Satellite Meeting: Grey Literature: Scholarly Communication in a Digital World
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Public access to transportation research results at the National Transportation Library

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Abstract:

The National Transportation Library (NTL) at the US Department of Transportation (US DOT) provides national and international access to the crucial transportation information which falls within the realm of grey literature, including the results of US government funded research. Founded as an all-digital library in 1998, NTL's collections include full-text born digital and digitized publications, data products, and other resources. All items are in the public domain and available for reuse without restriction. Since 2016, NTL has led the implementation of the US DOT's Official Public Access Plan 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. This paper discusses the effect this plan has had on a grey literature library and the efforts to create and maintain a public access repository, as well as exploring relationships between repository platform, content and people.

Keywords: public access, digital repositories

The National Transportation Library (NTL) at the United States Department of Transportation (USDOT) was established in 1998 by the Transportation Equity Act for the 21st Century (TEA-21; P.L. 105-178) and is administered by the USDOT Bureau of Transportation Statistics (BTS). Its fundamental purpose was (and is) to preserve and serve transportation grey literature in the form of statistical publications and data products; yet like many other libraries, NTL also offers data services, reference and research services, and support for the nation's transportation knowledge networks. NTL's authorized role was expanded in 2012's Moving Ahead for Progress in the 21st Century (MAP-21; P.L. 112- 141). Specific mandates for NTL in section 6304 of MAP-21 include:

- Serve USDOT, other Federal agencies, public and private organizations, and individuals within the U.S. and internationally

- Acquire, preserve and manage transportation information and information products and services for use by DOT, other Federal agencies, and the public

- Provide reference and research services

- Serve as the central repository for DOT research results and technical publications

- Act as a central clearinghouse for transportation data and information of the Federal Government

- Serve as coordinator and policy lead for transportation information access

- Coordinate among and cooperate with multiple external parties to develop a "comprehensive transportation information and knowledge network" to support the I-XI list [information required of BTS at 49 USC 6302((b)(3)(B)(vi)]

- Publicize, facilitate and promote access to information products and services

- Receive contract, grant and agreement authority to support these goals

Building on its legislative mandate with regard to the grey literature produced and funded by USDOT, since 2016 NTL has been greatly impacted by its role leading the implementation of the USDOT Public Access Plan. This plan was 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*. The OSTP memorandum requires all Executive Departments and Agencies spending more than $100 million/year on R&D to ensure public access to peer-reviewed publications and digital datasets arising from federally-funded scientific research. As a result of this memorandum and the USDOT Public Access Plan created in response to it, there is a greater emphasis on acquiring grey literature research outputs by USDOT for NTL to manage and a greater responsibility to make those research outputs discoverable and accessible to users.

USDOT's Public Access plan requires external authors and the agencies within USDOT to submit to NTL's digital repository publications and datasets that meet the plan's criteria. Publications are defined as any scientific research project written deliverable funded, fully or partially, through a USDOT-managed contract, grant, or other funding agreement. Publications include technical or final reports, as well as any final peer-reviewed manuscripts accepted for publication. To protect their intellectual property, researchers may request a 12 month embargo period for a journal manuscript. Increasingly, these sorts of grey literature research outputs are accompanied by supporting datasets, data management plans, software, and readme files. These datasets and supplementary files are as much a part of the research output being preserved by NTL as the written publications, raising compelling questions about the boundaries of grey literature now and moving forward. Datasets are defined as all scientific data collected through research projects funded, either fully or partially, by federal funds awarded through a USDOT contract, grant or other agreement or collected by USDOT employees. Data may be numeric or qualitative, images or video, text sequences, samples, physical collections, software, algorithms, and models. Data can be instrument-generated digital data output, researcher-generated databases, data transformations, data linkages, tables, spreadsheets, observational data, etc.

In addition to research results, all USDOT-funded research proposals, intramural and extramural, require submission of a Data Management Plan (DMP). A DMP is essential to digital data preservation. It describes how researchers will handle digital data both during and after a research project. A DMP indicates how the research proposal conforms to USDOT policy on the dissemination and sharing of research results. It may also discuss why long-term preservation or public access cannot be justified, if applicable. These DMPs are preserved alongside the datasets and the written publications within the NTL digital repository, as mandated by USDOT's Public Access Plan.

Similarly, USDOT's Public Access Plan requires all researchers to obtain and report his or her unique ORCID (Open Researcher and Contributor ID). ORCID provides a unique, persistent digital identifier that distinguishes one researcher from another. USDOT integrates ORCIDs into workflows such as submissions of grants and research results, and includes them in metadata for digital objects in NTL's Repository and Open Science Access Portal, *ROSA P* (https://rosap.ntl.bts.gov/).

Named in honor of Rosa Parks and the role of public transportation in the 20th Century American civil rights movement, *ROSA P* was developed in large part as a response to the directives of making grey literature discoverable and accessible as required by the USDOT Public Access Plan. *ROSA P* is an open access repository and full-text digital archive for all modes of transportation and related disciplines. All content in *ROSA P* is grey literature, in the public domain, and available for reuse without restriction. *ROSA P* contains approximately 38,000 digital objects. Content types include technical reports, datasets, research papers, proceedings, briefs, manuals, and presentations. The collection is comprised of born digital and digitized copies of legacy print materials. *ROSA P* is built on an open source Fedora platform, developed and maintained by the United States Centers for Disease Control. All content is stored in the cloud, backed up in three different geographic locations. Google, Bing, Google Scholar, Worldcat, and Science.gov index and search *ROSA P*. NTL also coordinates indexing of *ROSA P* with TRID (Transport Research International Documentation), the world's largest and most

comprehensive bibliographic resource on transportation research information, produced and maintained by the Transportation Research Board of the US National Academies.

NTL migrated content from its existing repository to *ROSA P* in 2017. The transition included review and revision of metadata to accommodate public access documents and linked open data. The public launch of *ROSA P* occurred in January 2018. As one should expect, the migration exposed the existence of out of scope and inaccessible documents within this collection of grey literature. The original repository was built with batch uploads that were not scrutinized for compliance with NTL policies. These batches contained copyrighted material, poor quality scans of print materials, erroneous or missing metadata, and links to HTML pages.   As a result, NTL revised its Collection Development and Maintenance Policy, and began a remediation process for problem metadata and content. NTL also initiated monthly meetings with satellite USDOT library staff to collaborate on remediation of their collections in *ROSA P*. As of May 2019, more than 4100 catalog records in *ROSA P* have been modified in some way.

Implementation of USDOT's Public Access Plan and the transition to a new repository also required revision of NTL work processes for managing grey literature. In 2017, NTL initiated review and documentation of digital submissions, ingest and cataloging work processes. Content creators or owners currently submit digital objects to NTL by email. NTL recently devised an electronic submissions form that enables capture of required metadata and information about submitters. The electronic submissions form is scheduled to be implemented by the end of 2019. The new process should reduce cataloging errors, increase efficiency, and provide data about compliance with USDOT's Public Access Plan.   Additional work process changes include application of DataCite digital object identifiers (DOI) to all USDOT publications and datasets, checking documents for accessibility, and improved metrics reporting.

To ensure ongoing availability to users as a public access repository and a long-term archive, NTL strives to ensure its digital collections are in non-proprietary open formats, wherever possible. If a document is no longer accessible, NTL migrates it to a new format to preserve the knowledge it contains and records the change in a public note. NTL also follows the final Federal rule (83 FR 2912) for the Information and Communication Technology (ICT) Refresh under Section 508 of the Americans with Disabilities Act (ADA). According to the updated rule, all public facing content submissions published on or after March 23, 2018 must be accessible to users covered by ADA. NTL checks all submitted content for compliance with the ICT Refresh and works with submitters when remediation is necessary. NTL also monitors downloads from *ROSA P* and remediates the 25 most popular documents, to ensure that they are fully accessible to all.

Nor is it solely USDOT created and funded grey literature which falls within the remit of NTL. NTL partners with and accepts content submissions for ROSA P from state, metropolitan, local and tribal agencies; other Federal agencies; University Transportation Centers; professional organizations; and private sector sources. With the increased focus on ensuring its collection of grey literature is preserved and accessible, NTL engaged more proactively with these partners in the transportation field to enable this collection development. Most of NTL's outreach for these submissions occurs through the National Transportation Knowledge Network (NTKN), a collaborative alliance of volunteer knowledge and information professionals, coordinated by NTL.   NTL uses the NTKN, especially its monthly web conference series, Transportation Librarians Roundtable (TLR), to provide transportation information professionals with

opportunities to learn about the USDOT Public Access Plan and important aspects of it such as document accessibility, intellectual property management, disambiguating authors with ORCIDs, and introduction to data management plans.

With governments increasingly interested and invested in making the grey literature research outputs it creates and funds discoverable and available to users now and in the future, new thought and effort is being placed in grey literature – what it is and how we acquire, manage, preserve and serve it. The work being undertaken by the National Transportation Library and by USDOT in general is a clear indication of the value they place on this type of content. Despite the name grey literature, it cannot be treated as something in the shadow of other types of scholarly communication, but as an equal and important strand of the network of scholarly communication.

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