

Retrieval and Distribution of Transportation Research Information

One State's Approach

• • •

JAMES M. SIME AND ERIC C. LOHREY

The transportation community has been rich with advances in knowledge and innovation since early footpaths began to expand into vehicular thoroughfares. Over the years, formal expression of this knowledge has developed into a large archive of books, technical journals, and other publications covering a vast range of subject matter. At some point, it became apparent that this wealth of information should be collected and organized so it would be accessible to practitioners with the ability to put published innovations to use. The Transportation Research Board's Transportation Research Information Services (TRIS) database was developed to help meet this need.

The volume and rate at which the TRIS collection of records has expanded have resulted in a continual need to update the methods used for retrieving records relevant to a specific subject. Recent technology has provided a number of methods for searching the vast content of the TRIS database. These methods include a dial-up proprietary search engine, a CD-ROM data subscription, and Web sites for scanning active research projects that have not yet produced published documentation. Each of these methods has advantages and disadvantages for the practitioner seeking information on a particular topic. This article reviews these three current methods and describes how the Connecticut Department of Transportation uses them to disseminate transportation research information to a variety of customers.

Methods of Accessing TRIS

Usage factors such as cost, level of access, currency, and on-screen characteristics vary among the three access methods. These factors result in advantages and disadvantages associated with each method.

Dial-up Information Service

Of the three access methods, a service called Dialog® is the most complete and current. TRIS is one of hundreds of databases available for subscribers to the Dialog information service. Although not used as often by DOTs, databases other than TRIS can be important when peripheral information, such as legal or regulatory information related to transportation, is desired. In these cases, Dialog files other than TRIS can be searched to obtain the needed information. Complex, comprehensive searches are possible because Dialog provides the capability to search many databases simultaneously. Another advantage of Dialog access, discussed further below, is the ability to search publication abstracts in one operation.

The TRIS file within Dialog is updated monthly. The file contains more than 400,000 publication abstracts and 3,500 research-in-progress records. ConnDOT uses an exclusive modem-to-modem connection via a local telephone number, which minimizes delays and provides private communications. In the future, ConnDOT anticipates accessing Dialog via the Internet.

The primary disadvantage of Dialog access to TRIS is its cost. Although several billing options and payment plans are offered, subscribers are charged an annual fee for the service, an on-line fee for time connected, and variable fees for each retrieved record. A secondary drawback of the service is a key-in command system that requires an experienced individual to perform an efficient information search.

CD-ROM Subscription

A CD-ROM subscription from SilverPlatter Information, Inc., provides searching software called

James M. Sime is assistant manager for research, and Eric C. Lohrey is transportation engineer, Connecticut Department of Transportation.

WinSPIRS™ and CD-ROMs containing a database called TRANSPORT that includes abstracts of transportation research publications. In addition to TRIS, TRANSPORT contains two European databases with abstracts of transportation research publications. Because of its large size, the complete TRANSPORT database is split onto two CD-ROMs—one with all records dated prior to 1988 and the other with records from 1988 to the current release date. Under the terms of the subscription, an updated version of the latter CD-ROM is sent four times a year, with a slight lag in the period covered; for example, an updated CD-ROM received in April 1998 contains records from 1988 to February 1998.

The primary disadvantage of the SilverPlatter® system is not being able to work with the most up-to-date edition of the TRIS database. However, SilverPlatter has significant advantages that make it a desirable search tool. The locally accessed CD-ROM form of the data allows the user to search at his/her own pace without accruing extra charges for connect time. When performing a routine search, the user can identify and enter many search terms and retrieve many records without concern for accumulating extra charges. As records are retrieved, they often reveal new search terms that may then be reentered by the user to further refine the specifics of the search. The ability to repeat this cycle one or many times without being charged for the intermediate retrievals or the additional connect time may result in tremendous savings. Another advantage of the SilverPlatter system is its

user-friendly, Microsoft Windows®-based software, WinSPIRS. Versions written for the Microsoft DOS® and Apple Macintosh® operating systems are also available. The program is easy to learn, allowing end users of the information to perform searches for themselves. This capability can enhance efficiency because these are often the individuals most familiar with the details of the subject matter being searched.

Research-in-Progress Web Site

The third method of TRIS searching used by ConnDOT is via TRB's TRIS Research in Progress Web site, which allows users to search for TRIS records describing research projects or activities in progress or recently completed. The currency of the information is dependent on the actions taken by U.S. and Canadian transportation research organizations to report on their research in progress. Under Title 23, Code of Federal Regulations, Part 420, Subpart B, all states must report transportation research projects in progress and research-related publications to TRIS as one element of their management process. The URL address for this Web site is <<http://www3.nas.edu/rips/>>.

Transportation Information Customers and Service Providers

Connecticut's transportation information customers can be categorized into three broad groups. Two of these groups are large in number, but the information needs of the third, smaller group are equal to those of the other two. The two large groups are (1) local government officials from the state's 169 towns and cities, and (2) ConnDOT executives, managers, engineers, planners, and operational personnel. The third group comprises transportation research engineers in universities and within ConnDOT.

Three information providers have primary responsibility for serving the needs of these transportation information customers. These three groups are supportive of each other and are in turn supported by a network of colleagues in other states and TRB. The first is the staff of the Local Technical Assistance Program at the Connecticut Technology Transfer Center, University of Connecticut (T²/LTAP), who provide technical assistance to local government officials. Second is a librarian within ConnDOT who responds to information requests from a broad spectrum of DOT executives, managers, engineers, planners, and



"...BUT OUR MOST USEFUL PUBLICATION IS THE 'JOURNAL OF DON'T-DO-IT: IT'S-ALREADY-BEEN-DONE'."

others. Third and also within the state DOT are transportation research engineers whose responsibilities include research program development and execution, as well as responses to occasional information queries such as those received by the other two information providers. To serve all transportation information customers in as cost-effective a manner as possible, different information search tools were placed in the hands of the various information providers, as appropriate to their skills and the needs of their customers.

Local Government Officials

Most queries from local government transportation officials are directed to T²/LTAP personnel. T²/LTAP maintains a large reference collection of transportation-related publications and has access to a network of transportation professionals. T²/LTAP's preferred method of TRIS access is the TRANSPORT CD-ROM subscription, which is provided by ConnDOT. T²/LTAP personnel report that they are able to respond quickly to local government officials because of the immediate access allowed by CD-ROM searches. The T²/LTAP reference collection usually contains the desired publications identified in the TRIS search, which also helps in providing quick responses.

DOT Operations Personnel

The DOT's library has a high profile within the headquarters building, where all five major bureaus are located. Queries from DOT executives, managers, engineers, planners, and operations personnel are most often directed to the DOT librarian, who also answers transportation-related queries from outside the agency. The library's favored information search tool is Dialog. In the hands of the experienced DOT librarian, key-in-command access to TRIS results in quick and efficient searches. Once suitable publication references have been located, the librarian turns to the on-line library cataloging system and, if necessary, the interlibrary loan system to acquire the publications. The librarian's resources include close ties with other library professionals who specialize in transportation.

DOT Research Personnel

The Division of Research conducts information searches to meet several needs. These needs include screening of research problem statements and proposals, literature searches during the conduct of research, and responses to queries.

Through the Windows NT[®] network, Research personnel use a network version of the TRANS-

PORT CD-ROM. Annually, there is a Department-wide solicitation for research problem statements. Research resulting from these problem statements may be addressed by one of the following: an in-house research project, the Cooperative Research Program with the University of Connecticut, the New England Transportation Consortium, a

Access to TRIS

The Transportation Research Information Services (TRIS) database is available through two fee-based services. One is provided by the Dialog Corporation and the other by SilverPlatter Information, Inc.

The Dialog Corporation

The Dialog Corporation provides TRIS access through a dial-up connection or through Web access. TRIS, file 63 on Dialog[®], is updated monthly and contains both document abstract and research-in-progress records. Dialog provides access to and allows simultaneous searching of almost 400 databases. For example, a single search can be made across TRIS and Dialog's environmental, energy, and engineering databases. Duplicate records in search results, if any, can be eliminated with a single search statement.

Searching of TRIS and other Dialog databases requires mastery of Dialog's command language. Although the interface is not user-friendly, it does allow for precise and powerful searching for those familiar with the commands. The commands allow ranking of results. For example, results can be ranked to identify authors who have published most extensively on a subject. A search may also be targeted to obtain the most relevant records on a specific subject.

Dialog charges both for connect time and for citations. Current costs for TRIS are \$30/hour for connect time and \$.90/citation.

Contact: The Dialog Corporation (telephone: 800-213-1026; Web access: <http://www.dialog.com>)

SilverPlatter Information, Inc.

TRIS is also available as part of the SilverPlatter Information, Inc., TRANSPORT database collection. TRANSPORT contains TRIS; the International Road Research Documentation (IRRD) database (see article page 12); and TRANSDOC, a transportation economics and railroad database. TRANSPORT contains document abstracts from the three databases and is updated quarterly. A TRANSPORT CD-ROM subscription may be purchased for single-user or network access. The SilverPlatter[®] Electronic Research Library (ERL) technology provides access to TRANSPORT on a local or wide area network or on SilverPlatter's server. Web access is also available by subscription or, in the United States, on a transaction payment system named Search by Search[™]. The single-user, networked, and Web versions of TRANSPORT all have an easy-to-use interface.

The single-user version of TRANSPORT is available for \$1,795/year. Costs for networked and Web versions vary depending on the maximum number of simultaneous users. Search by Search charges are \$0.25/search and \$0.35/full record displayed, downloaded, or printed.

Contact: SilverPlatter Information, Inc. (telephone: 800-343-0064; Web access: <http://www.silverplatter.com>)

National or Regional Pooled-Fund research project, the National Cooperative Highway Research Program, or the Transit Cooperative Research Program. Before proposed research is approved for inclusion in these programs, TRIS searches are run by Research Division personnel for each problem statement. TRANSPORT is used to screen for duplication by examining related-research abstracts of findings published by others. TRB's TRIS Research in Progress database is then searched via the Internet, with a similar screening process being applied. Problem statements that pass the two-step screening process are submitted to the appropriate national program at the time of its solicitation. If pertinent publications are identified during the screening process, an effort is made to obtain them and make them available to the problem submitter(s).

An early task in most research projects is a literature search. DOT researchers use primarily the two-step search described above to identify pertinent abstracts. Publications are generally obtained from the Research Division's research reference collection, through the DOT librarian, from the TRB librarian, or from the research agency that sponsored or conducted the work.

Queries may come from within or outside the agency. One member of the DOT's research staff is proficient in Dialog access to TRIS. Searches are often run via Dialog within 1 to 2 days of receipt of a query. As noted earlier, an advantage of Dialog over the other access methods is that abstracts can be searched in a single operation, instead of the two-step search described above. If the Research Division cannot respond quickly to a query or difficulties are encountered with the search, the request is passed immediately to either the DOT librarian or the TRB librarian.

Example Information Request

Recently, a request was received from ConnDOT's Traffic Engineering Division. New design parameters called for sign supports to withstand wind loads higher than those of the original design parameters. The requesting individual recalled seeing a presentation about research findings from a study of a new, more legible highway sign font. He believed the research had been conducted at Pennsylvania State University. If a smaller font with legibility equal to that of the existing font could be used to downsize signs, stresses on existing sign supports would be reduced. This could be a cost-effective approach that would bring existing sign supports into conformance with the higher

design wind loads. The new sign font was named Clearview.

A call was placed to PennDOT's member of the American Association of State Highway and Transportation Officials' Research Advisory Committee to ask whether PennDOT had sponsored this sign-font study. Meanwhile, TRIS searches by ConnDOT personnel revealed nothing, and research personnel turned to the TRB librarian for assistance. Within 1 day, the TRB librarian had confirmed that no publications related to Clearview were contained in the TRIS database. Subsequent TRB searches of various periodical databases revealed a 1995 article about the Clearview font, which reported that Clearview was 16 percent more legible than the standard font in the sizes studied. Thus the approach contemplated by the Traffic Engineering Division appeared to have merit. The article identified the Penn State researchers and another researcher at the Texas Transportation Institute.

Subsequently, a PennDOT researcher responded. He explained that PennDOT had not sponsored the work, but he knew about it, and provided a contact at Penn State. It was later confirmed that a corporation had sponsored the research, which explains why there was no research-in-progress record within TRIS. The principal Penn State researcher graciously provided a draft TRB publication reporting on the research.

Summary

TRB's TRIS database is a highly valued repository of both publication and research-in-progress abstracts. ConnDOT fully supports TRIS and has made the TRIS-based TRANSPORT CD-ROM a permanent part of its transportation information search toolbox. The new tools are most effective when used in conjunction with traditional resources, including transportation reference libraries and personal networks of transportation professionals.

Useful Internet Sites for Transportation Information

At the Transportation Research Board Library, the Internet is a vital tool in obtaining all types of information. Listed here are selected Internet sites used regularly by the TRB Library staff.

National Transportation Data Archive, Bureau of Transportation Statistics

<http://www.bts.gov/ntda>

Contains the searchable data files for such statistical sources as Commodity Flow Survey, Fatal Accidents Reporting System, Highway Statistics, National Transportation Statistics, State Freight Profiles, Truck Inventory and Use Survey, Statistical Handbook of Aviation, and On-Time Statistics for Airlines. In some files, users can develop customized charts and graphics for statistical data.

Turner-Fairbank Highway Research Center, Federal Highway Administration

<http://www.tfhr.gov/>

Provides information on current research at the center in the areas of intelligent transportation systems, pavements, structures, human factors, and traffic operations. Also provides information on current projects and the full text of some research reports. The full text of the journals *Public Roads* and *Research and Technology Transporter* is available on line.

World Wide Web Virtual Library: Aviation, Embry-Riddle Aeronautical University

http://macwww.db.erau.edu/www_virtual_lib/aviation.html

A comprehensive and well-organized listing of aviation-related Internet resources. Includes information on aviation education and technical schools, airlines, airports, manufacturers, aviation history, organizations, employment opportunities, research, publications, software, and videos.

PATH Database, Institute of Transportation Studies, University of California, Berkeley, Transportation Research Board

<http://sunsite.berkeley.edu/PATH/>

The largest database on intelligent transportation systems, now available through TRB's Web site. The bibliographic database currently has about 12,500 references with abstracts and covers historical material dating back to the 1940s, as well as current ITS research.

Directory of Transportation Resources, Princeton University

<http://www.sor.princeton.edu/~dhb/>

A comprehensive and well-organized directory of transportation Internet sites. Includes information on all modes of transportation (highway, transit, rail, airports, and airlines), and on related colleges and universities, companies, organizations, and conferences and seminars.

Uncover, Dialogue Inc.

<http://uncweb.carl.org>

A table-of-contents database for more than 17,000 periodicals in all disciplines. The database is searchable (at no charge) and has a keyword index. Articles from the periodicals can be ordered through a document delivery service for a fee.

Switchboard

<http://www.switchboard.com>

The equivalent of a nationwide residential and business telephone directory. Provides 106 million residential listings and about 11 million business directories. The data are updated every 4 to 6 months.

Newspapers

<http://www.lib.utexas.edu/Libs/PCL/News.html>

Contains a listing of links to national and international newspaper and full-text news sites on the Internet. Also provides searching across the previous 2 weeks of Associated Press Newswire (via *The Washington Post*) by headline, date, or word in the article.

U.S. Gazetteer, U.S. Census Bureau

<http://www.census.gov/cgi-bin/gazetteer>

Allows users to search and view maps of locations throughout the Tiger Map Server (users can zoom in for more detailed maps). Also provides census data for the locations shown.

Thomas, Library of Congress

<http://thomas.loc.gov>

Contains congressional information. Provides access to current congressional bills, committee reports, and the *Congressional Record*. Also provides a searchable index to legislative material.

GPO Access, U.S. Government Printing Office

http://www.access.gpo.gov/su_docs/aces/aaces002.html

Provides searchable full-text databases of federal government resources, including the *Congressional Register*, *Federal Register*, *Code of Federal Regulations*, *U.S. Code*, and *Federal Budget*.

Information on Internet sites provided by
Barbara Post, Librarian, Transportation
Research Board Library