



Access to U.S. Transportation Information Resources

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SUMMARY

Research and anecdotal evidence show that a large portion of information resources needed by the nation's transportation policy makers and practitioners can not be efficiently identified, located and retrieved when needed. This paper argues that the primary cause of this problem is the failure of agencies and organizations in the field of transportation to provide the resources required to collect, catalog, preserve and share information resources produced by and for the transportation community. Unlike in other disciplines, transportation organizations do not provide the facilities, staffing and funding needed to properly manage its information resources. The paper describes current information resources management in the field of transportation and compares these efforts with several other disciplines. It provides suggestions for changes needed to address the situation. A number of national and local initiatives are also suggested that can be undertaken to improve access to information resources and services for the transportation community.

INTRODUCTION

Maintaining and improving our existing transportation services and infrastructure is essential to the nation's continued economic viability and growth. Transportation policy makers, consultants and practitioners throughout the country require timely access to quality information resources to help meet this responsibility.

Identifying and accessing existing information resources is a critical need of all research activities and of many other functions in transportation. Two products, the TRIS database and TRANSPORT CD, are heavily used by the U.S. transportation community. These products provide the most relevant and comprehensive indexes of transportation-related information. They are used extensively to identify records of completed research and documents detailing existing-policies, practices and techniques.

As important as these products are for identifying information, they do not solve the equally important problem of access to the information resources they index nor do they index the full range of resources needed by the country's transportation professionals. TRIS, as a consequence of its historic roots and funding sources, contains primarily abstracts relating to highway-related research and current construction and operational practices and techniques.

Anyone seeking information on other modes or on the administrative, political, managerial, environmental, historical and other aspects of transportation has no single source to turn to. The task of indexing materials dealing with these other aspects of transportation and of actually providing access to the documents indexed in TRIS, TRANSPORT, and other services is a responsibility that has not been adequately supported. It has, for the most part, been addressed only by a loosely knit, little recognized group of inadequately funded and understaffed libraries.

Social, economic and demographic trends are placing increasing demands on existing transportation facilities. Meeting these demands requires maintaining and operating these facilities more efficiently, expanding our transportation options and infrastructure, and researching innovative solutions to transportation problems. As a result, funding for transportation and related research at all levels of government has been increasing for the last several years. Transportation professionals have an increasing need for timely access to information to ensure these expanded funds are wisely used and invested. This requires a more comprehensive, reliable system for identifying, collecting and providing access to transportation information resources.

This is the challenge for transportation librarians. Their skills are becoming increasingly important to the transportation community, but their work and the nation's ability to access transportation-related information resources are becoming increasingly hampered by a lack of support for library and information services in the field. In fact, rather than the increasing support needed, recent closings of important transportation related libraries such as the Interstate Commerce Commission and the American Trucking Association may indicate declining support.

This paper is intended to describe current inadequacies in transportation library and information services including facilities, resources, and staffing, and suggest some organizational and policy issues that need to be addressed in order to improve access to and sharing of information resources within the transportation community.

Facilities and Resources

A number of comparisons can be used to illustrate the scope of the inadequacies in current levels of access to transportation information resources:

The latest Statistical Abstract of the United States gives the following figures for contribution, by industry, to the gross domestic product:

Health Services	\$460.1 billion
Transportation	255.5
Agriculture, Forestries and Fishing	127.6
Legal Services	106.6

The Directory of Transportation Libraries and Information Centers, 7th edition, 1998, lists only 131 sites internationally whose primary purpose is to collect and make available transportation information resources.

The 1999 edition of the Directory of Special Libraries and Information Centers lists more than 23,600 subject oriented libraries. If transportation libraries were represented commensurate with transportation's share of the gross domestic product, the number would be approximately 750.

The Transportation Division of the Special Libraries Association has less than 200 members. In comparison, the Medical Library Association has more than 1,200 institutional and 3,000 individual memberships, while the American Association of Law Librarians has 4,500 individual members.

Medline, the National Library of Medicine's on-line database indexes 11,000,000 documents; Agricola, the on-line database from the National Agricultural Library, 2,800,000; and TRIS, 500,000.

Harmer E. Davis Transportation Library at the University of California, Berkeley, the most comprehensive transportation library, provides access to approximately 132,000 items; the National Library of Medicine, 5,200,000; and National Agricultural Library, 3,300,000.

It has also been estimated that 1,000,000 books and reports, 150,000 journals and 15,000 CD-ROMs are published each year. Since there has never been a comprehensive study of transportation-related information the portion of this annual production that relates to transportation is unknown. However, the lack of access to transportation resources is reflected in a recent study performed by Bonnie Osif, Engineering Librarian for the Pennsylvania Transportation Institute. She began by selecting 540 documents relating to topics of current interest (car speed and safety, pavement damage, bike paths, etc.) using TRANSPORT CD-ROM. She then attempted to find a source within the US or Canada for each of these 540 items. Any document noted as being available from the National Technical Information Service was automatically considered to be available from multiple sources. OCLC's WorldCat database was then searched to find any source for the remainder.

WorldCat is the world's largest bibliographic database. It consists of the combined catalogs of more than 8,000 libraries around the globe and provides location information for 750 million items. It includes the Library of Congress, US DOT's TASC and Volpe Center libraries, Harmer E. Davis Library, Northwestern University's Transportation Center Library and eight state DOT libraries. In spite of the scope of this database and the holdings of NTIS no location could be found for more than one-third of the reports and nearly one-fifth of the books included in her sample.

This means the only identifiable source for this large portion of documents indexed in TRANSPORT is the original publisher. Unfortunately, most publishers of transportation information resources do not maintain archives of their own publications. It has been estimated that half of all requests for US DOT reports go unfilled because the reports either

cannot be found or are out of print. Attempting to locate sources for items not indexed in TRIS or TRANSPORT can be an even more daunting task.

As mentioned earlier, no comprehensive study has ever been done, but it is safe to say that the vast majority of transportation-related information resources published by US DOT, state DOTs, professional associations and other publishers are neither collected by nor indexed by any library or information agency or service. Existing transportation libraries and information services are too few in number and too limited in scope to collect, catalog and provide access to a significant portion of transportation-related information resources.

Staffing

A recent study by the US Bureau of Transportation Statistics located 23 units identified as libraries or information centers within the US DOT. Another study, conducted by Mn/DOT Library, identified 46 libraries serving 44 of the 50 state Dots. However, the majority of these "libraries" might more appropriately be called "collections of resources." Most of the collections are managed by staff with little or no training in library and information sciences. Of the 46 libraries in the MN/DOT study only 17 are staffed by individuals with a Master's Degree in library sciences, which is generally considered the minimum professional qualification.

The limited number of professionally trained staff in these transportation libraries and information centers generally means their resources are inadequately described and cataloged, making access and resource sharing difficult at best. Also, most of the transportation community does not have access to services that can efficiently identify, locate, retrieve and provide reports, books, articles, etc., in response to specific information needs. Likewise, transportation professionals, as a rule, do not have access to the skills and talents needed to advise and instruct them in accessing and using the full range of information resources that are available, and to evaluate and interpret information resources. The field of transportation requires a greater number library and information centers with adequately trained staff to identify, collect, describe, organize, and catalog transportation information resources in a manner that provides for reliable resource location, use, sharing and preservation.

Funding

In spite of its size and importance to the economy, the transportation community invests a minuscule portion of its resources in library and information services. The US Bureau of Transportation Statistics recently estimated that the following amounts were annually spent per employee for library and information services in these fields; medicine, \$13.30, agriculture, \$6.00, and transportation, \$0.40.

MN/DOT Library recently estimated that its funding for staff salaries and information resources constitutes one-eighth of one percent of MN/DOT's operating budget. This is equal to about \$86.00 per employee/per year or \$5.50 per employee in the transportation field in Minnesota. When the department's full budget, including construction and maintenance activities was considered, library expenses equaled three one-hundredth of one percent. MN/DOT Library is considered by many to be the most adequately supported transportation agency library.

Organizational and Policy Issues

Access to, and sharing of transportation information resources is hampered by a lack of attention within the field to needed information policies. No agency or organization is charged with, or sets as one of its primary functions, acquiring, indexing and providing access to the full range of transportation-related information resources.

TEA-21 mandated that the US Bureau of Transportation Statistics maintain a national transportation library, but provided no specific funding for the activity and failed to detail any specific services the library was expected to provide. Currently, the National Transportation Library collection consists of 5,000 documents in the public domain (not copyrighted) in electronic format. This can be compared to the 500,000 items in the TRIS database and the 20,000 items added to TRIS each year. It is not now, and for the foreseeable future will not become, a means of access to a significant number of information resources.

Like the National Transportation Library, several others have made their individual catalogs searchable on the Internet. Unfortunately, most of the libraries, including the National Transportation Library, do not participate in a shared catalog. As noted earlier, a number of transportation libraries participate in OCLC's WorldCat, but the majority of the 23 US DOT

and 46 state DOT libraries do not. So, in many cases, in order to find a specific, needed item, each potential source must be searched individually.

Problems in accessing information resources do not end once an item has been found in a catalog and the holding library is identified. Most transportation libraries will not copy or lend materials to individuals outside the library's primary customer base. The few that do, charge for this service. Bonnie Osif's study, mentioned above, also determined that the Harmer E. Davis Transportation Library was, as often as not, the only library that could be identified as holding a specific resource. That library's web site currently lists the following fees for borrowing materials:

\$30 per title. Support from California and US DOT programs provide the following exemptions: No fee for California public agencies or US transit operators; \$15 fee for State Dots and California private sector.

These fees, and even more so, the bureaucratic hassle of paying these fees, are a significant impediment to use of the library's resources by most of the transportation community. Even if the fees were not a problem, it is obvious that this one library is not comprehensive enough and should not be expected to meet the needs of the nation's transportation community

IMPROVING ACCESS TO TRANSPORTATION INFORMATION RESOURCES

I think the health of our civilization, the depth of our awareness about the underpinnings of our culture and our concern for the future can all be tested by how well we support our libraries.

□ ***Cosmos, Carl Sagan***

Based on the foregoing, it is obvious that within the field of transportation there is documented and anecdotal evidence of difficulties in locating known and fully identified information resources. The situation is even worse for so-called "grey literature," which constitutes a large portion of transportation-related information resources. These problems are a direct result of the failure of all but a very few transportation agencies and organizations to provide the resources required to collect, index, organize, catalog and provide access to information resources. It is also obvious that, in comparison with other fields, transportation invests very little in managing information resources. For most transportation organizations there is virtually no investment in information resources beyond publication and initial distribution.

Numerous studies in library and information sciences have demonstrated that the strongest determinant for use of information resources and services is proximity to the user. A few libraries scattered around the country can not meet the nation's need for access to transportation information resources and services. Developing additional library and information centers is not an inexpensive undertaking. Although it is seldom possible to directly measure the benefits and returns from making the kind of investment that is needed, an extensive study by Griffiths and King (Special Libraries: Increasing the Information Edge) showed that return on investments in various scientific and technical libraries and information services ran between 2:1 and 10:1. The transportation community needs to increase its investment in information resource management and information services in order to reap these same benefits.

Facilities and Resources

Unlike medicine and agriculture, transportation does not have a publicly funded agency that provides or coordinates access to comprehensive information resources and services. The few transportation libraries that exist are funded by a single agency and are structured to meet the needs of that single institution. Because there are so few transportation libraries and information centers, there is no commercial vendor providing transportation information services comparable to LEXIS or WestLaw, which compete to provide information services to the legal profession.

The most needed investment is the establishment and operation of additional facilities, close to the practicing transportation professional, providing basic information services. Each transportation agency and organization needs to ensure that it operates or has immediate access to a library or information center that at a minimum:

- Organizes, catalogs and preserves the information resources the agency produces and acquires
- Assists agency staff in locating and using information resources in its own collections
- Provides information and information resources in response to specific information needs of agency staff
- Uses standard library tools, resources and networks to identify and acquire or borrow information resources not owned by the agency for use of agency staff
- Assists other transportation professionals in identifying and using information resources published by the agency
- Participates in local, regional, national and international networks working to identify, catalog, preserve and share information resources

Staffing

Ensuring that existing and future transportation libraries and information centers are properly staffed is even more important than merely providing the much needed physical facilities and resources. Efficiently providing even the basic services listed above at the lowest overall cost requires staff who:

- Are professionally educated in the theory and philosophy of classifying and organizing information resources, and in the international standards and rules used to describe and catalog information resources
- Are familiar with techniques and resources for maintaining and preserving information resources
- Possess the interpersonal skills and service orientation required to develop and maintain professional/client relations needed to assist transportation professionals acquire and use information resources
- Have the ability to understand the specialized vocabulary and terminology used in transportation and properly apply that understanding in describing and searching for information resources
- Understand the full range of library and information resources and services that can be used to acquire information in response to a specific need, and possess the skills and knowledge required to use them
- Maintain awareness of developing resources and technologies that can be used in acquiring and disseminating information

No library or information center, regardless of how comprehensive its collections, can meet all user needs from within its own resources. As the total amount of available information expands, each library, even the largest, becomes more dependent on the timely interchange of resources with other libraries. Networks, new technologies, and cooperative catalogs that support this interchange are becoming increasingly important within library and information services. In order to ensure library and information professionals in transportation keep current with these constant changes their employing agencies must be sure library and information staff:

- Have the time and support needed for continuous learning
- Are encouraged to participate in resource sharing networks and have access to the tools and technologies needed to participate in library networks

Are provided with time and opportunity to network and collaborate with other transportation librarians

Funding

As with any other important endeavor, investment of financial resources is required if access to transportation information resources is to be improved. Each transportation agency and organization needs to increase its investment in this area to adequately address the problem. As mentioned earlier, on a national basis, approximately \$0.40 is spent for information services each year per transportation employee in the US This contrasts with the \$6.00 per year in agriculture and the nearly identical \$5.50 invested each year in Minnesota.

Minnesota's level of investment was arrived at after benchmarking MN/DOT Library's facilities and services with corporate libraries in Minnesota and adopting best practices identified in the process. To provide the same level of information services to transportation professionals that is currently provided to the average corporate employee obviously requires a several-fold increase from the current pennies-per-year per employee. The sources and specific size of funding increase needed from each organization within transportation obviously can not be dictated, but must be determined by each organization based on its own needs and resources. But, as the Minnesota example shows, even its considerable investment is a minor portion of total resources which provides substantial benefits.

Organizational and Policy Issues

Each organization and agency within the field of transportation, especially those with significant research or publishing components, needs establish and implement policies that ensure proper management of its own information resources. Information resources created by or under the direction of the agency must:

- Include sufficient information about authorship, date of publication, publishing authority and other standard descriptive details to facilitate unique identification and proper description and classification

- Be distributed not just on a need-to-know basis, but also to facilities with the resources to retain, catalog, preserve and provide continuing access to the resource

- Ensure, as much as possible, that the information resource is available in multiple formats and from multiple sources

OTHER INITIATIVES

National

Best practices for library and information services to a profession can be found in the medical and agricultural communities. The National Library of Medicine oversees the National Network of Libraries of Medicine. The network consists of eight Regional Medical Libraries (major institutions under contract to the National Library of Medicine), more than 140 Resource Libraries (primarily at medical schools), and some 4,500 Primary Access Libraries (primarily at hospitals). The Regional Medical Libraries administer and coordinate services in the network's eight geographical regions.

The National Agricultural Library has a mission to increase the availability and utilization of agricultural information for researchers, educators, policymakers, consumers of agricultural products, and the public. The Library is one of the world's largest and most accessible agricultural research libraries and plays a vital role in supporting research, education, and applied agriculture. The library coordinates AgNIC (Agriculture Network Information Center), a distributed network that provides access to agriculture-related information, subject area experts, and other resources. It was established by an alliance of the National Agricultural Library, land-grant universities, and other organizations committed to facilitating public access to agricultural and related information.

In order to similarly meet the information needs of the nation's transportation community an organization with national influence and scope, most likely US DOT, AASHTO, or TRB, must take the lead in providing similar programs and services by:

Undertaking a comprehensive study of the current scope of the nation's transportation information resources and needs, existing facilities and services attempting to manage these resources and an estimate of the investments that need to be made to provide access and services comparable to those in other disciplines and commensurate with identified needs

Establishing a national network of transportation libraries and information centers to improve the capture, retention, description, preservation and interchange of information resources, provision for and delivery of information services at local, state and regional levels, coordination of network programs and services, and development of standards, criteria and practices for participation in the network

Providing support, resources and incentives for the development and operation of transportation information facilities and services at local, state and regional levels

Encouraging and possibly funding participation of transportation libraries and information centers in a shared, online catalog, preferably OCLC's WorldCat, to which several important transportation libraries are already contributing

Subsidizing costs of resource sharing/interlibrary loans between transportation libraries and information centers

Providing increased opportunities for networking and collaboration among transportation library and information personnel

Promoting the establishment, adequate financing and staffing of additional transportation libraries and information centers

Encouraging and subsidizing the development and operation of regional transportation library cooperatives and networks

Funding projects demonstrating the benefits of increased transportation library networking and information resource sharing

Developing and conducting training programs to inform transportation professionals about the full range of information resources available to them and in techniques and skills needed to fully utilize these resources

In addition, US DOT must accept its role as one the nation's most important transportation information resources and assume leadership in these efforts by:

Providing a more comprehensive resource for the entire transportation community either through consolidation or more thorough and well-planned coordination of the 23 collections under its jurisdiction

Accepting responsibility for the proper identification, retention and preservation of information resources generated and disseminated by its many programs and providing the staffing needed to assist transportation professionals with access to and use of these resources

Local Initiatives

Other actions need to be taken at the regional, state and local levels in support of national and long-range goals.

All transportation agencies, associations and organizations must ensure that information resources they create, acquire and retain are properly identified and adequately described using standard bibliographic formats and rules

They must also ensure that these descriptions are entered into shared catalogs that facilitate on-line searches, access to documents in electronic format, and efficient access to and sharing of resources that aren't in electronic format

They must also ensure that they have the professional skills and services needed to perform these functions and to efficiently identify and acquire resources needed to meet each organization's own information needs

If a specific agency does not have the resources to perform these functions for itself, it should ensure they are carried out, either through contract or agreement, with a transportation library or information center staffed by professionals with knowledge of specialized transportation resources and terminology

In areas where no library or information center currently exists which meets this criterion, state and regional consortia must pool resources to support the creation and operation of facilities that can provide these services

Conclusion

Anecdotal evidence and Bonnie Osif's study demonstrate that the US transportation community does not have reliable, efficient access to its own information resources. Timely, reliable access to information resources documenting the latest research, best practices, innovative ideas, techniques and policies can accelerate their implementation in the field. The level of investment needed to ensure each transportation professional has such access is not known. Within the field of transportation, there is a lack of recognition of the situation as a problem and a lack of knowledge of potential solutions as practiced in other fields. It is hoped that this paper can begin a discussion that will lead to increased recognition of existing problems and implementation of at least some of its recommendations.