific Research,” for the purpose of this plan, will be defined as activities comprising creative work undertaken on a systemic basis in order to increase the stock of knowledge, including knowledge of man, culture and society.

“Publications,” for the purpose of this plan, will be defined as any final peer-reviewed manuscript accepted for publication, any intramural technical or final reports, and any Scientific Research project written deliverable (e.g., technical/final reports) that arises from extramural research funded, either fully or partially, by federal funds awarded through a DOT-managed contract, grant, or other agreement.

“Digital Data Sets,” for the purpose of this plan, will be defined as all scientific data collected through research projects funded, either fully or partially, by federal funds awarded through a DOT contract, grant or other agreement or collected by DOT employees. Such scientific data are the digitally recorded factual materials resulting from research that is necessary to validate research findings.

“Intramural,” for the purposes of this plan will mean research activities 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.

“Extramural,” for the purpose of this plan will mean research activities undertaken as the result of an award of a grant, contract or cooperative agreement to an outside institution or individual, partially or fully funded by the U.S. Department of Transportation.

“Public,” for the purposes of this plan will include the general public, as well as qualified researchers or other similar entities.

“Public Access” to Publications and Digital Data Sets, for the purpose of this plan, will mean:

- The Public is aware of the Digital Data Set holdings and/or the Digital Data Sets generated, fully or partially, through federally funded Scientific Research;
- The Public is able to download and analyze unclassified Publications and/or Digital Data Sets unless specifically precluded by privacy, confidentiality or National/Homeland security concerns; wherein
 - Public Access may be restricted to subsets of the Public based on the sensitivity of the Publication and/or Digital Data Set; and

- Public Access may be controlled by Institutional Review Boards or other means or terms as necessary.¹

None of the above precludes the inventorying of Scientific Research Digital Data Sets and the display of their descriptions and terms of access, to the extent required by M-13-13 and the applicable Data Management Plan.

Implementation of this plan will be prospective and will not apply to any Publication or Digital Data Set established before this plan is effective, notwithstanding the effective date for meeting the requirements of M-13-13 (both the scope of the inventory and the implementation of open data standards) that applies to DOT-generated Digital Data Sets. Any new intramural program, as well as any award, modification to an existing award or extension of an existing agreement for extramural research made on or after implementation of this plan will be subject to this plan. If DOT has exercised rights over extramural Digital Data Sets, these will also be inventoried to the maximum extent practicable. To the extent required by statute or regulation, Publications and Digital Data Sets generated in the furtherance of research and development activities under the DOT's Small Business Innovation Research (SBIR) program are exempt from the requirements of this plan, notwithstanding the requirements of M-13-13.

3.0 Applicability

This DOT Public Access Plan applies to the following individuals:

- All DOT employees, including full- and part-time employees; as well as support service contract employees, consultants and temporary and special government employees.
- Awardees from non-DOT organizations that publish Scientific Research material or compile Digital Data Sets resulting from research and development programs conducted under a DOT grant, contract, or other agreement. This includes but is not limited to states, localities, regulated parties, non-profit and volunteer organizations, contractors, cooperative agreement holders, grantees, cooperating federal agencies, intergovernmental organizations, universities and other educational institutions.

4.0 Requirements

4.1 Publications

This plan requires that authors and/or Operating Administrations submit to the DOT National Transportation Library (NTL) digital repository all Publications that meet the Scope criteria above, unless specifically precluded by privacy, confidentiality, or National/Homeland security concerns. *As the Department's solution for Public Access to Publications, NTL's systems, which are built on international standards and protocols for interoperability, information exchange, federated searching, and metadata sharing, maximize the potential for creative reuse to enhance value to all stakeholders. NTL's mandate to work with other federal, state, local and industry organizations to facilitate access to and use of*

¹ Data subject to confidentiality restrictions can be made available to the Public after disclosure review by an Institutional Review Board or other means in the form of public use datasets or access through a research data center.

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transportation information and partnerships with other federal scientific and technical information agencies both maximize the impact of the Federal research investment in transportation and encourage private-public collaboration.

This plan further requires, to the extent feasible and consistent with applicable law, policy, or agency mission, Publications to be freely available to the Public no later than 12 months following publication. Terms and conditions of the award may permit negotiation of this embargo period, as required. The determination of a 12 month embargo period is based upon our understanding of the timeline set forth in the February 22, 2013 OSTP Memorandum entitled: *Increasing Access to the Results of Federally Funded Scientific Research*, while protecting the intellectual property of researchers.

DOT will utilize an electronic online methodology to be developed for allowing the public to petition for alterations to the proposed embargo period. Requestors will fill out a web form with details about their embargo change request for decrease or increase. The petition will be received and coordinated within the Department by the National Transportation Library (NTL). NTL will forward the petition for review to the appropriate Operating Administration (OA) or Secretarial Office, which will provide a decision within one (1) month of request. If the decision is granted and would result in immediate release of a publication, the publication will be made public within two (2) weeks of the decision to allow for processing time needed by NTL. While DOT will work with other government agencies to determine the most appropriate period of embargo for specific fields of research and technology, it will not alter (i.e., decrease or increase) its then existing embargo period by more than six (6) months based on any single approved petition.

4.2 Data

This plan to the extent feasible and consistent with applicable law and policy; agency mission; resource constraints; U.S. national, homeland and economic security; and the objectives listed below, require digitally formatted scientific data resulting from unclassified research supported wholly or in part by Federal funding to be stored and publically accessible for search, retrieval, and analysis. This plan requires that awardee(s) and/or the respective Operating Administration ensure Public Access to final research data, subject to the above restrictions and those imposed by data quality and the need to protect national/homeland security, individual privacy, and confidentiality. Ensuring Public Access may include making such Digital Data Set available to the respective Operating Administration or the DOT for dissemination purposes in keeping with the *Departmental Data Release Policy* (DOT Order 1351.34). DOT will allow the inclusion of appropriate costs for data management and access in proposals for federal funding for Scientific Research. All Digital Data Sets subject to this plan will be inventoried in the DOT Public Data Listing, whether performed by intramural or extramural researchers.

DOT employees, grantees, contractors, and cooperative agreement awardees must comply with OMB's M-13-13 as well as DOT Order 1351.34 (*Departmental Data Release Policy*, adopted March 28, 2011). All DOT-funded research proposals, intramural and extramural, must include a supplementary document labeled "Data Management Plan" (DMP). In addition to providing long-term Digital Data Set preservation and storage location information, such DMPs may also discuss why long-term preservation and/or Public Access cannot be justified, if applicable.

In the DMP, researchers will propose their strategy(ies) to deposit Digital Data Sets resulting from DOT-funded Scientific Research in a repository that enables and allows for Public Access and sharing. Such proposed DMP will be reviewed and must be approved by each respective Operating Administration. A sample DMP will be provided as guidance to all extramural researchers.

4.3 Research Project Records

Providing full access to the DOT's scientific publications and digital data requires comprehensive tracking of the Department's research portfolio at the project level. The Department's approach to this is to build upon existing research lifecycle tracking arrangements between the Transportation Research Board's Research-in-Progress (RiP) database², the USDOT Research Hub³, and NTL Digital Repository⁴, and to add a new interface with the DOT Public Data Listing⁵. This process is described in more detail below.

The USDOT Research Hub (Research Hub) is a publicly available, web-based, searchable database of the Department's research portfolio, containing project records that describe the Department's current and past research activities at the project level. When projects are completed, project deliverables (typically technical reports) are ingested into the NTL Digital Library and added as NTL-based URLs to associated project records.

The NTL repository currently serves as the permanent archive of technical reports and will continue to do so under this Plan. Links for technical reports listed in the USDOT Research Hub are provided for copies deposited in NTL's archive. The NTL will also provide a searchable database of Data Management Plans submitted as a part of this Plan's requirements. Reports housed or accessible through the NTL are available without charge. For public access, NTL's functionality will have to be expanded to include the capability for managing the embargo and compliance processes required by this Plan.

The DOT Public Data Listing, required under OMB Memorandum M-13-13, will be expanded to add descriptions of and links to datasets resulting from scientific research. This listing will serve as a single access point for DOT's intramural and extramural public datasets, which are also reported to data.gov.

Once the Public Access Plan is implemented, the USDOT Research Hub will serve as the linking mechanism for scientific publications and their underlying research data by requiring that links to digital data sets (as referenced in the DOT Public Data Listing) are submitted along with other project deliverables as part of the project close-out process. This will create one publicly-accessible record for each completed research project that contains the research project description and links to any associated publications and data. These records will be reviewed periodically by DOT staff to ensure compliance with the terms of the Public Access Plan.

² <http://rip.trb.org>

³ <http://rita.dot.gov/researchhub>

⁴ <http://ntl.bts.gov/>

⁵ <http://www.dot.gov/data>

All DOT research fund recipients (for extramural research) and Operating Administrations (for intramural research) will be responsible for ensuring that individual research project descriptions are submitted to Transportation Research Board's Research-in-Progress (RiP) database (for subsequent ingestion into the USDOT Research Hub)⁶ and to ensure that these project records are updated over the duration of the project. Project outputs/products and any documented impacts/outcomes resulting from research implementation will be submitted directly to USDOT Research Hub using the process already in place. DOT will also develop policies to ensure new awards to researchers or institutions are not finalized until the awardee has successfully satisfied all terms of previous awards from DOT, including compliance with publication requirements and Data Management Plans.

5.0 Authority

The U.S. legal and policy landscape promotes the concept of access to scholarly Publications and Digital Data Sets produced with support of federal funds. The elements of this landscape most relevant to Public Access and the DOT are summarized below:

- The America COMPETES Reauthorization Act of 2010 (P.L. 111-358), Section 103, outlines the Office of Science and Technology Policy (OSTP) Director's "responsibility to coordinate Federal science agency research and polices related to the dissemination and long-term stewardship of the results of unclassified research, including digital data and peer-reviewed scholarly publications, supported wholly, or in part, by funding from the Federal science agencies."
- The Office of Management and Budget (OMB) Circular A-11 ("Preparation, Submission and Execution of the Budget"; August 3, 2012) defines research and development activities as "creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications."
- The Copyright Law (17 U.S.C. 105) provides that "copyright protection under this title is not available for any work of the United States Government."
- The Freedom of Information Act (5 U.S.C. 552) provides for public access to the records of the federal government.
- The E-Government Act of 2002 (44 U.S.C. 101) has among its primary purposes the promotion of "the use of the Internet and emerging technologies within and across Government agencies to provide citizen-centric Government information and services" as well as providing "enhanced access to Government information and services."
- OMB Circular A-130 ("Management of Federal Information Resources") specifies that "[t]he open and efficient exchange of scientific or technical government information ... fosters excellence in scientific research and effective use of federal research and development funds."

⁶ A variety of longstanding arrangements within the transportation research community have resulted in some DOT research programs submitting research records to the USDOT Research Hub while others submit research records to TRB's Research-in-Progress (RiP) database. These two databases have therefore established an agreement to exchange data at regular intervals so that both provide a portal to DOT's research portfolio. This Plan establishes a new standardized approach to research project record submission across the Department that aims to improve the accuracy and coverage of DOT's research portfolio, as represented in the USDOT Research Hub and the RiP database.

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- MAP-21(49 U.S.C. 6304(a)) mandates the National Transportation Library to “serve as a central depository for research results and technical publications of the Department” and “provide a central clearinghouse for transportation data and information of the Federal Government.”
- The Paperwork Reduction Act (44 U.S.C. Chapter 35) has as one of its key purposes to “ensure the greatest possible public benefit from and maximize the utility of information created, collected, maintained, used, shared and disseminated by or for the federal government.”
- OMB Memorandum M-10-06 (“Open Government Directive”, December 8, 2009) in furtherance of transparent government and openness directs agencies to “publish information online in an open format that can be retrieved, downloaded, indexed and searched by commonly used web search applications.” It further defines an open format as one that is “platform independent, machine readable, and made available to the public without restrictions that would impede the re-use of that information.”
- OMB Memorandum M-13-13 “requires agencies to collect or create information in a way that supports downstream information processing and dissemination activities” which “includes machine-readable and open formats, data standards and common core and extensible metadata for all information creation and collection efforts.”
- DOT Order 1351.34 (*Departmental Data Release Policy* adopted March 28, 2011) states the DOT policy to be to “disseminate data as soon as possible after collection, subject only to the limits imposed by resources, technology, authority, regulation and data quality while protecting security, privacy and confidentiality. DOT will not impede the prompt dissemination of data...”

6.0 Roles and Responsibilities

The Assistant Secretary for Research and Technology:

- In accordance with 49 CFR, Subtitle A, Part 1, will establish, manage, and implement Public Access to Publications and Digital Data Sets.
- Will coordinate the implementation of this plan with DOT Operating Administrations and the Office of the Secretary.
- Coordinate collaboration and cooperation on implementation of this plan with other Executive Departments and Agencies.

Heads of DOT Operating Administrations and Secretarial Offices:

- Will include the requirements of this plan as terms and conditions for grants, contracts, and other funding agreements established on or after the implementation date, including continuations of grants, contracts or other agreements that augment a Publication or Digital Data Set undertaken before the implementation date.
- Develop specific guidelines for intramural or extramural research and development projects supported wholly or in part by DOT-managed contracts, grants and other funding agreements, to ensure submission of Publications to the DOT NTL digital repository; and the management, preservation and continuing Public Access to the content of Digital Data Sets.
- Provide training and guidance to all researchers, intramural and extramural, as to their obligations and responsibilities under this plan.
- Ensure compliance with this plan.

Awardees and Their Institutions:

- Ensure that all terms and conditions are incorporated in the awardee's or institution's approved plan for complying with the DOT Public Access Plan. In furtherance of this objective, DOT will partner with other Executive Departments and Agencies and individually provide training for extramural researchers of their obligations relating to the requirements of this Plan.
- Ensure that sub-awardees, researchers and authors are aware of and comply with the DOT Public Access Plan and that awardee's and institutional researcher's practices comply with this plan.
- Ensure all terms and conditions of awards are met, including the submission of Research Project Records, Publications (even if the awardee is not the author or co-author of the final manuscript accepted for publication), and Digital Data Sets that arise in whole or in part with funding received through a DOT-managed contract, grant or other agreement.

Principal Investigators:

- Ensure that all rights under copyright are non-exclusively retained by DOT and that the terms and conditions of publication do not impair the obligation of the authors to comply with the DOT Public Access Plan.
- Comply with DOT and Operating Administration guidance to ensure compliance with this plan.

7.0 Implementation

This plan establishes major implementation requirements to which all DOT programs, Operating Administrations, Secretarial offices and internal procedures will adhere when addressing the planning, submission, management, access, and long-term preservation of Publications and Digital Data Sets resulting from federally funded scientific research.

7.1 Implementation and Compliance

The DOT will adopt a systematic approach to implement this Public Access plan addressing the processes and procedures to be followed before research begins, as well as for the submissions process, management, access, and preservation for Publications and Digital Data Sets. Further, DOT will:

- Establish an iterative process of policy design, planning, implementation, evaluation/impact assessment, and policy redesign regarding the detailed aspects of this plan.
- Work in full and open consultation with all stakeholders, including other federal agencies, libraries, publishers, users of federally funded research results, and the Public, to maintain and improve this Public Access Plan. DOT participates in many existing forums where we gather feedback from stakeholders, such as researchers, universities, and civil society groups. These forums include, but are not limited to, the Transportation Research Board, CENDI, NFAIS, AASHTO Standing Committee on Research, and Council of University Transportation Centers.
- DOT will explore the development of a research data commons, a federated system of research databases, along with other Departments and Agencies for storage, discoverability, and reuse of data with a particular focus on making the data underlying the conclusions of peer-reviewed scientific publications resulting from federally funded Scientific Research available.
- Develop an enforcement and compliance mechanism for this Public Access Plan which ensures that we measure and report on the Publication and Digital Data Set submission activity associated with all intramural and extramural activities. The mechanism includes tracking unique researcher IDs and funding agreement numbers in major research indices, such as the Transportation

Research Board's TRID database, the SHARE (the SHared Access Research Ecosystem) database, and FundRef database (which tracks funding agreement numbers for research published in peer-reviewed publications) to determine what has been published.

- Direct each OA to establish compliance procedures to be enforced by the Contracting Officers for extramural research and designated officials for intramural research.

7.2 Before Research Begins

DOT will:

- Establish new terms and conditions for all DOT funding agreements requiring both the immediate grant of a comprehensive non-exclusive, paid-up, royalty-free copyright license to the DOT and the submission of any Publications to the NTL Digital Repository. The copyright license must include "all rights under copyright," including, but not limited to:
 - Right to copy;
 - Right to distribute;
 - Right to prepare derivative works;
 - Right to display; and
 - Right to perform in public.
- Consistent with emerging Committee on Financial Assistance Reform (COFAR) requirements, establish a framework for tracking the lifecycle of the DOT research portfolio at the project level through unique project identifiers.
- Use digital object identifiers (DOI) to individually identify each Publication and Digital Data Set, to allow for correlation between associated Publications and supporting Digital Data Sets.
- Require all researchers to obtain and report his or her unique ORCID (Open Researcher and Contributor ID)⁷ identification on submissions of research results to DOT and/or publishers.
- Require researchers to include the appropriate funding agreement number(s) on all submissions of research results to DOT and/or publishers.

7.3 Submission

7.3.1 Publications

In accordance with the Moving Ahead for Progress in the 21st Century Act (Pub. L. 112-141), 49 USC 6304(a), NTL will become the central repository for research results and technical Publications of the Department (including Publications from extramural research conducted under DOT's research and development programs). The NTL digital repository meets the requirements of the OSTP memorandum as a tool to facilitate the easy public search, analysis of, and access to Publications arising from Scientific Research funded by the DOT.

DOT will develop guidance for awardees, sub-awardees, principal investigators and authors submitting manuscripts to peer-reviewed publications. Terms and conditions will require sub-awardees, principal investigators and authors to submit metadata and final peer-reviewed manuscripts upon acceptance for publication. NTL will make the metadata record publicly searchable on or before first publication without charge. NTL uses an international standard structured metadata format for interoperability and export in

⁷ <http://orcid.org>

XML to enable compatibility with future search technology. After the embargo period, a link to the peer-reviewed manuscript will be available for public access without charge.

DOT will establish a step-by-step process for submission of Publications to the repository upon acceptance for publication. This will include submission of metadata describing authors, journals, and original publishers for any peer-reviewed articles subject to the terms of this plan. This metadata will be searchable and displayed in the records for the Publications in the NTL digital repository.

7.3.2 Data

For *intramural* research activities, both OMB's M-1313 and DOT Order 1351.34, *Departmental Data Release Policy* govern generation, management, and Public Access to digital research data that the DOT generates and that other parties provide to DOT, if the other parties seek to have DOT rely upon or disseminate that information or DOT decides to do so on its own. These policies together will effectively implement the provisions of the OSTP memorandum. DOT will clarify the requirements and responsibilities outlined under DOT Order 1351.34. DOT will evaluate existing industry capabilities to assign unique and persistent identifiers to intramural digital research data disseminated to the Public.

For *extramural* research activities, DOT will develop new, standardized requirements for the Data Management Plans (DMPs) required of research funding recipients under DOT-managed contracts, awards and other agreements.

DMPs will be required for submission in all intramural research activities and will be required to follow the same submission and approval requirements as those imposed on extramural research activities.

DOT will develop guidance on terms and conditions of awards that will ensure Public Access to Digital Data Sets. The ultimate decision regarding the approval of each Data Management Plan and Digital Data Set disposition will reside with the respective Operating Administration and Secretarial Offices funding the associated Scientific Research.

7.3.3 Research Project Records

DOT will develop step-by-step guidance for submitting Research Project Records with complete project descriptions to Transportation Research Board (TRB)'s Research-in-Progress (RiP) database. Project output/products and any documented impacts/outcomes resulting from research implementation will be submitted to USDOT Research Hub.

7.4 Management

7.4.1 Publications

The DOT will use the NTL Digital Repository as a central portal to access full-text Scientific Research Publications and link to the DOT federated search capability.

The NTL repository system has the capability to store, organize, and manage collections; uses open architecture; integrates easily into DOT Operating Administrations' and Secretarial offices' websites; and

adheres to industry standards for integration and interoperability. It will be expanded to search multiple DOT repositories of full-text Publications and enable monitoring of compliance with this plan.

7.4.2 Data

The DOT will apply a consistent approach to the management of Digital Data Sets submitted and disseminated under the auspices of this plan.

All DOT intramural researchers and extramural research awardees will be required to develop a Data Management Plan that will identify whether and how they will provide for the long-term preservation of, and access to, Digital Data Sets associated with their research activities. Data Management Plans will:

- Describe the data that will be gathered in the course of the research project, including whether the data should be preserved for long-term access;
- Outline the standards and machine-readable formats that will be used in the course of the research project;
- Discuss the access policies that will apply to the data, so as to protect against the disclosure of identities, confidential business information, national security information, etc. and whether public use files may be generated from the data;
- Discuss policies for re-use, re-distribution and derivative projects; and
- Outline plans for archiving and preservation, specifying where research data will be deposited, and specify that data will be deposited at the time of initial publication of any related peer-reviewed journal article.

Specifically, to ensure that the claims presented in peer-reviewed scholarly publications are verifiable and reproducible, Data Management Plans will include explicit requirements for depositing machine-readable data in public repositories, where appropriate and available.

In addition to the Data Management Plan requirements, intramural researchers must also comply with the requirements of DOT Order 1351.34, *Departmental Data Release Policy*.

To minimize costs, DOT will encourage researchers to use publicly accessible databases for the deposit of their data. DOT will develop guidance to assist researchers in identifying appropriate publicly accessible databases. The guidance will address:

- Minimum metadata requirements, including conformance/interoperability with the common core metadata required under the Open Data Policy⁸
- The ability of the repository to provide persistent identifiers for Digital Data Sets and the standards that a repository should follow for implementation of those identifiers
- The interaction among the awardee(s), the data repository, and the DOT grant manager to ensure that:
 - Data meet minimum quality standards
 - Data is appropriately evaluated for and secured to prevent disclosure of personally identifiable information, protect proprietary interests, confidentiality, and intellectual property rights
 - Data is licensed in a manner that encourages both access and reuse⁹

⁸ OMB Memorandum M-13-13, available at:

<http://www.whitehouse.gov/sites/default/files/omb/memoranda/2013/m-13-13.pdf>

- The ability of the repository to provide for long-term access

To ensure a consistent approach between intramural and extramural digital research data with OMB Memorandum M-13-13, DOT will require that the metadata for scientific data will include, at a minimum, the common core metadata schema in use by the Federal government, found at <https://project-open-data.cio.gov/>. Any dataset that is disseminated from a DOT-owned and operated archive will be inventoried in accordance with the DOT Data Dissemination Policy. For archives not operated by DOT, DOT will require that those archives be able to generate the common core and extensible metadata so that DOT can harvest inventory records for inclusion in its own public data listing and enterprise data inventory.

As part of the data management plan requirement, DOT will include a section that addresses policies for reuse, redistribution and derivative products. To ensure a consistent approach between intramural and extramural digital research data DOT will use the standards laid out in OMB Memorandum M-13-13, which indicate a strong preference for the use of Creative Commons licenses. To facilitate attribution, DOT will indicate a strong preference for CC-BY or an equivalent license. In the case of intramural research datasets, DOT cannot require attribution of data because those data are a work of the federal government. Therefore, DOT will require such datasets be marked with some public domain dedication to affirmatively waive any attribution requirement to facilitate the widest possible reuse.

To facilitate identification, DOT data management plans will include a section that addresses plans for citation, archiving and preservation. These plans will be searchable and indexed in the National Transportation Library Digital Repository. DOT will indicate a strong preference for archiving in a repository that provides Digital Object Identifiers (DOI) for datasets that are deposited without an identifier. Regardless of whether scientific datasets are produced under intramural or extramural research programs, all datasets will be provided a DOI. At this time, DOT has not determined its preferred dataset identification framework, but is evaluating solutions such as DataCite, Data-Pass, and the Data Document Initiative (DDI).

7.4.3 Research Project Records

The Transportation Research Board (TRB) is responsible for maintaining the Research-in-Progress (RiP) database. The Office of the Assistant Secretary for Research and Technology of DOT is responsible for maintaining the USDOT Research Hub.

7.5 Access

The DOT will explore and potentially implement varying levels of Public Access which at least allow for the ability to search, retrieve and analyze peer-reviewed Publications and Digital Data Sets.

⁹ In accordance with the requirements of OMB Memorandum M-13-13, *ibid*.

The DOT will explore the potential use of varying levels of Public Access, such as:

- General User (a.k.a. a member of the general public) – allow limited downloading, restricted crawling, and unlimited text- and data-mining rights
- Qualified User (a.k.a., government-funded researchers, archivists, librarians, individuals with an evidence-based need for unlimited mass downloading and/or crawling capability) – allow mass downloads (including dark archivists and mirror sites), unlimited crawling, unlimited text- and data-mining, and on a case-by-case basis, access to an otherwise restricted Digital Data Set.

DOT will explore the use of licensing terms and conditions to prevent unauthorized mass copying of scholarly publications.

The NTL Digital Repository will use best practices in digital preservation and search to optimize archiving, dissemination, and search features which will ensure long-term stewardship of the results of federally-funded research.

As a DOT system, the NTL digital repository complies with all statutory requirements of Section 508 of the Rehabilitation Act of 1973, which requires that all electronic and information technology (EIT) developed and maintained by the Department meets the accessibility standards of the legislation.

7.6 Preservation

The DOT will expand NTL repository functionality to ensure the system meets trusted digital repository requirements for long-term preservation. DOT will explore opportunities to engage in digital preservation networks.

7.6.1 Publications

The DOT will ensure the permanent preservation and long term accessibility of Publications resulting from DOT-funded research and programs by:

- Adopting sound, non-proprietary preservation standards and archival formats for Publications and associated content.
- Developing practical backup, migration, and technology refreshing strategies.
- Partnering with other appropriate publication archives across the federal, academic, and business communities.

7.6.2 Data

The DOT will undertake similar activities to ensure the permanent preservation and long term accessibility of appropriate Digital Data Sets resulting from DOT-funded research. In evaluating DMP, DOT will take into account the relative value of long-term preservation and access of Digital Data Sets against the associated cost and administrative burden.

7.6.3 Research Project Records

Research Project Records will be retained in the Transportation Research Board's Research-in-Progress (RiP) database until six months after project completion, at which time they will be archived and no

longer available to the public. The same project records will continue to be publicly available in the USDOT Research Hub.

8.0 Additional Information

8.1 Timeline

On a going forward basis, the DOT anticipates the following activities in furtherance of the implementation of this plan. Unless specified otherwise, all dates are estimated:

- (REQUIRED) Submission of draft plan to OSTP/OMB/OIRA for review and approval – June 10, 2013;
- Finalize incorporation of OSTP/OMB/OIRA changes; initiate formal concurrence process within DOT – Not greater than six weeks following receipt of OSTP approval;
- Obtain required senior DOT Official signature for implementation – October 1, 2015;
- Begin internal DOT initiatives required for implementation of this Plan – May 1, 2015;
- Commence effective implementation – December 31, 2015;
- (REQUIRED) First report on implementation due to OSTP – January 1, 2016;
- (REQUIRED) Second report on implementation due to OSTP – July 1, 2016;
- (REQUIRED) Third report on implementation due to OSTP – January 1, 2017; and
- (REQUIRED) Fourth (final) report on implementation due to OSTP – July 1, 2017

8.2 Existing Resources

The National Transportation Library Digital Repository and USDOT Research Hub are existing budgeted programs in the DOT budget that will be used to implement this plan.

9.0 Material Superseded

Initial release. This plan does not supersede or limit in any way any existing policy or legal requirement of the United States Department of Transportation.

9.1 Version

Revision Number	Revision Date	Revision Notes	Owner
1.0	24 Nov 2015		Charles Ducker
1.1	16 Dec 2015	<ul style="list-style-type: none"> • formatting changes • added cover page and header • corrected Section 7.4.2 to eliminate requirement for TRB to maintain searchable DMPs • corrected references to USDOT Research Hub and NTL Digital 	Charles Ducker

United States Department of Transportation

		Repository to use proper titles	
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