

# **TRANSPORTATION**

**research and connectivity**

## **Transportation Library Toolkit**

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Transportation Research and Connectivity Pooled Fund Study**

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# Introduction

## Purpose of This Publication

Managing and making available the extraordinary amount of information and research produced by transportation agencies, academic researchers and others have been challenges for decades. State department of transportation (DOT) libraries have been evolving to respond to resource constraints, workforce and institutional knowledge challenges, and changing information technology and user needs.

In recent years, several transportation agency libraries have closed or been reduced in capacity, and in some cases, librarian positions have been eliminated. Transportation libraries and librarians are increasingly at a disadvantage due to:

- Beliefs that staff can find information on their own on the internet.
- Misconceptions of the extent of the services librarians can offer.
- Lack of value placed on good information to improve and maximize the operation of DOT programs.

The complexity of transportation issues and researcher needs, however, continues to expand. The **Transportation Research and Connectivity pooled fund study** (TPF-5(442)) produced this toolkit on topics of interest to assist both nonlibrarians and librarians in navigating these changes and challenges.

## Previous Editions

The first Transportation Library Connectivity pooled fund study (TPF-5(105)) produced, among other things, the [Transportation Librarian's Toolkit](#) in 2007, which was updated in 2009 in the [second edition](#). Both the 2007 and 2009 editions sought to:

- Ease the learning curve of those new to librarianship and/or transportation.
- Pull together the collective wisdom of members on topics that the pooled fund has addressed through its work on connecting and networking transportation libraries.
- Serve as a living document, updated frequently in print and online, to capture some of the institutional memory that is leaving DOTs as retirements increase.
- Give transportation librarians of varying experience levels and work situations some tools to inspire, enhance and streamline librarians' work as well as library operations to make the transportation library an indispensable resource within the parent organization.

In 2012, a previous iteration of the pooled fund study also produced [Proving Your Library's Value: A Toolkit for Transportation Librarians](#), which focused on capturing and communicating the value of information services within an agency.

## Current Edition

This current edition of the toolkit shares the purposes of the previous editions. Additionally, it is aimed at helping new and seasoned information professionals meet the challenges and take advantage of the opportunities in a time of evolving information needs, capabilities and contexts.

## How to Use the Toolkit

This toolkit examines issues of interest to transportation information professionals:

- Collection development and management
- Information management
- Copyright and open access
- User and research support
- Accessibility and Section 508
- Digitization
- Outreach and education
- Space planning
- Changes in library status
- Knowledge management
- Organizational strategy
- Demonstrating value
- Information professional competencies

This toolkit is available in two formats:

- *Print format*, as a comprehensive manual (this document).
- *Online format*, as individual Quick Guides on each of the topics listed above. The Quick Guides are hosted on the National Transportation Library's [LibGuide/Resource Guide platform](#).

### Definitions and Acronyms

Transportation libraries and information centers vary in how they are configured, and the people managing these libraries bring different levels of expertise to their work. Within this toolkit, the following definitions, adapted from the [Online Dictionary for Library and Information Science](#) (ODLIS), will apply:

**Librarian:** A person with a library science degree (master of library science (MLS) or master of library and information science (MLIS)) responsible for the care of a library or collection of physical or digital resources.

**Library:** A collection of physical or digital materials organized and maintained for intended users.

**Information management:** Control over or coordination of the acquisition, organization, storage, security, retrieval and dissemination of information resources.

**Information services provider** or **information services staff:** A staff person without a library science degree (MLS or MLIS) engaged in some aspect of the care of a library or collection of physical or digital resources, or who otherwise works to organize and provide access to information. When used generally, may include librarians.

ODLIS has also informed the definitions of other library-related terms appearing in this toolkit (for example, *circulation, cataloging, copyright, electronic resources, fair use* and *information management*).

Generally, acronyms will be fully defined at first use within each toolkit chapter, with the full term spelled out first, followed by the abbreviated term in parentheses. A few acronyms that are commonly used within the transportation library community may be used without definition:

AASHTO	American Association of State Highway and Transportation Officials
DOT	department of transportation
FHWA	Federal Highway Administration
NTL	National Transportation Library
OCLC	Online Computer Library Center
ROSA P	Repository and Open Science Access Portal
TRB	Transportation Research Board

### References to Other Chapters

Many of the chapters have some connection to another toolkit topic. An arrow icon (↗) is used throughout the toolkit to call attention to another chapter that can inform a related topic. Below is an example of one of these references:

↗ Refer to [Information Management](#) for more information about document delivery and interlibrary loan.

### Examples and Further Guidance

It can be helpful to see how a concept, policy or practice is implemented by another transportation library or information center, or examples of resources a library might add to its collection. The **For Example** sections that appear throughout the toolkit provide more information about policies, practices and content that are appropriate for a transportation library. In addition to these real-world examples, most toolkit chapters close with a sampling of additional resources or tools that can provide further guidance. [Appendix A](#) brings together all resources highlighted in the toolkit in an A to Z listing organized by chapter.

# 1 Collection Development and Management

## Overview

The author of a [2018 book](#) published by the American Library Association on the fundamentals of collection development and management noted that “[t]he terms *collection development* and *collection management* are often used synonymously or in tandem.” The author shares a description of collection development that, in her view, remains valid. This description, presented below, was offered by Bonita Bryant in a 1987 [journal article](#):

The goal of any collection development organization must be to provide the library with a collection that meets the appropriate needs of its client population, within the limitations of its fiscal and personnel resources. To reach this goal each segment of the collection must be developed with an application of resources consistent with its relative importance to the mission of the library and the needs of its patrons.

One of the ways libraries formalize collection development and management practices is with a **collection development policy**.

Typically, these policies reflect an assessment of the **information needs** of the library’s users and the agency at large, and often include an analysis of usage statistics and the budgetary limitations within which the library must operate. A more comprehensive policy also describes the **scope of the collection** (the subjects addressed by the collection), **selection criteria** (what the library will purchase or obtain without cost to add to its collection), plans for **resource sharing**, how the library will apply **deselection** (cancellation) of journals and other serials, and **weeding** (removal) of books and other items in the collection.

This chapter describes the key components of a collection development policy. It also addresses two elements of a library collection that are often in great demand from transportation professionals: **electronic resources** and **AASHTO digital publications**.

## Audience

The guidance in this chapter is appropriate for DOTs **with or without library spaces** that wish to establish policies and practices to better manage print and digital collections.

## Collection Development Policies

A collection development policy helps to ensure **consistency** in the acquisition of new materials and removal of outdated content, and the **continued relevance** of a library’s collection. A carefully considered policy helps to make the best use of limited funds to develop a carefully curated collection that evolves to meet user needs. A typical transportation library policy might include these key elements:

- **Introduction:** Describes the purpose or goals of the policy.
- **Community profile:** Describes the agency, the library users and the most typical areas of expertise (engineering, for example) within the agency, and any other user groups external to the agency.
- **Collection description:** Provides an overview of the range of subjects collected and the extent to which they are collected. Also included is a description of the library’s reference collection (if applicable), special collections, archives and historical resources, and the library’s possible role as a depository of publications produced by the agency or other state agencies.

- **Needs assessment:** Uses data, if available, on what users need and the types of materials they're using. This assessment can be done with user surveys and reviews of library usage data (circulation statistics, website analysis and user requests satisfied with **interlibrary loan** or **document delivery**).

➦ Refer to [Information Management](#) for more information about document delivery and interlibrary loan.

This assessment will inform development of a list of subject areas in which materials will be collected and may also identify specific content, such as study materials for professional exams, which will supplement materials in the subject areas that the library collects.

- **Selection criteria** that consider space limitations that will impact how print materials are collected, the formats to be collected (for example, a focus on digital content rather than print materials); costs; multiple copies; and the resources available from partner agencies.
- **Partner agencies** that may be identified in terms of what these partners contribute to the library or the partner-produced publications the library is required or chooses to retain.
- **Updating and weeding** guidance that describes how to identify and remove outdated or irrelevant materials.
- **Plans to review and update the policy** that ensure it remains effective. The policy should be considered a living document that is reviewed and updated periodically to reflect changes in user needs and the agency's evolving strategic priorities.

**For Example** The October 2016 [Policy on Collection Development](#) developed by Virginia DOT Research Library is an example of a collection development policy for a well-established state DOT library. (The policy notes that it does not address selection.)

Oklahoma Transportation Library's [Collection Development Policy](#) was finalized in December 2021 and includes policy, vision and mission statements. Also included are descriptions of the funding source for the library, the scope and types of materials in the collection, preservation, deselection and acquisitions.

Other examples of policies and guidance for managing both large and small library collections:

- Missouri Digital Heritage [Collection Development Policy](#) (December 2015)
- Montana State Library [New Library Directors Handbook: Collection Development Policy](#) (undated)
- NTL [Collection Development and Maintenance Policy](#) (January 2018)
- Northwestern University Libraries [Collection Development Policies](#) (various dates; includes subject-specific collections)
- Special Collections of the National Agricultural Library [Collection Development Policy](#) (undated)

## Electronic Resources

The term *electronic resources* as it is used in this toolkit refers to the category of resources that includes online subscription databases that provide the full text of at least a portion of the resources, e-books, collections of e-journals and other third-party resources published electronically that are not publicly available free of charge. This category of resources usually requires licensing, the payment of subscription fees (sometimes quite high and beyond the reach of many small transportation libraries) and user authentication.

Transportation libraries with more extensive collections of electronic resources may benefit from a **structured process** to track the life cycle of these library resources. Even libraries with relatively few subscriptions to e-journals and journal packages could benefit from the use of tools such as the [Techniques for Electronic Resource](#)

[Management \(TERMS\)](#) model, which identifies six components that make up the electronic resource management process:

- **Investigating** new content. Assess the demand and how it relates to the overall collection. Can the demand be satisfied with existing resources? Does the budget support it? Is a trial available? Is it possible to participate in a consortial purchase? Is a multiyear deal available?
- **Acquiring** new content, which involves **licensing** and **contract negotiation**. Think about how many users you'll want to license—a single-user license that allows access only in the library, or a multiuser or sitewide license that allows for greater user access. Review the contract carefully and be ready to ask for changes. The [LIBLICENSE project](#) is geared to academic libraries but is still a great resource for other types of libraries seeking [model license agreements](#) that can be compared with a vendor's standard agreement. Engage with other librarians on licensing issues using the [LIBLICENSE discussion forum](#).
- **Implementation** that begins with testing the product. Test the authentication process (how the user gains access to the resource), which will likely be through internet protocol (IP) access; password-based access may also be an option. Work with your information technology (IT) department if you're unfamiliar with your agency's IP range and how this type of authentication works. Training and documentation are also critical. Think about doing a soft launch to make sure the new resource is operating and accessible as expected.
- **Ongoing evaluation** and **access** to assess the value of the new resource to users. Find out how to gather usage data and consider conducting a formal or informal survey of frequent users of library resources to get a sense of the new resource's value to your users. Work with your IT department, as needed, to troubleshoot authentication and access issues.
- **Annual review** tied to the schedule of renewal for the electronic resource. Check the license for the date by which you'll need to notify the vendor if you elect not to renew. Contact the vendor in advance if you're hoping to negotiate a more competitive price.
- **Cancellation** and **replacement** review. Take some time to consider other available alternatives or more cost-effective options for the resource before moving forward with a renewal. If you decide to cancel or replace, be prepared to explain to users why the resource is no longer available and recommend other ways to obtain the needed information.

**For Example** *Transportation Research Record (TRR)*, the peer-reviewed journal of TRB, is one of the seminal publications in transportation research. [TRR Journals Online](#) provides access to the full text of the articles published in *TRR* since 1996.

[TR News](#) is TRB's bimonthly magazine that features articles and brief news items of interest to the transportation community (Figure 1). The publication includes workshop and conference announcements, new book notices, news of TRB activities and the TRB Annual Report.

Licensing a database of full-text publications can be too costly for many transportation libraries. For libraries with a more robust budget, the following electronic collections may be of interest:

- [ASCE \(American Society of Civil Engineers\) Library](#)
- [ASTM Digital Library via ASTM Compass](#)
- [IEEE Xplore Digital Library](#)



Figure 1. *TR News*, TRB's Bimonthly Publication

Online resource guides (LibGuides) produced by universities supporting studies in transportation and in science, technology, engineering and mathematics (STEM) can be a good starting point to identify electronic resources and other materials that will be helpful to transportation professionals:

- [Civil and Environmental Engineering](#) (MIT (Massachusetts Institute of Technology) Libraries)
- [Online Resources \(STEM\): Useful Databases in Science, Engineering and Technology](#) (Northwestern University Libraries)
- [Transportation](#) (Northwestern University Libraries; links to topic-specific guides)
- [Transportation](#) (MIT Libraries)

➦ Refer to [Copyright and Open Access](#) for information about freely available open access resources that can supplement the electronic resources your library licenses.

## AASHTO Digital Publications

**Complimentary copies** of AASHTO digital downloadable publications are available to state DOT and associate members of AASHTO. (Examples of agencies qualifying as AASHTO associate members include port, toll and highway commissions or authorities; international transportation agencies; and city DOTs.) For each publication, AASHTO members will receive access to a **downloadable, printable PDF** with five single-user licenses and five **complimentary print copies** of the publication that are sent to the agency a few weeks after receipt of a transmittal email from AASHTO Publications Production.

To take advantage of this benefit, each state DOT appoints a **gatekeeper** and a **gatekeeper backup** to receive the transmittal email from AASHTO Publications Production describing the publication and providing instructions on how to access it from the [AASHTO Store](#) and share it with agency colleagues.

Below are three steps, described in greater detail in an AASHTO Publications Production [guidance document](#), to obtain and share a digital publication:

**Note:** Before you begin to download the first AASHTO digital publication, download and install the FileOpen security plug-in for Adobe Reader. The plug-in is free but you may require help from your IT department to install it. Get the plug-in from the [AASHTO Store](#) My Account page (refer to the “Get Security Plug-In” link) or from the [FileOpen Systems website](#). This plug-in must be installed on every computer that will be used to download a complimentary AASHTO publication.

**Step 1: “Purchase” (at no cost) the complimentary downloadable PDF publication.** Note that the login or account information used to “purchase” the digital publication will be required each time the gatekeeper or a colleague subsequently opens that publication. It is important that the library or information center establish these login credentials before other agency staff attempt to download a publication. The login information, referred to as a *digital rights management (DRM) account number*, used for the first download of an AASHTO digital publication will be needed for all future AASHTO downloads of that document.

**Step 2: Open and download the complimentary PDF publication.** The new publication should be the first item on the list in your AASHTO account. You’ll be asked for the AASHTO account login information (DRM account number) used to initially “purchase” (at no cost) the digital publication. Once you open the digital publication, you may view it online or print out a copy. AASHTO provides further guidance for accessing the PDF file and opening it in the [PDF Download User Guide](#).

**Step 3: Share your complimentary digital publication with your colleagues.** The digital publication can now be accessed and viewed by five colleagues at the same time. User licenses are not tied to a specific person or computer. While an unlimited number of copies of the PDF file can be saved to individual workstations or on a shared network, intranet, content management system or other internal file management system, only the licensed number of free digital copies—five—can be open at one time.

Transportation libraries and information centers are advised to develop **detailed policies and procedures** that describe how agency staff accesses AASHTO digital publications and the limitations on use. Some agencies with more extensive electronic collections opt to direct their users to **other sources** for AASHTO digital publications that require less oversight by library or information center staff.

**For Example** An [AASHTO Digital Publications LibGuide](#), prepared by a Midwest Transportation Knowledge Network member in consultation with AASHTO Publications Production, provides basic information and state DOT best practices for managing these publications. Included in the best practices is the following advice:

The best way to provide access for DOT staff would be to create a new intranet page which provides linked titles of AASHTO digital publications as well as access instructions. The page may also be an information landing page that links to a document library in SharePoint. Information should be included that reiterates the five (5) concurrent user restriction. If the DOT offers an A-Z listing of resources, ask if this can be included.

The LibGuide includes these examples from agencies setting up an internal access point for AASHTO digital publications:

- Illinois DOT (IDOT) Library [intranet page](#)
- Louisiana Transportation Research Center (LTRC) Library [shared drive instructions](#)
- Minnesota DOT (MnDOT) Library [iHub webpage](#)
- Missouri DOT (MoDOT) Library [SharePoint page](#)
- Montana DOT [employee resources webpage](#)
- Wisconsin DOT (WisDOT) [intranet page](#)

## Additional Resources

[Fundamentals of Collection Development and Management](#), Fourth Edition, Peggy Johnson, ALA Editions, 2018. This book is billed as a “primer for experienced librarians with new collection development and management responsibilities, and a handy reference resource for practitioners as they go about their day-to-day work.”

[Managing the Electronic Resources Lifecycle: Creating a Comprehensive Checklist Using Techniques for Electronic Resource Management \(TERMS\)](#), Nathan Hosburgh, *The Serials Librarian*, Vol. 66, pages 212-219, 2014.

This article describes a tool to help librarians navigate the electronic resources life cycle.

[Meeting the Needs of Modern Transportation Researchers by Transforming the Iowa Department of Transportation Library: Early Efforts and Results](#), Leighton L. Christiansen, Hannah Frederick, Kristopher Knechel and Elizabeth Lott Mussman, Submitted for Presentation and Publication at the 2016 TRB Annual Meeting, revised for resubmission November 13, 2015.

This TRB conference paper highlights Iowa DOT’s approach to collection development and management.

## 2 Information Management

### Overview

The [Online Dictionary for Library and Information Science](#) defines *information management* as the “skillful exercise of control over the acquisition, organization, storage, security, retrieval and dissemination of the information resources essential to the successful operation of a business, agency, organization or institution.”

Managing information is at the core of the **day-to-day operations** of a transportation library or information center. This chapter focuses on four elements of a full-service transportation library’s daily operations:

- Circulation
- Cataloging
- Document delivery
- Interlibrary loan

### Audience

The guidance in this chapter is appropriate for DOTs **with or without library spaces** that manage print or digital resources.

### Circulation

Circulation is the process of checking books and other materials in and out of a library. Transportation libraries with print and digital collections may use an **online catalog** to check out materials, provide the user with a return date and keep tabs on the circulation status of every item in the collection (checked out or on the shelf). For some transportation libraries, an online catalog is maintained by a partner agency, while others are members of a statewide shared catalog. Transportation libraries with very small physical collections may opt to maintain a card catalog and monitor use of the collection manually.

### Library Management Systems

Some libraries maintain a library management system (also known as an integrated library system) to **track circulation** and **manage day-to-day handling** of the library’s collection. These systems can be complex, full-featured commercial systems with sophisticated reporting options from companies such as [Ex Libris](#), [SirsiDynix](#) and [Innovative Interfaces](#). Open source options are also available, including:

- [Evergreen](#), a scalable, open source system developed by the Georgia Public Library Service in 2006.
- [Koha Library Software](#), the first free and open source library software.
- [OPALS \(OPEN-source Automated Library System\)](#), an inexpensive standards- and web-based system that is mobile-friendly. Use does not require software installation or purchase.

Transportation libraries may also use databases or other tools developed in-house to track the movement of items into and out of physical collections.

## Cataloging

Cataloging is one of the more technical skills practiced by a professional librarian. It requires adherence to a set of standards that allow the librarian to **organize** and **label diverse sets of items** in a logical and repeatable way, and the result allows library users to easily find those items on the library shelves and in an online or card catalog. The trained cataloger creates catalog entries that include a bibliographic description (sufficient information to distinguish the item in hand from other similar items), subject analysis and a classification notation. The latter is the set of characters (letters, words and/or numbers and symbols) on the spine of a book or associated with the item in a library catalog.

### WorldCat

Catalogers may use an existing record—referred to as copy cataloging—or create a new cataloging record with original cataloging. Unsurprisingly, copy cataloging requires less time and fewer resources than original cataloging. OCLC’s [WorldCat](#) is a critical tool for catalogers wishing to take greatest advantage of copy cataloging. Self-described as “the world’s largest network of library content and services,” WorldCat “enable[s] libraries to share high-quality library metadata and bibliographic records with each other” and helps librarians reduce the time spent on original cataloging.

WorldCat records are considered the industry standard for quality, with OCLC catalogers and other specialists continuously creating new records and correcting information in existing records. Transportation libraries that maintain an [OCLC cataloging and metadata subscription](#) can also augment WorldCat catalog records. Illustrating the impact of copy cataloging, OCLC reported that in calendar year 2020, OCLC member librarians copy-cataloged 95% of their items from WorldCat, saving an average of 10 minutes per title.

### Shelving Classification Schemes

Shelving classification schemes are used to create the call numbers that appear on the spine of a book and allow for logical shelving of physical items in a collection. Transportation libraries may use Dewey Decimal Classification (DDC) (typically used by public libraries) or Library of Congress Classification (LCC) (commonly used by research and academic libraries) as a shelving classification scheme.

How these classification schemes differ is illustrated by the same book held in two libraries:

*55, A Decade of Experience*, edited by Edythe Traylor Crump, published by TRB

#### Dewey Decimal Classification

Oregon DOT Library includes this book in its catalog with a DDC call number: **625.06 SR204 1984**.

DDC structure starts with 10 main classes of knowledge. Each main class is further defined into 10 hierarchical divisions, with each having 10 more divisions of increasing specificity. This classification scheme is arranged by discipline, not subject, and the more decimal places a call number has, the more specific the subject.

Figure 2 illustrates the classification structure for this title, informed by an OCLC [listing of the 600 DDC class](#).

<b>600</b> <b>Technology (Applied Sciences)</b>	<b>620</b> <b>Engineering and Allied Operations</b>	<b>625</b> <b>Engineering of Railroads and Roads</b>
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Figure 2. Illustration of DDC Classes and Divisions

Each portion of the DDC call number is described below:

**625.06:** The Dewey number in the call number.

**SR204:** This portion of the call number refers to the author or editor of the book. “SR” indicates that this publication is part of a series; 204 is the series number.

**Note:** For other books labeled with a DDC call number, this portion of the call number may be a “Cutter number” that is preceded by a decimal point. Cutter numbers further identify a book and indicate an author’s name, if available. Cutter number tables are used to translate an author’s last name into the “cutter,” which begins with a letter of the alphabet followed by one or more numbers. Cutter numbers can be used to distinguish between books published by the same author.

**1984:** The date of publication.

### **Library of Congress Classification**

Northwestern University Libraries’ catalog includes this book with this LCC call number: **HE5620.S6 A154 1984**.

The LCC system divides knowledge into [21 classes](#), identifying each with a single letter of the alphabet. Most classes are then divided into subclasses and identified by two- or three-letter combinations.

Each portion of the LCC call number is described below:

**HE:** The first two letters of an LCC call number indicate the general class (social sciences) and the subclass (transportation and communications).

**5620:** These numbers define the subject of the book (automotive transportation).

**.S6 A154:** The first Cutter number indicates the author or title of the book. In a double Cutter number, the second cutter can reflect special instructions or the main entry. Generally, Cutter numbers represent names, titles, subjects and geographic places but can reflect other special aspects of an item. A Library of Congress [September 2019 training module](#) on the use of Cutter numbers provides further details, as does the short Cutter table described in the Library of Congress’ [Using the Cutter Table](#).

**1984:** The date of publication.

### **Subject Classification**

Call numbers classify items by subject, a practice that makes browsing a library’s stacks or shelves possible. Users find one title of interest and then may find several more on the same shelf or close by.

Some transportation libraries may supplement item records that include a DCC or LCC call number with the [Transportation Research Thesaurus](#) (TRT), which functions as subject classification scheme. TRT was developed primarily to make it easier to search Transportation Research Information Services (TRIS). (*Note:* TRIS is the precursor to [Transport Research International Documentation](#) (TRID), which is TRB’s database of worldwide transportation research.)

### **Training**

New and experienced catalogers alike have a wealth of **training opportunities** available to them, some freely available and some at a cost.

**For Example** The training opportunities below are a sampling of what’s available for new catalogers or those wishing to enhance current skills:

[Catalogers Learning Workshop](#): This Library of Congress website “provides cataloging and metadata training resources at no cost for information professionals to download, translate to other languages and modify to meet their needs.”

[Cataloging Documentation](#): This OCLC website offers cataloging documentation, practices and programs.

[Collections Management: WebJunction Course Catalog](#): Included in these webinars and self-paced courses are several related to cataloging, including Introduction to Cataloging for Non-Catalogers.

[Fundamentals of Cataloging](#): This fee-based online course offered by Core: Leadership, Infrastructure, Futures, a division of the American Library Association, “is tailored for librarians and library support staff new to cataloging, librarians and library support staff from other units who want to know more about cataloging, and experienced cataloging librarians and library support staff seeking continuing education and networking opportunities.”

[Introduction to Dublin Core Metadata](#): This two-hour online class offered by Lyris provides the basic information needed to implement Dublin Core metadata and integrate into a workflow that includes MARC (**MA**chine-**R**eable **C**ataloging) or another cataloging schema. (The American Library Association has [described Dublin Core](#) as a “general-purpose scheme for resource description originally intended to facilitate discovery of information objects on the Web.”)

[MARC Standards](#): This Library of Congress website offers a wealth of information about MARC, a data format with data elements that “make up the foundation of most library catalogs used today.” Among the resources are brief descriptions and tutorials on these topics:

- [Understanding MARC Bibliographic](#)
- [Understanding MARC Authority Records](#)
- [Understanding MARC Holdings Records](#)

[MARC in XML](#): This Library of Congress website offers frameworks for working with MARC in an XML environment. XML is used in cataloging to make sharing and searching easier when resources are in different formats.

[Midwest Collaborative for Library Services](#): This consortium of libraries organized to facilitate sharing resources and collaboration with member libraries in Indiana and Michigan presents training for both members and nonmembers (nonmembers pay a higher registration fee). Numerous cataloging courses are offered as virtual workshops.

*Other Library Consortia*: Other nonprofit and publicly funded networks of libraries, such as [Lyris](#), [Minitex](#) and [OhioNet](#), provide training and resources for new and experienced catalogers.

## **New Cataloging Standard**

A new cataloging standard—Resource Description and Access (RDA)—launched in 2010 as the “successor to AACR2 (Anglo-American Cataloging Rules, second edition), the cataloging system developed nearly 50 years ago for the creation of card catalog records of print materials.” As a July 2021 [journal article](#) noted, the new standard “shifted the focus of cataloging away from record creation and toward creating quality metadata that

can easily be shared and reused.” Help is available for libraries wishing to apply the new standard in the form of a toolkit and other guidance.

**For Example** The Library of Congress and its [Program for Cooperative Cataloging](#) developed guidance and policy statements to help libraries build their own policies to reflect the new cataloging standard—[Resource Description and Access \(RDA\): Information and Resources in Preparation for RDA](#).

## Document Delivery and Interlibrary Loan

Document delivery and interlibrary loan dramatically expand the reach of a library and its collection.

### Document Delivery

An extremely popular service provided by many transportation libraries and information centers, document delivery is the provision of a document in hard copy or digital format that was otherwise unavailable to the requestor. (Most requests are satisfied using an **electronic format**.) For some libraries, this means that the item requested—a journal article or book chapter, for example—may or may not be part of the home library’s collection. For other libraries, the term *document delivery* only applies to electronic files that are provided to the requestor using items that are already owned or licensed by the library. With document delivery, copies of the journal articles or other content are for **permanent retention** and therefore require copyright clearance.

➦ Refer to [Copyright and Open Access](#) for more information.

### Interlibrary Loan

Unlike document delivery, where the item delivered is provided for permanent retention, materials requested and provided through interlibrary loan (ILL) are **available temporarily**, and the term of the checkout period varies by provider. Most libraries participating in one or more resource sharing agreements will obtain for their users—and lend to others—books, journal articles, government documents, audiovisual resources and other physical materials. For special libraries such as transportation libraries, which often have unique or historical information that is not suitable for lending, development of a **formal or informal interlibrary loan policy** is important and especially useful when new staff comes on board to identify the materials that will not be lent outside the immediate library user community.

**For Example** Virginia DOT Research Library has developed a [policy](#) describing its interlibrary loan practices.

### User Requests

Some transportation libraries provide a customized online form that gathers details of the item being requested. Other libraries ask users to contact the librarian or provide a more general comment form.

### Establishing the Service

Transportation libraries have a variety of options to establish a document delivery or interlibrary loan service.

**For Example** [OCLC’s Article Exchange](#) offers secure, copyright-compliant delivery of documents and is included in an [OCLC resource sharing](#) subscription at no additional charge. Smaller libraries or information centers that are not members of OCLC can consider seeking out state or regional resource sharing services.

[Libraries Very Interested in Sharing \(LVIS\)](#) “represents the first global OCLC no charge Resource Sharing Group agreement.” LVIS was established in 1993 to encourage no charge resource sharing in the Midwest. Today, LVIS has more than 2,700 members worldwide.

*State, regional or consortial document delivery services* may be available. Some state and regional library networks offer document delivery services, such as [Minitex Electronic Document Delivery](#). State library associations will have information about available options.

*Informal cooperative networks* such as [TRANLIB-L](#), the email discussion list originated by the Special Libraries Association and now supported by NTL, can help connect transportation librarians and information services providers with transportation community members who may be able to provide difficult-to-source materials.

## Additional Resources

[2021 Library Systems Report: Advancing Library Technologies in Challenging Times](#), Marshall Breeding, *American Libraries*, May 2021.

This annual report “documents ongoing investments of libraries in strategic technology products in 2020. It covers for-profit and nonprofit organizations that offer strategic resource management products—especially integrated library systems and library services platforms—and comprehensive discovery products.” Other *American Libraries* annual reports that may be of interest include:

- [2020 Library Systems Report: Fresh Opportunities Amid Consolidation](#) (May 2020)
- [Library Systems Report 2019: Cycles of Innovation](#) (May 2019)

[Catalog Locally, Share Globally: RDA’s Cataloging Evolution Continues With the 3R Project](#), James Hennelly, *American Libraries*, July 2021.

This online journal article describes the RDA Toolkit Restructure and Redesign Project, also called the 3R Project.

## 3 Copyright and Open Access

### Overview

As an American Library Association [LibGuide on copyright for libraries](#) notes, “[c]opyright issues are among the most hotly contested issues in the legal and legislative world.” Given the **complexity** and **legal ramifications** of copyright, this chapter focuses on providing credible resources for the new transportation librarian or information services provider to gain a better understanding of copyright and its application to the transportation library.

This chapter also addresses a **newer publishing model**—open access—that gives researchers and other content creators the option to permit freely available public access to their works under copyright law. Finally, federal guidance on developing data management plans that **make data** from federally funded research **publicly available** has spawned interest within transportation agencies to develop such plans, though these agencies are, for the most part, not required to adhere to this federal requirement.

### Audience

The guidance in this chapter is appropriate for DOTs **with** or **without library spaces** offering services that require an understanding of copyright provisions.

### Copyright and Fair Use

**Copyright** is a set of exclusive legal rights to reproduce, publish, sell or distribute an original work of authorship, including literary, musical and audiovisual works. These exclusive rights are balanced by a set of exceptions that grant others the right to use copyrighted works in certain ways.

**Fair use** is an [exception](#) in the copyright law that allows users to use a copyrighted work without permission under certain circumstances. Exceptions include copying for purposes of criticism, comment, news reporting, teaching, scholarship and research.

### How Copyright Affects Transportation Libraries

Libraries must comply with the provisions of the copyright laws. Title 17, [Section 108](#) of the U.S. Code gives special rights to libraries and archives, allowing them to use copyrighted material in specific ways without permission from the copyright holder. This law addresses topics including interlibrary loan, copying works for patrons, and replacing and preserving materials.

➦ Refer to [Information Management](#) for more information about interlibrary loan.

**For Example** A variety of resources can help the new transportation librarian or information services provider better understand the implications of copyright:

- Stanford Libraries offers a comprehensive [Copyright and Fair Use web resource](#) that provides a wealth of resources, overviews and FAQs, and a detailed examination of copyright law. Access to the library’s Fairly Used Blog is also available, as well as copyright-related blogs maintained by other organizations.
- The University of Texas Libraries offer a [Copyright Crash Course](#) that includes a [Copyright for Librarians](#) resource guide.

- NTL offers a [Copyright for Research](#) LibGuide. Other LibGuides address:
  - [Copyright basics](#) (Northwestern University Libraries)
  - [Copyright and fair use](#) (Oregon State University Libraries)
  - [Digitization and copyright of library materials](#) (University of Illinois Library)
- The Transportation Librarians Roundtable hosted a two-part presentation series, [Copyright Triage](#), given by the copyright program librarian at the University of Minnesota.
- Fair use resources include a [worksheet](#) from Oregon State University Libraries and a [checklist](#) from Columbia University Libraries.

## Open Access

**Open access** literature has been defined as “digital, online, free of charge, and free of most copyright and licensing restrictions” by [Peter Suber](#), director of the [Harvard Open Access Project](#). Some open access publishers make use of [Creative Commons license options](#), which “give everyone from individual creators to large institutions a standardized way to grant the public permission to use their creative work under copyright law.”

The [Online Dictionary for Library and Information Science](#) notes that this newer model of scholarly publishing was developed to “free researchers and libraries from the limitations imposed by excessive subscription price increases for peer-reviewed journals, particularly in the sciences and medicine” and “has the added advantage of allowing the author to retain copyright.”

[IEEE Open](#), one of the providers of licensed and open access content used by transportation professionals, describes the [types of open access content](#) on its platform and the platforms of other content providers:

- **Green open access** refers to depositing a freely accessible version (usually not a final version) of an article in a repository. These freely available articles could be posted on the author’s website, an employer’s website or another repository specified by the author’s funding agency. Posting requirements and embargo periods vary by publisher. (*Embargo* refers to the period of time when articles published in a journal are not available online, in full text, from a journal aggregator.)
- **Gold open access** refers to articles that are freely available in their final form. For some publishers, articles in this category are supported by article processing charges that are paid by the author, the author’s employer or a funding agency. Other fully open access journals do not charge such fees. Publishers such as IEEE and others providing transportation- and engineering-related content now offer, to varying degrees, fully open access journals that address a range of technical topics.
- **Hybrid journals** publish traditional subscription-based content and open access content in the same publication.

Other journal aggregators may offer **platinum open access journals**, also referred to as **sponsored**, in partnership with universities, associations and other organizations. There is no charge to authors to openly publish their research in these journals.

### How Open Access Affects Transportation Libraries

The increasing interest in making research results more accessible has been a boon to libraries of all kinds and the people who use them. More open access content clearly benefits transportation professionals, but only if they know how to find it and can determine if the open access journals and articles they find are credible,

authoritative and relevant. Transportation librarians and information services providers can provide this guidance.

**For Example** Over the last decade, journal publishers and aggregators have ramped up open access offerings. Check the websites of major publishers of transportation and engineering content and look for resources for librarians to learn more about what is available as open access. Below is a small sampling of publishers' current open access content:

- [Elsevier](#) offers more than 70 open access journals in the Engineering and Technology category, including [Transportation Engineering](#).
- [IEEE Open](#) offers a collection of gold fully open access journals on a range of topics, including the [IEEE Open Journal of Vehicular Technology](#).
- [SpringerOpen](#) publishes more than 30 open access, peer-reviewed [journals in engineering](#). Springer also offers three [transportation open access journals](#).

Other open access content is available from the [Directory of Open Access Journals](#), which indexes free, full-text, peer-reviewed scientific and scholarly journals, including more than 100 transportation-related journals.

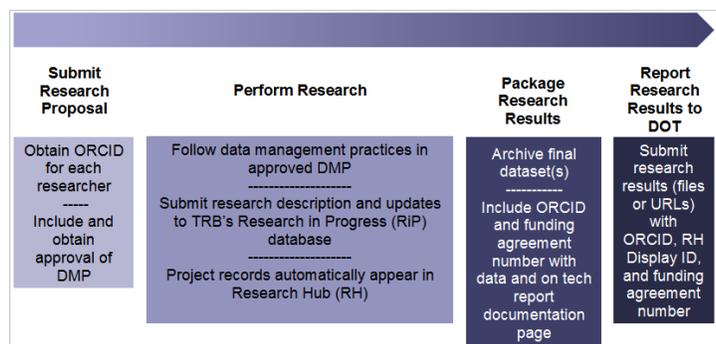
**Institutional repositories** are also a good source for open access research. Examples include [eScholarship](#), which provides open-access articles and dissertations deposited throughout the University of California system. Source lists for repositories maintained around the world are available through [Directory of Open Access Repositories](#) (OpenDOAR) and [Registry of Open Access Repositories](#) (ROAR), both maintained by universities in the United Kingdom.

➦ Refer to [Collection Development and Management](#) for information about licensed electronic resources that can supplement freely available open source content.

## Public Access to Research Results

**Public access** generally refers to the requirement that the results of federally funded research, including relevant research data, be freely available and accessible to the public. This requirement was established through a 2013 [White House memorandum](#).

All federal agencies have public access plans that outline how researchers and funding agencies will comply with the federal requirements. The [U.S. DOT Public Access Plan](#) requires that all U.S. DOT-funded projects follow a data management plan and submit research data to a publicly accessible repository. NTL provides [guidance and resources](#) on complying with U.S. DOT requirements (Figure 3).



**Figure 3. Overview of the Research Process and Public Access**  
(Source: [U.S. DOT Public Access](#), U.S. DOT, 2022)

## How Public Access Requirements Affect Transportation Libraries

Most state DOT-funded research is **not** subject to the federal public access requirements. **Exempt research** includes projects funded through federal-aid programs such as the State Planning and Research (SP&R) program, the National Cooperative Highway Research Program (NCHRP) and the Transportation Pooled Fund program.

A 2016 NTL [presentation](#) clarified that “[r]esearch conducted under formerly federal funds directed to alternative sources (i.e., state DOT funds, pooled funds, SP&R and all TRB cooperative research programs) prior to their apportionment to a specific research program/project are not required to comply with the USDOT plan.”

An April 2022 TRB webinar, [Managing and Sharing Research Data for Public Access](#), highlights best practices based on the research described in [NCHRP Research Report 936, Guide to Ensuring Access to the Publications and Data of Federally Funded Transportation Research](#):

- **Research data requirements.** Understand the elements of a [data package](#):
  - Research output(s), such as a data set, software, code, model, etc.
  - README.txt that includes a data dictionary
  - Metadata file
  - Data management plan (DMP)
  - Other supporting codes, scripts or tables
- **Management and access.** Use [existing repositories](#), such as an academic library or generalist third-party repository, that actively preserve and curate data.
  - Check with your home institution first and then look to research partners. The best option may be to contract for repository services.
- **Preservation.** Discuss the scope of data for preservation with the project’s funder prior to research. These efforts may require additional funding.
  - Clarify with the funder how long data should be preserved. Plan to preserve for decades, depending on the research and its utility.
- **Formats.** Default to open formats or the format most commonly used from the beginning of the project. Agencies are advised to avoid proprietary or custom formats, if possible, and document choices in the DMP.
- **Metadata.** Include as much metadata as possible, and look for ways to automate metadata creation or metadata export by tools or software.
- **Submitting datasets to ROSA P.** The U.S. DOT Public Access Plan does not require U.S. DOT to have a copy of all data sets, unlike research reports. Some data sets are too large, and U.S. DOT did not have the ability to store or share these resources at the time of publication of this toolkit. However, transportation libraries should [submit metadata content](#) to ROSA P for creation of a metadata entry in ROSA P that links through to the home repository.

While many state DOTs may not be required to develop a public access plan, some have developed policies for making research results and data accessible to the public. Transportation librarians may be called upon to help develop these policies, identify suitable repositories, package research and data for submission, and advise researchers on their responsibilities.

**For Example** Below is a sampling of guidance for developing a public data access plan and an example from the transportation library community:

- NTL provides [guidance](#) to help agencies, researchers and others understand the.
- In [How to Share Publications and Datasets Under the USDOT Public Data Access Plan](#), NTL data curator Leighton Christiansen provides an overview of best practices.
- TRB developed a series of [webinars](#) on data management and U.S. DOT requirements.

- An NTL/Transportation Research and Connectivity pooled fund [resource guide](#) provides guidance to researchers on managing research data for public access.
- Wyoming DOT's [data management plan](#) provides guidance for research managers, principal investigators and other parties involved in all stages of a research project.

## Additional Resources

[Copyright Clearance Center, Inc.](#), 2022.

This organization is self-described as a “pioneer in voluntary collective licensing” and helps organizations “integrate, access and share information through licensing, content, software and professional services.” The website includes a library of white papers, e-books, infographics, podcast episodes and videos.

[Open Access](#), SPARC (Scholarly Publishing and Academic Resources Coalition), 2022.

SPARC is self-described as “a nonprofit advocacy organization that supports systems for research and education that are open by default and equitable by design.” SPARC defines open access as “the free, immediate, online availability of research articles combined with the rights to use these articles fully in the digital environment. Open Access is the needed modern update for the communication of research that fully utilizes the Internet for what it was originally built to do—accelerate research.”

[Open Access Publishing](#), Cornell University, February 2022.

This guidance for researchers seeking to publish an open access article can be helpful to a new information services provider just learning about the issue.

[Understanding Open Access](#), Virginia DOT Research Library, March 2022.

This comprehensive online guide to open access is geared to the transportation researcher and library user.

[USDOT Public Access Policy and Compliance](#), Mary Moulton, National Transportation Library, *AASHTO Research Advisory Committee Summer Meeting*, July 2016.

This presentation provides a succinct summary of the public access policy and its application, and how agencies can comply.

## 4 User and Research Support

### Overview

The value of a library, information center, librarian or information services provider can be defined, in part, by the resources and services provided to users. While many **traditional library services** are still in demand, technological and workforce changes have **created new needs** and **reprioritized others**. [As noted in a journal article](#), “the location, the format and the reach of our services are anything but permanent. In actuality, they are in constant flux as we follow the users and adapt to their needs.”

Whether a library or information center offers comprehensive services or a select few, a clear articulation of resources and services provided, in an organizational strategy, for example, will promote understanding of, access to and support of a library or information center.

➦ Refer to [Organizational Strategy](#) for more information.

### Audience

The guidance in this chapter is appropriate for DOTs **with or without library spaces** and **with or without library collections** that provide information-related services to users.

### Core Services

#### Literature Searches

Most state DOT libraries and research programs provide **research assistance** to users in the form of **literature searches**. While some of these research products provide the results of an exhaustive search of relevant publications, more typical is the literature search that produces a list of relatively recent relevant publication citations on a particular topic, organized by date or subtopic, with abstracts briefly describing each publication. Links to the full text of a publication are provided when that content is available to the requestor. If the full-text publication isn't available, the literature search provides a link to a citation for the publication. While many transportation libraries and research programs produce literature searches in-house, others contract out the literature search to a consultant, whose work is overseen by an agency librarian or other staff member.

Literature searches may serve a variety of purposes. Some are conducted as a prelude to a fully funded research project. In other cases, the transportation librarian or information services provider may be asked to conduct a literature search to inform a report a staff member is producing or answer a specific question. More customized information packages may include photos, maps or scanned documents such as old agreements.

#### LibGuides

While most research programs with or without a library will prepare a traditional literature search, often delivered on a library template, some also offer an **online alternative**—a **LibGuide**. These online research products are developed using the [Springshare LibApps](#) platform, a central hub providing access to the LibGuides application. LibGuide creators can organize resources and use images and other graphics to create webpages with boxes of content that are easy to use and visually compelling.

State DOT librarians and information services providers have produced numerous LibGuides that are hosted on [NTL's website](#). Many of these resource guides were developed by members of regional Transportation Knowledge Networks, which were [disbanded in 2020](#), and are now updated by the [National Transportation Knowledge Network](#). The current iteration of the Transportation Research and Connectivity pooled fund continues these efforts with new LibGuides (called *resource guides* by the pooled fund) on a variety of subjects. When published, these resource guides will be hosted on [NTL's website](#).

## Reference Services

State transportation agencies staffed with professional librarians or experienced information services providers may support **online** or **in-person** reference services. These services are offered to help agency staff locate specific information, make better use of the library and its resources, or resolve an access or authentication problem with electronic resources.

A recent Transportation Research and Connectivity pooled fund survey of state DOT research program managers and librarians indicated that agencies with a professional librarian or access to a librarian almost always offer in-person reference services. Transportation libraries offering online reference assistance often provide an online form or tool for agency staff and other users to ask for help.

**For Example** MnDOT Library provides an online form for agency staff to [submit a reference question](#). NTL's [Ask a Librarian & FAQs](#) webpage offers a searchable text box to ask questions and an online LibChat form (Figure 4).

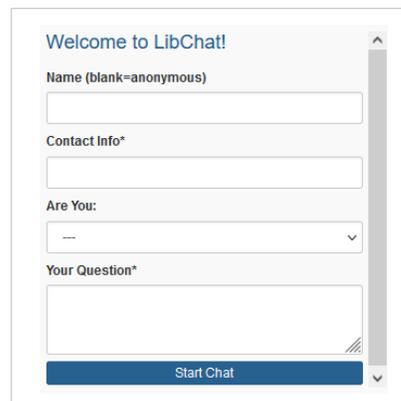
The image shows a screenshot of a web-based chat form. At the top, it says "Welcome to LibChat!". Below that are several input fields: "Name (blank=anonymous)", "Contact Info\*", "Are You:" (with a dropdown arrow), and "Your Question\*". At the bottom of the form is a blue button labeled "Start Chat".

Figure 4. NTL's Online LibChat Form

## Archival Materials

Many agencies **archive** information that serves to retain institutional knowledge.

**For Example** Wisconsin DOT Library [archives materials](#) related to the administrative history of the agency and historic transportation resources and functions. Similarly, the [Wisconsin Digital Archives](#) collects all state government documents back to 2001. The Oregon DOT Library retains a large historical collection, including publications, photos and reports on projects and history of the agency, that provides critical context as new research projects are considered.

## Other Traditional Services

Other information services traditionally provided by transportation libraries include:

- **Licensure examination resources.** Many transportation libraries provide materials for agency staff member use in preparing for the professional engineer or other professional exams. Sometimes these materials are print-only and are among a library's most-used print resources.
- **New library material alerts.** Libraries can engage with users—and encourage nonusers to see the value of library resources—by publishing a list of materials recently added to the library collection. Alerts regarding new material or other news can be sent globally within an agency or selectively disseminated to only appropriate staff. Some libraries have subject-based email mailing lists that are used to target content to the most appropriate users. Other libraries post monthly alerts (MnDOT Library's [New Library Materials](#) is an example).

- **News alerts.** Preparing periodic articles for an internal agency newsletter about recent additions or new services is another way to spread the word about the services the library or information center provides.
- **Periodicals routing.** Some libraries route physical resources throughout the agency while others opt to route links to periodicals popular in the transportation field.
- **Study and work areas.** Even agencies with no physical library space may be able to spare space for general collaborative interaction, which can enhance information sharing across the agency.

## Alternative Services

Transportation librarians and information services providers often offer other services needed by their agencies and suited to their expertise.

### Knowledge Management

Engaging in knowledge management efforts ensures **institutional knowledge** is not lost as transportation agency workforces change. Librarians and information services providers are in the business of searching for, organizing and disseminating information. They work across disciplines within their agencies to engage with research managers, leadership, engineers, planners and other subject matter experts. This background equips librarians and information services providers with the skills and tools needed to participate in or facilitate knowledge management in their agencies.

➦ Refer to [Knowledge Management](#) for more information.

### Information Forums

Libraries and information centers can be places—physical or virtual—where people **come together** to collaborate, share knowledge and disseminate the results of recent research or learn about other agency developments.

**For Example** Washington State DOT Research and Library Services Office hosts bimonthly [Webinar Wednesdays](#) that highlight agency research results.

### Training

Training for agency employees is often managed by human resources departments, but libraries or information centers may be well positioned to provide training on library-specific topics or direct agency staff to sources to meet their training needs. If the library is **providing training**, it may take the form of brief webinars on how to access and use electronic resources, or brown bag presentations about new library resources or exam materials the library maintains. In some agencies, the library participates in **administering** the agency’s learning management system where training activities are tracked.

**For Example** [New Jersey DOT Research Library](#), affiliated with the New Jersey State Library, directs agency staff to a wide range of training opportunities that may be of interest beyond the New Jersey transportation community:

- [AASHTO technical training](#): Courses available at this site include AASHTO TC3 (Transportation Curriculum Coordination Council) offerings—almost 200 web-based training courses with additional courses that are planned as needs are identified.

- [FHWA training](#): Courses available through the National Highway Institute “cover a range of transportation issues and are available in a variety of formats in order to best meet the needs of the transportation community.”
- [Center for Advanced Infrastructure and Transportation](#) (CAIT): CAIT is a regional [university transportation center](#) (UTC) based at Rutgers University. Each UTC is “a consortium of two- and four-year colleges and universities that come together to form a unique center of transportation excellence on a specific research topic.” Some may provide training; all offer a wealth of resources in their areas of expertise.
- [TC3: Math Basics for Materials Technicians](#): TC3 web-based trainings are free for employees of state DOTs that contribute annually to the AASHTO TC3 Technical Service Program. This is one of many AASHTO TC3 courses available at member and nonmember prices. Like many of the TC3 courses, this course offers professional development hours (PDHs) to those completing the course. PDH units are typically awarded based on the number of hours associated with a training course or presentation.
- [TRB webinars](#): This list of upcoming TRB webinars is supplemented by [TRB Straight to Recordings](#), which are similar in structure and content to live webinars but are available on demand and free to the public. Credits are not offered for the on-demand presentations.

## External Partnerships

Some transportation agency information staff works with other entities to **provide content** or offer **specialized platforms** or **collections**.

**For Example** Oregon DOT collaborates with the [State Library of Oregon](#) to expand the resource topics available to DOT staff and address professional development, program management and computer programming. Minnesota DOT and MnDOT Library work with the University of Minnesota’s Center for Transportation Studies and the Minnesota Local Road Research Board, which is led by cities and counties, to provide [Minnesota Transportation Libraries](#), which makes transportation-related information resources readily accessible throughout Minnesota.

Some state DOTs depend entirely on another agency or university to **house collections** or **provide information services**. Transportation librarians and information services staff can consider reaching out to their state library or library association, state historical society, or state or local university to better understand existing collaborations and explore opportunities for future work together.

**For Example** Alaska DOT’s collection is housed at and cataloged by the [Alaska State Archives](#); the Kentucky DOT Library is housed at the [Kentucky Transportation Center](#) at the University of Kentucky. In other collaborations, the [State Library of North Carolina](#) hosts North Carolina DOT’s online catalog and assists with cataloging of new and some backlogged materials. The [TxDOT Research Library](#) is hosted at the University of Texas, Austin’s Center for Transportation Research and funded through a contract with the TxDOT Research and Technology Implementation Division.

## Additional Resources

[An Unlikely Collaboration: How Academic and Special Libraries Can Help Each Other Survive](#), Tara E. Murray, *Journal of Library Administration*, Vol. 57, Issue 2, pages 249-258, April 2017.

While focusing more on corporate library collaborations, this article can be useful in describing how a transportation library might join forces with an academic library to “effectively leverage their collective experience and knowledge ....”

[Collaboration and Competition in Special Libraries](#), Tara E. Murray, *Journal of Library Administration*, Vol. 55, Issue 2, pages 142-152, February 2015.

This column from a library journal “explores the barriers to collaboration for special libraries” and “the potential benefits and how librarians can overcome these barriers to reap the benefits.”

[NJDOT Research Library Action Plan](#), Cambridge Systematics, Inc., New Jersey Department of Transportation, September 2021.

Researchers used surveys, a literature review and reviews of other state DOT libraries to produce a mission statement, goals and objectives, gaps and an action plan, including near- and long-term implementation summaries.

[Special Libraries and the Information Services Lifecycle](#), Terence K. Huwe, *Computers in Libraries*, September 2020.

This article describes how special libraries can remain flexible and adaptive in the face of change.

## 5 Accessibility and Section 508

### Overview

**Accessibility** is the ability of all persons to independently obtain information and use products, services and facilities. Information and communication technology (ICT) products—such as reports and websites—are not always accessible to those with visual or other impairments.

**Section 508** of the Rehabilitation Act of 1973 as amended by the Workforce Investment Act of 1998 is a federal law that requires federal agencies to make their ICT products accessible to people with disabilities. This is done in accordance with Section 508 standards issued by the [U.S. Access Board](#). The Revised Section 508 Standards are the federal government’s standard for ICT accessibility, a minimum baseline.

(The descriptions above are taken from FHWA’s January 2021 [Section 508 Overview](#).)

**Note:** Reference is sometimes made to making ICT products “ADA compliant.” The Americans with Disabilities Act of 1990 is a separate law that prohibits discrimination against individuals with disabilities in all areas of public life.

The U.S. federal government maintains [Section508.gov](#), a resources website for Section 508 compliance, including a page detailing [laws and policies](#).

FHWA also maintains a [Section 508 website](#).

### Audience

The guidance in this chapter is appropriate for DOTs **with or without library spaces** that are required to ensure the accessibility of research reports and other publications produced by a research program.

### Scope

#### Information and Communication Technology

**ICT** is any technology used to convey, transmit or receive any kind of information. Examples include, but are not limited to:

- Electronic documents
- Software
- Websites
- Video and audio files
- Multifunction office machines
- Computers
- Information kiosks

#### State Products

For **state DOTs**, products that are federally funded, such as research reports, and submitted to FHWA for publication on NTL’s website must be compliant with Section 508.

Some state DOTs also have **state accessibility laws** similar to the federal laws with which ICT must also conform.

## Making Reports Accessible

### Templates

It is critical that reports are set up initially with attention to formatting requirements for accessibility. Remediating a noncompliant report after it is completed can be extremely costly and time-consuming.

A Microsoft Word report template and companion instructions to promote the creation of accessible documents were developed as a parallel effort to the development of this toolkit. These are freely available to anyone who wishes to use them.

### Testing

To determine Section 508 accessibility compliance, a user should test a report, first in Microsoft Word format and then in Adobe Acrobat (PDF) format, using accessibility checkers built into Microsoft Word and Adobe Acrobat.

Instructions for launching accessibility checkers provided here may vary slightly based on the version of these programs in use. Very old versions of these programs may not have accessibility checkers.

Note that some aspects of accessibility, such as reading order of text, must be checked manually.

### Microsoft Word

In Microsoft Word 2013, accessibility may be checked using the following method:

- From the File menu, select the Info submenu.
- Locate the Check for Issues drop-down list, and select Check Accessibility.

### Adobe Acrobat

In Adobe Acrobat Pro 2019, accessibility may be checked using the following method:

- From the Tools menu, select the Accessibility submenu.
- Select Full Check, and then select Start Checking.

### Accessibility Considerations for Microsoft Word

The [Create Accessible Documents](#) page on Section508.gov presents the most complete Section 508 guidance for Microsoft Word 2013, including training videos developed by the Accessible Electronic Documents Community of Practice (Figure 5).

The [detailed checklist](#) for Word 2013 provides comprehensive and easy-to-follow guidance. Sixteen questions (listed below) are sorted into five areas: document formatting, text formatting, object formatting, color formatting and miscellaneous. Each question describes how to test and how to author for accessibility. For a document to be compliant, each question should be answered with a “yes” response.



**Figure 5. Section508.gov Training Videos.** A [14-part video series](#) provides guidance on making a Word document accessible.

## **Document Formatting**

1. Is the file name descriptive, is the file in the .docx format and is the file NOT protected?

## **Text Formatting**

2. Do document headings use the Microsoft Word heading styles?
3. Are lists formatted correctly?
4. Are columns of content formatted correctly?
5. Are layout tables formatted correctly?
6. Is text formatted for the intended language?
7. Are link names descriptive?

## **Object Formatting**

8. Is vital information in headers, footers and watermarks duplicated in the document?
9. Did you use built-in features to create data tables?
10. Do images and other objects have alternative text?
11. Are images, objects and text boxes in line with the text?

## **Color Formatting**

12. Are colors and other visual characteristics (such as size, shape and location) that convey information also described in text?
13. Is the contrast ratio between text and background sufficient?

## **Miscellaneous**

14. Are there corresponding descriptions of your embedded files and are they accurate?
15. Did you avoid forms while using Microsoft Word 2013?
16. Did you exclude flashing objects?

For additional information or instructions about how to address noncompliant formatting, refer to the more detailed document, [Basic Authoring and Testing Guide](#).

## **Accessibility Considerations for Adobe PDF**

A Word file, once compliant, is converted to a PDF, where there are further accessibility requirements.

Guidance on the [Create Accessible PDFs](#) page of the Section508.gov website is most fully developed for Adobe Acrobat Pro. In the [PDF Detailed Checklist](#), 23 questions (listed below) are sorted into five areas: preconditions, document properties, structure tags, objects and miscellaneous. With each question, the checklist addresses how to test.

### **Preconditions**

- A. Is the PDF a PDF Portfolio or does the PDF have file attachments?
- B. Was the PDF generated from Adobe LiveCycle?
- C. Does the document contain programming (scripts)?
- D. Is the PDF tagged?
- E. Is the PDF an image-only PDF or does it contain scanned pages?

### **Document Properties**

1. Does the PDF have a descriptive file name?
2. Is assistive technology access enabled?

3. Is the document language set?

### **Structure Tags**

4. Do the tags follow the visual/logical order of the document?
5. Does the document have decorative content?
6. Is vital information in headers, footers and watermarks duplicated in the document?
7. Are the headings in the document tagged with heading tags?
8. Are lists tagged correctly?
9. Are sections that contain text in different languages tagged with the corresponding language attribute?

### **Objects**

10. Do all meaningful images and other objects in the PDF have a description of their purpose or function?
11. Does the PDF have data tables?
12. Does the PDF have links and controls?
13. Is the PDF a fillable form?
14. Are colors and other visual characteristics (such as size, shape and location) that convey information also described in text?
15. Is the color contrast ratio between text and background sufficient?

### **Miscellaneous**

16. Does the PDF contain audio-only, video-only or synchronized media objects that contain meaningful information?
17. Does the PDF have flashing objects?
18. Does the PDF need an alternative accessible version?

For more information or instructions about how to address noncompliant formatting, refer to the more detailed document, [PDF Testing and Remediation Guide](#). While this document is tailored to a different version of Adobe Acrobat (Acrobat DC), the guidance is widely applicable both to the DC and Pro versions.

## **Additional Tools and Resources**

[WebAIM's Contrast Checker](#) can be used to check the color contrast of text against a background. According to the FHWA publication [Creating Section 508 Conformant PDFs](#), text contrast must meet minimum WCAG (Web Content Accessibility Guidelines) 2.0 level AA requirements: a contrast ratio of at least 4.5:1 for normal text and 3:1 for large text.

[Accessible Digital Content: Tips and Tricks](#), a 90-minute webinar, is available at Digital.gov (hosted by the U.S. General Services Administration, May 26, 2021).

The National Transportation Knowledge Network (NTKN) hosts [NTKN Communities of Practice: 508 Accessibility](#), a group of practitioners that meets periodically to discuss 508 accessibility and compliance. In addition to meeting minutes, [Section 508 Helpful Links and Useful Tips](#) is provided that, in turn, includes a link to [Section 508 training](#) and checklists for Word, PDFs, PowerPoint, Excel and Outlook hosted by the Social Security Administration.

# 6 Digitization

## Overview

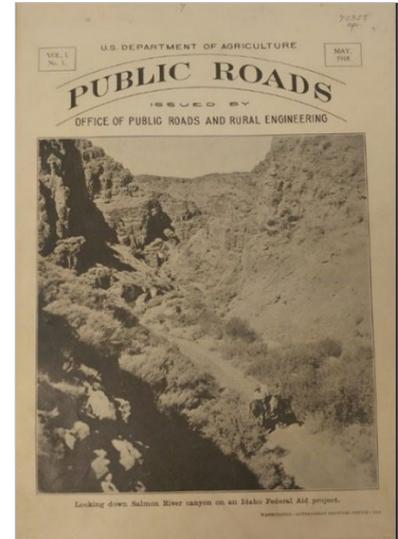
**Digitization** refers to creating digital records from physical ones, such as by scanning printed documents or converting videotapes and audiocassettes to digital video and sound files.

The ability to digitize physical records allows libraries to **archive and preserve materials indefinitely** and make them **instantly accessible** to users regardless of their location (Figure 6). Digital resources allow libraries with a small physical space—or no space at all—to continue to meet their users’ needs with large collections. And digital files that are electronically searchable and formatted for universal accessibility can add significant value to a library’s collection.

This chapter focuses on the **decisions, processes and resources** involved in digitizing printed documents such as research reports.

## Audience

The guidance in this chapter is appropriate for DOTs **with or without library spaces** that wish to develop an internal program to digitize materials or participate in a collaborative digitization effort.



**Figure 6. The First Issue of *Public Roads*, Obtained From NTL’s DOT Library Serials Collection**

## Selecting Resources to Digitize

Digitization projects can range from a single item to the implementation of an agencywide digitization plan. Regardless of the scope, digitization projects involve considerations similar to those outlined by the Consortium of Academic and Research Libraries in Illinois (CARLI) in the group’s Anatomy of a Digital Project [webinar series](#). When selecting resources to digitize, CARLI recommends considering several [factors](#):

- **Purpose and audience.** Expanding access to a wider audience and ensuring long-term preservation are common goals of digitization. Consider:
  - Will the digital resources fulfill a **specific purpose** aligned with the agency or library mission? If the agency has a digitization plan, is this selection in alignment with it?
  - **Intrinsic value:** Will these digital resources be unique (not available elsewhere)? Can they be presented with sufficient context (for example, for a collection of archival images)?
- **Discovery and access.** Consider how the digitized items will be discovered, accessed and used. Will the digital objects have added value (such as keyword searchability for textual materials)?
- **Copyright.** Does the library have permission to digitize the items, or are they in the public domain?

➦ Refer to [Copyright and Open Access](#) for more information.

- **Cost.** Consider personnel time, equipment costs, and long-term storage, preservation and maintenance of the digital files. Do the materials have any special characteristics that would add to the processing cost?

- **Physical condition.** Will digitization damage or destroy the items? Will digitizing prevent further handling of the originals?

## Digitization Process

Establishing standards and processes will help ensure that digitization projects fulfill their objectives. The Iowa DOT Library (now closed) developed a set of **digitization standards** and a **digitization workflow** to guide its efforts to produce digitized items that could be easily accessed, read and preserved. Former Iowa DOT Librarian Leighton Christiansen—now librarian/data curator for NTL—and colleagues detailed these frameworks (adapted below) in a 2016 [conference paper](#).

### Digitization Standards

To produce digitized items that are uniformly accessible, document standards should address:

- Scanning resolution (based on available equipment and desired readability).
- Layout and magnification settings.
- Creation of searchable text (through Adobe Acrobat’s optical character recognition (OCR) technology).
- File naming conventions (filenames should be human-readable).
- Metadata fields (title, author, subject and keywords).

### Digitization Workflow

Establishing a standard workflow will help libraries process digitization projects efficiently and accurately estimate the resources needed for future projects. Sample steps may include:

1. **Select materials for scanning.**
2. **Assess materials for scanning exceptions**, such as damaged pages, oversized or foldout pages, or transparencies. These should be scanned by hand.
3. **Unbind the items.** If possible, cut reports out of bindings for quicker scanning; **destructive digitization** can be justified if the item is held elsewhere and if the scanning improves general access to the information.
4. **Prepare for bulk scanning.** Schedule in-house or contract bulk scanning for efficient, consistent results. (Sample scanner settings: Black and white; 400 dots per inch (DPI) scan resolution; two-sided scanning.)
5. **Bulk scan items.** Watch for pages that will need to be rescanned, such as very dark or very light scans, folded pages and pictures (rescan using grayscale setting for higher quality).
6. **Convert scanned images to PDF files.** Archive the master scan images for later use.
7. **Process each PDF through Acrobat’s OCR function.** This step will enable full-text searching.
8. **Name the file, add metadata and set document properties.** Refer to the NTL [Digitization Resource Guide](#) for resources on metadata standards and file naming conventions.
9. **Submit the final document to an open access digital repository.** If your agency does not have a preferred repository, refer to the NTL list of [data repositories](#) for suggestions.
10. **Catalog the final document.** Add the repository link to the existing OCLC record for the print item or derive a new record for the electronic item based on the existing physical item record.
11. **Send document information to [Transport Research International Documentation](#) (TRID)** and other transportation libraries (coordinate in advance for large document quantities).

## Cost, Staffing and Equipment Considerations

Accurately projecting the staff time and costs required for a digitization project can be challenging. Using a [digitization cost calculator](#) can help libraries create estimates that account for a range of considerations, including:

- **Staff experience** with all aspects of digitizing, including scanning, post-processing for text recognition (OCR), writing metadata, cataloging and uploading to a repository.
- **Scanning equipment** speed and capabilities.
- **Characteristics** of materials to be digitized, including physical condition and number of exception pages requiring manual scanning.

The digitization cost calculator mentioned above includes [data](#) on the speeds of different types of equipment.

**For Example** The Iowa DOT Library created detailed estimates of the time required to digitize printed research reports; these are detailed in a 2016 [conference paper](#).

### Outsourcing

In-house digitizing may not be feasible for some libraries, especially for large quantities of material. Outsourcing the task to an experienced firm may be a more cost-effective option.

The nonprofit [Northeast Document Conservation Center](#) (NEDCC), founded in 1973 as “the first independent conservation laboratory in the United States to specialize exclusively in the conservation and preservation of paper-based collections,” maintains a website that offers a wealth of information about digital preservation, including [outsourcing digitization](#). Guidance considers in-house versus outsourced digitization and describes the advantages and disadvantages of both.

NEDCC notes that organizations can outsource specific elements of the digitization process, including:

- Original materials preparation.
- Digitization (conversion).
- Bibliographic records and metadata creation and/or update.
- Additional file processing, including OCR processing of documents.
- Printing and possibly binding analog duplicates of materials.
- Storage and archiving.

For those opting to outsource, NEDCC provides a detailed discussion of vendor relations that addresses locating potential vendors, preparing a request for information and request for proposal (including samples), evaluating responses from vendors, developing a contract, and working and communicating with vendors.

**For Example** The University of Nevada, Las Vegas Library has developed a [webinar](#) examining the pros and cons of in-house digitizing and outsourcing. Additional resources on costs, staffing and equipment are available in the NTL [Digitization Resource Guide](#).

## Additional Resources and Training

### Guidance and Best Practices

- American Library Association [Digitization Resource Guide](#)
- [Digitization best practices](#) from Princeton University Library

## Training

- Digital stewardship training [webinar](#) from WebJunction (OCLC)

## Collaboration

- [Digital Public Library of America](#): Launched in 2013, this open, national digital library has a partner network that includes 41 states and more than 4,000 contributing institutions.
- [HathiTrust Digital Library](#): This collaborative of academic and research institutions offers shared access to millions of digitized titles.
- [NTKN Communities of Practice: Cooperative Digitization](#): This group discusses collection development, cataloging, digital rights, promotion, contracting and best practices for digitizing transportation collections, as well as eliminating duplication of effort.

## Library Examples

- **Digitization plans** guide an organization's approach to all facets of the process. Examples include:
  - Northwestern University Transportation Library (NUTL) digitization strategy: Librarian Roberto Sarmiento [discusses](#) how NUTL selects projects to add to its [digital collections](#), including the importance of having a clear vision and plan for new digital projects and promoting the resources once they are acquired.
  - [Los Angeles County Metropolitan Transportation Authority Library and Archive digital strategy](#) is built around eight core values that allow the library to enhance patrons' experience through value-added services: immediacy, personalization, interpretation, authenticity, accessibility, findability, embodiment and patronage.
- **Digitization projects**: The NTL [Digitization Resource Guide](#) contains an extensive list of transportation-related digitization projects and digital collections.
  - Iowa DOT's [Historic Archives Digital Collections](#) contain transportation-related photos, maps and other documents.
  - [WSDOT Library Digital Collections](#) include archived manuals and standards.

# 7 Outreach and Education

## Overview

As the **information services landscape** is **changing**, state transportation agency users of library and information services need to know how their agencies can help them navigate the plethora of ways to search and find the best information they need to do their jobs. Technological advances may spur misconceptions that agency staff can find all they need by themselves on the internet, but technology also broadens the realm of **potential value-added information services** that transportation libraries and research programs can provide. For agency staff to use—and agency leaders to support—information programs, they first need to know about the programs and understand their value.

User outreach can serve the dual purposes of **educating users** and ensuring agency and **user needs are understood**. A variety of other proactive techniques and practices can also keep information services in the forefront of agency culture.

➦ Refer to [Demonstrating Value](#) for more information.

**Note:** Before initiating a program for outreach and education, transportation librarians and information services providers who are new to an agency should consult with management to identify any limitations on these activities.

## Audience

The guidance in this chapter is appropriate for DOTs **with or without library spaces** and **with or without library collections** that provide information services to users.

## Interactive Methods

### Library Committees

A library or information services advisory or steering committee can be helpful in making sure the program is responsive to agency needs. Representation from as many other divisions or programs as possible will result in a broad understanding of agency priorities, changes over time and program-specific issues.

**For Example** Wisconsin DOT's Research and Library Advisory Committee is an example of an internal committee with members from various divisions, though this group tends to be more involved with research than library services.

### Collaborative Forums

Collaborative forums or informal gatherings provide opportunities for interactive learning and knowledge sharing. Transportation librarians or information services staff can host gatherings to highlight specific agency research, provide library-specific training or facilitate brown bag presentations on a wide range of topics. The subject of the forum does not have to be related to libraries and information services. Simply hosting or facilitating meetings will remind agency staff of the library's presence and value.

**For Example** Washington State DOT Research and Library Services Office hosts bimonthly [Webinar Wednesdays](#) to highlight agency research results.

## Events

Holding open houses, hosting focus groups, conducting annual symposiums or participating in research and innovation showcases can enhance awareness and raise the profile of the library or the information services that the agency provides.

**For Example** Oklahoma Transportation Library hosts [workshops](#) for agency employees on the library's resources and services. Open houses, focus groups or annual symposiums such as Vermont Agency of Transportation's 2021 virtual [Research and Innovation Symposium](#) are all events that bring people together, even if only virtually, to learn about information services, research or related topics.

## Targeted Internal Outreach

Assisting with the onboarding of new agency staff is only one way transportation libraries and information centers engage with the users of the information resources they manage.

Transportation librarians can reach out to **new employees** to learn about their interests and identify ways the library can support the new staff person in future efforts. Offering **orientations** to new or current employees can initiate positive relationships and provide a concentrated marketing opportunity. Results of a study published in the summer of 2020 included a [survey of special librarians](#) that identified some key orientation practices:

- Develop a **partnership with your human resources department** to know when new employees arrive or coordinate outreach to other employee groups.
- Be strategic in **using technology and other tools** for orientations, and use a mix of presentations and interactive components in a remote orientation, physical tours, or handouts and tip sheets.
- Consider **timing of orientations** for new employees, perhaps waiting several weeks until new employees have a greater understanding of the information needs for their new positions.
- **Customize orientations** based on unit, division or employee type (for example, administrative or technical).
- **Make outreach ongoing**, following up with employees who received orientations.

Information services providers can reach out to specific divisions, programs or staff to discuss unique needs and resources. Presentations can be made at **program meetings**, but simply speaking with program management or other influencers can have lasting positive impacts. Information services staff could be temporarily or permanently embedded in other program areas. Additionally, librarians and others can reach out to **individual districts or regions** to understand unique needs.

Given the multitude of potential information sources and repositories, search engines and data tools, information specialists are in a good position to **mentor** agency staff in navigating this landscape for research and decision-making. They can share this data expertise across the agency and illustrate the depth of value they can bring. As MnDOT Library recognized in its June 2017 [strategic plan](#):

In the next 5 to 10 years, information management will include more opportunities with data. Librarians must understand and apply data, analytics and emerging technologies. There will be a need for "data scientists," who have a certain mindset. There will be more usage of data visualization software. Librarians must facilitate learning and adapt quickly in cross-disciplines, collaborate and deliver strategic outcomes and value. They must be proficient marketers and brand advocates. For current staff, this will take time to develop.

## Other Outreach Tools

Effort put into developing marketing plans and advertising information resources and services can pay off in greater visibility for the library and increased demand for library services.

### Formal Marketing Plans

If resources are available, developing a formal marketing plan can help a library or information center more effectively and systematically engage with users across all levels of the agency.

**For Example** MnDOT Library is working on a **marketing plan**, first described in the library’s June 2017 [strategic plan](#), that will raise awareness of library services and resources. The plan will “develop marketing strategies that will define and prioritize key stakeholders, clarify customer needs, identify opportunities and develop tactical plans that target specific audiences (e.g., outstate districts, generational users, technical groups, etc.)”

### Highlighting Other Agency Practices

**Logos** or other graphic illustrations of branding can help communicate the value of the information services provided. Visual identifiers could be attached to all outgoing communications, products and resources.

Oregon DOT Library’s [LibGuides](#) are just one example of libraries highlighting the customized, visually engaging **online literature searches** they develop. **Display posters, flyers or fact sheets** are simple ways to advertise information services. **Library newsletters** or input provided to other agency newsletters may be a quick way to let agency staff know of new or changed information services.

**Alerts** highlighting **new library materials** are also an effective way to reach library users and nonusers. These alerts can be sent globally within an agency or to a targeted list of users, divisions or other segment of the agency population. Some libraries use subject-based email mailing lists to target content to the most appropriate users. Other libraries, including [MnDOT Library](#), post web-based monthly alerts (Figure 7).



**MINNESOTA  
TRANSPORTATION  
LIBRARIES**

### New Library Materials

Items added during: March 2022

[New Library Materials Archive](#)

**Contents:**

- [Information Extra](#)
- [New Materials](#)
- [New AASHTO Digital Publications](#)
- [How to request listed resources](#)
- [Subscribe to New Library Materials](#)

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*Information Extra*

**Collection Close-up: The 5 Languages of Appreciation in the Workplace**

Summary from cloudLibrary:  
Dramatically improve workplace relationships simply by learning your coworkers' language of appreciation. This book will give you the tools to improve staff morale, create a more positive workplace, and increase employee engagement. How? By teaching you to effectively communicate authentic appreciation and encouragement to employees, co-workers, and leaders. Most relational problems in organizations flow from this question: do people feel appreciated? This book will help you answer "Yes!" A bestseller—having sold over 300,000 copies and translated into 16 languages—this book has proven to be effective and valuable in diverse settings. Its principles about human behavior have helped businesses, non-profits, hospitals, schools, government agencies, and organizations with remote workers.



Figure 7. Excerpt From MnDOT Library’s New Library Materials Alert

A strong **web presence** is necessary to reach and engage agency staff. To keep agency staff and leaders informed about library and information services:

- Invest the time to develop both a public-facing library website and an information services intranet or portal for agency staff only.
- Update both as often as possible with new content to keep users engaged.
- Most importantly, ensure any online presence is user-friendly and in compliance with Section 508 accessibility standards.

➦ Refer to [Accessibility and Section 508](#) for more information.

Using **social media** to broadcast new resources, services or research can be an effective way to reach those staff members who are active social media users and prefer to engage in that way. **Blogs** are another option, such as those supported by the [Utah State Library](#), the [State Library of Massachusetts](#) and [New Jersey State Library](#). Many state DOT research programs maintain a **research listserv** that distributes quarterly updates to anyone who has subscribed. Participating in an established listserv or developing one specific to library and information services can provide a valuable resource to users.

Other creative marketing tools include MnDOT Library's [video](#) describing its services. Contributing **training modules** for required agency training or including information in **new employee orientations** is another way to have a broad reach. Participating in or presenting at **agencywide meetings** or developing **stock PowerPoint slides** describing information resources and services for other agency staff to use in their own presentations can extend the support network.

## Additional Resources

[Library Orientation Practices in Special Libraries](#), Melissa Fraser-Arnott, *Reference Services Review*, Vol. 48, Issue 4, pages 525-536, July 2020.

This article summarizes a study exploring orientation practices in special libraries.

[NJDOT Research Library Action Plan](#), Cambridge Systematics, Inc., New Jersey Department of Transportation, September 2021.

Researchers used surveys, a literature review and reviews of other state DOT libraries to produce a mission statement, goals and objectives, gaps and an action plan including near- and long-term implementation summaries.

[The Forecast for Special Libraries](#), Tara E. Murray, *Journal of Library Administration*, Vol. 56, Issue 2, pages 188-198, February 2016.

This article examines a 2016 industry outlook report and its implications for special libraries, identifying workforce-related trends and other changes expected for the information industry.

# 8 Space Planning

## Overview

The **physical library spaces** of state transportation libraries have evolved. With changes in methods of acquisition and information transfer, library spaces everywhere are being reimagined:

- Some state transportation libraries have been reduced in size or eliminated, while others share or use space in the library of another organization, such as a university.
- Library collections are increasingly becoming digital, eliminating the need for shelf space.

Even with these changes, valuable physical collections of transportation information remain and must be appropriately housed.

**User needs have also evolved.** While users may not need to flip through a card catalog, they may need collaborative space to discuss research issues and obtain face-to-face research support, or a space and computer with which to do uninterrupted research.

Many transportation agencies still have physical library spaces that require careful planning and maintenance. Space plans should be continuously reassessed to ensure user needs are being met and justified within the larger agency context.

## Audience

The guidance in this chapter is appropriate for DOTs **with library spaces**.

## Physical Collections

Space planning should start with an **inventory of physical collections** and other materials to be housed, with consideration given to any plans to digitize, discontinue or expand each collection:

- Include reference materials; current periodicals; bound journals; local, state and national reports; and maps.
- Review the sources of these collections to see if any are available online and, if so, how agency researchers can readily access the online information.
- Consider whether digitization of selected material is an option.

🔗 Refer to [Digitization](#) for more information.

Once it is clear which physical materials need to be housed, an agency can estimate the shelf space and the square footage required for the shelves, including accounting for Americans with Disabilities Act requirements.

Connecticut State Library's [Library Space Planning Guide](#) provides a detailed planning and space guide, including a worksheet to estimate needed space for collections and other uses.

## Compact Shelving

For small spaces, compact shelving (also known as **movable** or **mobile shelving**) may offer an effective solution for storing print materials (Figure 8). Considerations for libraries contemplating this type of print collection storage include:

- Determining how much **weight** the library's floor can accommodate. A structural engineer may need to be consulted to determine the library's floor load.
- Identifying the **maximum height** the library can accommodate. The space required between sprinkler heads and the shelving should be considered.
- Assessing whether the collection is a good fit for compact shelving. This approach to shelving has been recommended for **low-use, low-growth** and **low-maintenance** collections.



**Figure 8. Compact Shelving Used by the U.S. Geological Survey**

Compact shelving systems can be manually operated by users to move one set of shelves (carriages) at a time, mechanically assisted to move two to three carriages at a time, or operated with an electrical system to move multiple carriages together in one movement. Shelving systems that require an electrical system are the most costly option and often used for large collections. Safety devices can be active or passive, and may be standard or optional, depending on the system. Librarians considering the use of compact shelving are encouraged to visit other libraries where these systems are installed and consult with multiple vendors.

## Other Uses

Libraries can **accommodate other uses** beyond housing physical collections. Each of these uses may have specific space requirements:

- **Librarian support.** Librarians or information services providers located at the library can provide in-person reference services, literature searches and other research assistance.
- **Staff workspace.** One or several computer terminal stations can allow researchers to work undistracted from their regular office setting and with the benefit of information specialists nearby.
- **Meeting space.** Conducting internal research or planning discussions encourages more use of library services.
- **Event or training space.** Hosting or facilitating collaborative events or trainings further raises the profile and awareness of the library space and services.
- **Public information display area.** A central location within the library can be used to display a range of materials, including forms, publications or maps; agency news, successes or plans; or other current topics of interest.

These and other uses can bring more interaction, and ultimately support, for library space and services.

Estimates of the square footage needed for other uses might include:

- Computer terminal workspaces, consultation seating, meeting area tables and chairs, and open display areas.

- Staff workspace and equipment (printers, copiers, microfiche readers).
- Extra workspace for temporary or contract workers necessary for initiatives such as digitization.

## Justifying Space

There are **numerous benefits** for transportation agencies fortunate to have a physical library space. Primarily a repository for information and services crucial for the effective operation of a state DOT, this space also may have significant positive impacts on agency staff and even the community.

An expression of why this space and these services are of value to the agency can be prepared. This is important whether an agency is trying to keep the space it has, expand it or acquire new space.

- In articulating the value and purpose, consider how the space and services should be referred to, or branded. For example, *information center* is more holistic than *library*, and thus representative of a broader scope of services and functions.
- Stress the ease of access of information. When staff members need information, a physical library helps them find it quickly and easily.

➦ Refer to [Outreach and Education](#) for more information.

## Additional Resources

[Library Space Planning Guide](#), Connecticut State Library, 2021.

While this guide is developed to examine the special building requirements for public libraries, it will be helpful for other types of libraries considering space planning issues.

[Pressed for Space: Is Movable Compact Shelving the Solution?](#), Frances M. Brillantine, *Law Library Lights*, Vol. 51, Issue 2, pages 7-10, Winter 2008.

This examination of compact shelving considers its use in law libraries, another type of special library.

[Space Planning \(WebJunction\)](#): This OCLC resource provides links to documents, webinars, news and additional resources to “help you plan and design your library space to create a welcoming, healthy, safe and accessible environment.”

## 9 Changes in Library Status

### Overview

Many state transportation agency libraries have undergone changes in the last decade. While some simply move with the agency to new offices, others gain space when the agency moves. More state transportation agency libraries appear to be **losing some or all of their physical space**. Losing shelf space doesn't mean that needs or capacity for library and information services are lessened. **Intellectual capital** is no longer only found in shelved books. Accessing and managing information and knowing what information best meets an agency's needs is the intellectual capital in today's digital age.

### Audience

The guidance in this chapter is appropriate for DOTs **with or without library spaces** and **with or without library collections**.

### When Libraries Close

Library closings, generally due to resource constraints, are not unique to state transportation agencies. For the last two decades, many other sectors have struggled to keep their library doors open. Libraries in corporations, hospitals, universities, newsrooms and other government agencies have closed, merged or otherwise morphed into something different. Key considerations when transportation libraries close are the library's physical collections and other resources and services.

### Disposition of Print Materials

When a library loses its physical space, **collections** might be discarded, put in off-site storage or integrated into another library's collection. Understanding ahead of time potential options to house collections is advisable. The level of effort needed to maintain collections may be harder to come by. One university librarian had [these suggestions](#):

- Bind loose journals, if possible. Identify duplicates and donate or recycle.
- Decide where materials to be kept are going, whether a university, other library or storage, and label boxes carefully.
- Determine whether reference books or other special materials can remain in an accessible location in the agency.
- Convert journal subscriptions to online, if possible.
- Ensure discoverability of a new virtual library, recruiting help from agency communications staff, if necessary.

**For Example** Relatively recent transportation agency library closures illustrate how disposition of print materials varies. When Arizona DOT Research Center's library closed, the print and digital versions of reports published by Arizona DOT and other Arizona agencies were transitioned for retention by the Arizona State Library Archives in the [Arizona State and Local Government Documents Collection](#).

Closure of the Connecticut DOT Library in the agency's headquarters building prompted the agency to move more resources online. The majority of the library's books were moved to smaller rooms around the building

(engineering and construction, policy and planning), and exam study materials were moved to the agency's Office of Communications. Unlike Arizona and Connecticut, when Ohio DOT's library closed, most of the physical materials were discarded.

## Other Library Resources and Services

Services could be discontinued if all library staff members are lost. Maintaining some library or information services staff is imperative if libraries close given the continued needs of agency staff when navigating the world of transportation information. Information services providers can distinguish their worth and value from that of a physical library, which is only one part of a librarian's domain.

Having a plan of action for this eventuality can help by allowing for a more manageable process and paving the way for positive outcomes. Cultivating and maintaining **relationships** among agency management and with relevant outside organizations is important regardless of the library's fate. Acquiring part of the time of another library's information services provider may also be an option.

**For Example** The University of Southern California and Children's Hospital of Los Angeles have an agreement in which the university supplies and manages a "[liaison librarian](#)" who works at the hospital half of the workweek, while the hospital provided space and clerical support. Creative collaborations can benefit both organizations.

## When Libraries Downsize

State DOT libraries have **lost space** or **portions of their collections** for various reasons. Depending on what resources need to be housed and the other functions information services space will provide, some space planning is likely necessary.

The Connecticut State Library's [Library Space Planning Guide and related materials](#) offer design considerations, planning steps, space planning resources and a worksheet in which physical collections, other resources and desired functions can be entered to calculate space needs. With less space to manage, a downsized library can focus its remaining resources on providing information services that meet agency needs.

➦ Refer to [Space Planning](#) for more information.

**For Example** The New Jersey DOT Research Library lost physical space but still focuses on providing research support and services such as literature searches to agency staff.

## When Libraries Transition to Virtual

Even if a library or information services program has **no physical space**, planning for and maintaining a virtual information services program is equally as important. As noted in a 2020 [journal article](#):

[T]hose of us who handily let go of the battles over space are better prepared to think more daringly about how to push services forward. A comprehensive pivot toward services that emphasize our own activism yields exciting results, particularly in online working groups. With no library space to oversee, we may find ourselves embedded everywhere in the organization. This is a huge opportunity, but it is not always perceived as one. Online life is noisier than ever, but our message is simple: We have the answers, and we can help you find them.

Acquiring access to relevant databases, journals and other electronic resources, and digitizing physical resources are key steps in moving from an emphasis on print collections to a more robust online presence. A commitment to resource sharing through interlibrary loan and document delivery will also significantly broaden the reach of a virtual library.

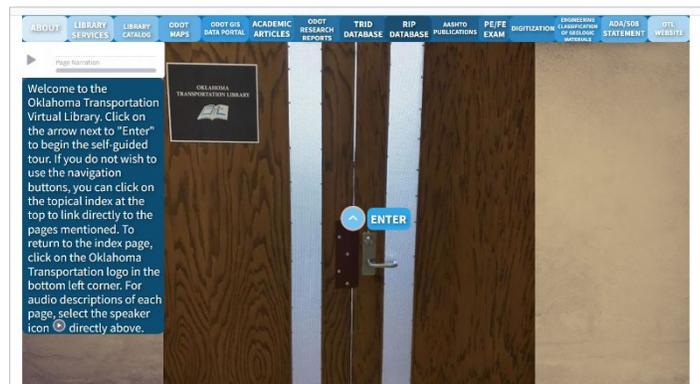
Moving to an all-digital collection requires careful planning and, if wishing to include a wide range of licensed electronic resources, a significant commitment of funds for ongoing support of the collection.

➦ Refer to [Information Management](#) and [Digitization](#) for more information.

**For Example** Ohio DOT’s online [Research Library](#) is maintained by the agency’s research program and includes final reports, newsletters, project dashboards, and archived and other information.

Oklahoma DOT created a statewide digital transportation information resource to complement its physical presence. Launched in 2021, the [Oklahoma Transportation Virtual Library](#) is maintained by the University of Oklahoma, which owns and maintains the library catalog, stores the digitized items and maintains a website (Figure 9).

Wisconsin DOT seeks to create a similar virtual information resource—a “one-stop shop”—that would be maintained by the transportation agency. Wisconsin DOT would own and operate the library catalog, store digital information and maintain the webpage. This type of development of a robust, continually expanding online statewide transportation information resource may signal a future trend for transportation libraries.



**Figure 9. Oklahoma Transportation Virtual Library Website.** Clickable arrows offer a self-guided tour of the virtual library.

## Additional Resources

[Federal Libraries Continue Their Mission in the Face of Challenges](#), Richard Huffine, *Information Today*, October 2014.

This article discusses the status of federal agency libraries amid funding challenges.

[Letting Go: Closing a Branch Library of the Health Sciences Library System](#), Leslie Czechowski, Renae Barger, Malgorzata Fort and Gretchen Maxeiner, *Library Resources and Technical Services*, Vol. 54, Issue 3, pages 153-163, 2010.

This article chronicles a library closure. A literature review provides background information on other branch closures and notes that few publications have addressed the actual closure of a library.

[Research Library Operations \(2018-2019\)](#), Maria Baratta and Carol B. Paszamant, New Jersey Department of Transportation and Federal Highway Administration, November 2019.

This report describes New Jersey DOT’s library successes and challenges from 2018 to 2019.

[Special Libraries and the Information Services Lifecycle](#), Terence K. Huwe, *Computers in Libraries*, September 2020.

This article examines how special libraries can remain flexible and adaptive in the face of change.

[Transforming a Library into a Bookless Branch and Increasing Discoverability of the Virtual Library](#), Jill H. Powell, *2012 ASEE Annual Conference and Exposition*, June 2012.

This conference paper describes the transformation of an academic library. Rather than closing, the library transfers physical volumes to other campus libraries, gains funds for digital collections, and transforms the library building into a 24/7 research and computing center.

[Understanding Modern Transportation Libraries](#), Bob Sweet, National Transportation Knowledge Network Blog, June 15, 2020.

This blog post discusses the importance of information professionals in meeting agency needs.

[When a Library Shuts Its Doors: Collections and Information Services After a Library Closure](#), Tara E. Murray, *Journal of Library Administration*, Vol. 54, Issue 2, pages 147-154, April 2014.

This article discusses considerations for library closures.

# 10 Knowledge Management

## Overview

Knowledge management (KM) has been a hot topic of discussion within the transportation community in recent years:

- A [May 2019 publication](#) of the [AASHTO Committee on Knowledge Management](#) defines KM as:  
[A] collection of policies and practices relating to the identification, sharing and retention of intellectual/knowledge-based assets in an organization.  
  
It is a management practice fostering collaboration across organizational and disciplinary boundaries[,] linking people who have the requisite knowledge with those who need it to do their jobs.
- A second national transportation association committee—[TRB Standing Committee on Information and Knowledge Management](#)—advocates for KM in the transportation community and supports state DOT KM efforts by:  
  
[A]dvancing and disseminating practices that improve knowledge and information creation, access, sharing, preservation and retention within and among transportation organizations. The committee identifies critical research needs in these areas, promotes understanding of these topics throughout the transportation community, and fosters the use of library and information science and knowledge management practices through education, training, collaboration, outreach and research.

Transportation librarians and information services providers not participating as active members of these committees can ask to participate as a friend of the committee.

KM is becoming more important given the generational changes in the workforce and the quantity and quality of information the outgoing generation possesses. **Collecting, managing** and **preserving** this valuable resource is of great value to any agency.

## Audience

The guidance in this chapter is appropriate for DOTs **with or without library spaces** and **with or without library collections**.

## Role of the Library or Information Center

While some efforts to preserve knowledge occur in programs, divisions or other units within transportation agencies, KM can be most effective if agencies approach it in an **organized, methodical** fashion. A logical manager of this process is a librarian or information services provider for two primary reasons. These individuals:

- Are in the business of searching for, organizing and disseminating information.
- Work across disciplines within their agencies to engage with research managers, leadership, engineers, planners and other subject matter experts.

An **agencywide KM plan** or **strategy** can promote actions—many relatively simple and low-cost—to save and leverage this institutional knowledge. State transportation agencies will benefit from managing this intangible asset, and libraries, librarians and information services providers can play an important role in developing and maintaining a system to do so.

## Strategies and Actions to Preserve Knowledge

### National Guides

The 2015 [NCHRP Report 813: A Guide to Agency-Wide Knowledge Management for State Departments of Transportation](#) (Figure 10) offers these information management-oriented ideas for libraries or information centers to actively participate in KM by:

- Capturing specialized knowledge from employees before they leave the agency.
- Organizing communities of practice (CoPs) where less experienced employees can learn from peers.
- Developing employee expertise directories.

U.S. Domestic Scan Program [Scan 12-04](#), *Advances in Transportation Agency Knowledge Management*, identifies areas of effective KM implementation strategies for state DOTs, including these that may be relevant to libraries, librarians and information services providers:

#### Fostering Networks and Communities of Practice

- Develop searchable expertise directories, including existing formal and informal networks.
- Establish CoPs that enable employees to exchange information and share knowledge.
- Encourage and reward employee participation in CoPs.
- Develop policies for incorporating employees into networks based on their primary discipline.

#### Knowledge Capture and Application

- Develop processes for peer reviews before, during and after a project or initiative to ensure that available knowledge is applied, teams learn from experience and key lessons are captured for future use.
- Capture the stories and perspectives of technical experts and leaders within and outside the organization by inviting presentations and creating podcasts or videos to share.
- Capture institutional knowledge by reviewing significant events in the agency's history, examining and discussing what led up to these events and how they were handled.
- Establish criteria to prioritize the information and knowledge to be captured and shared.
- Develop standard contract language to ensure that information and knowledge are captured from contractors and other working partners.

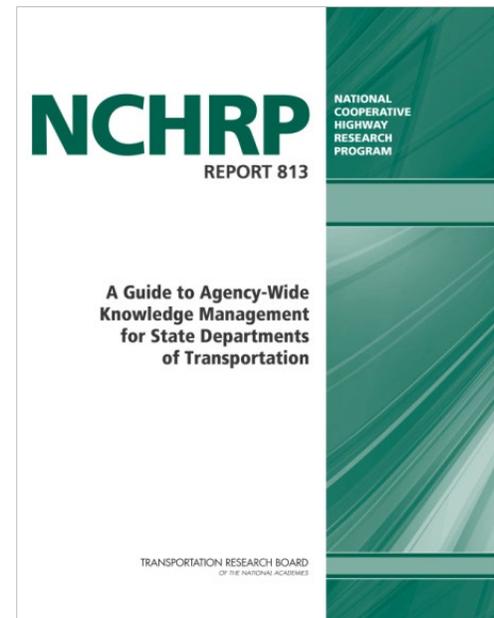


Figure 10. *NCHRP Report 813: A Comprehensive Publication on KM in State DOTs*

## Information Management and Dissemination

- Institute practices to ensure that important information can be easily accessed.
- Develop a blueprint for information organization that considers multiple sources, content types and needs.
- Review policies and procedures to eliminate duplication and inconsistencies, and use a common language.

### Agency Knowledge Management Practices

Some agencies pursue **more informal efforts** to retain institutional knowledge, reaching out to staff members preparing to retire to catalog any historical documents or other information retiring employees may have in their files. Other agencies have adopted **KM programs**.

**For Example** North Carolina DOT's [CLEAR Program](#) (**C**ommunicate **L**essons, **E**xchange **A**dvice, **R**ecord) illustrates a more formal approach with its “internally developed knowledge management program that gives voice to every [North Carolina DOT] employee. It promotes cross-unit communication, sharing of best practices and organizational enhancements through an easy-to-use technical platform.”

Agency employees submit online forms with a lesson, idea or request for a solution to a CLEAR SharePoint site. After vetting by an expert review panel, these submissions are added to an agency repository that can be searched and analyzed.

The CLEAR Program's focus in 2022 is “to improve the way information is shared through the launching of Lunch and Learns.” Lunch and Learns and brown bag presentations are often used by state DOT research programs—and the libraries that support them—to highlight new research or new information services.

### Knowledge Books

The [Method for Analyzing and Structuring Knowledge](#) (MASK), developed by French researchers, uses models to organize and present information from interviewing one or more experts on a given topic. A “knowledge book” presents this information with links to relevant reference materials that successors can easily navigate and use.

**For Example** Washington State DOT tested the MASK technique in an October 2019 [project](#) and reported outcomes and lessons learned to assist others wanting to explore this method. Minnesota DOT completed three knowledge books in connection with its 2020 [knowledge retention pilot project](#).

### Other Knowledge Management Tools

Other agencies have commissioned research to develop **new KM tools** to assist with both KM and employee retention.

**For Example** Concerned about employee turnover, in 2015 the Vermont Agency of Transportation commissioned a [study](#) on how to improve employee retention and KM at the agency. A pilot component of the study included developing a workshop method and **Knowledge Exchange Tool** to be used with small groups. This tool is a fillable form that provides a format for a group to discuss and understand tacit knowledge. A topic is selected that the group has working knowledge of, interested parties are identified, and directions are prepared on how to create a file to compile and store the information. Finally, participants consider how long the tacit knowledge may be relevant and when it would need updating.

The Vermont study concluded that KM involves **people, processes** and **information technology**—all of which are equally important for success. Researchers recommended coordinating KM efforts, ideally designating an individual with authority and responsibility to move KM forward. Other recommendations included:

- Convening a KM leadership group to develop strategies for the agency.
- Reviewing the use and architecture of the agency SharePoint site, including analytics to understand what employees are searching for.
- Holding introductory KM workshops for divisions or groups of employees using the tools developed in this project.

## Research Databases

One mechanism for sharing and storing research is research databases. Two of the most comprehensive transportation research databases are managed by [TRB](#) under the National Academies of Sciences, Engineering and Medicine:

[Research in Progress](#) (RiP) is a clearinghouse for state DOTs, university transportation centers (UTCs) and others to share current research, including project abstracts, start and expected completion dates, performing organizations and sponsors. RiP is searchable by location (state DOTs and UTCs) and topics.

The [Transport Research International Documentation](#) (TRID) database contains more than 1.3 million records of completed research, including books, technical reports, conference proceedings and journal articles. TRID is searchable by many parameters and includes hot topics and instructional videos and webinars for using the database.

In addition to accessing these national sources of research data, state DOTs may also use one or more tools to track agency-funded research and projects.

**For Example** Washington State DOT published the July 2018 report [Research Management Database Business Analysis](#) as the final product of the pooled fund study, Research Program Management Database, TPF-5(181). This research effort identified “several future initiatives for consideration to improve research data management and sharing practices,” which include a research data exchange standard, creation of a model research data mart, and collaborative development of a web-based research program and project management database system.

## Additional Resources

[A Conference Worth Experiencing—and Sharing](#), *Information Outlook*, Vol. 23, Issue 3, May/June 2019.

This article reviews the 2019 Special Libraries Association Annual Conference in which one participant describes the session titled A How-To Guide to Engage Employees in Knowledge Management (see page 17 of the PDF).

[Knowledge Management With the MASK Method](#), Jean-Louis Ermine, *Knowledge Management for Sustainable Development*, Medtech, 2013.

This article provides some background on the MASK method used to develop knowledge books.

[Resource Library](#), American Productivity and Quality Center, 2022.

This online library contains more than 5,000 research-based practices, metrics, case studies and other information pertaining to complex business processes and KM challenges.

[SLA Members as Knowledge Strategists](#), Guy St. Clair, *Information Outlook*, Vol. 23, Issue 4, July/August 2019.

This article succinctly describes the current opportunity for information professionals in managing an organization's intellectual capital.

[Why DOTs Need Knowledge Management](#), KM Guide, TRB Knowledge Management Task Force, 2015.

This webpage provides access to a KM guide "intended to help DOT leaders examine the business case for undertaking or strengthening KM in their agencies."

[Why Knowledge Management is Critical for DOTs](#), AASHTO Committee on Knowledge Management, May 2019.

This two-page fact sheet identifies why KM is important for state DOTs and provides suggestions for assessing the need for a KM strategy.

# 11 Organizational Strategy

## Overview

While some state transportation agency libraries and information services providers are thriving, others are challenged by resource constraints and other factors. To stay relevant, retain or increase resources, and provide value to the agency, an overarching strategy is vitally important regardless of the current state of a library and its services.

The first step to making that strategy a reality is developing a **clearly articulated vision** of why the library or information services program exists and the information services, products and other value an individual or group wants to provide. Services and functions should be described—and prioritized, if feasible—with **goals** and possibly **actions** and **tasks**. The capacity, including staff expertise and other resources needed to develop or maintain the program, should be identified and described in detail.

Particularly important is the necessity to understand and align an information services strategy with the **strategic direction of the agency** as a whole. Most agencies have explicit strategic plans or annual reports describing agency performance toward defined goals. Incorporating the library or information services strategy within agency strategies or goals is a good opportunity to raise awareness of the library's or information center's value to agency leadership.

## Audience

The guidance in this chapter is appropriate for DOTs **with or without library spaces** and **with or without library collections**.

## Vision and Mission Statements

State DOT libraries are changing along with the information landscape. The need for information resources, management and services, though shifting, remains and thrives. Whatever program or functional label is used, state DOT libraries and the research programs that provide information services can serve as a nexus to bring information, institutional knowledge and people together.

An articulation of the ideal program to accommodate the changing information landscape and meet evolving user needs can set the direction for programmatic efforts. A **succinct vision statement**, ideally one or two sentences, describes what an organization is or desires to be. A **mission statement** describes what an organization does to be what it is or wants to be. Both will set the stage for more detailed planning and prioritization.

**For Example** Below are selected state DOT library vision and mission statements:

*California:*

The California Department of Transportation Library supports the Department's employees statewide in working to improve and preserve the state's transportation infrastructure and shape its future.

As part of its mission the Library maintains and sustains a physical and digital library, an archive collection and services designed to meet the Department's current information needs and preserve its

history. To effectively deliver these collections and services, the Library subscribes to electronic information systems and databases that are easily accessed by all Department employees.

The Library is committed to developing partnerships within the Department and the wider transportation community, to ensure that its systems and services are relevant, innovative and accessible.

*Minnesota:* The MnDOT Library advances your knowledge with timely, direct and cost-effective connections to the information you need to provide the highest quality transportation system.

*Missouri:* The MoDOT Library delivers quality, actionable information to support the informed decision making by the agency’s managers, professional and technical staff; provides access to the best transportation knowledge resources and tools; and disseminates MoDOT research innovations and solutions.

*New Jersey:* The NJDOT Research Library provides knowledge resources to transportation professionals in New Jersey so that they can plan, design, construct and maintain a high-quality transportation system.

*Texas (an informal and internal mission statement to direct priorities):* To fulfill and respond to the research needs of the greater transportation community by providing access to print and digital works supporting transportation research, providing leadership in partnerships and collaborations, and offering premier research and library information services that support TxDOT’s goal of being a “best in class” transportation agency.

Finally, the [Special Libraries Association](#) operates under this guidance:

**Vision:** The Special Libraries Association is the global organization for innovative information professionals and their strategic partners.

**Mission:** The Special Libraries Association promotes and strengthens its members through learning, advocacy and networking initiatives.

## Services and Functions

Intentional articulation of services and functions and **how they support the vision and mission** will provide focus and help illustrate the program’s relevance. Prioritizing, if possible, will help manage limited staff and financial resources. Provided below are traditional and newer practices typical of many state DOT libraries and information centers. Creating a realistic list and defining the scope and resources needed for each function or service can help focus and prioritize efforts.

### Traditional Practices

- Document delivery
- Interlibrary loans
- Literature searches
- New library materials alerts
- Online catalog
- Periodicals routing
- Research assistance
- Study and work areas
- Subscription databases

### Newer Practices

- Coordinating or providing training
- Digitization
- Hosting information forums
- Knowledge management coordination and activities

## Capacities

Any organization needs the means—**tangible** and **intangible resources**—to provide services and functions, meet its mission and realize its vision. Capacities that relate directly to services and functions to consider and characterize in a strategy document include:

- **Staffing/expertise:** Analyze how much effort and the types of expertise will be needed for the services and functions to be provided. Needed expertise may include a more pronounced communications competency.

➦ Refer to [Information Professional Competencies](#) for a general discussion of expertise needed for information management.

- **Infrastructure:** What physical space, equipment or organizational support is needed to support the program?
- **Technology:** Software and other information technology and support are primary capacity needs today and into the future.
- **Funding:** If tied directly to a formal strategy, the budget needed to carry out the program as described may be more compelling or secure.

Other needs relate to the program as a whole:

- **Governance:** Articulating how a program is run may seem unnecessary but can provide clarity (and ultimately support) for program staff and agency leadership. What other programs should be involved in suggesting or directing operations? Would a steering committee be helpful?
- **Image:** Some state DOT librarians and information services providers may struggle to make their presence and value known. An intentional description of the brand or image a library or information center wants to project can provide the basis for more effective outreach and marketing.

➦ Refer to [Outreach and Education](#) and [Demonstrating Value](#) for more information.

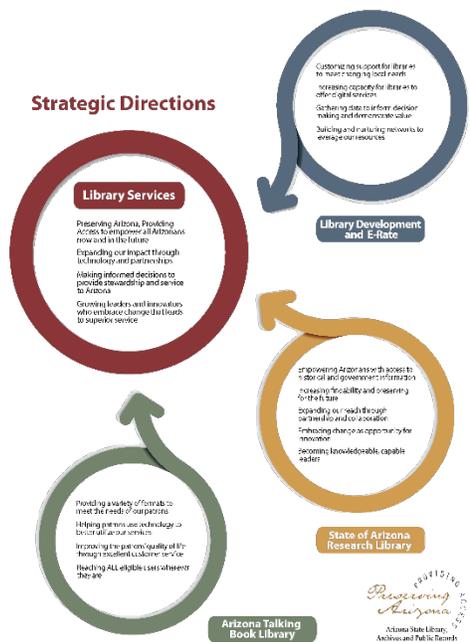
## Strategic Plans

Strategic plans are common among transportation and other public agencies. FHWA's July 2018 [strategic plan](#) for fiscal years 2019 through 2022 is just one example. These plans, published periodically, describe agency **priorities** and include **specific goals** and **objectives** that will support the agency's vision and mission. While these plans appear to be less common among transportation libraries, there are examples that can provide a template for libraries wishing to be more prescriptive in establishing goals and objectives for library operations.

**For Example** MnDOT Library's June 2017 [strategic plan](#) was developed from a comprehensive process involving customer surveys; stakeholder interviews; an analysis of strengths, weaknesses, opportunities and threats; and an analysis of relevant external factors impacting the library. The plan contains strategic goals in the areas of digitization, technology, marketing, collection, services and staffing, and physical space.

New Jersey DOT Library developed its [NJDOT Research Library Action Plan](#) in 2021. With the use of surveys, a literature review and reviews of other state DOT libraries, researchers produced a mission statement, goals and objectives, gaps and an action plan that included near- and long-term implementation summaries.

## Additional Resources



**Figure 11. Strategic Directions of Four Branches of the Arizona State Library**  
(Source: Arizona State Library)

[New Management Realities for Special Librarians](#), James M.

Matarazzo and Toby Pearlstein, *Online Searcher*, Volume 40, Issue 3, May/June 2016.

This article discusses the evolution of concepts and service models for special libraries and the information science skill sets needed to support evolving information needs.

[Understanding and Supporting Your Organization's Business Drivers](#),

Alexander Van Boetzelaer, *Information Outlook*, Vol. 20, Issue 6, pages 6-8, November/December 2016.

This brief article highlights how information professionals can “keep abreast of the overall objectives of their organizations and then develop strategies to support them.”

[Understanding the Business Drivers](#), Stuart Hales, *Information*

*Outlook*, Vol. 20, Issue 6, pages 1-2, November/December 2016.

The author of this article advises librarians and information professionals to track their organization's goals and align their services accordingly to better position themselves to “communicate their value.”

## 12 Demonstrating Value

### Overview

Library landscapes are evolving, and state DOT libraries are under constant pressure to **prove their worth**. Shrinking budgets, information technology advances and changing workforces may require state DOTs to augment traditional library services with new services to meet agency needs and provide innovative solutions. Some libraries are labeling themselves as “information centers” to more accurately reflect the range of services provided.

For many libraries, books on a shelf have given way to a proliferation of electronic resources, the management of a wider range of information sources and knowledge, and the facilitation of information sharing and collaboration within the agency. One university library director [notes](#) that values change over time and that “the need for proximity has evolved: Most, if not all, newly established libraries are virtual.” Showing the value of transportation libraries and information services—physical, virtual or a combination—is critical to their survival. Librarians and other library advocates must tip the scale in favor of benefits as compared to resources invested.

The 2012 publication [Proving Your Library's Value: A Toolkit for Transportation Librarians](#), popular across all library types, remains a **seminal tool** for transportation librarians. Informed by a review of contemporary literature, surveys and interviews of practicing librarians, and the authors’ experiences, this publication presents a set of recommendations to illustrate the value of transportation libraries. One overarching recommendation is that there is **no single solution** for all libraries. Each library must be described and valued in the specific context of the institution it serves, and these contexts can vary.

### Audience

The guidance in this chapter is appropriate for DOTs **with or without library spaces** and **with or without library collections**.

### Agency Alignment

Having the support of agency leadership is critical for any program’s survival. Leadership support requires **succinctly describing value** in an overarching strategy or other method that shows the library or information center is aligned with the agency’s strategy, goals and values, such as:

- Directly reflecting agency goals or other language appearing in an agency strategic plan in a library or information center strategy.
- Regularly surveying or facilitating focus group discussions with employees to ensure needs are understood.
- Attending agency meetings to stay informed about priorities.

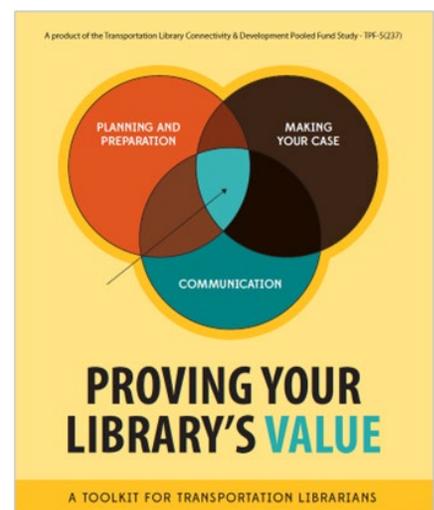


Figure 12. *Proving Your Library's Value*, a Seminal Tool in the Transportation Library Community

- Meeting periodically with agency leadership or reaching out in writing to request feedback and understand needs and interests.
- Briefing new leadership on information services.

➦ Refer to [Organizational Strategy](#) for more discussion of the value of an overarching strategy.

One special librarian [recognized](#):

Even long-established special libraries will not be kept open simply because their users like the service, or even because they save their users time and money. Today’s special libraries must integrate themselves into projects aligned with organizational goals and be able to demonstrate their contributions to all levels of management. Traditional metrics like number of volumes, gate counts or reference transactions are useless to administrators without any context, because library usage in and of itself is not likely to be one of the larger organization’s goals. Outcomes must be defined in terms of these goals.

Another member of the library community went further, [noting](#) that “special librarians who have not effectively linked their services with evolving organizational goals face uncertain futures.”

## Communicating Value

Some state DOT libraries have engaged in formal return-on-investment (ROI) exercises. MnDOT Library’s 2013 [ROI study](#) looked at tangible and intangible investments. **Tangible values** were calculated from time saved (quantified in staff salaries) from reference and document delivery services and dollars saved from interlibrary loans and journal routing. The study concluded that for every dollar spent on library staff and materials, \$1.90 in benefits were returned. **Intangible investments**, such as knowledge gained, were estimated to be significant based on customer surveys.

While this exercise can quantify certain metrics and evaluate the costs and benefits of providing services, such a tool will not describe a library’s or program’s full value. Highlighting the **intellectual capital** of information professionals and the value to the agency, as recognized in a [blog post](#), is a fundamental component of today’s transportation libraries.

## Promoting Products and Services

Education and outreach aimed at employees and management can help sustain and grow a library or information services program. A variety of **methods** and **tools** can be used for these purposes:

### Events

- Annual symposium
- Focus groups
- Lunch and learns or brown bag presentations
- Open house

### Program-Specific Outreach

- Attending program meetings

- Discussing program-specific needs and resources
- Temporarily or permanently embedding information staff into programs

### Publications and Other Communication Products

- Brochures
- Display posters or flyers
- LibGuides or other types of literature searches
- Library newsletter or input in other agency newsletters
- Training modules for required agency training

### Agency Presentations

- Orientation for new employees
- PowerPoint slides for other agency staff use
- Updates at agencywide meetings

### Web Presence

- Intranet
- Library website
- Social media

Statistics, success stories, positive user feedback, and flyers or fact sheets describing services, as well as logos or other graphic illustrations of branding can help communicate the value of services and functions provided.

Transportation librarians and information services providers can gain a broader perspective from the National Transportation Knowledge Network’s [community of practice for library advocacy](#), where meeting minutes are provided for practitioner discussions that examine how to ensure “the value and contributions of libraries and library professionals are thoroughly understood and widely communicated within the transportation research community.”

➦ Refer to [Outreach and Education](#) for more information.

## Additional Resources

[How Much is a Special Library Worth? Valuing and Communicating Information in an Organizational Context](#),

Tara E. Murray, *Journal of Library Administration*, Vol. 53, Issue 7/8, pages 462-471, 2013.

This article discusses how special libraries can demonstrate value.

[Special Libraries and the Information Services Lifecycle](#), Terence K. Huwe, *Computers in Libraries*, September 2020.

This article describes how special libraries can remain flexible and adaptive in the face of change.

[Understanding Modern Transportation Libraries](#), Bob Sweet, National Transportation Knowledge Network Blog, June 15, 2020.

This blog post discusses the importance of information professionals in meeting agency needs.

# 13 Information Professional Competencies

## Overview

Librarians and other information management professionals must adapt to **changing conditions** that include:

- Advancements in information technology
- Proliferation of information of varying quality and accessibility
- Changing skill sets and preferences of DOT workforces
- Increasing challenges maintaining physical transportation libraries

The focus may no longer be on collecting physical information housed on shelves, but rather on the services the information professional can provide to facilitate researchers finding **information on a broader scale**.

The location, format and reach of library services are transforming and so must the skills and competencies of librarians and information services providers.

## Audience

The guidance in this chapter is appropriate for any DOT librarian or other information services provider **with or without a library space** and **with or without library collections**.

## Core Competencies for Special Librarians

The [Special Libraries Association](#) (SLA) recognizes the unique position of librarians and other information professionals working with special library resources:

Regardless of their job title and professional label, information professionals are connected by their focus on managing and applying the data, information and knowledge required in their setting. They take a holistic view of the role of information and knowledge in organizations and communities, and they are concerned with information and knowledge through all stages of their life cycle.

## Technical Competencies

SLA describes **core competencies** for special librarians:

- **Information and knowledge services:** Identifying information needs; discovering and retrieving; analyzing and synthesizing; and generally managing, sharing and preserving information.
- **Information and knowledge systems and technology:** Designing, developing, implementing and operating state-of-the-art and cost-effective information systems.
- **Information and knowledge resources:** Understanding, valuing and prioritizing all types of available information sources.
- **Information and data retrieval and analysis:** In-depth knowledge of search engines and other cataloging tools; and assessing the quality and relevancy of information, and organizing and communicating it in meaningful ways.
- **Organization of data, information and knowledge assets:** Classifying, cataloging and preserving all information and knowledge assets.

- **Information ethics:** Adhering to professional standards of conduct and privacy, confidentiality and copyright requirements.

These technical or library science competencies are similar to what has long been required of information professionals. But keeping up with the evolution of information science in general and the proliferation of digital information requires increasingly technical skills.

For transportation librarians, there are minimum **knowledge requirements** for understanding the transportation sector, the mission and function of a state transportation agency, and national transportation issues. [Resources for Transportation Information Professionals](#) provides additional guidance in these areas.

## Enabling Competencies

Just as important as technical abilities, certain “soft skills” enable the information professional to focus on service and research support. Similar to SLA’s “[enabling competencies](#),” this skill set includes:

- Initiative, flexibility and problem-solving, including the ability to adapt to new roles, responsibilities and information sources.
- Influencing skills and marketing, including the ability to recognize and articulate the value of information services to important stakeholders.
- Relationship building, networking and facilitating collaboration.
- Critical thinking, including qualitative and quantitative reasoning.
- Leadership and management, including the ability to link services with organizational goals, focusing on agency needs, and actively informing decision-making throughout the organization.

Also, **cultural intelligence**—the ability to operate effectively across different cultural settings (ethnic, organizational, generational)—is increasingly important given workforce and societal changes.

Finally, some information professionals are taking on a new role in the agency: knowledge management (KM). This term refers to a variety of strategies and tasks related to identifying, building, sharing and sustaining the knowledge and experience of an agency’s employees. Because of the generational workforce changes state DOTs are experiencing, it is crucial that this valuable accumulation of information be retained. Among the sources for KM guidance is the [TRB Standing Committee on Information and Knowledge Management](#). Those with a particular interest in KM can participate as a [friend of the committee](#).

➦ Refer to [Knowledge Management](#) for more information.

## Resources for Transportation Information Professionals

Many useful transportation-specific resources can help information professionals of any experience level navigate the transportation information world. Provided here is a representative sample of instructive national and state resources organized by category. A few resources may appear in more than one category.

### National Transportation Resources

[American Association of State Highway and Transportation Officials](#) (AASHTO): A nonprofit organization that represents state DOTs with numerous councils and committees.

AASHTO [Research Advisory Committee](#): Committee advises the [AASHTO Special Committee on Research and Innovation](#) and is committed to promoting quality and excellence in research and in the application of research findings to improve state transportation systems.

### [U.S. Department of Transportation](#)

[Organization chart](#): Listing of the department's agencies.

[Federal Highway Administration](#) (FHWA): Agency within U.S. DOT that supports state and local governments in the design, construction and maintenance of the nation's highway system.

[National Transportation Library](#) (NTL): Home to transportation-related research, reports and data, providing access to these materials and other reference services.

[National Transportation Knowledge Network](#): An alliance of transportation organizations supporting a network of transportation information professionals by facilitating the expansion, access to and sharing of transportation knowledge.

[Transportation Librarians Roundtable](#): A monthly web conference series hosted by NTL and co-sponsored by AASHTO, TRB and SLA.

### **Transportation Research Programs and Databases**

[National Transportation Library Research Tools](#): Resources that emphasize government information and materials in the public domain.

[Organization chart of transportation research](#) in the U.S.: Diagram that includes organization descriptions and links.

[ROSA P](#): NTL's all-digital library. The collections in this resource are full-text publications, data sets and other resources, and are freely available to the public.

[Transportation Research Board](#) (TRB): A nonprofit organization and division of the National Academy of Sciences, Engineering and Medicine that facilitates information exchange, research and advice regarding transportation issues.

[National Cooperative Highway Research Program](#): Program funded by state DOTs to facilitate transportation research addressing issues of common interest.

[Research in Progress](#) (RiP): TRB database on current and recently completed research projects.

[Transport Research International Documentation](#) (TRID): An integrated database that combines records from TRB's Transportation Research Information Services ([TRIS](#)) Database and Organisation for Economic Cooperation and Development (OECD) Joint Transport Research Centre's International Transport Research Documentation ([ITRD](#)) Database. This resource provides access to more than 1.3 million records of transportation research worldwide.

### **State Transportation Resources**

[State DOT Research](#): Listing of state DOT research programs with links to related websites.

[State Planning and Research \(SP&R\) Guide](#): FHWA's guide to the research portion of the State Planning and Research Program.

## Transportation Glossaries

[AASHTO Transportation Glossary, 4th Edition](#) (2009 publication available for purchase as a PDF single-user download or paperback).

[Glossary of Regional Transportation Systems Management and Operations Terms](#) (Transportation Research Circular E-C166).

[Glossary of Highway Safety Terms and Definitions](#), National Highway Transportation Safety Administration.

[Transportation Research Thesaurus](#) (TRT), TRB.

[Glossary of Acronyms](#), U.S. DOT.

## Networking

State DOT library and information services staffs are modest in numbers. Sharing knowledge, ideas and concerns with peers from other states and organizations can be invaluable for maintaining needed competencies and improving services.

A variety of information professional consortia and networks provides a range of opportunities for staff at all levels and, ultimately, benefits for agency information services users.

## Professional Organizations and Resources

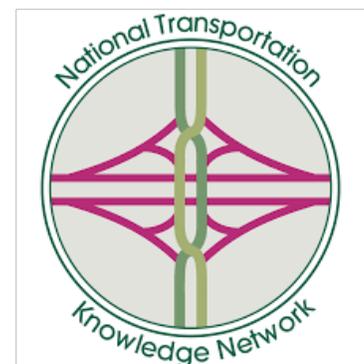
[Local Technical Assistance Program](#) (LTAP): Funded by FHWA, LTAP is a network of 51 local centers across the U.S. and in Puerto Rico that provide training, technical assistance and technology transfer services to local and rural transportation agencies.

[National Transportation Knowledge Network](#) (NTKN): NTKN is a voluntary alliance of transportation organizations supporting transportation information professionals across the country in organizing, sharing and preserving transportation information, data and knowledge (Figure 13). NTKN hosts communities of practice for [508 accessibility](#), [cooperative digitization](#) and [library advocacy](#). A [blog](#) highlights NTKN members.

[Rural Transit Assistance Program](#) (RTAP): State RTAPs provide training and technical assistance to improve mobility in communities with populations less than 50,000.

[Special Libraries Association](#) (SLA): SLA offers opportunities to connect with other special information professionals from around the U.S. and the world; expand skills and knowledge; volunteer for the SLA board or committees; and engage in [SLA communities](#), including solo librarians and transportation.

[University Transportation Centers](#) (UTCs): U.S. DOT provides grants to consortia of colleges and universities across the U.S. A variety of national, regional and project-level [UTCs](#) currently exist to support U.S. DOT's priorities "to promote the safe, efficient and environmentally sound movement of good[s] and people. UTCs work with regional, state, local and tribal transportation agencies to help find solutions to challenges that directly impact their communities and affect the efficiency of the nation's transportation system."



**Figure 13. NTKN, an Alliance of Transportation Information Professionals**

## Committees

[AASHTO Committee on Knowledge Management](#): This committee provides a forum for collaboration among member state DOTs for exchanging information, practices and experiences related to knowledge management.

[AASHTO Special Committee on Research and Innovation and Research Advisory Committee \(RAC\)](#): RAC members include the research program managers from each of the 50 states and District of Columbia. RAC supports the Special Committee on Research and Innovation, which is charged with supporting AASHTO and the transportation community “by delivering strategic, high-quality research results while addressing development, technology transfer and implementation.”

[TRB Standing Committee on Information and Knowledge Management](#): This committee is “concerned with advancing and disseminating practices that improve knowledge and information creation, access, sharing, preservation and retention within and among transportation organizations. The committee identifies critical research needs in these areas, promotes understanding of these topics throughout the transportation community, and fosters the use of library and information science and knowledge management practices through education, training, collaboration, outreach and research.”

## Information Exchange

[TRANLIB-L](#): This email discussion list originated by the Special Libraries Association and now supported by NTL is used by transportation librarians and others providing information services “to exchange information related to transportation.” Participants use this list to discuss common challenges, request assistance locating specific resources and offer feedback to members posing questions.

[Transportation Librarians Roundtable](#) (TLR): The TLR is an NTL initiative that is co-sponsored by AASHTO, TRB and SLA. The TLR hosts a monthly web conference series on a variety of topics of interest.

[WebJunction’s Topic Areas](#): This resource is self-described as an “ever-growing collection of resources [that] covers the spectrum of the most critical topics for those working in the library profession today. These resources were freely contributed by WebJunction members, libraries and library organizations, and other experts in the field. Documents, articles, handouts, webinar archives, links to other online services and information, plus the latest news are all gathered here, by topic.”

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# Appendix A: A-Z List of Resources

## Introduction

LibGuide/Resource Guide Platform (National Transportation Library)

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

Online Dictionary for Library and Information Science (2013)

[https://products.abc-clio.com/ODLIS/odlis\\_about.aspx](https://products.abc-clio.com/ODLIS/odlis_about.aspx)

Proving Your Library's Value: A Toolkit for Transportation Librarians (2012)

<http://osf.io/ukp8a/download>

Transportation Librarian's Toolkit (2007)

<https://rosap.ntl.bts.gov/view/dot/16554>

Transportation Librarian's Toolkit, Second Edition (2009)

<https://rosap.ntl.bts.gov/view/dot/37951>

## 1. Collection Development and Management

AASHTO Store

<https://store.transportation.org/>

Access Your Downloadable PDF Publication (AASHTO Publications)

[https://downloads.transportation.org/publications/members/Access\\_Instructions\\_PDF.pdf](https://downloads.transportation.org/publications/members/Access_Instructions_PDF.pdf)

ASCE (American Society of Civil Engineers) Library

<https://ascelibrary.org/>

ASTM Digital Library via ASTM Compass

<https://www.astm.org/products-services/digital-library.html>

Collection Development and Maintenance Policy (National Transportation Library, 2018)

<https://www.bts.gov/sites/bts.dot.gov/files/docs/ntl/219951/ntlcollectiondevelopmentpolicy132018-01-22.pdf>

Collection Development Policies (Northwestern University Libraries, various dates; includes subject-specific collections)

<https://www.library.northwestern.edu/about/administration/policies/collection-development/>

Collection Development Policy (Missouri Digital Heritage, 2015)

<https://www.sos.mo.gov/CMSImages/MDH/CollectionDevelopmentPolicy-July2017.pdf>

Collection Development Policy (Oklahoma Transportation Library, 2021)

<https://www.oktl.org/collection-development-policy>

Collection Development Policy (Special Collections of the National Agricultural Library)

<https://specialcollections.nal.usda.gov/collection-development-policy>

FileOpen Systems Client Installers

<http://plugin.fileopen.com/>

Fundamentals of Collection Development and Management, Fourth Edition (2018)

[https://www.alastore.ala.org/sites/default/files/book\\_samples/9780838916414\\_sample.pdf](https://www.alastore.ala.org/sites/default/files/book_samples/9780838916414_sample.pdf)

IEEE Xplore Digital Library

<https://ieeexplore.ieee.org/Xplore/home.jsp>

LibGuide: AASHTO Digital Publications (Illinois DOT Library Intranet Page)

[https://transportation.libguides.com/ld.php?content\\_id=39252367](https://transportation.libguides.com/ld.php?content_id=39252367)

LibGuide: AASHTO Digital Publications (Louisiana Transportation Research Center Library Shared Drive Instructions)

[https://transportation.libguides.com/ld.php?content\\_id=39252368](https://transportation.libguides.com/ld.php?content_id=39252368)

LibGuide: AASHTO Digital Publications (Missouri DOT Library SharePoint Page)

[https://transportation.libguides.com/ld.php?content\\_id=39252365](https://transportation.libguides.com/ld.php?content_id=39252365)

LibGuide: AASHTO Digital Publications (MnDOT Library iHub Webpage)

[https://transportation.libguides.com/ld.php?content\\_id=39252363](https://transportation.libguides.com/ld.php?content_id=39252363)

LibGuide: AASHTO Digital Publications (Montana DOT Employee Resources Webpage)

[https://transportation.libguides.com/ld.php?content\\_id=45078443](https://transportation.libguides.com/ld.php?content_id=45078443)

LibGuide: AASHTO Digital Publications (National Transportation Knowledge Network)

<https://transportation.libguides.com/aashtoepubs/home>

LibGuide: AASHTO Digital Publications (Wisconsin DOT Intranet Page)

[https://transportation.libguides.com/ld.php?content\\_id=39252364](https://transportation.libguides.com/ld.php?content_id=39252364)

LibGuide: Civil and Environmental Engineering (MIT (Massachusetts Institute of Technology) Libraries)

<https://libguides.mit.edu/civil>

LibGuide: Online Resources (STEM): Useful Databases in Science, Engineering and Technology (Northwestern University Libraries)

<https://libguides.northwestern.edu/muddonlineresources>

LibGuide: Transportation (MIT Libraries)

<https://libguides.mit.edu/transport>

LibGuide: Transportation (Northwestern University Libraries)

<https://libguides.northwestern.edu/transportation>

LIBLICENSE Discussion Forum

<http://liblicense.crl.edu/discussion-forum/>

LIBLICENSE Model Licenses

<http://liblicense.crl.edu/licensing-information/model-license/>

LIBLICENSE: Welcome to the LIBLICENSE Project

<http://liblicense.crl.edu/>

Managing the Electronic Resources Lifecycle: Creating a Comprehensive Checklist Using Techniques for Electronic Resource Management (TERMS) (2014)

<https://www.tandfonline.com/doi/pdf/10.1080/0361526X.2014.880028?needAccess=true>

Meeting the Needs of Modern Transportation Researchers by Transforming the Iowa Department of Transportation Library: Early Efforts and Results (2015)

<https://rosap.nrl.bts.gov/view/dot/55751>

New Library Directors Handbook: Collection Development Policy (Montana State Library)

[https://msl.mt.gov/libraries/consulting/online\\_publications/newlibrarydirectorshandbook/collectiondevelopment/policy](https://msl.mt.gov/libraries/consulting/online_publications/newlibrarydirectorshandbook/collectiondevelopment/policy)

The Organizational Structure of Collection Development (1987)

<http://downloads.alcts.ala.org/lrts/lrtsv31no2.pdf>

PDF Download User Guide (AASHTO Store)

<https://store.transportation.org/Page/PDFDownloadUserGuide>

Policy on Collection Development (Virginia DOT Research Library, 2016)

[https://library.viriniadot.org/ld.php?content\\_id=25901003](https://library.viriniadot.org/ld.php?content_id=25901003)

TR News Magazine

<https://www.trb.org/Publications/PubsTRNewsMagazine.aspx>

*Transportation Research Record* (from 1996)

<https://journals.sagepub.com/loi/trra>

## 2. Information Management

2020 Library Systems Report: Fresh Opportunities Amid Consolidation

<https://americanlibrariesmagazine.org/2020/05/01/2020-library-systems-report/>

2021 Library Systems Report: Advancing Library Technologies in Challenging Times

<https://americanlibrariesmagazine.org/2021/05/03/2021-library-systems-report/>

Article Exchange, WorldShare Interlibrary Loan (OCLC)

<https://www.oclc.org/en/worldshare-ill/features/article-exchange.html>

Catalog Locally, Share Globally: RDA's Cataloging Evolution Continues With the 3R Project (2021)

<https://americanlibrariesmagazine.org/2021/07/08/catalog-locally-share-globally/>

Catalogers Learning Workshop (Library of Congress)

<https://www.loc.gov/catworkshop/>

Cataloging and Metadata Subscription (OCLC)

<https://www.oclc.org/en/cataloging-subscription.html>

Cataloging Documentation (OCLC)

[https://help.oclc.org/WorldCat/Cataloging\\_documentation](https://help.oclc.org/WorldCat/Cataloging_documentation)

Classification Outline (Library of Congress)

<https://www.loc.gov/catdir/cpsolcco/>

Collections Management: WebJunction Course Catalog (2020)

<https://learn.webjunction.org/course/index.php?categoryid=19>

Cutter Number Training Module (Library of Congress, 2019)

<https://www.loc.gov/catworkshop/lcc/PDFs%20of%20slides/7-3%20handout.pdf>

The Dublin Core (From *Metadata Fundamentals for All Librarians*; American Library Association, 2003)

[https://www.ala.org/aboutala/sites/ala.org.aboutala/files/content/publishing/editions/samplers/caplan\\_MF.pdf](https://www.ala.org/aboutala/sites/ala.org.aboutala/files/content/publishing/editions/samplers/caplan_MF.pdf)

Evergreen (Open-source library software)

<https://evergreen-ils.org/>

Ex Libris (Library software vendor)

<https://exlibrisgroup.com/>

Fundamentals of Cataloging (American Library Association course)

<https://www.ala.org/core/fundamentals-cataloging>

Innovative Interfaces (Library software vendor)

<https://www.iii.com/>

Introduction to Dublin Core Metadata (Lyris course)

<https://www.lyris.org/content/Pages/Event-Details.aspx?Eid=0B06D570-3F0D-E811-80E8-00155D73CF16>

Koha Library Software

<https://koha-community.org/>

Libraries Very Interested in Sharing (LVIS)

<https://www.ilsos.gov/departments/library/libraries/OCLC/lvis.html>

Library Systems Report 2019: Cycles of Innovation

<https://americanlibrariesmagazine.org/2019/05/01/library-systems-report-2019/>

Listing of the 600 Dewey Decimal Classification (DDC) Class (OCLC)

<https://www.oclc.org/content/dam/oclc/webdewey/help/600.pdf>

Lyris (Library network)

<https://www.lyris.org/Leadership/Pages/default.aspx>

MARC in XML (Library of Congress, 2008)

<https://www.loc.gov/marc/marcxml.html>

MARC (**MA**chine-Readable Cataloging) Standards (Library of Congress, 2022)  
<https://www.loc.gov/marc/>

Midwest Collaborative for Library Services Workshops  
<https://store.mcls.org/>

Minitex Electronic Delivery  
<https://minitex.umn.edu/services/resource-sharing-delivery/electronic-delivery>

Minitex Events Calendar (Library network)  
<https://minitex.umn.edu/events/calendar>

OhioNet Training (Library network)  
<https://www.ohionet.org/training>

Online Dictionary for Library and Information Science  
[https://products.abc-clio.com/ODLIS/odlis\\_about.aspx](https://products.abc-clio.com/ODLIS/odlis_about.aspx)

OPALS (**OP**en-source Automated Library System)  
<https://opalsinfo.net/>

Policy on Interlibrary Loans (Virginia DOT Research Library, 2016)  
[https://library.viriniadot.org/ld.php?content\\_id=25900652](https://library.viriniadot.org/ld.php?content_id=25900652)

Program for Cooperative Cataloging (Library of Congress)  
<https://www.loc.gov/aba/pcc/>

Resource Description and Access (Library of Congress)  
<https://www.loc.gov/aba/rda/>

Resource Sharing (OCLC)  
[https://help.oclc.org/Resource\\_Sharing?sl=en](https://help.oclc.org/Resource_Sharing?sl=en)

SirsiDynix (Library software vendor)  
<https://www.sirsidynix.com/>

TRANLIB-L (National Transportation Library email discussion list)  
<https://connect.sla.org/transportation/resources/tranlib3>

Transport Research International Documentation  
<https://trid.trb.org/>

Transportation Research Thesaurus (TRT) (Transportation Research Board)  
<https://trt.trb.org/>

Understanding MARC Authority Records: Machine-Readable Cataloging (Library of Congress, 2004)  
<https://www.loc.gov/marc/uma>

Understanding MARC Bibliographic: Machine-Readable Cataloging (Library of Congress, 2009)  
<https://www.loc.gov/marc/umb>

Understanding MARC Holdings Records (Library of Congress, 2011)  
<https://www.loc.gov/marc/umh/index.html>

Using the Cutter Table (Library of Congress)  
<https://www.loc.gov/aba/pcc/053/table.html>

WorldCat  
<https://www.oclc.org/en/worldcat.html>

### 3. Copyright and Open Access

Basic Open Access Information (IEEE Open)  
<https://open.ieee.org/about/faqs/>

Copyright and Fair Use Web Resource (Stanford Libraries, 2022)  
<https://fairuse.stanford.edu/>

Copyright Clearance Center, Inc.  
<https://www.copyright.com/learn/>

Copyright Crash Course (University of Texas Libraries, 2022)  
<https://guides.lib.utexas.edu/copyright>

Copyright for Librarians Resource Guide (University of Texas Libraries, 2022)  
<https://guides.lib.utexas.edu/copyrightlibrarians>

Copyright Triage (Transportation Librarians Roundtable, 2018)  
<https://rosap.ntl.bts.gov/view/dot/36392>

Creative Commons License Options  
<https://creativecommons.org/licenses/>

Data Repositories Conformant With the DOT Public Access Plan (National Transportation Library, 2022)  
<https://doi.org/10.21949/1520566>

Delivering Data Packages for Discovery, Analysis and Preservation (2018)  
<https://doi.org/10.21949/1500456>

Directory of Open Access Journals  
<http://www.doaj.org/>

Directory of Open Access Repositories (OpenDOAR)  
<https://v2.sherpa.ac.uk/opensoar/>

Elsevier Open Access Journals (Engineering and Technology)  
[https://www.elsevier.com/open-access/open-access-journals/search?meta\\_t=&query=&meta\\_s=Engineering+and+Technology](https://www.elsevier.com/open-access/open-access-journals/search?meta_t=&query=&meta_s=Engineering+and+Technology)

eScholarship Open Access Publications (University of California)

<https://escholarship.org/>

Fair Use Checklist (Columbia University Libraries, 2022)

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Harvard Open Access Project

<http://cyber.law.harvard.edu/hoap>

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<https://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=8782711>

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LibGuide: Copyright and Digitization of Library Materials (University of Illinois Library)

<https://guides.library.illinois.edu/digitizationoflibrarymaterials/home>

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LibGuide: Copyright for Libraries (American Library Association)

<https://libguides.ala.org/copyright/general>

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<https://sparcopen.org/open-access/>

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<https://www.springeropen.com/>

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<https://rosap.ntl.bts.gov/submitContent>

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<https://www.journals.elsevier.com/transportation-engineering>

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<https://store.transportation.org/Training?type=featured>

Alaska State Archives

<https://archives.alaska.gov/>

An Unlikely Collaboration: How Academic and Special Libraries Can Help Each Other Survive (2017)

<https://doi.org/10.1080/01930826.2017.1281667>

Ask a Librarian and FAQs (National Transportation Library)

<https://transportation.libanswers.com/>

Center for Advanced Infrastructure and Transportation (Rutgers, the State University of New Jersey)

<https://cait.rutgers.edu/about/>

Collaboration and Competition in Special Libraries (2015)

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LibGuide: National Transportation Knowledge Network (NTKN)

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LibGuide: Regional TKNs (National Transportation Knowledge Network)

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LibGuide: Transportation Resources (New Jersey DOT Research Library)

<https://libguides.njstatelib.org/transportation/home>

LibGuide/Resource Guide Platform (National Transportation Library)

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

Minnesota Transportation Libraries

<https://www.dot.state.mn.us/library/mtl.html>

National Highway Institute Training (Federal Highway Administration)

<https://www.nhi.fhwa.dot.gov/register>

New Library Materials (MnDOT Library)

<http://www.dot.state.mn.us/library/newlibmat.html>

NJDOT Research Library Action Plan (New Jersey DOT Research Library, 2021)

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Reference Question Online Form (MnDOT Library)

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Springshare LibApps Platform

<https://www.springshare.com/>

State Library of North Carolina

<https://statelibrary.ncdcr.gov/search-library>

State Library of Oregon

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TC3 Technical Training: Math Basics for Materials Technicians (AASHTO)

<https://store.transportation.org/Item/TrainingDetail?ID=4263>

TRB Straight to Recordings (Transportation Research Board)

<https://www.trb.org/ElectronicSessions/STR.aspx>

TxDOT Research Library

<https://library.ctr.utexas.edu/Presto/home/home.aspx>

University Transportation Centers (U.S. DOT)

<https://www.transportation.gov/content/university-transportation-centers>

Webinar Wednesdays (Washington State DOT Research and Library Services)

<https://depts.washington.edu/trac/washington-state-department-of-transportation/webinar-wednesdays/>

Wisconsin Digital Archives

<https://www.wistatedocuments.org/digital/>

Wisconsin DOT Library Digital Collection

<https://content.mpl.org/digital/collection/WDTL>

## 5. Accessibility and Section 508

14-Part Video Series on Making a Word Document Accessible (General Services Administration, 2020)

<https://www.section508.gov/create/documents/training-videos>

Accessible Digital Content: Tips and Tricks Webinar (General Services Administration, 2021)

<https://digital.gov/event/2021/05/26/accessible-digital-content-tips-and-tricks/>

Create Accessible PDFs (General Services Administration, 2021)

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Creating Section 508 Conformant PDFs (Federal Highway Administration, 2021)

<https://www.fhwa.dot.gov/508/docs/had21001.pdf>

LibGuide: Accessibility: Section 508 Helpful Links and Useful Tips (National Transportation Library)

[https://transportation.libguides.com/ld.php?content\\_id=61821020](https://transportation.libguides.com/ld.php?content_id=61821020)

LibGuide: National Transportation Knowledge Network Communities of Practice: 508 Accessibility

<https://transportation.libguides.com/c.php?g=1139116&p=8311627>

Microsoft Word 508 Accessibility Checklist for Word 2013 (General Services Administration)

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PDF 508 Accessibility Checklist (General Services Administration)

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PDF Testing and Remediation Guide (General Services Administration)

<https://assets.section508.gov/files/PDF%20Testing%20and%20Remediation%20Guide-Adobe%20Acrobat%20DC%20Pro-AED%20COP.docx>

Policy and Management: IT Accessibility Laws and Policies (General Services Administration, 2022)

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Revised Section 508 Basic Authoring and Testing Guide: MS Word 2013 (General Services Administration, 2017)

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Section 508 Overview (Federal Highway Administration, 2021)

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Section 508 Website (Federal Highway Administration)

<https://www.fhwa.dot.gov/508/>

Section508.gov (General Services Administration)  
<https://www.section508.gov/>

U.S. Access Board  
<https://www.access-board.gov/about/>

WebAIM Contrast Checker  
<https://webaim.org/resources/contrastchecker/>

## 6. Digitization

Anatomy of a Digital Project Webinar Series (Consortium of Academic and Research Libraries in Illinois (CARLI), 2012)  
<https://www.carli.illinois.edu/products-services/contentdm/dig-pro-series>

Data Repositories Conformant With the DOT Public Access Plan (National Transportation Library, 2022)  
<https://ntl.bts.gov/ntl/public-access/data-repositories-conformant-dot-public-access-plan>

Digital Collections (Northwestern University Libraries)  
<https://www.library.northwestern.edu/libraries-collections/digital-collections/index.html>

Digital Public Library of America  
<https://dp.la/>

Digital Stewardship Training (WebJunction, OCLC, 2022)  
<https://www.webjunction.org/news/webjunction/digital-stewardship-training-courses.html>

Digitization Best Practices (Princeton University Library)  
<https://library.princeton.edu/digital-collections/digitization-best-practices>

Digitization Cost Calculator (Digital Library Federation)  
<https://dashboard.diglib.org/>

Digitization Cost Calculator Raw Data (Digital Library Federation)  
<https://dashboard.diglib.org/data/>

HathiTrust Digital Library  
<https://www.hathitrust.org/>

Historic Archives Digital Collections (Iowa DOT)  
<http://www.historicalphotos.iowadot.gov/>

In-house vs. Outsourced Digitization: Similarities, Key Differences and Pitfalls to Avoid (University of Nevada, Las Vegas Library, 2019)  
<https://digitalscholarship.unlv.edu/libfacpresentation/192/>

LibGuide: Digitization (American Library Association)  
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LibGuide: Digitization Metadata Standards (National Transportation Library)  
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<https://transportation.libguides.com/c.php?g=834724&p=5960158>

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The Metro Transportation Library and Archive: “Better Than Free” Generative Values (2012)  
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Selection for Digitization: Factors to Consider (Consortium of Academic and Research Libraries in Illinois)  
[https://www.carli.illinois.edu/sites/files/digital\\_collections/documentation/Selection-of-materials\\_20120221.pdf](https://www.carli.illinois.edu/sites/files/digital_collections/documentation/Selection-of-materials_20120221.pdf)

Transport Research International Documentation (TRID) (Transportation Research Board)  
<https://trid.trb.org/>

Washington State DOT Library Digital Collections  
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The Forecast for Special Libraries (2016)  
<https://www.tandfonline.com/doi/abs/10.1080/01930826.2015.1124699>

LibGuides: Oregon DOT Library (*See Content Guides and Electronic Resources*)  
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MnDOT Library Strategic Plan (2017)

<http://dot.state.mn.us/research/reports/2017/201736.pdf>

Moving Knowledge (Video) (MnDOT Library)

<https://www.dot.state.mn.us/library/about-us.html>

New Jersey State Library Blog

<https://www.njstatelib.org/blogs/>

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NJDOT Research Library Action Plan (New Jersey DOT Research Library, 2021)

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Oklahoma Transportation Library Workshop Part 1 (2017)

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<http://mastatelibrary.blogspot.com/>

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<https://library.utah.gov/blog/>

Webinar Wednesdays (Washington State DOT Research and Library Services)

<https://depts.washington.edu/trac/washington-state-department-of-transportation/webinar-wednesdays/>

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Library Space Planning Guide (Connecticut State Library, 2021)

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Pressed for Space: Is Movable Compact Shelving the Solution? (*See pages 7-10 of the newsletter*; 2008)

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Arizona State and Local Government Documents Collection

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Federal Libraries Continue Their Mission in the Face of Challenges (2014)

<https://www.infotoday.com/it/oct14/Huffine--Federal-Libraries-Continue-Their-Mission-in-the-Face-of-Challenges.shtml>

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[https://libguides.ctstatelibrary.org/ld.php?content\\_id=6054361](https://libguides.ctstatelibrary.org/ld.php?content_id=6054361)

Oklahoma Transportation Virtual Library

<https://view.genial.ly/60df1cfffce8dc0d82984fbf>

Research Library (Ohio DOT)

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Research Library Operations (2018-2019) (New Jersey DOT, 2019)

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Transforming a Library into a Bookless Branch and Increasing Discoverability of the Virtual Library (2012)

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AASHTO Committee on Knowledge Management

<https://km.transportation.org/>

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<https://connect.ncdot.gov/projects/Value-Management/CLEAR-Program/Pages/default.aspx>

Creating a Knowledge Book for WSDOT: Lessons and Future Directions (Washington State DOT, 2019)  
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Employee Retention and Knowledge Management Study (Vermont Agency of Transportation, 2018)  
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Knowledge Management With the MASK Method (2019)  
<https://hal.archives-ouvertes.fr/hal-02080443/document>

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Why Knowledge Management is Critical for DOTs (AASHTO Committee on Knowledge Management, 2019)  
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FHWA Strategic Plan: FY 2019-2022 (Federal Highway Administration, 2018)

[https://www.fhwa.dot.gov/policy/strategicplan/pdfs/FHWA\\_StrategicPlan\\_2019-22.pdf](https://www.fhwa.dot.gov/policy/strategicplan/pdfs/FHWA_StrategicPlan_2019-22.pdf)

MnDOT Library Strategic Plan (2017)

<http://dot.state.mn.us/research/reports/2017/201736.pdf>

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NJDOT Research Library Action Plan (New Jersey DOT Research Library, 2021)

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SLA Strategic Plan: 2018-2020 (Special Libraries Association)

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Understanding and Supporting Your Organization's Business Drivers (*See page 6 of the journal*; 2016)

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## 13. Information Professional Competencies

American Association of State Highway Transportation Officials (AASHTO)

<https://www.transportation.org/>

AASHTO Committee on Knowledge Management

<https://km.transportation.org/>

AASHTO Research Advisory Committee

<https://research.transportation.org/about-r-and-i-and-rac/>

AASHTO Special Committee on Research and Innovation

<https://research.transportation.org/>

Competencies for Information Professionals (Special Libraries Association, 2016)

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Federal Highway Administration

<https://highways.dot.gov/>

Glossary of Acronyms (U.S. DOT, 2021)

<https://www.transportation.gov/rural/toolkit/glossary-acronyms>

Glossary of Highway Safety Terms and Definitions (National Highway Transportation Safety Administration)

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LibGuide: Research Tools (National Transportation Library)  
<https://transportation.libguides.com/researchtools>

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

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

National Transportation Library  
<https://ntl.bts.gov/ntl>

Organization Chart (U.S. DOT)  
<https://www.transportation.gov/org-chart>

Organization Chart: Transportation Research in the United States (2021)  
[https://research.transportation.org/wp-content/uploads/sites/31/2021/05/US\\_Transportation\\_Research\\_Org\\_Combined\\_May2021.pdf](https://research.transportation.org/wp-content/uploads/sites/31/2021/05/US_Transportation_Research_Org_Combined_May2021.pdf)

Repository and Open Science Access Portal (ROSA P)  
<https://rosap.ntl.bts.gov/welcome>

Research in Progress (RIP) (Transportation Research Board)  
<https://rip.trb.org/>

Rural Transit Assistance Program (RTAP)  
<https://www.nationalrtap.org/State-RTAP/State-RTAP-Overview>

Special Libraries Association (SLA)  
<http://www.sla.org/>

Special Libraries Association Communities  
<https://www.sla.org/get-involved/divisions/>

State DOT Research Programs (AASHTO)  
<https://research.transportation.org/state-dot-research/>

State Planning and Research (SP&R) Guide (Federal Highway Administration, 2016)  
<https://www.fhwa.dot.gov/publications/research/general/spr/index.cfm>

TRANLIB-L (National Transportation Library email discussion list)  
<https://connect.sla.org/transportation/resources/tranlib3>

Transport Research International Documentation (TRID) (Transportation Research Board)  
<https://trid.trb.org/>

Transportation Glossary, 4th Edition (AASHTO, 2009)  
<https://store.transportation.org/Item/CollectionDetail?ID=83>

Transportation Research Board (TRB)  
<https://www.nationalacademies.org/trb/transportation-research-board>

Transportation Research Information Services (TRIS)  
<https://www.trb.org/InformationServices/InformationServices.aspx>

Transportation Research Thesaurus (TRT) (Transportation Research Board)  
<https://trt.trb.org/trt.asp?>

TRB Standing Committee on Information and Knowledge Management  
<https://www.trbikm.org/>

TRB Standing Committee on Information and Knowledge Management: Online Directory  
<https://www.mytrb.org/OnlineDirectory/Committee/Details/5187>

University Transportation Centers (UTCs) (U.S. DOT)  
<https://www.transportation.gov/content/university-transportation-centers>

University Transportation Centers: List of Centers (U.S. DOT)  
<https://www.transportation.gov/utc/list-centers>

U.S. DOT  
<https://www.transportation.gov/>

WebJunction Topic Areas (OCLC)  
[https://www.webjunction.org/explore-topics.html?\\_ga=2.121679243.1649726496.1644258413-1379080830.1643051786](https://www.webjunction.org/explore-topics.html?_ga=2.121679243.1649726496.1644258413-1379080830.1643051786)