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The Role of the ADOT Library in Meeting Staff Information Needs

Arizona Department of Transportation Research Center

ADOT

The Role of the ADOT Library in Meeting Staff Information Needs

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16. Abstract

The Arizona Department of Transportation (ADOT) operates a transportation library. The mission of the ADOT Library is to provide ADOT employees with the published information they need to carry out their job responsibilities contributing to a safe, efficient, and cost-effective transportation system in Arizona. Historically, ADOT's librarians have used professional judgment to decide which materials to add to the collection. This research is the first formal investigation to determine the information needs of ADOT staff and the role of the Library in meeting those needs.

This study has provided information regarding: (a) the information needs of the ADOT staff, including the means by which they currently obtain the information they need; (b) preferences regarding access to Library services and resources; and (c) awareness and use of the ADOT Library. Findings from the study also provided insights into the role of transportation libraries, the extent to which ADOT Library practices align with acknowledged effective practices in transportation libraries overall, and opportunities for ongoing improvement and enhancement of Library operations, communications and marketing efforts, customer service, and valuation. Recommendations were developed to facilitate delivery of ADOT Library services in fiscal periods characterized by severe budgetary constraints and limited resources as well as in less constricted fiscal periods permitting continued investment in ADOT Library resources (staff, collection materials, information technologies). The research findings can be used by ADOT to inform strategic and contingency planning efforts and will enable ADOT to make data-driven decisions regarding the Library collection and services.

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LIST OF ACRONYMS

AASHTO .... American Association of State Highway and Transportation Officials

AASHTO RDG .... AASHTO Roadside Design Guide

ACI .... American Concrete Institute

ADA .... Americans with Disabilities Act

ADOA...................... Arizona Department of Administration

ADOSH.................... Arizona Division of Occupational Safety and Health

ADOT .... Arizona Department of Transportation

AIDW .... ADOT Information Data Warehouse

AMP....................... Arizona Memory Project

ANSI....................... American National Standards Institute

ARS .... Arizona Revised Statues

ASCE .... American Society of Civil Engineers

ASD....................... Administrative Services Division

ASE .... National Institute for Automotive Service Excellence

ASTM STP .... American Society of Testing Materials Selected Technical Papers

ATRC...................... Arizona Transportation Research Center

ASU....................... Arizona State University

ATTI .... Arizona Technical Testing Institute

AZ-TAMS................. Arizona Transportation Asset Management System

BSC .... balanced scorecard

CFIRE .... University of Wisconsin Center for Freight & Infrastructure Research & Education

CFR .... Code of Federal Regulations

CGR........................ Communications and Government Relations

MPD........................ Multimodal Planning Division

MPO .... metropolitan planning organization

MTKN .... Midwest Transportation Knowledge Network

MVD .... Motor Vehicle Division

NADA...................... National Automobile Dealers Association

NEPA....................... National Environmental Policy Act

NSPS NICET............. New Source Performance Standards, National Institute for Certification in Engineering

NKC......................... Novartis Knowledge Center

NTL .... National Transportation Library

NMDOT .... New Mexico Department of Transportation

NYSDOT .... New York State Department of Transportation

OCLC....................... Online Computer Library Center

OPAC .... online public access catalog

ORDOT.................... Oregon Department of Transportation

OSHA .... Occupational Safety and Health Administration

OSTP .... White House Office of Science & Technology Policy

RCRA....................... Resource Conservation and Recovery Act of 1976

RiP .... Research in Progress

ROI......................... return on investment

SLA DTRAN .... Special Libraries Association Transportation Division

SPR .... State Planning and Research

TAC .... technical advisory committee

TKN......................... transportation knowledge network

TPF.......................... Transportation Pooled Fund

TRB .... Transportation Research Board

TRID .... Transportation Research Board's Transportation Research International Database

UTC .... university transportation center

VALUE .... Value Assessment Library Use Efficiency

WisDOT .... Wisconsin Department of Transportation

WTKN .... Western Transportation Knowledge Network

EXECUTIVE SUMMARY

The mission of the Arizona Department of Transportation (ADOT) Library is to provide ADOT employees with the published information they need to carry out their job responsibilities contributing to a safe, efficient, and cost-effective transportation system in Arizona. Historically, ADOT's librarians have used professional judgment to decide which materials to add to the collection. This research study is the first formal investigation to determine the information needs of ADOT staff and the role of the Library in meeting those needs.

Specifically, this study was conducted to identify the information needs of ADOT staff, determine their awareness and use of the ADOT Library, and examine their preferences regarding access to Library services and resources. The study was also designed to examine the extent to which ADOT Library practices align with acknowledged effective practices in transportation libraries nationwide and to identify opportunities for continuous improvement in Library operations, customer service, and communication and marketing strategies.

To meet these objectives, the research study consisted of the following components:

- Document existing practices of the ADOT Library related to collection development, communication and outreach, and integration with ADOT functions.

- Identify information needs of the ADOT staff and investigate awareness and usage of, and satisfaction with, the Library's resources and services.

- Define effective library practices, with a focus on transportation and other special libraries that serve specific organizations and/or populations.

- Analyze findings and develop recommendations to assist ADOT in making data-driven decisions regarding the Library collection and services

Findings from the documentation of existing practices revealed that the Library could benefit from implementing a number of practices considered to be effective for libraries generally and for transportation and other specialized libraries specifically. These practices include:

- Alignment and integration of the library with organizational goals

- Ongoing monitoring of and response to customer needs

- Customer-focused delivery of library services

- Continuing development of partnerships to enhance library assets and services

- Ongoing monitoring and evaluation of library performance in meeting customer needs

An employee survey revealed that information needs primarily center on technical resources that include manuals, procedural and training guides, standards and specifications, data and statistics, other state or federal department of transportation (DOT) publications, and computer and software guides. Employees also seek information on non-transportation– related topics, such as leadership, management, and self-improvement. Employee reliance on library facilities (ADOT and non-ADOT) is low, with the vast majority of employees reporting that they typically find information on their own using general Internet searches and that they are satisfied with their online search experiences (i.e., the time it takes to find information and success in finding the specific information they need). The top two reasons given for not using the ADOT Library were unawareness of the Library and the ability to find the information themselves.

Among those who had used the Library during the past two years, the majority (58 percent) reported they were satisfied with the Library resources and services, and 19 percent were neutral in their response. The remaining 23 percent that were dissatisfied primarily cited two reasons: unmet access needs—including online and electronic access to materials and online library catalog search capabilities, and unmet information needs—including up-to-date manuals and online resources that extend beyond common trade and industry publications and address relevant topics beyond engineering.

All survey respondents, both ADOT Library users and non-users, were asked to identify needed improvements in the Library. Responses included:

- Expanded access options to include more online access to information and resources as well as access to specialized databases and resources

- Systems and processes improvements (e.g., self-service options, librarian assistance on information management projects at the workgroup and Department level)

- Increased number of Department memberships in professional trade organizations to receive access to free publications

- Customer service improvements (e.g., outreach, training, and Library alerts and notifications)

RECOMMENDATIONS

Two sets of recommendations were developed: (1) maintenance-driven recommendations that fulfill Federal Highway Administration (FHWA) and state depository requirements and support the delivery of basic library services in a fiscally constrained environment; and (2) development-driven recommendations that support further investment in the planned growth of ADOT Library resources and services.

The latter recommendations aim to ensure organizational alignment of the Library with ADOT goals; integration and application of librarian skill sets in the critical areas of information management and technology and knowledge transfer throughout ADOT project planning and implementation; and increased contribution and value of the ADOT Library to the work of the Department.

Maintenance-Driven Recommendations

The maintenance-driven recommendations focus on fulfilling FHWA and state depository requirements, and by providing ADOT employees with access to the existing Library collection. These basic recommendations are short-term actions that could be implemented within the next year with existing ADOT resources and staff:

- Contract with private consultants to fill the ADOT Librarian position.
- Use ADOT Research Center staff to deliver basic library services.
- Provide essential functions that fulfill FHWA and state requirements.
- Maintain cooperative relationships with other libraries and related organizations.
- Identify opportunities for other library partners to help ADOT provide essential library services (interlibrary loans, shared access to specialized databases, reduced subscription fees, and use of a larger library or consortium ILS).
- Use ADOT staff to inventory database and journal subscriptions held throughout ADOT to help consolidate subscriptions and convert to site-wide subscriptions or licenses.

Development-Driven Recommendations

Development-driven recommendations aim to build the ADOT Library of the future as a learning and information center that supports and advances department goals and priorities through information management, technology and knowledge transfer, and support for employee professional development.

These recommendations are mid-term and long-term actions that depend on budgetary considerations and ADOT's strategic priorities. Mid-term actions may require one to three years to implement and may involve external partners or financial resources, while long-term may require more than three years to implement with extensive cooperation and coordination with external partners:

- Align the mission, goals, and objectives of the ADOT Library with ADOT goals and priorities.
- Expand the librarian role to support ADOT research project functions.
- Include the librarian on ADOT project teams related to information management and technology and knowledge transfer.
- Assess customer needs and expectations, then align services and resources.
- Raise awareness of the ADOT Library and inform customers of library services and resources.
- Regularly document and demonstrate the tangible and intangible benefits that the ADOT Library provides ADOT.

CHAPTER 1. INTRODUCTION

The Arizona Department of Transportation (ADOT) Library, housed within the ADOT Research Center, is charged with providing ADOT employees the published information they need to support their efforts to provide a safe, efficient, and cost-effective transportation system for Arizona. The Library collects, organizes, and houses nearly 30,000 books, magazines, and electronic publications, with the majority (94 percent) consisting of transportation-related titles. The collection is strong on transportation engineering and planning, with some coverage of administration and little, if any, on other topics. A large portion of the collection includes titles that are provided either free of charge to the Library, such as titles received from federal and state transportation agencies or as a benefit of ADOT's membership in the American Association of State Highway and Transportation Officials (AASHTO) and the Transportation Research Board (TRB). Additionally, the Library uses established formal and informal information networks to access externally located information and reference materials, leveraging its associations with cooperative organizations to meet customers' needs.

While the ADOT Librarian responds to transportation-related reference questions from state agencies, other in-state organizations, and the general public, requests from ADOT employees receive the highest priority. As stated by the librarian, the Library's mission is to "capture ADOT publications, make outside information available to ADOT employees, and make ADOT publications available to the public."

PURPOSE OF RESEARCH STUDY

To engage in continuous improvement aimed at effectively serving the information needs of the ADOT staff, the Library wished to conduct research to better understand those needs. It was also important to understand *how* the Library can best serve those needs. To that end, this study gathered information on effective practices in such areas as collection development policies, operational systems and resources, and communication and outreach efforts to customers (ADOT staff). Findings from this study will not only assist the Library in better serving the information needs of ADOT employees, but also in better communicating the value to the Agency of the information and services it provides.

METHODOLOGY

This study was conducted by a multidisciplinary consultant team, consisting of the contracted research firm and its subcontractor, a consulting firm with extensive knowledge of library systems, technology, and marketing. A research plan was developed, incorporating both qualitative and quantitative data collection. The major components of the plan are summarized below and discussed in detail in subsequent chapters.

Documentation of Existing Practices

A site visit and follow-up interviews were conducted to obtain information in the following areas:

Resources

A two-day on-site visit was conducted to meet with the ADOT Research Center and Library staff. During the visit, internal documents were collected and staff were interviewed to assess the current resources (budget, staff, other organizations, etc.) available to the ADOT Library. Other information was also gathered for use in developing suggested strategies for making enhancements as well as leveraging existing resources appropriate to the needs of the ADOT Research Center and Library. Additionally, communication with Library staff continued through several telephone conversations taking place to follow up on the visit.

Collection Development

Current policies and practices for collection development, acquisitions, circulation, and weeding and discarding of resources were reviewed. Circulation statistics were examined to analyze collection development needs particular to the ADOT research staff. The review included comparison of the ADOT Library's existing policies with those of other DOT libraries and documentation of the site visit findings.

Communication and Outreach

Information was obtained about the Library's current efforts to communicate the value of its services, collection, and online resources. Such communication efforts include providing information to users and potential users about efforts currently under way at ADOT to redesign the ADOT Intranet and, if available, information on steps taken by other DOT libraries to improve or enhance their Intranet presence (e.g., access to catalog and digital content). Drawing on its knowledge of DOT libraries nationwide, the team will evaluate the current state of outreach and document its findings.

Library Integration with ADOT Functions

Information was gathered regarding the integration of library services with the core mission and daily functioning of the Research Center and ADOT as a whole. Areas of specific interest to ADOT researchers were assessed, as well as those that streamline library workflow.

Identification of ADOT Staff Information Needs

An examination of the ADOT staff's information needs, as well as their perceptions of the Library's effectiveness in meeting those needs, was conducted.

Quantitative data were obtained through an online survey of employees statewide, and qualitative data were gathered through two focus groups. The online survey examined current awareness, knowledge, and usage of the ADOT Library; degree of satisfaction with the library and its services and collection; information needs of ADOT staff and preferred delivery formats; and perceived value of information services as they currently exist. Respondents who completed the survey, regardless of their location or

whether they reported having used the ADOT Library or not, were considered potential focus group participants and, at the end of the survey, were asked if they were interested in learning more about participating in a group discussion (focus group).

Two focus groups were subsequently conducted in Phoenix (Maricopa County)—one held with staff level personnel who work primarily in Maricopa County, and the other with managerial and supervisory personnel statewide. The discussion guide used for the groups was designed to delve more deeply into four key topic areas:

1. Participant identification of their top three information needs, the frequency with which these types of information are typically used, and the primary sources that they use to obtain this information.

2. Participant experiences in using the ADOT Library, their views on the perceived value of the ADOT Library and librarian services, and factors that impact participants' access to the information and resources that they need to do their job.

3. Participant views and perceptions regarding the ideal state—i.e., their "wish list" for the ADOT Library of the future, the role of the Library in meeting customer needs and expectations, and ideas or suggestions to improve or support service delivery.

4. Participant feedback (via completion of a worksheet at the conclusion of the discussion group) regarding the perceived impact of not having access to ADOT Library resources or services—that is, if ADOT Library resources or services were not available.

Identification of Effective Practices

A literature search was conducted of relevant publications and other information sources—including studies, surveys, reports, presentations, and papers—to locate information on effective practices of special libraries, particularly transportation libraries. Areas of investigation included identification of customer needs, organization of the collection, marketing of services, and evaluation of performance. Because developments in technology have significantly changed library practices, as well as the librarian profession's view of what constitutes effective practices, emphasis was placed on locating recent studies in these areas.

To supplement the literature search, the transportation librarians and/or library directors for eight state DOT libraries were asked to share their insights on effective practices by participating in a brief survey and follow-up phone interview. These libraries were selected primarily because of their similarity to the ADOT Library in staffing levels, physical library size, collection size, and performance of in-house cataloging; use of a commercially available integrated library system (ILS); and the basic services they provide. Additionally, several of the selected libraries are also highly respected within the nationwide community of DOT librarians for their knowledge of data stewardship as well as value-added services.

CHAPTER 2. EXISTING PRACTICES OF ADOT LIBRARY

This chapter documents findings from a review of the ADOT Library's current practices related to resource management, collection development, communication and outreach, and integration of Library services with ADOT functions. This examination of current practices included:

- An onsite visit to the ADOT Library, which included interviews with the ADOT librarian, ADOT Research Center personnel, and other stakeholders, including representatives of the Arizona State Library

- Collection of internal documents outlining current policies and practices

- Review and analysis of statistical data pertinent to library operations

RESEARCH METHODOLOGY

Qualitative research was conducted by means of a one and a half-day visit to the ADOT Library in February 2015. During the visit, the research team interviewed the ADOT librarian, the ADOT Director of Performance Management and Research, who has authority over the Library, a senior division administrator representing the ADOT Director's office, and two representatives from the Arizona State Library. Core topics addressed during the site visit included:

- Background information: mission and charge, history and evolution of the ADOT Library

- Organizational structure and resources

- Service offerings

- Collection development

    o Current policies and practices for collection development, acquisitions, circulation, and weeding and discarding of resources

    o Collection development challenges and/or obstacles

    o Circulation statistics

- Technology

- Communication and outreach efforts during the past one to three years

- Leveraging resources: AOT Library integration

- Leveraging resources: relationships with cooperative organizations

Following the site visit, more detailed information (e.g., library expenditures and usage statistics) was obtained through phone and e-mail communications with the ADOT librarian. Three follow-up interviews were also conducted by phone with Research Center personnel to aid understanding of current Library practices and to solicit input regarding ADOT information management tools, such as the data warehouse. These telephone interviews were conducted with the ADOT Research Center Planning Program Manager, the ADOT Director of Performance Management and Research, and the ADOT Research Center Manager.

HISTORY OF ADOT LIBRARY ADMINISTRATION AND LOCATION

Since its establishment in July 1989 as part of the Arizona Transportation Research Center (ATRC), the Library has moved administratively four times, and physically, three times. In the four administrative moves, the Library and the ATRC moved: (1) from the Highways Division to the Transportation Planning Division, (2) to the Intermodal Transportation Division, (3) to the director's Support Division, (4) and then back to the Transportation Planning Division. In the 2000s, the Transportation Planning Division was renamed the Multimodal Planning Division, and the ATRC was renamed the ADOT Research Center. Physically, the Library moved from its original location at the Arizona State University (ASU) Research Park to two ADOT facility locations. Its final move in 2010 placed the Library as well as the ADOT Research Center in the ADOT administration building.

RESPONSIBILITIES AND DUTIES OF ADOT LIBRARIAN

The Library is staffed by one full-time librarian. The librarian reports directly to the manager of the Research Center and is permitted to utilize the services of the Research Center administrative assistant to help with library-related administrative tasks on an "as needed and if time permits" basis.

The current librarian has been employed in his position since November 2000, and until 2012, his responsibilities were to provide basic library services and website maintenance and to assist the Research Center with research report editing. The librarian stated that, at the time, these responsibilities consumed the majority of his daily workload. In 2012, the librarian's job responsibilities shifted to basic library functions, due to the adoption of a technical editing process that incorporated the services of a project manager and technical editor on the Research Center staff and of technical editors under contract, as well as to the librarian's preference for focusing on basic library functions. While the ADOT librarian may perform these to varying degrees, basic library functions generally include the following: (a) reference and research assistance whereby the librarian recommends, interprets, evaluates, and/or uses information resources held by the Library and/or other organizations to help others meet their specific information needs; (b) collection development and maintenance, which is the process of continually evaluating the physical and digital assets of the library by monitoring incoming reference and research requests, interlibrary loan and document delivery, circulation statistics, and purchasing resources to ensure that the collection is aligned with customers' information needs, as well as maintaining online subscriptions; and (c) technical work such as cataloging, which is the process of creating bibliographic records and assigning metadata that accurately describes information resources such as books, reports, and online resources in the library's catalog, as well as maintaining the

Integrated Library System (ILS). Responsibilities also include interlibrary loan (ILL) document delivery—in physical or digital formats—using various formal and informal library networks and resources to search and locate requested resources not owned by the ADOT Library. The librarian also ensures delivery of ADOT-published reports to the State Library and other entities as required.

In addition to the above basic library functions, the librarian is responsible for delivery of the following Library services available to employees:

- Literature searches

- Instruction or assistance in how to complete a literature search

- Responses to requests for materials such as books, journals, or magazines (whether included in ADOT Library holdings or obtained from external holdings)

- Access to the library's online catalog and databases

- List of new library materials recently added to the ADOT collection

- Review of employee requests regarding acquisition of collection materials (books, reports, and peer-reviewed journals)

When asked to identify job duties or responsibilities that tend to consume a large portion of his time, the librarian cited the task of reviewing recently published reports and materials that could potentially be of interest to ADOT employees.

ADOT LIBRARY FUNDING, BUDGETARY PRACTICES, AND EXPENDITURES

Funding

The Moving Ahead for Progress in the 21st Century Act (MAP-21) is the current federal legislation providing funding for surface transportation programs. MAP-21 requires that two percent of the appropriations that states receive from four federal aid programs (National Highway Performance Program, Surface Transportation Program, Congestion Mitigation Air Quality program, and Highway Safety Improvement Program) be set aside for state planning and research activities. Of the two percent, states must allocate 25 percent for research, development, and technology, which includes such activities as researching new areas of knowledge; adapting findings to practical applications by developing new technologies; and transferring these technologies (including the process of dissemination, demonstration, training, and adoption of innovations by customers). Typically, a state Department of Transportation (DOT) library plays a significant role in facilitating technology and knowledge transfer and curation, and is therefore an appropriate designee for research-related allocations. Technology transfer consists of a broad range of formal and informal cooperation and collaboration activities with federal and state and local agencies, peer federal laboratories, and the public and private sectors. Successful technology transfer efforts address public and private sector needs and result in novel technology applications, enhanced safety, process and product innovations,

and improved efficiencies. Knowledge transfer is an important component in the process, making formalized knowledge management programs and activities a trending concern in the state DOTs. Librarians possess specialized skills for curating information and knowledge in support of technology transfer, including collection, organization, accessibility and delivery of information and knowledge resources, in all formats. Curation refers to the process of selecting, preserving, maintaining, collecting, and archiving assets, thereby adding value to repositories of data for present and future use.

As part of the ADOT Research Center, the ADOT Library is funded through the ADOT Research Center budget using State Planning and Research (SPR), Part II[1] program funds that support technology transfer and certain training activities. The Research Center's Library Resources budget item provides for the following services through SPR-110, an ongoing ADOT research support program:

- Technical—Requests and obtains new publications from federal, state, and private sources; classifies and catalogs new materials; maintains the Library's computer databases; and maintains circulation records.

- Customer assistance—Provides complete research assistance, including customized bibliographies from computer databases, in response to requests from ADOT staff; distributes library materials to ADOT staff; provides photocopies of articles upon request; and provides interlibrary loans of books.

- Public awareness—Monitors the printing and distribution of all Research Center publications, coordinates the efforts taken to increase public awareness, provides brief library presentations to ADOT staff upon request, and maintains both Internet and Intranet sites.

Budgetary Practices

The ADOT Library does not have an established annual operating budget, nor is there a formal Research Center budgetary process by which funds are annually appropriated or earmarked for library operations. Additionally, there is no formal budget request process to inform planning regarding anticipated expenditures, and no formal process to review and examine actual expenditures for the purpose of identifying short-and long-term investment needs, such as expansion and/or improvements in collection development, customer services, marketing and outreach, and technology upgrades or purchases. In the absence of formal processes for planning and reviewing acquisition expenditures, the ADOT librarian identifies materials of potential interest to ADOT employees, evaluates employee requests to purchase collection materials such as journals or books, and then determines what purchase requests to present

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[1]Source of SPR funds: Title 23, *Highways,* Chapter 5, "Research, Technology, and Education," of the US Code provides for SPR funding. Of the total funds apportioned to states, it authorizes 2% of most apportionment categories to be used only for planning and research activities. These funds are administered and accounted for as a single fund, regardless of the category of federal aid highway funds from which they were derived. *The 25 Percent Rule* — Chapter 5 of the US Code further states that not less than 25% of the SPR funds apportioned to a state for a fiscal year shall be used for research, unless the state meets the requirements for a waiver of this rule.

to Research Center managerial personnel for approval. The same informal process is used to address needs identified by the librarian regarding system or technology upgrades or purchases.

Current practices tend to focus on meeting short-term or immediate needs, rather than on adopting a forward-looking approach to providing employees the information they need to perform their job duties and improve Library operations. A longer view could, for example, include periodic needs assessments; implementation of outreach activities to engage key stakeholders (e.g., to assist in identifying areas of focus for strategic decisions regarding acquisition decisions); development of policies and practices to ensure integrity in data collection (e.g., tracking reference or information requests, including requests for ADOT Library collection holdings and materials available through other institutions); and detailed reporting using established performance metrics or indicators to gauge overall effectiveness of library operations.

Library Expenditures

Library expenditures for the past five years totaled $42,317.82, and are broken down as follows:

- Books – 70 percent ($29,750.21). Journal and magazine subscription purchases represent 65 percent of the total expenditures classified as book purchases. These expenditures include subscriptions obtained through EBSCO, a leading provider that partners with libraries to provide content through databases, e-books, and journals and magazines.

- Service fees – 27 percent ($11,438.70). These expenditures primarily consist of the yearly maintenance fee for Inmagic's DBTextWorks software, a component of Inmagic's DB/Text *Library Suite* that provides libraries a flexible information management tool combining a database management system and a text retrieval system.

- Equipment – three percent ($1,128.25). These expenditures include library supplies and office supplies.

Based on the five-year total expenditures of $42,317.82, the average annual expenditure was $8,500. However, as seen in Table 1, actual annual expenditures over the five-year period ranged from a low of under $6,000 in 2011 to a high of nearly $12,000 in 2010.

Table 1. Library Expenditures: 2010–2014

Year	Total Expenditures	Books, Journals, Magazines	Equipment	Services
2010	$11,667.21	$8,736.55 Includes $3,694.88 to EBSCO*	$ 75.66	$ 2,855.00
2011	$ 5,899.43	$4,720.09 Includes $3,948.70 to EBSCO	$ 563.76	$ 615.58
2012	$10,066.81	$7,007.25 Includes $3,718.33 to EBSCO	$ 364.34	$ 2,695.22
2013	$ 7,366.77	$4,692.26 Includes $4,373.36 to EBSCO	$ 26.37	$ 2,648.14
2014	$ 7,316.94	$4,594.06 Includes $3,548.06 to EBSCO	$ 98.12	$ 2,624.76
Total	**$42,317.16**	**$29,750.21**	**$1,128.25**	**$11,438.70**

*EBSCO is a leading subscription provider that partners with libraries to provide content through databases, e-books, and journals and magazines.

COLLECTION DEVELOPMENT

The current ADOT Library collection is composed of roughly 30,000 items, with technical reports and research materials making up approximately 98 percent. Specifically, the collection is broken down as follows:

- Technical reports – 49 percent – include ADOT published reports, federal DOT reports, and other state DOT reports, with the latter comprising the majority of this collection

- Research materials – 49 percent – include standards, monographic print materials, scholarly journal publications, theses and dissertations, professional publications

- Development, leadership, and management (administration) materials – 0.7%

- Professional Engineer exam preparation materials – 0.3%

No formal collection development policy is in effect. The Library's current practice uses an informal description of a collection development policy, along with the following resources:

- AASHTO guidelines and standards

- The Online Computer Library Center (OCLC), which allows the librarian to view lists of items recently acquired by other transportation libraries and possibly select items for purchase

The library's collection is not barcoded. Barcoding enables tracking circulation by subject area. In a barcoded collection, each item's barcode links the item with its call number, which is assigned based on the item's subject area. Because circulation data includes the call number, libraries can track usage according to subject area. The research team anticipates that the success of any future collection development plan and the ability of the librarian to make evidence-based decisions regarding collection purchases will be hampered by the absence of barcodes.

Insights into collection development activities, specifically in the area of acquisitions, were obtained by reviewing ADOT Library expenditures from 2010 through 2014. As noted earlier, 70 percent ($29,750.21) of total expenditures over this five-year period was for books, which includes magazine subscriptions. As seen in Figure 1, book expenditures fluctuate, dropping 46 percent from 2010 to 2011, from $8,737 to $4,720, respectively. From 2012 to 2014, book expenditures dropped 35 percent, from $7,007 to $4,594, respectively.
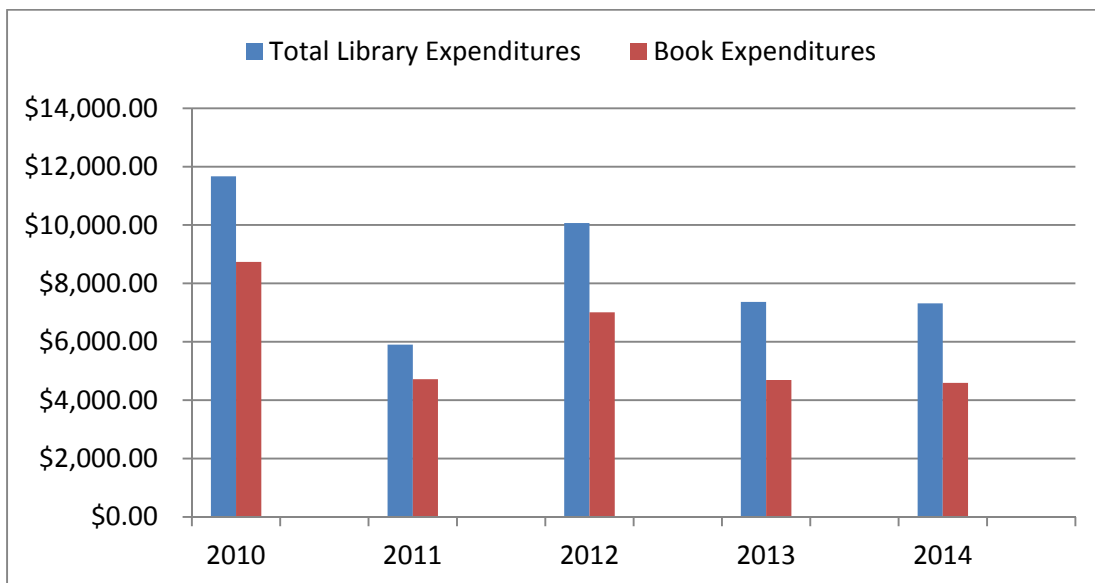
Figure 1. Book and Total Library Expenditures, 2010–2014

In commenting on ADOT areas of interest and topics of interest to library customers, the librarian expressed his belief that increased emphasis is being placed on business and management-related topics, such as leadership. However, no data currently exists to support this perception.

In that regard, it is important to note that the ADOT Library is currently able to provide employees access to collections on these topics through interlibrary loan requests and through the Arizona State Library (see Leveraging Resources: ADOT Library Relationships with Cooperative Organizations). Also, through June 30 of this year, this cooperative relationship with the Arizona State Library had also given ADOT Library users access to the Greater Phoenix Digital Library (GPDL)—a consortium of public library systems in central Arizona—because the state library was a member of that consortium. However, the state library opted to withdraw from the GPDL at the beginning of the new fiscal year (July 1, 2015), thus ending the ADOT Library's free access to it as well.

The review of the ADOT Library's current collection development practices identified a number of challenges and/or obstacles that have impeded adoption of a proactive and customer-centered approach to meeting information needs. These challenges include the lack of formal standardized processes and procedures, inadequate tracking and reporting capabilities, and limitations in the systems and technologies currently in use, as discussed below.

- The ADOT librarian currently has no core group of ADOT stakeholders to consult about prospective buying decisions. While consultation with stakeholders does not ensure improved collection development efforts, the Library's current practices rely solely on the librarian's assessment of need for coverage—an assessment that is difficult to make when information is limited or lacking regarding customer and potential customer needs.

- The data collection tools used to document circulation statistics and utilization of library services do not provide the level of detail needed to inform decision making regarding purchasing decisions, making it difficult to synthesize the available data. Circulation statistics provided by the ADOT Library for the past four years are as follows:

    o 2012 – 133 (11.1/month)

    o 2013 – 157 (13.1/month)

    o 2014 – 142 (11.8/month)

    o 2015 (through June) – 95 (15.8/month)

- The ADOT Library does not currently maintain "reference request or subject area" statistics with which to track subjects that are of interest to customers and to illuminate where gaps in the collection exist based on customers' information needs. The most recent metrics provided for 2011 through 2013 did not include information about whether internal collection resources or external borrowing of materials were employed to fulfill information and resource requests, although they did include interlibrary loan and internal circulation figures. Further review of this information determined that the data for 2011 and 2013 were incomplete, raising concerns

regarding the overall integrity of the data provided; consequently, the research team chose not to include this data in the study.

- Feedback from the ADOT librarian indicated that the Sitefinity content management system, a third party application used by the ADOT Library to publish and centrally manage digital content, is difficult to manage and poses search difficulties for the researcher. This unfriendly user experience has encouraged the creation of workaround solutions, such as the creation of "mini-databases" that lack formal documentation and are inaccessible to other ADOT personnel. The use of workarounds to address large-scale technology issues highlights the need for ongoing assessments to ensure that the technology resources being used support efficiencies in library operations, and that standardized practices are in place to ensure integrity in operations.

ADOT LIBRARY TECHNOLOGY

The review of current practices revealed that limited investments have been made in technology systems or upgrades (including modular add-on system components) to improve the quality of ADOT Library services and operational efficiencies. Additionally, open-source options that could potentially aid or support library functions have not been explored. As noted earlier, the ADOT Library currently uses the InMagic DB/Text Library Suite, a library management system that combines flexible information management tools with a Web-based integrated library system (ILS). The system, which helps manage, publish, and access library assets, was purchased in 1999, and few, if any, system upgrades have been made since then. Typically, system upgrades are made every two to three years, enabling libraries to take advantage of the most recent advances in technology to better serve their customers, such as adding a circulation module to better track usage of certain subject areas. The ADOT Library currently pays $2,500 per year for its InMagic maintenance contract.

Databases

Databases used to support ADOT Library literature searches include the Transportation Research Board's Transportation Research International Database (TRID) and Research in Progress (RiP) website, the National Technical Information Service (NTIS), ABI/Inform, General OneFile, Academic OneFile, and OCLC's FirstSearch.

ADOT Library Webpages and Website Usage

As seen in Figure 2, the ADOT Library is not prominently featured on the ADOT homepage; the only visible link to the Library appears at the very bottom of the page. Three Library page tabs—Library Resources, Journals and Magazines, and Research Reports—enable access to library resources and services. Figure 3 shows the Library Resources tab. The ADOT librarian posts links to ADOT research reports on the Research Reports page. Reports are also made searchable and retrievable for ADOT employees via the online catalog functionality of the InMagic Integrated Library System.

Figure 2. Center Bar Section of ADOT Website
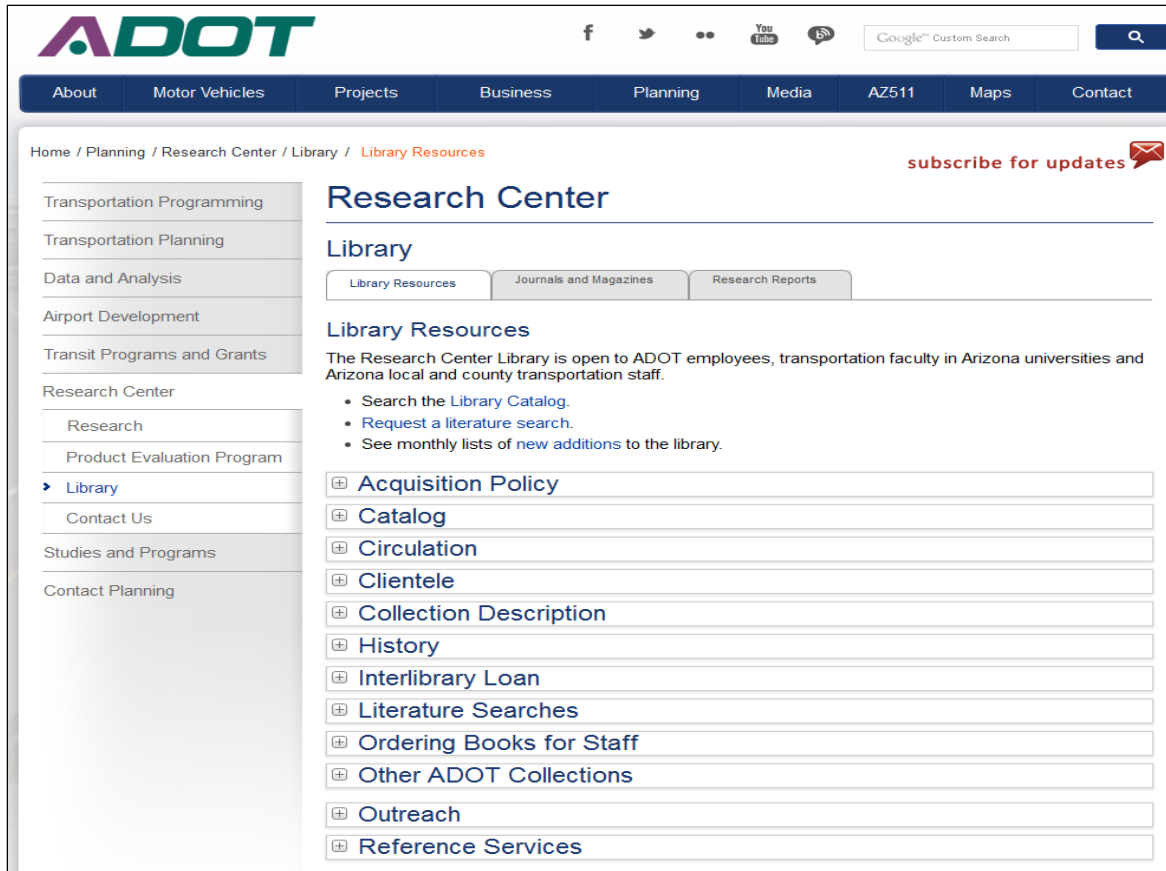
Figure 3. Research Center/Library Main Menu Page, Library Resources Tab

In discussing search capabilities, the stakeholders noted problems regarding ease of use, intuitiveness, and efficiency in finding collection materials. These concerns extended to searches for ADOT research reports and the limitations of search capabilities, including the inability to search by emphasis or focus areas. As seen in Figure 4, the Research Reports tab lists the inventory of ADOT reports in project number order, and is not searchable by topic or subject area. Consequently, the search process was described as time-consuming and frustrating unless one knows the number of the report being sought.

ADOT | **ADOT Library**

Research Reports

State planning and research (SPR) reports are the primary result of most research projects. Printed copies of older reports are available in the ADOT Library. The Instructions and Specifications document for how to write SPR reports is available here.

717 - The impact of Arizona Highways Magazine's Facebook page. February 2014.
URL: http://wwwa.azdot.gov/ADOTLibrary/Publications/project_reports/pdf/az717.pdf

716 - Evaluation of the ADOT Small Area Transportation Studies and Planning Assistance for Rural Areas programs. March 2014.
URL: http://wwwa.azdot.gov/ADOTLibrary/publications/project_reports/pdf/az716.pdf

697 - Wrong-way vehicle detection: Proof of concept. March 2013.
URL: http://wwwa.azdot.gov/ADOTLibrary/publications/project_reports/PDF/AZ697.pdf

696 - Preliminary study of climate adaptation for the statewide transportation system in Arizona. March 2013.
URL: http://wwwa.azdot.gov/ADOTLibrary/publications/project_reports/PDF/AZ696.pdf

687 - Analysis of the state of the art of precast concrete bridge substructure systems. October 2013.
URL: http://wwwa.azdot.gov/ADOTLibrary/publications/project_reports/PDF/AZ687.pdf

686.1 - The impact of Arizona Highways Magazine on tourism. March 2012.
URL: http://wwwa.azdot.gov/ADOTLibrary/publications/project_reports/PDF/AZ686.pdf

684 - Evaluation of the City of Scottsdale Loop 101 photo enforcement demonstration program. November 2007.
URL: http://wwwa.azdot.gov/ADOTLibrary/publications/project_reports/PDF/AZ684.pdf

683 - Feasibility test of CADD webmenus. August 2009.
URL: http://wwwa.azdot.gov/ADOTLibrary/publications/project_reports/PDF/AZ683.pdf

681 - Reduction of speed in work zones using ITS DMS instant feedback to drivers: vehicle speed versus traffic fine. August 2014.
URL: http://wwwa.azdot.gov/ADOTLibrary/publications/project_reports/PDF/AZ681.pdf

677 - Evaluation of measures to promote desert bighorn sheep highway permeability: U.S. Route 93. January 2014.
URL: http://wwwa.azdot.gov/ADOTLibrary/Publications/Project_reports/pdf/az677.pdf

Figure 4. Research Center/Library/Research Reports Tab

Website Usage Statistics

The ADOT Information Technology Group provided page view statistics for the following ADOT Library Resources web pages: *search the library catalog, request a literature search, and see monthly lists of new additions to the library.* A page view is a request to load a single HTML file (web page) of a website. Statistics were provided for the seven-month period of January through July 2015, and the average number of page views per month are as follows: *search the library catalog*—91; *request a literature search*—16; and *see monthly lists of new additions to the library*—18.

ADOT Intranet

The ADOT Library is also featured on the Department's Intranet, as seen in Figure 5, although no usage statistics were available regarding employee usage of this Intranet page.
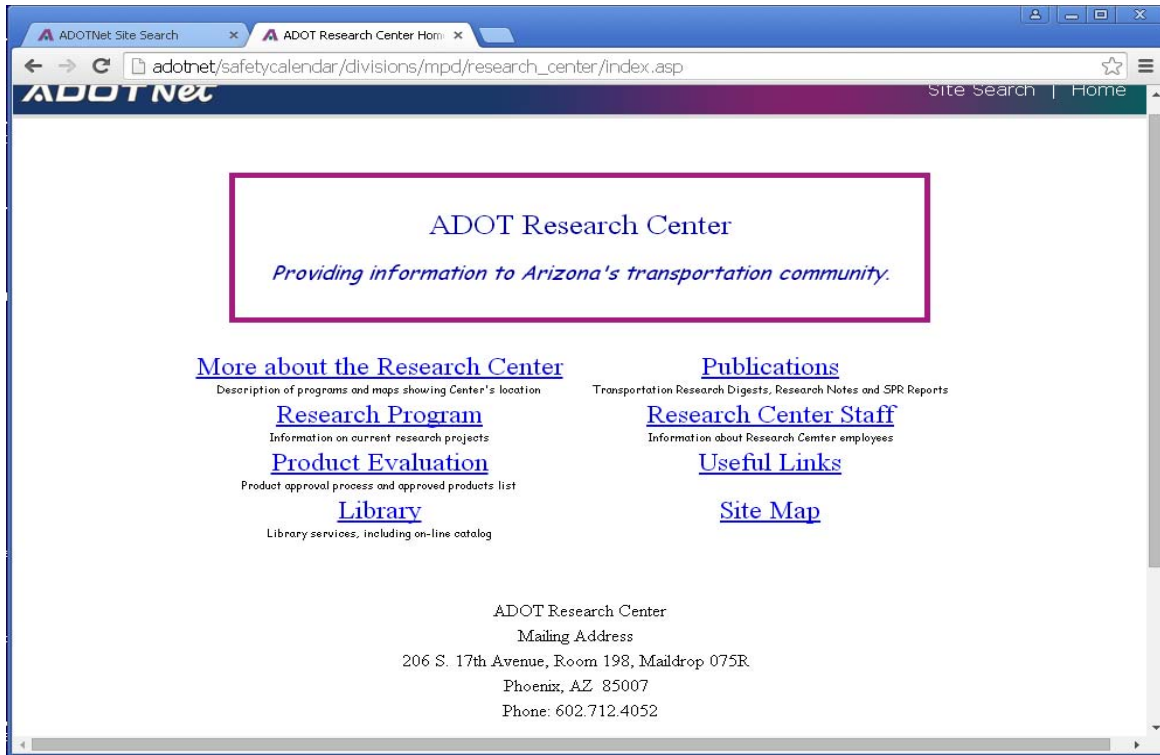
Figure 5. ADOT Intranet Research Center Page

ADOT LIBRARY COMMUNICATION AND OUTREACH

No systematic outreach and marketing program is in place to inform and educate ADOT employees about available Library resources or services, provide employees with information about how these resources and services can help them perform their job duties, or engage employees by soliciting their input and feedback regarding information needs. However, the Library has periodically undertaken efforts to raise its visibility within ADOT, increase Library foot traffic, and promote usage. These efforts have included events sponsored by the ADOT Research Center and participation of the ADOT librarian in various outreach activities. Specifically, communication and outreach efforts have included:

- Outreach by the ADOT librarian

  o Presentation to various groups about the Library and its services, at the invitation of the Leadership and Employee Development Team

  o Attendance at the Arizona Conference on Roads & Streets, the largest event for Arizona transportation professionals from the public and private sectors

  o Visits to ADOT districts to inform employees about resources and services and to showcase the state databases, which are accessible on ADOT network computers

- Distribution of the ADOT Research Center newsletter (no longer in publication), which highlighted the work of the Research Center and provided employees information on the latest research reports and events

- Use of outreach and promotion materials available through the Arizona State Library

While these activities are worthwhile, they do not appear to be significantly affecting Library awareness or usage among ADOT staff, as evidenced by the circulation statistics cited in the previous section of this report. Similarly, activities that bring people into the Library—such as use of the Research Center conference room—or to the patio, which is adjacent to the Library, do not appear to increase Library usage.

INTEGRATION OF THE ADOT LIBRARY WITH ADOT AND RESEARCH CENTER FUNCTIONS

Based on the information obtained through the onsite visit and subsequent interviews with Research Center personnel, the ADOT Library appears to be only partially integrated into ADOT functions and even less integrated into ADOT Research Center functions. From the perspective of the Research Center leadership, library services are readily available to ADOT employees, with the librarian playing an active and direct role in providing services to employees who request literature searches and/or retrieval of articles, books, or reference materials. Additionally, these interviewees were of the opinion that employees who would likely be most interested in the ADOT Library—viewing the collection as relevant to their job responsibilities—are probably aware of and have used ADOT Library resources and services at some point in their career at ADOT. Regarding integration of the Library with the ADOT Research Center, these interviewees believed that despite the Library being administratively and physically

housed within the Research Center, it is primarily a repository for research reports and not an active partner in advancing the work of the Research Center by providing services and supports to project management staff, such as literature scans, targeted searches, and other research support services occurring during the problem statement development stage and/or throughout the lifecycle of a project, as deemed appropriate. Subsequent tasks to be undertaken in this study will provide information about other state DOT library models, practices that define library integration and the role of the DOT librarian in supporting Research Center and Department goals, and the extent to which the librarian is embedded into Research Center project management teams. This information will provide insights regarding opportunities for ADOT Library integration, how best to achieve integration, and how to effectively leverage library assets to enhance organizational functioning.

In the process of gathering information regarding ADOT Library integration with the core mission and daily functioning of the ADOT Research Center and of ADOT as a whole, two noteworthy issues arose. The first concerned the idea that the ADOT Research Center and the librarian might engage ADOT in a discussion regarding public access to federally funded scientific research publications and digital data sets. The second concerned the leveraged use of ADOT Library assets to help facilitate a discussion regarding ADOT's efforts to address issues related to information and knowledge management.

- In February 2013, the White House Office of Science & Technology Policy (OSTP) issued requirements for providing public access to federally funded scientific research publications and digital data sets. OSTP directed agencies with more than $100 million in yearly research and development expenditures to prepare a plan for improving the public's access to the results of federally funded research. These requirements apply to research conducted by agencies within the federal government as well as by certain organizations funded by the federal government; the US Department of Transportation is one of the affected agencies. Consequently, several state DOT libraries are working with their DOTs to formulate strategies and define the library's role in meeting access requirements. Additional information can be found on the Transportation Data Management wiki, http://libraryconnectivity.org/datamgt/index.php/Handout), which is hosted by the Transportation Library Connectivity and Development Pooled Fund TPF-5-237.

- Inquiry into ADOT Library integration with ADOT functions prompted discussion on a number of interrelated topics and questions. These included how to effectively leverage ADOT Library resources to aid and facilitate ADOT-wide discussions regarding information and knowledge management, data management, and ADOT records retention in the future.

These discussions also provided an opportunity to briefly inquire about the ADOT Information Data Warehouse (AIDW). Feedback from interviewees indicated that there is no crossover or interaction between the ADOT Library and the AIDW, which prompted the research team to inquire whether any opportunities for integration might exist. The underlying premise for integration assumes alignment between the Library and the data warehouse. This question remains unanswered as it speaks to the larger issue of information and knowledge management at ADOT and the data integration initiatives envisioned to support these endeavors. Additionally, based on the feedback provided by Research Center leadership and the differences in expressed opinion regarding alignment with AIDW and the AZ-

TAMS (Arizona Transportation Asset Management System) database, this topic will not be addressed as a core component of this study because it is beyond the scope of the research objectives.

ADOT LIBRARY RELATIONSHIPS WITH COOPERATIVE ORGANIZATIONS

Resource utilization and the effective leveraging of ADOT Library resources to meet the information needs of ADOT employees was a recurrent theme in discussions regarding current practices. Collaborations with cooperative organizations can provide partnership opportunities and advantages to libraries in many ways. Consortial arrangements can provide cost savings opportunities through group purchasing arrangements, and staff time savings in cases where cataloguing agreements are in place to lessen the burden on librarians. In cooperative partnerships that utilize collection development agreements, one library collects in a certain subject area, while a partner library collects in another area, allowing both to maximize their budgets while being able to offer their customers access to both subject areas. These are just a few examples of how collaborations can benefit libraries, with cooperative organizations varying as widely as the number of consortial arrangements.

The Arizona State Library

The vast majority of states have depository requirements for state government agency publications. In Arizona, the Arizona State Library is mandated to collect these publications. The ADOT librarian identifies the materials he understands to be covered under the mandate and the State Library selects those that are to be added to the collection. The State Library is a stable digital repository for documents. While the ADOT librarian is cataloging new materials locally in the ADOT Library's Integrated Library System (ILS), the State Library, an OCLC (Online Computer Library Center) member, is making these documents discoverable worldwide by adding the record for the new material to the State Library's collection. The Arizona Revised Statutes, Title 41, Chapter 1, Article 2.1, Sections 41-151.01 through 41-151-24, and the Arizona Administrative Code, Title 2, Chapter 3, address the role and responsibilities of the Arizona State Library as an archive of state historical documents. The relevant portions of these documents are provided as Appendix A of this report.

The Arizona State Library and the ADOT Library have had a cooperative relationship for more than five years. State Library programs for state agency staff focus mainly on business subject areas, government information, technology, and staff training. Advantages and benefits of ADOT's relationship with the State Library include ADOT employee access to the following:

- State Library database subscriptions—Arizona state agencies and their employees have access to a number of resources from the State Library, such as databases including HeinOnline[2] and ABI Inform[3]. A complete list of resources can be found at: http://www.azlibrary.gov/sla/online-research-stte-employees. State agency employees are provided remote access to these

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[2]HeinOnline is an online research product and database with more than 100 million pages of legal history available in an online, fully searchable, image-based format.

[3]ABI/INFORM is a comprehensive database designed for students and faculty at business schools, and offering the latest business and financial information for researchers. Business subjects represented include engineering.

resources through assignment of unique account numbers, and Arizona counties are asked to contribute funds to help cover statewide database subscription costs.

- The Arizona Memory Project—Launched in March 2006 and granted the Arizona Centennial 2012 legacy project designation by the Arizona Historical Advisory Commission, the Arizona Memory Project is a digital repository curated by the Arizona State Library. The Arizona Memory Project provides access to the wealth of primary sources in Arizona libraries, archives, museums, and other cultural institutions, and includes state agency publications, executive orders, and attorney general opinions preceding Arizona statehood. The materials housed in the repository are saved either in their native electronic formats or as digitized documents converted from their original paper formats. The collection is curated on OCLC's ContentDM (Digital Asset Management) platform. As a state agency, the ADOT Library contributes publications to the Arizona Memory Project. For example, the *Arizona Highways* Project—which is a partnership to scan early issues of *Arizona Highways* magazine—started in 1921 as an internal newsletter focused on engineering, but later shifted its focus to tourism.

- The Greater Phoenix Digital Library (ADOT Library access ended June 30, 2015)—A consortium of city, county, and state public library systems in central Arizona, the Greater Phoenix Digital Library (GPDL)makes available a huge selection of e-books to the public. As noted earlier, when the State Library terminated its membership in the GPDL as of the end of the 2014–15 fiscal year, the ADOT Library lost its access as well.

- Other State Library services—Additional services available from the Arizona State Library include interlibrary loan, free use of State Library training facilities, collection management consultation services—a service that the ADOT librarian reported using, and access to State of Arizona Interagency Librarians—a group with which the ADOT librarian reported involvement.

As noted earlier in this report, the research team conducted interviews with two representatives of the Arizona State Library. A primary objective of the interviews was to identify potential opportunities to leverage the resources and services available through the State Library to improve, enhance, or expand delivery of ADOT Library services, as well as opportunities to maximize efficiencies and streamline operations. Frank discussion with State Library interviewees regarding resource availability and support in the areas of cataloguing, technology, and collection development revealed limitations in State Library resource support capabilities.

- Currently there is a 15-year backlog of cataloging at the Arizona State Library; consequently, it is not in a position to provide resource support to the ADOT Library in the area of cataloging.

- Previously, it had been suggested that ADOT as well as other state agency libraries explore opportunities to share the State Library's Sirsi Dynix system. This is a fully integrated library system (ILS) that allows patrons to search all of the library's assets both physical and digital, allowing for improved discovery of information such as downloading e-books straight from the catalog. It is fully customizable and has the traditional workhorse modules for improved workflow, such as circulation, interlibrary loan, electronic reserves, cataloging, and acquisitions.

The system was new in 2013, so it still represents a good investment with a long life ahead of it. In contrast, the ADOT Library is utilizing an older version of InMagic DBTextworks, a comparatively simple system. The InMagic modules in use (which may also be the only modules that have been purchased) are the online public access catalog (OPAC) and the cataloging modules. While use of the State Library's system would afford the ADOT Library much efficiency, saving money and staff time, sharing of State Library resources is not possible without financial support from Arizona state agencies.

- The State Library cannot serve as a resource in providing the ADOT Library access to e-books. Currently the State Library does not purchase e-books on transportation or engineering subjects and, according to State Library interviewees, the library's acquisitions budget has not been increased in eight years.

Arizona State University

The Arizona State University (ASU) libraries and the ADOT Library have little interaction and no formal cooperative relationship.   The ASU libraries make a concerted effort to acquire the valuable materials published by state and local agencies; therefore, a significant overlap exists in the state government documents held by the Arizona State Library and ASU libraries. ASU's Arizona State and Local Government Documents Collection currently consists of over 45,000 documents published since 1912. These documents include the Arizona Revised Statutes and Arizona Administrative Code; state legislative materials; state and local agency annual reports, budgets, and other financial and planning documents; and significant reports on topics of concern to local governments, such as crime, transportation, health, and others.

Transportation Library Connectivity and Development Pooled Fund Study, TPF-5(237)

In the transportation field, timely, accurate, and comprehensive supporting information is critical to the development and maintenance of safe and efficient infrastructure. The Arizona Department of Transportation participated in the Transportation Library Connectivity and Development Pooled Fund Study at the Associate Member level, at a cost of $10,000 annually for five years. The study, which began in 2010 and concluded in 2015, facilitated coordination among federal, state, academic, and private sector transportation libraries; provided technical and promotional support; and capitalized on previously developed networking initiatives to implement research tools and analyze their effectiveness. The broad goal of the study was to establish and operate a functional library consortium that would benefit the members. Seven specific study objectives were established, the first of which was to "provide technical guidance to members, focused on smaller libraries that are served by only one librarian, while emphasizing an increased reliance on self-sustaining networks." (Sacco 2015)

The study did indeed establish a functional transportation library consortium of 22 state DOTs and one university transportation center. Partner organizations to TPF-5(237) included the Transportation Research Board Library, the Northwestern University Transportation Library, AASHTO, the University of Wisconsin Center for Freight & Infrastructure Research & Education (CFIRE), and the FHWA Research Library.

The ADOT Library was also a member of an earlier pooled fund project (2005-2010), the Transportation Library Connectivity Pooled Fund Study TPF-5(105), which laid the groundwork for greater connectivity and networking, resource sharing, and technology parity among members. TPF-5(105) increased member participation in OCLC by paying for eligible members' subscriptions and enabling greater ability to locate and share resources, thereby channeling scarce resources away from duplication within collections. Key findings from this pooled fund study included: (a) small transportation libraries work better together; (b) leveraging group size decreases cost and increases return on investment (ROI); and (c) a staffed library consortium provides benefits of time and cost savings while increasing the ability of librarians to provide both front- and back-end services to customers. Front-end services concern access and assistance, such as in-depth research and literature searching and reference services, while back-end services concern acquisition and curation, such as collection development and cataloging. All are crucial library services that enable efficient collection of, access to, and usage of information.

The two library connectivity studies were closely aligned with the National Transportation Library (NTL), the AASHTO Research Advisory Committee, which comprises representatives of state DOT research centers, and the three Transportation Knowledge Networks (TKNs). The TKNs are collaborative alliances across the four AASHTO regions, with AASHTO Regions 1 and 2 comprising the Eastern network (ETKN), Region 3 the Midwest network (MTKN), and Region 4 the Western network (WTKN). The latter was established in 2008, with the ADOT Library among its founding members.

Following is the current WTKN membership, consisting of libraries at:

- Alaska DOT
- American Honda Motor Co.
- Arizona DOT
- Bell Helicopter
- Caltrans
- Center for Transportation – UT Austin/TxDot
- Idaho DOT
- Institute of Transportation Studies – UC Berkley
- Los Angeles County Metropolitan Transit Authority
- Montana DOT
- Nevada DOT
- New Mexico DOT
- Oklahoma DOT
- Oregon DOT
- PACCAR (trucking company in Washington)
- Puget Sound Regional Council
- Sound Transit
- Texas A&M Transportation Institute
- Utah DOT
- Washington DOT

The primary aim of the TKNs is to reduce duplication of effort within the transportation community through the collaborative development of resources and sharing of information among stakeholders— the staff served by each network member library, such as upper management, researchers, or all employees. The TKNs also seek to foster leadership skills among the staff of network members, in support of efforts to create a national TKN and, ultimately, to form alliances with networks in other countries to facilitate the worldwide sharing of transportation information and resources. TKN membership is free, and is open to libraries representing state DOTs, academic institutions, transit agencies, metropolitan planning organizations (MPOs), and private industry.

CHAPTER 3. INFORMATION NEEDS OF ADOT STAFF

An examination of the ADOT staff's information needs, as well as their perceptions of the Library's effectiveness in meeting those needs, was conducted. The findings would help inform the study's final recommendations for strategies to better envision and realize the ADOT Library of the future.

DATA COLLECTION METHODOLOGY

Quantitative data were obtained through an online survey of employees statewide, and qualitative data were gathered through two focus groups. Respondents who completed the survey, regardless of their location or whether they reported having used the ADOT Library or not, were considered potential focus group participants and, at the end of the survey, were asked if they were interested in learning more about participating in a group discussion (focus group). Two focus groups were conducted in Phoenix; one held with staff level personnel who work primarily in Maricopa County, and the other with managerial and supervisory personnel statewide.

EMPLOYEE SURVEY

The online survey, provided as Appendix D of this report, was launched on September 9, 2015, and remained available through September 25, 2015. A recruitment e-mail and follow-up reminder e-mail were sent to 4,000 ADOT employees statewide, using a list provided by the Department. The e-mail was sent from the ADOT Library and included a link to the online survey website as well as an assurance from the ADOT Project Manager that responses would be kept anonymous and confidential.

The survey questionnaire 27was designed to provide information and insights in the following areas related to employee usage of the ADOT Library:

- Types of information and information resources needed for the job

- Information sources currently being used

- Familiarity with and perceptions of resources and services available from the Library

- Usage of and satisfaction with Library resources and services

- Preferred formats for and means of accessing Library resources and services

- Likelihood of using and recommending Library resources and services in the future

Response Rates

When the survey was terminated and final data were collected, 400 questionnaires had been completed, for an overall response rate of 10 percent. An analysis of respondents was performed using data supplied by the ADOT Research Center regarding the number of employees in each of the ADOT

work groups or divisions, along with the responses to a survey question asking participants to identify their work group or division. Table 2 shows the response rates for the ADOT work groups and divisions of the survey respondents, with the exception of the 39 respondents who elected to report their work group or division as "other"; response rates by work group or division could not be calculated for them.

Table 2. Survey Response Rate, by ADOT Work Group or Division

ADOT Work Group or Division	Total Number of Employees	Number of Survey Respondents	Response Rate
Multimodal Planning Division (MPD)	75	24	32%
Information Technology Group (ITG)	146	23	16%
Financial Management Services (FMS)	108*	17	16%
Administrative Services Division (ASD)	368	44	12%
Communications and Government Relations (CGR)	129	11	9%
Enforcement and Compliance Division (ECD)	292	25	9%
Intermodal Transportation Division (ITD)	1,865	142**	8%
Motor Vehicle Division (MVD)	886	75	8%
*The total number of employees for FMS represents the combined number of employees in the Financial Management Services work group and in the Budget, Planning, and Research work group. **The total number of survey respondents for ITD represents the combined number of survey respondents identifying their work group as either ITD Operations or ITD Development. Also, effective January 12, 2016, ITD was renamed the Infrastructure Delivery and Operations Division (IDO).			

Respondent Demographic Data

As seen in Table 3, employees working in ITD Operations and ITD Development collectively represented slightly more than one-third (36 percent) of all survey respondents. Employees working in MVD represented nearly one-fifth (19 percent), those in ASD made up 11 percent, and each of the remaining work groups and divisions were represented by 10 percent or fewer of all survey respondents.

Table 3. Representation of ADOT Work Groups and Divisions among All Respondents

ADOT Work Group or Division	Number of Respondents	Percentage of All Survey Respondents N = 400
ITD Operations	87	22%
Motor Vehicle Division (MVD)	75	19%
ITD Development	55	14%
Administrative Services Division (ASD)	44	11%
Enforcement and Compliance Division (ECD)	25	6%
Multimodal Planning Division (MPD)	24	6%
Information Technology Group (ITG)	23	6%
Financial Management Services (FMS)	17	4%
Communications and Government Relations (CGR)	11	3%
Other	39	10%
Total	400	100%

It is important to note that statistical analysis for comparative purposes was not conducted for the work groups and divisions with fewer than 30 respondents, due to the small sample size of each in relation to all survey respondents. Consequently, discussions in this report concerning statistically significant differences between or among work groups do not include mention of those work groups with fewer than 30 survey respondents, specifically: ECD, MPD, ITG, FMS, and CGR.

A significant majority (73 percent, or 292) of the 400 respondents were staff-level personnel (i.e., non-managerial and non-supervisory), as seen in Figure 6. Of the 292 staff-level respondents, 123 (42 percent) were technical staff, 95 (33 percent) operational staff, and 74 (25 percent) were administrative staff.
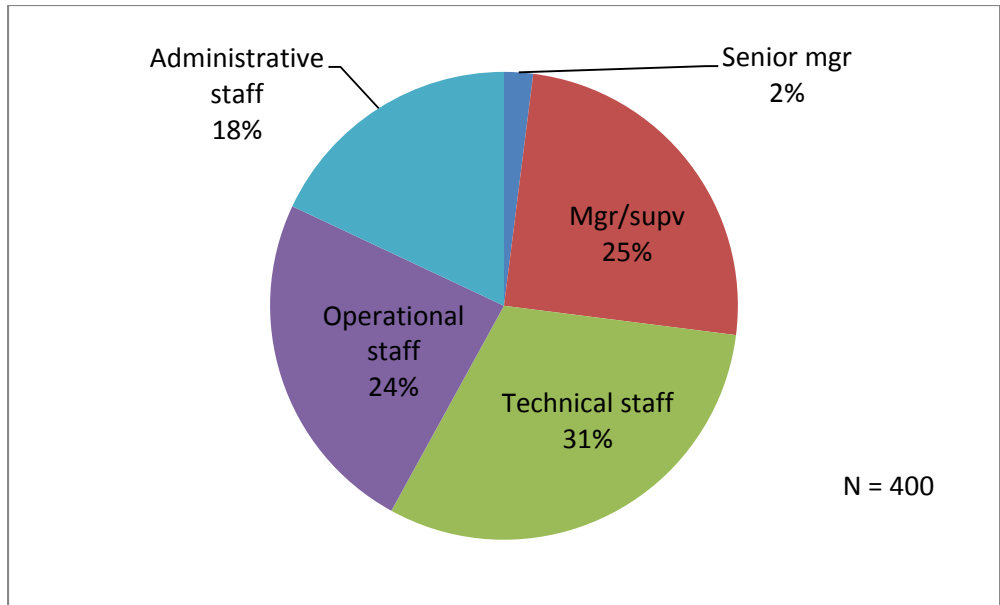
Figure 6. Respondents by Current Position

Slightly more than half the respondents (57 percent) have worked at ADOT fewer than 10 years, as seen in Figure 7. Individuals who have worked at ADOT 15 years or more represented 28 percent, and those who have worked at ADOT between 10 and 14 years made up the remaining 15 percent of respondents.
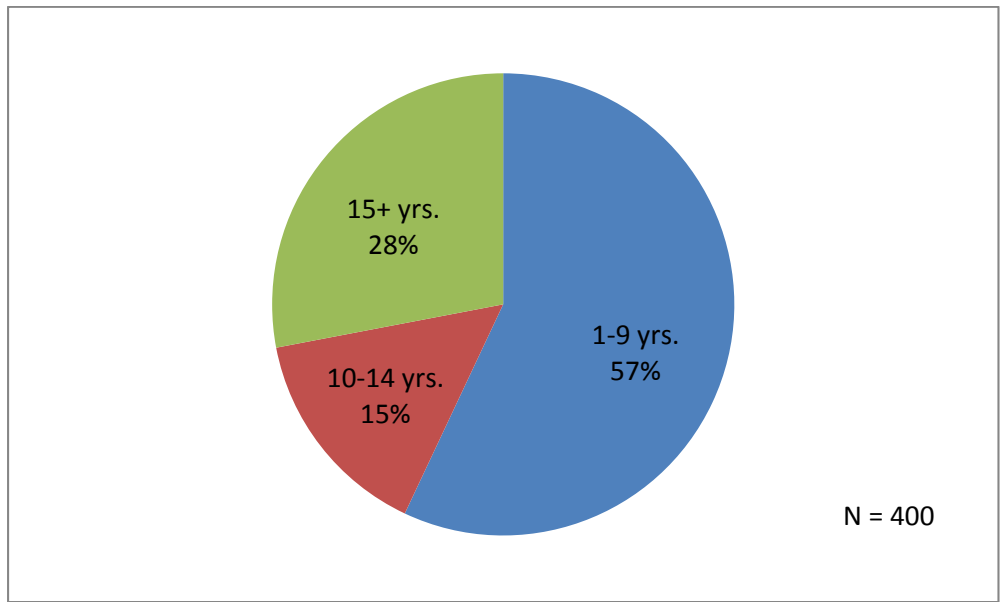
Figure 7. Respondents by Number of Years Worked at ADOT

As seen in Figure 8, employees who work primarily in Maricopa County made up nearly three-fourths of survey respondents.
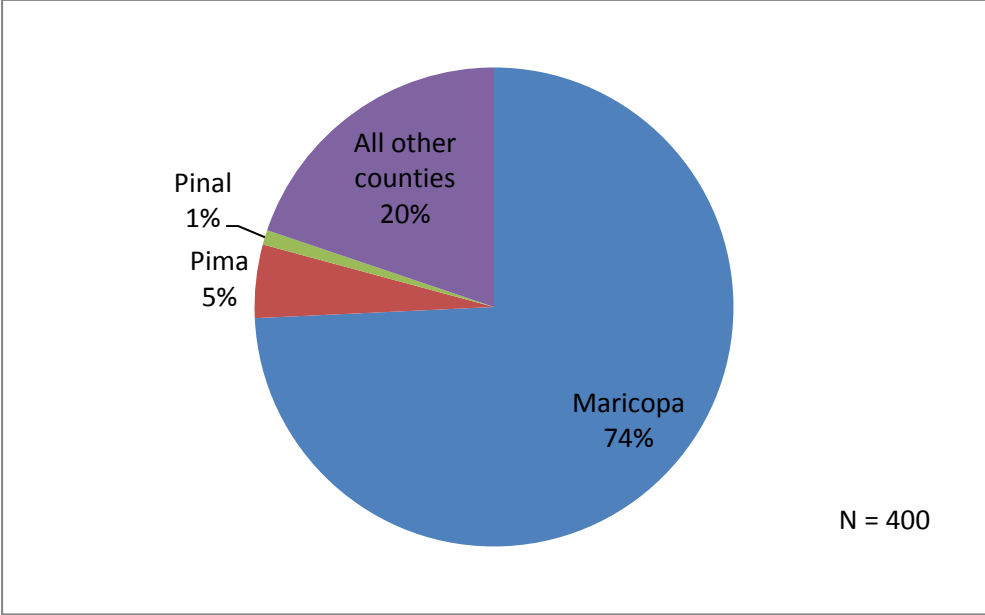
Figure 8. Respondents by County

SURVEY FINDINGS

Information and Resource Needs

Nearly all respondents (94 percent, or 377) reported that they needed for their job at least one of the types of information and resources presented in the survey. Table 4 shows participants' identification of various types of information and resources they need for the job, in descending order of frequency. The top five types of information and resources needed by respondents overall are: (1) manuals, handbooks, and training or procedural guides (59 percent); (2) standards & specifications (45 percent); (3) data and statistics (41 percent); (4) other state or federal DOT publications (36 percent); and (5) computer and software guides (34 percent). Table 5 presents the types of information and resources needed by respondent work group or division.

Table 4. Types of Information and Resources, by Respondent Need

Type of Information and Resources	Number of Respondents Needing	Percentage of All Respondents N = 400
Manuals, handbooks, training or procedural guides	235	59%
Standards and specifications	179	45%
Data and statistics	162	41%
Other state or federal DOT publications	143	36%
Computer & software guides	137	34%
Other Arizona state and local agency publications (transportation and non-transportation related)	117	29%
Leadership, management, self-improvement resources	117	29%
Reference materials such as a dictionary, thesaurus, encyclopedia	111	28%
ADOT publications other than research reports	103	26%
Research reports	93	23%
Industry or trade publications	88	22%
Historical materials	79	20%
Professional journals or newsletters	77	19%
Test preparation, exam certification materials	74	19%
Other	47	12%
None of the above	23	6%

Table 5. Types of Information and Resources Needed, by Respondent Work Groups and Divisions

Type of Information and Resources Needed	Work Group or Division – Number and Percent Needing				
	MVD N = 75	ITD Developmt N = 55	ITD Operations N = 87	MPD N = 24	ITG N = 23
Manuals, handbooks, training or procedural guides	53 (71%)	39 (71%)	60 (69%)	12 (50%)	11 (48%)
Standards & specifications	20 (27%)	42 (76%)	53 (61%)	8 (33%)	6 (26%)
Data and statistics	29 (39%)	33 (60%)	22 (25%)	14 (58%)	9 (39%)
Other state or federal DOT publications	19 (25%)	38 (69%)	27 (31%)	17 (71%)	3 (13%)
Computer & software guides	33 (44%)	16 (29%)	29 (33%)	3 (13%)	21 (91%)
Other Arizona state and local agency publications	24 (32%)	26 (47%)	22 (25%)	6 (25%)	5 (22%)
Leadership, management, self-improvement resources	24 (32%)	11 (20%)	28 (32%)	4 (17%)	8 (35%)
Reference materials such as a dictionary, thesaurus, encyclopedia	22 (29%)	19 (35%)	25 (29%)	4 (17%)	6 (26%)
ADOT publications other than research reports	26 (35%)	21 (38%)	25 (29%)	7 (29%)	3 (13%)
Research reports	11 (15%)	23 (42%)	20 (23%)	14 (58%)	3 (13%)
Industry or trade publications	7 (9%)	11 (20%)	22 (25%)	7 (29%)	5 (21%)
Historical materials	8 (11%)	20 (36%)	22 (25%)	3 (13%)	1 (4%)
Professional journals or newsletters	10 (13%)	17 (31%)	12 (14%)	7 (29%)	5 (22%)
Test preparation, exam certification materials	16 (21%)	7 (13%)	18 (21%)	1 (4%)	7 (30%)
Other	8 (11%)	3 (5%)	7 (8%)	6 (25%)	1 (4%)
None of the above	5 (7%)	0 (0%)	4 (5%)	3 (13%)	0 (0%)

Table 5. Types of Information and Resources Needed, by Respondent Work Groups and Divisions (Continued)

Type of Information and Resources Needed	Work Group or Division – Number and Percent Needing				
	FMS N = 17	ECD N = 25	CGR N = 11	ASD N = 44	Other N = 39
Manuals, handbooks, training or procedural guides	11 (65%)	11 (44%)	1 (9%)	23 (52%)	14 (36%)
Standards & specifications	8 (47%)	6 (24%)	3 (27%)	19 (43%)	14 (36%)
Data and statistics	8 (47%)	10 (40%)	5 (45%)	17 (39%)	15 (38%)
Other state or federal DOT publications	6 (35%)	7 (28%)	3 (27%)	9 (20%)	14 (36%)
Computer & software guides	12 (71%)	5 (20%)	0 (0%)	12 (27%)	6 (15%)
Other Arizona state and local agency publications	4 (24%)	7 (28%)	3 (27%)	10 (23%)	10 (26%)
Leadership, management, self-improvement resources	7 (41%)	11 (44%)	0 (0%)	15 (34%)	9 (23%)
Reference materials such as a dictionary, thesaurus, encyclopedia	6 (35%)	3 (12%)	2 (18%)	11 (25%)	13 (33%)
ADOT publications other than research reports	7 (41%)	3 (12%)	3 (27%)	4 (9%)	4 (10%)
Research reports	3 (18%)	2 (8%)	4 (36%)	7 (16%)	6 (15%)
Industry or trade publications	2 (12%)	3 (12%)	0 (0%)	15 (34%)	16 (41%)
Historical materials	2 (12%)	2 (8%)	5 (45%)	10 (23%)	6 (15%)
Professional journals or newsletters	4 (24%)	4 (16%)	1 (9%)	9 (20%)	8 (21%)
Test preparation, exam certification materials	4 (24%)	6 (24%)	0 (0%)	9 (20%)	6 (15%)
Other	4 (24%)	2 (8%)	4 (36%)	2 (5%)	10 (26%)
None of the above	0 (0%)	1 (4%)	0 (0%)	6 (14%)	4 (10%)

Analysis of the responses revealed the following statistically significant differences in types of information and resources needed by work group, staff position, and geographical location:

- **Manuals, handbooks, training or procedural guides.** A significantly greater percentage of respondents working in MVD than in ASD reported a need for manuals, handbooks, training or procedural guides (71 and 52 percent, respectively).

- **Standards and specifications.** A significantly greater percentage of respondents working in ITD Development and ITD Operations than in MVD reported a need for standards and specifications (76, 61, and 27 percent, respectively). By current position, a significantly greater percentage of managers/supervisors (57 percent) and technical staff (56 percent) than administrative staff (31 percent) and operational staff (28 percent) reported a need for this type of information/resource. Additional analysis revealed that: (a) while respondents working in ITD Development (N = 55) represented 14 percent of all survey respondents, they comprised nearly one-fourth (23 percent) of the 179 respondents who reported a need for standards and specifications, and (b) while respondents working in ITD Operations (N = 87) represented 22 percent of all survey respondents, they comprised nearly one-third (30 percent) of the respondents reporting a need for this type of information/resource.

- **Data and statistics.** A significantly greater percentage of respondents working in ITD Development than in MVD, ASD, and ITD Operations reported a need for data and statistics (60, 39, 39, and 25 percent, respectively). Additional analysis revealed that: (a) while respondents working in ITD Development (N = 55) represented 14 percent of all survey respondents, they represented 20 percent of the 162 respondents reporting a need for data and statistics, and (b) conversely, while respondents working in ITD Operations (N = 87) represented 22 percent of all survey respondents, they represented 14 percent of those respondents reporting a need for this type of information/resource.

- **Other state or Federal DOT publications.** A significantly greater percentage of respondents working in ITD Development than in ITD Operations, MVD, and ASD reported a need for other state or federal DOT publications (69, 31, 25, and 21 percent, respectively). By current position, a significantly greater percentage of technical staff (42 percent) and managers/supervisors (41 percent) than operational staff (25 percent) reported a need for these publications. By geographical location, a significantly greater percentage of respondents working in Maricopa County than all other counties reported a need for these publications (39 and 27 percent, respectively). Additional analysis revealed that: (a) while respondents working in ITD Development (N = 55) represented 14 percent of all survey respondents, they comprised more than one-fourth (27 percent) of the 143 respondents who reported a need for these publications, and (b) while respondents working in MPD (N = 24) represented 6 percent of all survey respondents, they represented 12 percent of those respondents reporting a need for this type of information/resource.

- **Computer and software guides.** A significantly greater percentage of respondents working in Maricopa County than all other counties reported a need for computer and software guides (38 and 23 percent, respectively). Additional analysis revealed that: (a) while respondents working in MVD (N = 75) represented 19 percent of all survey respondents, they comprised 24 percent of the 137 respondents who reported a need for these guides; (b) while respondents working in the ITG (N = 23) represented 6 percent of all survey respondents, they comprised 15 percent of those reporting a need for these guides; and (c) while respondents working in FMS (N = 17) represented 4 percent of all survey respondents, they comprised 9 percent of those reporting a need for this type of information/resource.

- **Other Arizona state and local agency publications.** A significantly greater percentage of respondents working in ITD Development than in MVD and ASD reported a need for other Arizona state and local agency publications, both transportation and non-transportation related (47, 32, and 23 percent, respectively). Additional analysis revealed that while respondents working in ITD Development (N = 55) represented 14 percent of all survey respondents, they comprised 22 percent of the 117 respondents reporting a need for this type of information/resource.

- **Leadership, management, self-improvement resources.** A significantly greater percentage of respondents working in managerial or supervisory positions, operational staff, and administrative staff positions than technical staff reported a need for leadership, management, and self-improvement resources (43, 30, 30, and 16 percent, respectively). Additionally, five of the 10 (50%) senior manager respondents reported a need for these resources. No statistically significant differences in need were seen by work group, number of years working at ADOT, or geographical location.

  - Collectively, the 28 respondents in ITD Operations and the 24 respondents in MVD who reported needing these resources comprise nearly half of all respondents (117) who reported this need, as seen in Table 6.

Table 6. Need for Leadership, Management, and Self-improvement Resources, by Respondent Work Groups and Divisions

Work Group or Division	Number of Respondents	Percentage of Total N = 117
ITD Operations	28	24%
MVD	24	21%
ASD	15	13%
ITD Development	11	9%
ECD	11	9%
Other	9	8%
ITG	8	7%
FMS	7	6%
MPD	4	3%
CGR	0	0%
Total	**117**	**100%**

- **ADOT publications, other than research reports.** A significantly greater percentage of respondents working in ITD Development, MVD, and ITD Operations than in ASD reported a need for ADOT publications other than research reports (38, 35, 29, and 9 percent, respectively). By current position, a significantly greater percentage of administrative staff and technical staff than operational staff reported a need for these publications (30, 29, and 16 percent, respectively). Additional analysis revealed that: (a) while respondents working in MVD (N = 75) represented 19 percent of all survey respondents, they comprised 25 percent of the 103 respondents who reported a need for these publications, and (b) while respondents working in ITD Development (N = 55) represented 14 percent of all survey respondents, they comprised 20 percent of those reporting a need for this type of information/resource.

- **Research reports.** A significantly greater percentage of respondents working in ITD Development (42 percent) than in ITD Operations (23 percent), ASD (16 percent), and MVD (15 percent) reported a need for research reports. By current position, a significantly greater percentage of technical staff and managers/supervisors than administrative staff reported a need for research reports (33, 29, and 11 percent, respectively). By geographical location, a statistically significant greater percentage of respondents working in Maricopa County than in all other counties reported a need for these reports (26 and 14 percent, respectively). Additional analysis revealed that: (a) while respondents working in ITD Development (N = 55) represented 14 percent of all survey respondents, they comprised 25 percent of the 93 respondents who reported a need for research reports, and (b) while respondents working in MPD (N = 24) represented 6 percent of all survey respondents, they comprised 15 percent of those needing this type of information/resource.

- **Industry or trade publications.** A significantly greater percentage of respondents working in ASD and ITD Operations than in MVD reported a need for industry or trade publications (34, 25, and 9 percent, respectively). By current position, a statistically significant greater percentage of technical staff and managers/supervisors than administrative staff reported a need for these publications (29, 28, and 14 percent, respectively). Additional analysis revealed that while respondents working in ASD (N = 44) represented 11 percent of all survey respondents, they comprised 17 percent of the 88 respondents who reported a need for this type of information/resource.

- **Historical materials**. A significantly greater percentage of respondents working in ITD Development and ITD Operations than in MVD reported a need for historical materials (36, 25, and 11 percent, respectively). Additional analysis revealed that: (a) while respondents working in ITD Development (N = 55) represented 14 percent of all survey respondents, they comprised 25 percent of the 79 respondents who reported a need for historical materials, and (b) while respondents working in ITD Operations (N = 87) represented 22 percent of all survey respondents, they comprised 28 percent of those needing this type of information/resource.

- **Professional journals.** A significantly greater percentage of respondents working in ITD Development than in ITD Operations and MVD reported a need for professional journals or newsletters (31, 14, and 13 percent, respectively). By current position, a statistically significant greater percentage of technical staff than managers/supervisors and operational staff reported a need for these publications (27, 17, and 15 percent, respectively). Additional analysis revealed that while respondents working in ITD Development (N = 55) represented 14 percent of all survey respondents, they comprised 22 percent of the 77 respondents who reported a need for this type of information/resource.

- **Test preparation and exam certification materials.** A significantly greater percentage of technical staff than administrative staff reported a need for test preparation and exam certification materials (24 and 11 percent, respectively).

- Additionally, 12 percent of all respondents (47) reported the need for "other" types of information and resources, which they identified as including the following: ADOT current maps; maps and geographical information; images, scalable vector graphics, logos, and signs; book reviews; data analysis for decision-making programming; forms; and information such as federal and state regulations, facilities management documents, legislative materials and history, legal opinions and treatises, Westlaw information, Federal Aviation Administration training materials, landscape architecture–related materials, project construction plans, payment and contract information within FMS, and Right of Way information.

Respondents who selected any of the types of information or resources listed below were then asked to identify up to three topics particularly important to their job. In total, 172 respondents elected to identify topics. Their detailed responses, which range from general topics of interest such as policies and

procedures to specific topics such as database structure on a VMware server, are provided as Appendix B of this report.

- Manuals, handbooks, training or procedural guides

- Standards and specifications (e.g., AASHTO, ADOT)

- Data and statistics

- Research reports

- Industry or trade publications

- Professional journals or newsletters

- Test preparation, exam certification materials

Current Use of Information Sources

To gain insight into employees' means of obtaining the information they need to do their jobs, the following open-end question was asked: "When assigned a project that requires you to research a topic or obtain information that is not readily available to you, what process or steps do you typically follow to seek out and obtain needed information? Please briefly describe the process."

The majority of respondents used online resources to obtain the information they need, while slightly more than one-fourth reported using "people" resources.

- 63 percent use the Internet, Internet search, Google, online research, the ADOT site, and general website resources.

- 26 percent turn to people such as supervisors, subject matter experts, and co-workers within ADOT, as well as individuals outside ADOT, including peers, professional contacts, and vendor and consultant personnel.

- 15 percent use specific databases and websites, such as POLARIS, an MVD internal information system, and the FHWA.

- 15 percent use ADOT manuals, reference materials, and reports; use of supplier or provider reference materials and manuals was also noted.

- 8 percent use the ADOT Library and/or other libraries, with the majority citing the ADOT Library.

Following the open-end question discussed above, respondents were presented a list of individuals and a list of resources that might be able to provide information needed by ADOT employees to do their job. For each list, respondents were asked to select the information sources to which they most frequently turn (up to three from the list of individuals and up to five from the list of resources).

With regard to individuals serving as information sources, the vast majority (80 percent) of respondents reported turning to their managers, supervisors, and coworkers. The next most popular information source consisted of professional colleagues at partner agencies and organizations, including universities. A statistically significant greater percentage of respondents working in ITD Development than in ITD Operations and MVD reported turning to professional colleagues and networks or professional associations as an information source (64, 45, and 23 percent, respectively).

With regard to resources, more than half the respondents reported use of general Internet searches and ADOT online tools (i.e., the ADOT Intranet and website), as seen in Table 7.

- A statistically significant greater percentage of respondents working in ITD Development and ITD Operations than in MVD reported use of general Internet searches (at 78, 75, and 48 percent, respectively). The researchers believe that this may, to some extent, be attributed to the fact that not all Department employees work on computers or laptops with enabled Internet access.

- Use of general Internet searches was also more frequent among respondents with specific demographic characteristics related to work position, number of years working at ADOT, and geographical location.

  - A statistically significant greater percentage of technical staff than administrative and operational staff reported use of general Internet searches (81, 66, and 55 percent, respectively).

  - A statistically significant greater percentage of respondents working at ADOT fewer than ten years than those working more than ten years reported use of general Internet searches (75 and 64 percent, respectively).

Table7. Information Resources Used

Resources	Number of Respondents	Percentage of Total N = 400
General Internet (e.g., using Google or similar search engines)	280	70%
ADOT Intranet site	231	58%
ADOT Internet site	215	54%
FHWA website	91	23%
Professional and industry publications (personal subscription)	83	21%
Other state DOT websites or library collections	59	15%
Specialized databases, such as TRID	48	12%
Conferences	46	12%
University, state, public library collections	28	7%
ADOT Library	37	9%
None of the above	19	5%

Respondents' use of libraries and specialized databases is infrequent; 9 percent reported using the ADOT Library; 7 percent use university, state, or public library collections; and 12 percent use specialized databases. However, nearly one-fourth (23%) of respondents overall reported use of the FHWA website. Analysis of the responses revealed the following statistically significant differences in the use of libraries and specialized websites by work group and staff position:

- A significantly greater percentage of respondents working in ITD Development than in MVD and ASD reported using the ADOT Library (16, 4, and 2 percent, respectively).

- A significantly greater percentage of respondents working in ITD Development than in MVD reported using university, state, or public library collections (18 and 4 percent, respectively). Additionally, a significantly greater percentage of technical staff than operational staff reported the same (11 and 2 percent, respectively).

- A significantly greater percentage of respondents working in ASD and ITD Development than in ITD Operations reported using specialized databases, such as TRID (21, 20, and 8 percent, respectively).

- A significantly greater percentage of respondents working in ITD Development and ITD Operations (59 and 28 percent, respectively) than in MVD and ASD (9 percent and 1 percent, respectively) reported using the FHWA website. Additionally, a significantly greater percentage of managers or supervisors (37 percent) and technical staff (29 percent) than operational staff (11 percent) and administrative staff (8 percent) reported use of the FHWA website.

The 59 individuals who reported using other state DOT websites or library collections were asked to identify the resources they use. Of the 26 individuals who provided any response, only three named specific state DOTs, as follows:

- California DOT, Oregon DOT, and Washington DOT (each named twice)

- Michigan DOT

- Nevada DOT

- New Mexico DOT

- Pennsylvania DOT

- Utah DOT

All 400 survey respondents were asked a series of questions examining their reliance on, and their success with, general Internet searches to find information on their own. Respondents rated the extent of their reliance using a scale of 1 to 7, with 1 meaning *not at all* and 7 meaning *extensively*. Two-thirds of respondents (66 percent, or 263) reported that they tend to rely on a general Internet search (rating of 5 through 7). This group included a statistically significant greater percentage of respondents working at ADOT fewer than 10 years than those working 10 years or longer (70 and 60 percent, respectively).

The remaining third was nearly evenly divided between those who were neutral in their response (rating of 4) and those who tend not to rely on an Internet search (rating of 1 through 3), at 16 and 18 percent, respectively.

 Among the 381 respondents who use general Internet searches (rating of 2 through 7):

- Approximately 60 percent reported that they are satisfied with their experiences in terms of the amount of time they need to spend as well as with their ability to find the information they need. A statistically significant greater percentage of technical staff than administrative staff reported satisfaction with the amount of time it takes to find information (65 and 48 percent, respectively). No statistically significant differences by work group, current position, years worked at ADOT, or geographical location were noted among the respondents who were satisfied with their success in finding the information they need on the Internet.

- One-fifth (21 percent) reported dissatisfaction with the amount of time required to find the information they want, and 12 percent reported dissatisfaction with their success in finding the information they need.

Awareness of ADOT Library

Respondents were asked to rate their awareness of ADOT Library resources and services on a scale of 1 to 7, with 1 meaning *not at all aware* and 7 meaning *highly aware.* Nearly three-fourths (73 percent) described themselves as having little or no awareness of ADOT Library resources or services—selecting a

level of 1, 2, or 3—with 40 percent, or 158 respondents, reporting no awareness at all (rated as 1). The overall mean rating for awareness of ADOT Library resources and services was 2.6.

The following statistically significant differences were found among the 158 respondents reporting no awareness of the ADOT Library:

- A significantly greater percentage of respondents working in MVD and ITD Operations than in ITD Development had no awareness of the Library (48, 38, and 22 percent, respectively).

- A significantly greater percentage of operational staff than technical staff had no awareness of the Library (52 and 37 percent, respectively).

- A significantly greater percentage of operational staff (52 percent) and administrative staff (47 percent) than managers and supervisors (28 percent) had no awareness of the Library.

Analysis of awareness level by respondent's current position, location, and years working at ADOT revealed the following:

- Among the 108 managerial and supervisory respondents (including senior managers), 19 percent (20 respondents) were somewhat to highly aware of ADOT Library resources and services (i.e., selected a level of 5, 6, or 7). This figure was slightly higher than the 16 percent of staff-level employees (48 of 292) who reported the same awareness levels.

- High levels of awareness (rated as 5, 6, or 7) were reported by a statistically significant greater percentage of respondents who worked in Maricopa County than by those working in all other counties (20 percent and 7 percent, respectively).

- Low levels of awareness (rated as 1, 2, or 3) were reported by a statistically significant greater percentage of respondents who had worked at ADOT fewer than 10 years than by those working 10 or more years (79 percent and 66 percent, respectively).

- As would be expected, high levels of awareness (rated as 5, 6, or 7) were reported by a statistically significant greater percentage of the 85 respondents who reported having used the ADOT Library during the past two years than of the 93 respondents who reported ever having used the Library (52 percent and 48 percent, respectively).

Among the 242 respondents who had some level of awareness of ADOT Library resources and services, half (121) had gained that awareness by general word-of-mouth. Additionally, one-third (79 respondents) reported becoming aware of the library through "other" means, primarily their participation in this survey as well as various e-mails they had received in the past providing information about library materials, resources, and notifications.

Past Use of ADOT Library

When asked whether they had ever used ADOT Library resources or services, a significant majority of all respondents (63 percent) reported that they had never used the Library, and another 14 percent were unsure.

A demographic analysis of the remaining 23 percent who reporting having used the Library at some time (93 respondents) revealed the following regarding their geographical location, years working at ADOT, and current position:

- The vast majority (86 percent) worked in Maricopa County.

- Approximately 47 percent had worked for ADOT fewer than 10 years, 17 percent for 10 to 14 years, and 36 percent 15 years or longer.

- More than one-third (37 percent) were technical staff; 34 percent were managerial personnel (senior manager, manager, or supervisor); 15 percent administrative staff, and 14 percent were operational staff.

- Collectively, 45 percent worked in ITD: 25 percent (23 respondents) in ITD Development and 20 percent (19 respondents) in ITD Operations.

- Representation by each of the remaining work groups or divisions was as follows: MPD (16 percent), MVD (8 percent), CGR (6 percent), ASD (5 percent), ITG (4 percent), and FMS and ECD (each at 3 percent). Respondents who reported working in some other work group or division represented 9 percent of those reporting that they had used the ADOT Library.

- A significant majority (76 percent) reported having used the ADOT Library one to two times per year during the past two years, 15 percent reported having used it at least monthly during the past two years, and 9 percent reported that they had not used the ADOT Library during the past two years.

Table 8 shows the usage of resources and services by the 85 respondents who had used the ADOT Library during the past two years. Nearly 40 percent reported that they had looked through the collection but not checked out any materials. Slightly more than one-third (34 percent) reported they had checked out materials and/or searched the online catalog; slightly more than one-fifth (22 percent) had requested a literature search; and slightly less than one-fifth (18 percent) had received training on how to conduct an online search. An additional one-fifth (20 percent) of respondents reported using "other" resources and services; these included checking with Library staff about available information, requesting a research report, ordering a publication, making copies of documents, purchasing books or publications from the Library, and receiving publications that the Library was planning to discard.

Table 8. Use of ADOT Library During Past Two Years

Resources and Services Used	Number of Respondents	Percentage of Total N = 85
Looked through collection but did not check out materials	33	39%
Borrowed materials – checked out books or reports	29	34%
Searched online catalog	29	34%
Requested literature search	19	22%
Received training on how to conduct an online search	15	18%
Other	17	20%
Obtained interlibrary loan – accessed materials outside the ADOT Library	11	13%
Reviewed the monthly list(s) of new additions to the ADOT Library posted on its web page	9	11%
None of the above	6	7%

The respondents who had used one or more resources and services during the past two years were asked to rate their overall satisfaction with ADOT Library resources and services on a scale of 1 to 7, with 1 meaning *not at all satisfied* and 7 meaning *highly satisfied.* Of these 79 respondents, 58 percent reported they were satisfied (rated as 5, 6, or 7), 23 percent were dissatisfied (rated as 1, 2, or 3), and 19 percent were neutral in their response.

Comments from respondents who expressed dissatisfaction with ADOT Library resources and services noted the following needs:

- Online and electronic access to materials

- Online library catalog search capabilities

- Up-to-date manuals

- Comprehensive online collection that is not solely focused on engineering and includes, for example, environmental materials and topics relevant to MVD

- Online sources that extend beyond common trade and industry publications; one example provided was Safari Books Online, a subscription-based digital library featuring books and video courses in technology, business, design, personal development, and other areas

- Access to FHWA materials that are available to borrow or read online

- Current materials on leadership, management, and business-related topics, as well as computer training materials

The 321 respondents who reported that they had either never used the ADOT Library or had not used it during the past two years were asked about their reasons for non-use. As seen in Table 9, lack of awareness of the Library and the tendency for participants to find information on their own were the primary reasons given for not using the ADOT Library (60 and 40 percent, respectively). Comments related to the selection of *other* included such reasons as the Library's location being inconvenient for employees outside the Phoenix area, lack of knowledge about the types of information available from the Library, and the respondent's status as a recently hired employee.

Table 9. Reasons for Not Using ADOT Library During Past Two Years

Reasons	Number of Respondents	Percentage of Total N = 321
Didn't know about ADOT Library	194	60%
Found information on my own	130	40%
Didn't think Library could offer the type of information or services I needed	66	21%
Work responsibilities did not require use of Library services	53	17%
Other	22	7%
Used other libraries (e.g., public, university, State Library)	9	3%

Receptivity to Existing and Potential ADOT Library Services and Resources

All 400 respondents were asked about their likelihood of using ADOT Library resources and services. Respondents were shown a list of three services and a list of five resources that the ADOT Library currently offers or may offer in the future, and asked to rate their likelihood of using each service and resource over the next 12 months. The rating used a scale of 1 to 7, with 1 meaning *not at all likely to use* and 7 meaning *very likely to use.* For purposes of this analysis, respondents considered *receptive* were the total of those who were likely to use the Library (rating of 5 through 7) and those whose rating was neutral (rated 4) and therefore could be viewed as potential ADOT Library users.

Receptivity to ADOT Library Services

Among all 400 survey respondents, 64 percent (255) were *receptive* (rating of 4 through 7) to using at least one of the three listed ADOT Library services during the next 12 months. Respondent receptivity for each service is presented in Table 10 as the number and percentage of respondents who were likely to use that service added to those who were neutral in their response. Thus, 50 percent of respondents are considered receptive to getting help with an Internet or literature search, 47 percent to accessing self-service check-out and check-in of materials, and 42 percent to accessing the online catalog through a mobile device.

Table 10. Likelihood of Using ADOT Library Services in Next Year

Current & Future ADOT Library Services	Number and Percentage Likely to Use (Rated 5, 6, or 7) N = 400	Number and Percentage Neutral (Rated 4) N = 400	Number and Percentage Receptive (Rated 4, 5, 6, or 7) N = 400	Number and Percentage Not Likely to Use (Rated 1, 2, or 3) N = 400
Help in conducting Internet or literature search	132 (33%)	66 (17%)	198 (50%)	202 (50%)
Access to self-service check-out and check-in of materials	110 (28%)	77 (19%)	187 (47%)	213 (53%)
Mobile device access to ADOT Library catalog	121 (30%)	47 (12%)	168 (42%)	232 (58%)

Respondents' receptivity to using at least one ADOT Library service over the next 12 months was analyzed by the respondents' self-reported ADOT work group or division, as seen in Table 11. Presented below are the three specified services and the work groups or divisions in which a majority of the survey respondents were receptive to use of that service over the next 12 months.

- Help in conducting an Internet search or literature search

    o CGR – 73 percent

    o MVD – 60 percent

    o ECD – 60 percent

    o ITD Development – 51 percent

    o Other – 56 percent

- Access to self-service check-out and check-in of borrowed materials

    o CGR – 64 percent

    o ECD – 60 percent

    o MVD – 55 percent

    o FMS – 53 percent

    o MPD – 50 percent

    o Other – 54 percent

- Mobile device access to ADOT Library catalog via smartphone or tablet

  o Enforcement and Compliance Division (ECD) – 64 percent

  o Motor Vehicle Division (MVD) – 53 percent

Table 11. Likelihood of Using ADOT Library Services in Next Year,
by Respondent Work Groups and Divisions

ADOT Library Services: Likely to Use or Neutral	Work Group or Division – Number and Percent Needing				
	MVD N = 75	ITD Development N = 55	ITD Operations N = 87	MPD N = 24	ITG N = 23
Help in conducting Internet or literature search	45 (60%)	28 (51%)	36 (41%)	9 (38%)	8 (35%)
Access to self-service check-out & check-in of materials	41 (55%)	27 (49%)	27 (31%)	12 (50%)	11 (48%)
Mobile device access to ADOT Library catalog	40 (53%)	22 (40%)	28 (32%)	6 (25%)	10 (44%)

Table 11. Likelihood of Using ADOT Library Services in Next Year,
by Respondent Work Groups and Divisions (Continued)

ADOT Library Services: Likely to Use or Neutral	Work Group or Division – Number and Percent Needing				
	MPD N = 24	ITG N = 23	CGR N = 11	ASD N = 44	Other N = 39
Help in conducting Internet or literature search	7 (41%)	15 (60%)	8 (73%)	20 (46%)	22 (56%)
Access to self-service check-out & check- in of materials	9 (53%)	15 (60%)	7 (64%)	17 (39%)	21 (54%)
Mobile device access to ADOT Library catalog	6 (35%)	16 (64%)	4 (36%)	18 (41%)	18 (46%)

Receptivity to ADOT Library Resources

Among all 400 survey respondents, 70 percent (281) were *receptive* (rating of 4 through 7) to using at least one of the five listed ADOT Library resources during the next 12 months. Respondent receptivity for each resource is presented in Table 12 as the number and percentage of respondents who were likely to use a resource added to those who were neutral in their response. Thus, 62 percent of

respondents are considered receptive to using materials in digital format, 60 percent to using an ADOT online library catalog, 49% to using e-books, 42 percent to using materials in hard copy format, and 39 percent to obtaining materials through interlibrary loan.

Table 12. Likelihood of Using ADOT Library Resources in Next Year

Current & Future ADOT Library Resources	Number and Percentage Likely to Use (Rated 5, 6, or 7) N = 400	Number and Percentage Neutral (Rated 4) N = 400	Number and Percentage Receptive (Rated 4, 5, 6, or 7) N = 400	Number and Percentage Not Likely to Use (Rated 1, 2, or 3) N = 400
ADOT Library online catalog	152 (38%)	86 (22%)	238 (60%)	162 (40%)
Materials obtained through interlibrary loan	81 (20%)	76 (19%)	157 (39%)	243 (61%)
Materials in hard copy format	101 (25%)	69 (17%)	170 (42%)	230 (58%)
Materials in digital format (e.g., pdf)	179 (45%)	66 (17%)	245 (62%)	155 (38%)
e-books	133 (33%)	62 (16%)	195 (49%)	205 (51%)

Respondents' receptivity to using at least one ADOT Library resource over the next 12 months was analyzed by the respondents' self-reported ADOT work group or division, as seen in Table 13. Presented below are the five specified resources and the work groups or divisions in which a majority of the survey respondents were receptive to use of that resource over the next 12 months.

- ADOT Library online catalog
    - o CGR – 82 percent
    - o ITD Development – 67 percent
    - o FMS – 65 percent
    - o MVD – 64 percent
    - o MPD – 63 percent
    - o ECD – 60 percent
    - o ITG – 57 percent
    - o ASD – 52 percent
    - o Other – 62 percent

- Materials obtained through interlibrary loan
    - o FMS – 53 percent
    - o ITG – 52 percent
    - o ECD – 52 percent

- Materials in hard copy format
    - CGR – 64 percent
    - ITG – 52 percent
    - ECD– 52 percent
    - Other – 51 percent

- Materials in digital format (e.g., pdf)
    - CGR– 82 percent
    - ITD Development – 78 percent
    - ECD – 68 percent
    - FMS – 65 percent
    - ITG – 61 percent
    - ASD – 59 percent
    - MPD – 58 percent
    - MVD – 57 percent
    - Other – 64 percent

- e-books
    - ITD Development – 64 percent
    - MVD – 56 percent
    - ECD – 56 percent
    - ITG – 52 percent
    - ASD – 52 percent
    - Other – 51 percent

Table 13. Likelihood of Using ADOT Library Resources in Next 12 Months, by Respondent Work Groups and Divisions

ADOT Library Resources: Likely to Use or Neutral	Work Group or Division – Number and Percent Needing				
	MVD N = 75	ITD Development N = 55	ITD Operations N = 87	MPD N = 24	ITG N = 23
ADOT Library online catalog	48 (64%)	37 (67%)	43 (49%)	15 (63%)	13 (57%)
Materials obtained through interlibrary loan	35 (47%)	22 (40%)	24 (28%)	7 (29%)	12 (52%)
Materials in hard copy format	36 (48%)	24 (44%)	27 (31%)	11 (46%)	12 (52%)
Materials in digital format (e.g., pdf)	43 (57%)	43 (78%)	43 (49%)	14 (58%)	14 (61%)
e-books	42 (56%)	35 (64%)	29 (33%)	10 (42%)	12 (52%)

**Table 13. Likelihood of Using ADOT Library Resources in Next 12 Months,
by Respondent Work Groups and Divisions (Continued)**

ADOT Library Resources: Likely to Use or Neutral	Work Group or Division – Number and Percent Needing				
	FMS N = 17	ECD N = 25	CGR N = 11	ASD N = 44	Other N = 39
ADOT Library online catalog	11 (65%)	15 (60%)	9 (82%)	23 (52%)	24 (62%)
Materials obtained through interlibrary loan	9 (53%)	13 (52%)	4 (36%)	15 (34%)	16 (41%)
Materials in hard copy format	5 (29%)	13 (52%)	7 (64%)	15 (34%)	20 (51%)
Materials in digital format (e.g., pdf)	11 (65%)	17 (68%)	9 (82%)	26 (59%)	25 (64%)
e-books	6 (35%)	14 (56%)	4 (36%)	23 (52%)	20 (51%)

Preferred Access to ADOT Library Resources and Services

Survey respondents were asked two questions regarding their preference for accessing ADOT Library resources and services. The first question was specific to the types of information and resources that each respondent had reported as needed for his/her job (e.g., data and statistics; manuals, handbooks, training or procedural guides), and asked the respondent's preferred means of accessing each type of resource needed.

The second question asked respondents about their overall preference for accessing ADOT Library resources and services: through a physical library collection only, an online collection only, some combination of the two (physical and online collection), or no preference because they were not likely to use the ADOT Library.

Preferences for Accessing Information Needed on the Job

With regard to information resources needed for the job, respondents showed a clear preference for access through an online collection only or some combination of a physical and online library collection, as seen in Table 14. Very few respondents preferred a physical collection only. An analysis of summary-level data revealed no statistically significant differences in response by work group, position, or geographical location among respondents with a stated preference for a physical collection only, an online collection only, or some combination of the two.

Respondents reported a distinct preference for accessing the following types of resources through an online collection:

- Other state or federal DOT publications (50 percent)

- Other Arizona state and local agency publications—transportation and non-transportation related (41 percent)

- Reference materials such as dictionary, thesaurus, encyclopedia (38 percent)

Respondents reported a distinct preference for accessing the following types of resources through some combination of physical and online ADOT Library collection:

- Leadership, management, self-improvement resources (47 percent)

- Research reports (47 percent)

- Historical materials (51 percent)

- Test preparation, exam certification materials (42 percent)

- Professional journals (40 percent)

No distinct preferences were seen for a particular means of accessing the following types of information resources. That is, the difference in the percentage of respondents preferring one means of accessing these resources over the other was five percentage points or less. In the following list, the percentages in parentheses represent, respectively, respondents' preference for access through an online catalog only and through some combination of physical and online collection.

- Manuals, handbooks, training or procedural guides (42 and 37 percent)

- Standards and specifications (41 and 36 percent)

- Data and statistics (33 and 37 percent)

- Computer and software guides (35 and 34 percent)

- ADOT publications other than research reports (41 and 36 percent)

- Industry or trade publications (38 and 37 percent)

- Other (38 and 34 percent)

Table 14. Preferred Means of Accessing Information Needed for Job

| ADOT Library Information Resources	Respondents Reporting Need for Type of Information	Respondents Preferring Physical Collection Only Number and Percent	Respondents Preferring Online Collection Only Number and Percent	Respondents Preferring Combination Physical and Online Collection Number and Percent	Respondents Who Would Not Use ADOT Library – No Preference Number and Percent
Manuals, handbooks, training or procedural guides	235	10 (4%)	98 (42%)	87 (37%)	40 (17%)
Standards and specifications	179	8 (4%)	73 (41%)	64 (36%)	34 (19%)
Data and statistics	162	12 (7%)	54 (33%)	60 (37%)	36 (22%)
Other state or federal DOT publications	143	4 (3%)	71 (50%)	41 (29%)	27 (19%)
Computer and software guides	137	8 (6%)	48 (35%)	46 (34%)	35 (26%)
Other Arizona state and local agency publications (transportation and non-transportation related)	117	5 (4%)	48 (41%)	38 (32%)	26 (22%)
Leadership, management, self-improvement resources	117	9 (8%)	36 (31%)	55 (47%)	17 (15%)
Reference materials (dictionary, thesaurus, encyclopedia)	111	6 (5%)	42 (38%)	30 (27%)	33 (30%)

ADOT Library Information Resources	Respondents Reporting Need for Type of Information	Respondents Preferring Physical Collection Only Number and Percent	Respondents Preferring Online Collection Only Number and Percent	Respondents Preferring Combination Physical & Online Collection Number and Percent	Respondents Who Would Not Use ADOT Library – No Preference Number and Percent
ADOT publications other than research reports	103	9 (9%)	42 (41%)	37 (36%)	15 (15%)
Research reports	93	5 (5%)	34 (37%)	44 (47%)	10 (11%)
Industry or trade publications	88	4 (5%)	33 (38%)	33 (38%)	18 (20%)
Historical materials	79	8 (10%)	19 (24%)	40 (51%)	12 (15%)
Professional journals or newsletters	77	5 (6%)	25 (32%)	31 (40%)	16 (21%)
Test preparation, exam certification materials	74	8 (11%)	16 (22%)	31 (42%)	19 (26%)
Other	47	2 (4%)	18 (38%)	16 (34%)	11 (23%)

Overall Preference for Accessing ADOT Library Resources and Services

As seen in Figure 9, when respondents were asked about their overall preference for accessing ADOT Library resources and services, 44 percent preferred some combination of a physical and online collection. Additionally, 29 percent preferred an online collection only, 26 percent reported no preference because they were unlikely to use the Library, and 1 percent preferred a physical collection only.
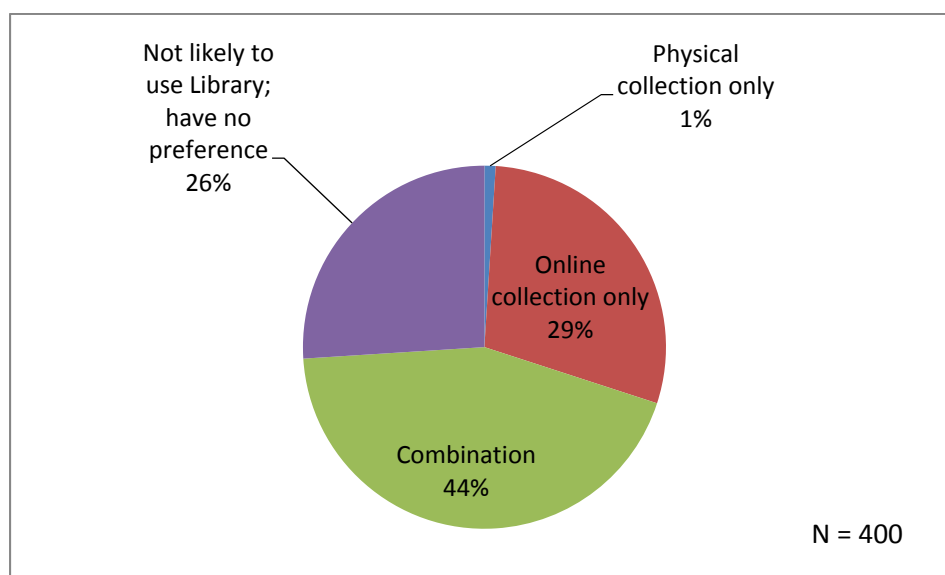
Figure 9. Preferred Means of Accessing ADOT Library Resources and Services

Likelihood of Recommending ADOT Library to Colleague

All 400 respondents were asked to rate their likelihood of recommending the ADOT Library to a colleague using a scale of 1 to 10, with 1 meaning *not at all likely* and 10 meaning *extremely likely.* The vast majority (300, or 75 percent), reported that they were either unlikely to recommend (rating of 1, 2, 3, or 4 = 211) the ADOT Library to a colleague or were somewhat neutral (rating of 5 or 6 =- 89) in their response.

- 211 respondents (53 percent) were unlikely to recommend the ADOT Library, and 89 (22 percent) were neutral in their response, and the remaining 100 respondents (25 percent) reported that they would likely recommend the ADOT Library to a colleague; 62 of these respondents rated their likelihood as 7 or 8, and 38 rated it 9 or 10).

- However, among the 85 respondents who had used the Library in the past two years, 54 percent (46 individuals), said they would be likely to recommend the ADOT Library to a colleague.

- Analysis by county in which they work showed that 28 percent of respondents working in Maricopa County would likely recommend the Library in comparison with 16 percent of those working in all other counties.

Respondent Input

The last question in the survey offered respondents the opportunity to provide input regarding resources or services that they would like the ADOT Library to provide or expand upon to help them do their job. A total of 129 respondents provided comments, with a significant majority of these

respondents (100, or 78 percent) identifying one or more specific resources or services that would be helpful to them. For purposes of analysis, responses were categorized as related to either *information and resource needs* or *expanded service needs.* These open-end comments are provided as Appendix C of this report.

The remaining 29 respondents to this question (22 percent) reported that they were unable to provide input because they were unfamiliar with the Library and would have to better understand what resources and services are available in order to comment.

EMPLOYEE FOCUS GROUPS

Two in-person group discussions were conducted in Phoenix on Tuesday, March 1, 2016: one with staff level personnel working in Maricopa County and the other with managerial or supervisory personnel working statewide. Each group met in the conference room adjacent to the ADOT Library for 60 to 90 minutes, following an agenda that was designed to complement the quantitative research component of the study by providing ADOT with a richer understanding of factors and dynamics influencing employees' use or non-use of the Library and their views regarding the ADOT Library of the future.

As noted earlier, participants were recruited from among individuals who completed the online survey discussed in the previous section. A question placed at the end of the questionnaire asked respondents if they were interested in participating in a discussion group addressing library-related topics similar to those in the survey. Those who expressed interest were asked to provide contact information that would be needed for follow-up.

A total of 111 survey respondents (28 percent) expressed interest in participating in a focus group, with respondents from ITD Operations, ITD Development, and MVD collectively representing the largest segment of those interested in participation (60 percent). The 111 individuals who expressed interest consisted of:

- 80 respondents from Maricopa County and 31 from all other counties

- 89 staff-level respondents, including 65 from Maricopa County and 24 from all other counties

- 22 managerial and supervisory personnel, including 15 from Maricopa County and 7 from all other counties

Recruitment for focus group participants from among this pool of survey respondents was primarily based on the decision to structure the groups according to position and geographical location (i.e., staff level personnel working in Maricopa County, and managerial or supervisory personnel statewide, as well as on the number of groups to be held (two) and the desired number of participants per group (ideally six to eight). Additionally, the recruitment strategy was designed to support focus group participation by a representative sample of survey respondents (i.e., based on work group, reported use of the ADOT Library, access preferences, and likelihood to recommend the Library to a colleague). To encourage participation, the ADOT project manager sent out an e-mail informing all prospective participants of the

focus groups and advising that they check their inbox for a communication from the research firm conducting the groups. The subsequent e-mail invitation from the research firm included a link to an online scheduling tool with a choice of fifteen scheduling timeslots. Invitees were informed that the focus group would be scheduled based on the date and time combination most convenient for the majority of respondents. Recruitment took place over a one-month period, with 25 Maricopa County staff level personnel and 21 managerial or supervisory personnel contacted. Communications included the original e-mail invitation to participate, reminder e-mails to non-responders, and confirmation e-mails to acknowledge and thank employees for their interest and confirm their plan to attend).

Participation

A total of 12 staff-level respondents confirmed their planned attendance for Group 1, and five managerial or supervisory respondents confirmed for Group 2. In an effort to increase the number of Group 2 participants, the research firm sent an additional e-mail invitation to the complete list of managerial or supervisory personnel who had not responded, but these efforts were unsuccessful. Additionally, several participants in both groups opted not to attend.

The final total of focus group participants was eight: six in Group 1 and two in Group 2. Demographics of the focus group participants were as follows:

- Gender – Three women and 5 men, with Group 1 consisting of three female and three male participants, and Group 2 consisting of two male participants.

- Geographic location (primary work area) – All six of the Group 1 participants worked in Maricopa County. One participant in Group 2 also worked in Maricopa County, and the second worked in Coconino County.

- ADOT work group or Division – Group 1 consisted of employees from ASD (1), Communications (1), FMS (1), MPD (2), and MVD (1). Group 2 consisted of one employee from ITD Development and one from ITD Operations.

- Current position – Group 1 consisted of two employees in administrative staff positions, one in an operational staff position, and three in technical staff positions. Group 2 consisted of two employees in managerial or supervisory positions.

- Years working at ADOT – Four participants, which included the two managers/supervisors from Group 2, reported working at ADOT for one to four years, one reported working five to nine years, two reported working 10 to 14 years, and one reported working at ADOT for 15 or more years.

- Previous use of the ADOT Library – Group 1 consisted of four participants who reported having previously used the Library, all in the past two years; one who had never used the Library, and one who could not recall. Group 2 consisted of one participant who had used the Library in the past two years and one who had never used the Library.

- Preferred means for accessing Library resources and services, per survey responses – Five of the six participants in Group 1 had reported preferring some combination of a physical and online library, and the remaining participant preferred an online-only library. Of the two participants in Group 2, the individual working in Coconino County preferred online-only access, while the individual working in Maricopa County preferred some combination of a physical and online library.

- Likelihood of recommending the ADOT Library, per survey responses – Group 1 participants had answered the survey question about their likelihood of recommending the ADOT Library to a colleague (using a 10-point scale, where 1 means "not at all" and 10 means "extremely likely") as either not likely to recommend (two participants), neutral (one participant), or extremely likely (two participants). One of the participants in Group 2 had reported being unlikely to recommend, and the other had reported being somewhat likely to recommend the ADOT Library to a colleague.

The goal of the two focus groups was to solicit feedback in four key topic areas. These topic areas served as the foundation of the discussion guide used for both groups:

1. Participant identification of their top three information needs, the frequency with which these types of information are typically used, and the primary sources that they use to obtain this information. Also discussed were participants' overall use of library resources and use of general Internet searches.

2. Participant experiences in using the ADOT Library, their views on the perceived value of the ADOT Library and librarian services, and factors that impact participants' access to the information and resources that they need to do their job.

3. Participant views and perceptions regarding the ideal state—i.e., their "wish list" for the ADOT Library of the future, the role of the Library in meeting customer needs and expectations, and ideas or suggestions to improve or support service delivery.

4. Participant feedback (via completion of a worksheet at the conclusion of the discussion group) regarding the perceived impact of not having access to ADOT Library resources or services—that is, if ADOT Library resources or services were not available.

FOCUS GROUP FINDINGS

Topic Area 1: Information Needs; Use of Library and Online Resources

Information Needs

Each participant was given a worksheet that listed the types of information and resources that one might need for their job. Participants were asked to review this list and identify their top three information or resource needs. The moderator then invited participants to comment on the types of

information they view as critical to their job at ADOT; participants noted that access to the following was essential to the job:

- National guidelines, such as those developed by AASHTO, and information on studies or innovations in various fields of transportation study

- Software-related information and training materials on such topics as building advanced Microsoft Excel templates (including programming macros) and application and use of program features and capabilities

- Legal research and relevant studies to address inquiries from the legislature, public, or media regarding specific topics of interest to these groups (participant is a regulatory writer for ADOT)

- ADOT handbooks in various formats (e.g., print version of the ADOT Tribal Transportation Consultation handbook)

- Subscriptions to professional journals and newsletters and to annotated versions of books

- Librarian services to aid employees' efforts to find the information they need, such as providing instruction on how to conduct more productive Internet searches, recommending transportation-specific keywords to use when searching for information about a topic, providing access to specialized databases, offering help with literature searches, and informing employees about the types of information housed within the Department and how to access that information)

Participants also noted that they most frequently need the following information and resources (i.e., daily or weekly):

- Standards & specifications

- Data and statistics

- Other state or federal DOT publications

- Manuals, handbooks, training or procedural guides

A few participants also reported a need for each of the following types of information or resources: (a) research reports, (b) historical materials, (c) ADOT publications other than research reports, (d) test preparation or exam certification materials, (e) professional journals or newsletters, and (f) self-improvement resources (e.g., public speaking, writing skills).

Following are the types of information needed by employees and the sources they use most frequently to obtain that information:

Standards and specifications

- ADOT
- FHWA Manual on Uniform Traffic Control Devices
- American Association of State Highway and Transportation Officials (AASHTO) specification and design guides
- ADOT Intranet
- ADOT Blue Book
- ADOT project delivery
- Local Public Agency Manual (LPA)
- ADOT Specifications via online public access
- Participant-reported complimentary online access to AASHTO specifications books
- Building codes and safety-related resources
- ADOT supplier–provided information
- Review of state laws and regulations

Data and statistics

- Online primary sources
- ADOT Library
- State agency websites
- Federal websites (e.g., IRS)
- U.S. Census, Public school projections
- Realty agencies
- Resources that provide information on population growth, saturation of markets, and business districts
- Data submitted by suppliers

Other state or federal DOT publications

- ADOT Library
- Online primary sources
- FHWA and federal or state websites (e.g., AZLEG.gov)
- Other state DOT websites
- Reports for Port of Entry
- Support information needed for job

Manuals, handbooks, training, or procedural guides

- Online searches of style manuals
- State real estate procedures
- ADOT Intranet and Construction and Materials Group website

Research reports

- ADOT Library
- Online primary sources
- Transportation Research Board

Historical materials

- ADOT Library
- ADOT Information Data Warehouse
- District networks for past project information

ADOT publications other than research reports

- Special contracts

Test preparation or exam certification materials

- Hardcopy materials (no references to specific sources)

Professional journals or newsletters

- Through personal membership in the American Society of Civil Engineers (ASCE)

Self-improvement resources – no specific sources reported

Use of Library Resources

Four of the eight participants reported that they use the ADOT Library as their principal library resource. Other library resources used by participants include the Phoenix Public Library system, specifically the Burton Barr Central Library, located in downtown Phoenix; online university libraries; the Arizona State Library; and the Arizona Memory Project, which provides online access to extensive primary source materials held by contributing archives, museums, libraries, and other cultural institutions in Arizona. Three focus group participants also stated that they each maintain their own library or resource center of frequently needed information and resources in their work group (e.g., law library, materials specific to transportation planning functions, equipment manuals).

Use of Online Resources

All participants stated that they search online for information or resources needed for their job, but also noted that not all employees, especially those working in MVD, have full access to the Internet. Participants' typical starting point for finding information was a general search of the Internet or use of ADOT website resources (e.g., Internet or intranet), unless they were aware of specific websites likely to contain the information they needed.

- A number of participants use Google as their primary search tool and noted that success in finding the information they were looking for was often dependent on knowing the right search words or terms to use.

    o "The first thing I ever do is Google– Google is my best friend. But unless a general Google search brings stuff up, it's very difficult. I try to go to the source that's closest to what I'm trying to get because if it's that agency's material, then I know it's worth me using."

    o "Even if I start on Google or even if I go to the search page to see if we have it (ADOT Library webpage), the biggest barrier for me is the terminology."

- Two of the participants noted that they use the ADOT website, ADOT Research Center, and Library Resources web pages. Both individuals, who considered themselves highly familiar with the search options available through the ADOT Research Library Catalog Search and Research Reports page (e.g., search by keyword, name, publication date title, keyword, or search for ADOT research reports by number), noted that they sometimes opted to contact the ADOT Librarian to get the information they needed because it was so much faster.

- Participants also reported using Wikipedia as a search tool.

Topic 2: ADOT Library Customer Experience and Perceived Value of the Library

When participants were asked about their ADOT Library experience, five individuals provided comments, with three reporting a favorable view of their customer experience and two reporting a somewhat unfavorable or neutral view of their experience. Two additional participants said they had not used the ADOT Library, and the remaining participant stated that his/her use of the library was too limited to enable feedback.

Customer Experience

Participants reporting favorable views of their experience referenced the assistance they received from the ADOT Librarian, the value that they attached to having access to a library housed within the Department, and their success in finding and obtaining the information they needed, regardless of the challenges they experienced (e.g., time needed to search through the physical Library collection, materials not available in digital format).

Two of these participants specifically noted that the ADOT Librarian had assisted them in obtaining interlibrary loan services and ongoing receipt of a list of research studies specific to their particular areas of focus, and had taken proactive steps to provide information or connect them with the appropriate resources.

- "(Librarian) often sends me and one or two other people anything that comes across his desk that he thinks we might be able to use."

- "Librarian also then did a specialized search just for this topic and came back with several pages of related documents. So, the librarian has been very helpful."

One participant also noted the value of having access to a Department library rather than having to rely solely on collections assembled by employees or work groups.

- "...One of my first steps is to find out what others have been doing in that particular area that we're going to be studying...We don't really have much of a library upstairs."

Another participant spoke about the value of the Library and the convenience of having ready access to reports housed in the collection. However, he also highlighted some of the challenges to finding information in the Library's physical collection in a timely and efficient manner. His description of these difficulties was reinforced by comments from another participant in recounting feedback she had received from one of her staff regarding the organization of the library and the difficulty of finding needed information.

- "We often have inquiries from the legislature or just members of the public or media that would like to know the origin of some topic or something that exists now that didn't exist before; they want to know why. All of this comes in handy when we have to do that. And it could take me days to find it in here, but I do."

- "Before I came (to the focus group), I actually sent out an e-mail to my unit and asked them what they knew about the library and their uses, trying to get some feedback. And one of my colleagues said that the way things were ordered here was so different, and it was difficult for her to find things she was looking for. We're so used to the public library's organization, it's like a foreign language, almost, the way some of the things are organized (in the ADOT Library)."

Similarly, the two participants reporting neutral or somewhat unfavorable views of their ADOT Library customer experience voiced their frustration with being unable to find the information they were seeking and receiving what they viewed as inadequate assistance from Library staff.

- One participant felt that the Library staff member who handled the participant's phone inquiry seemed unwilling to look further into the availability of the item being sought (specifically, a printed copy of an ADOT handbook, *ADOT Tribal Transportation Consultation).*

- The other participant was similarly unable to find the information she was seeking and believes that was due, in part, to the fact that her request was handled by a staff member other than the ADOT Librarian. She also remains convinced that the information is, in fact, available in or through the ADOT Library.

Perceived Value of the Library

When discussing the perceived value of the ADOT Library, participants referenced both the value of the information available—whether through a physical collection, online collection, or some combination of the two—and of having a knowledgeable and skilled librarian on staff to help customers.

Many participants commented on the need to have electronic and digital access to information housed in the collection. Two individuals also commented on the value of having a physical library space—a quiet and distraction-free place to promote study, information-sharing and exchange, and learning.

- "In our area, because we work with so many governmental agencies, we like to have our information electronically as often as we can get it. So, I start my researching online. Then, I often end up right back here because this is where it all is. I was talking with (Librarian) about digitizing more of this because it would be really useful for us. I guess that's expensive and he didn't start that process. That would be my wish."

- "When I really am going to do research, I'm always interrupted. Over here, I am not. If I'm at my desk, I'm constantly interrupted, so it takes longer."

- "And another purpose of the library is a meeting place or a place where training and things might occur, or a place for you to go and learn about something. I think a lot about these guys who do the training and these technicians who are doing classes. It would also be nice for them to have a place where they could come and just sort of immerse themselves into reading and learning. But the big selling point would be the ease of access of the information. When you need something, it's there, and you don't have to spend an hour to look for it."

Participants also commented on the skill sets that librarians offer, such as their ability to: (a) help customers find information as well as educate customers on how to search for information efficiently and effectively using transportation industry specific terminology; (b) serve as a conduit for linking employees to resources or information networks within the Department; and (c) provide assistance with research-related tasks.

- "That interaction, that knowledge, that background that a librarian brings is just vital."

- "Sometimes DOT produces documents that are best practices. And they don't always come up if I search for them the way I want to search for them, if I go to the DOT website. And it turns out I just don't know the jargon. But the librarian does and he then says, 'Well you got to ask for it this way,' and if you do that then all of this stuff pops up that I wasn't getting, searching for it my way."

Awareness of the Library

Participants generally agreed that the primary reason for employee non-use of the ADOT Library is a pervasive lack of awareness of its existence and services. Several participants who had spoken with their coworkers or staff prior to attending the focus group expressed the belief that engaging in aggressive outreach and marketing, providing employee access to an expanded collection (e.g., inclusion of AASHTO and American Society of Testing Materials (ASTM) resources), and placing a professional librarian at the helm of the ADOT Library would increase its use among employees. However, participants also acknowledged that some employees would likely never use the ADOT Library, either because the nature of the work they perform does not necessitate use of library resources, or because

the information they require for the job is readily available online from other sources, either internal or external.

- "Marketing. It needs to be marketed. The person you hire to take (Librarian's) position needs to just preach it to everyone, and then publicize it as a library, so that people know that they can come to it."

- "I think there is some sub-set of ADOT employees, or the guys that are out actually putting the pavement down, that probably don't care about the ADOT Library. But anybody who interacts with government, regulations, taxation, planning…we're all taking information from somewhere else...."

- "I'm not sure how much a lot of the people in the Flagstaff district would need the library resources. Most of our standard operating procedures – how we do our work – are pretty well written up and encapsulated in our standards available online."

As a follow-up to the conversation about employee usage, the participants were asked to identify myths or misperceptions that they believe employees might have regarding the ADOT Library. Responses included employees viewing the Library as: (a) a warehouse or storehouse; (b) a place for archived, not current, information, i.e., not a place where one can find current or recently released statistics or market analyses; and (c) an unwelcoming environment—a "non-living" entity that lacks vibrancy ("They're thinking that there is probably a cabinet full of blueprints stacked from floor to ceiling.").

Organizational Factors Impacting Employee Access to Information

The discussion also provided insight into organizational issues perceived as hampering employees' access to information, resources, and tools that they need to do their job. Participants identified a number of challenges related to information management at ADOT, the culture of the workplace, and employee education and training, and discussed ways to resolve these challenges, as follows:

- Lack of a centralized repository for information contributes to an ongoing need to inform and advise employees about information that is available to help them do their job. Information sharing and collaboration across-work groups should be promoted to improve operational efficiencies and give employees direct access to the information and resources they need.

  o "I always think, 'Why can't there just be one go-to place for everything you need?' The difficulty is coordinating the efforts between all these different groups, and bringing it all together, and creating a system that works."

  o "There is just no communication in this entire agency about the sharing of information and where people could go to get it fast. We spend more time researching the same things over, and over, and over individually. If there was a place that we could all come and say, 'Hey, tell me if you've ever run across this study before.'"

- Mini-libraries or compartmentalized collections of information and resources are housed in various work groups throughout the Department and could likely benefit a broader segment of ADOT employees.

  - "We have a lot of historical information in our area as well. We have files that are 30 years old. Other people, other groups could benefit from this information that we have stored in our files. And they may not be aware, or maybe we should be giving them over to the library to decide if that's something that should be a source of information for other groups as well."

  - "I don't think in my career here that anybody has really made a concerted effort to gather all the resources that we all have stashed away everywhere."

- Work groups are often resistant to sharing information, which is seen as reflective of a "silo" culture within the Department. Participants noted resulting inefficiencies and duplication of efforts and expenditures, such as multiple subscriptions to commonly referenced professional journals and newsletters.

  - "Everyone kind of does that, tries to silo it. It'd be nice if we got that all brought together from a design standpoint. It makes it hard for internal employees and external, as well, to make sure that they've got the latest and greatest."

  - "But we're all as ADOT employees supposed to think lean. If every unit stopped paying their own subscription...if all of that stopped and the Library was the one that had those subscriptions, how much leaner would ADOT be if all of those subscriptions were centrally located and everybody had equal access?" Response from other participants: "Huge savings. From a cost perspective, it would be phenomenal."

- Employees need to receive orientation and training about the ADOT Library, to learn how to access and search for information and become aware of the resources that are available, such as the many periodicals, professional journals, and specialized databases.

  - "There is no new employee orientation, which may signify a larger problem or issue. I am aware that we have journals and things that are available (through the Library) but I haven't bothered really looking into it to see if I could use them."

  - "If you get into the Arizona Memory Project, you have access to a whole lot of subscriptions that you didn't even know you had. There's just no training on any of it."

Topic 3: Participant Wish List—ADOT Library of the Future

A key purpose of the focus group discussion was to gather information regarding employees' views of the ADOT Library of the future and their preferences regarding access and delivery of library assets; materials that should be included in the collection; and the role of the Library (including staffing) in meeting employees' information needs.

Access to and Delivery of Services

A recurring theme throughout the discussion groups was participant interest in digital services, including electronic access to the Library collection, creation of digitized library assets, mobile app access, and library services that include self-service check-out and check-in of materials online. Participants emphasized the importance of ADOT employees having access to the technologies needed to perform their job duties, aid their professional development, and foster Department-wide collaboration and innovation, such as software programs and applications as well as access to the Internet.

- "So if I want to check something out of the Library, even if I was going to check it out electronically and have it inter-office e-mailed to me or something like that, that would be great. If I can sit at my computer in Flagstaff, then all of a sudden this library becomes useful to me."

- "I think that we would all agree if all of this was online and searchable so we could find it fast, it would save us so much time. But to me, only if you're searching history, are you going to come here."

- "I've got constituents that tell me, 'Hey, I saw this on the ADOT Facebook page, tell me more.' Of course, I can't access it here. I can't even access Google Earth here. Right? I've got to go home. I think there needs to be updated policies that enable us to get greater access to information."

- "It'd be nice to be able to have an ADOT app—for those that don't have access, having an app to be able to gain access to materials may be valuable, even just something fairly rudimentary that gets them around to figure out what is available, what things they can access online, or get sent out to them."

Library Collection Wish List

Participants expressed interest in the following types of information and resources being included in the ADOT Library collection. Following are the types of information and resources specified by participants:

- Building management publications (e.g., building codes, safety codes for ADOT facilities, such as those likely to be helpful to site coordinators and their work groups)

- For various software programs used by employees throughout the Department (e.g., Microsoft, Adobe), technical manuals that include information on advanced application options

- Updated versions of maps, available online to employees

- Extensive cross-industry collection of leading magazines, professional journals, and newsletters, as well as non-transportation related periodicals that are frequently used by work groups statewide, such as political magazines and publications of industry-related associations, such as road building and asphalt)

- Online availability of AASHTO and ASTM test methods – The two managers/supervisors expressed interest in having AASHTO and ASTM test methods available online and accessible through the Library, citing the following benefits: (a) efficiencies in providing employees statewide online access to job-critical resources; (b) cost savings for the Department (e.g., reducing the number of subscriptions that ADOT would need to purchase); and (c) quick access and easy retrieval—that is, eliminating time currently spent trying to contact the ADOT work groups and specific individuals that maintain this information. Both participants also shared the view that these materials are appropriately housed in a transportation\ library collection.

- Test procedures – One participant suggested that the Library house a videotape collection of test procedures, so technicians could easily access this information to prepare for their training classes or obtain answers to their questions. This participant also believed that having access to these materials would improve testing throughout the state.

- Online availability of an ADOT-wide inventory listing of available resources (e.g., standards, specs) to help employees determine what information is available to them and where this information is housed within ADOT.

Role of the ADOT Library

As reported earlier, participants believe that the ADOT Library should serve as a central repository for information, including frequently accessed reference materials that are currently maintained by various work groups throughout ADOT. This also included a suggestion to have the Library house ADOT equipment and operator manuals, and for the information in these manuals to be integrated into the Library's overall cataloguing system.

- "A lot of the guys that I supervised, and still work with regularly – they work on a lot of different pieces of equipment. We've tried to develop a system to track all these manuals for these different models of equipment. Say, there's a hundred different types of equipment that we work on, and there's so many different models throughout the years, going all the way back to the fifties in some cases. And now we're starting to try to convert that into a database that we've created, so that way we have a history of all of the work orders that have been performed on each piece of equipment."

While participants overall felt strongly that the Library needs to contain recently released and up-to-date information, a few individuals also spoke to the value of the Library's role in preserving the history of the Department and the history of transportation innovation in the state, including past policies and practices**.**

Participants also believed that it would be beneficial for ADOT to create an advisory board of representatives from each of the Divisions and work groups to provide stakeholder input regarding the role of the Library in meeting the needs of ADOT employees. Suggested topics or issues to be addressed by the advisory board include clarification of the ADOT Library's role and function; steps that can and

should be taken regarding collection development, expansion of library services, and technology advancements (e.g., online access, digitizing), given the current organizational structure and funding of the Library; and identification of other options to support and maintain the ADOT Library.

Staffing: Role of the Librarian

Participants repeatedly commented on the need for a professional librarian to staff the ADOT Library. They believe that this individual is key to creating an organization environment that effectively drives traffic to the library, whether in person or online. The ADOT Librarian is viewed as the essential link between the Library and its customers, helping employees find the information they need for their jobs and helping ADOT effectively manage its information assets. Participants also viewed the Librarian as playing a significant role in increasing awareness of the Library through statewide marketing efforts.

- "I think the key will be the replacement Librarian. It needs to be somebody that has a degree in library science. Let's not just bring in somebody that has been doing research, bring in a librarian."

- "I was shocked and pleased that we had this resource available. I worked at another agency and they didn't have a library, they didn't have a librarian, so if you needed something, either you did without it or the agency had to go out and buy it, one of the two. I think that it needs to get the word out that it exists, primarily. It needs a librarian. That's what makes it a library."

In discussing the ADOT Librarian's role in information management, the two manager/supervisor participants noted that the Librarian could lend his/her expertise by consulting and advising on such efforts as the cataloguing of historical information maintained at the work group or division level, or the design and development of global information management tools for the Department, such as databases or inventory tracking systems. They also spoke about the potential benefits to be realized by leveraging the Librarian's skill sets to support project development efforts (e.g., ADOT Information Data Warehouse), such as the insight and guidance that the Librarian could offer regarding best practice policies, practices, and procedures related to accessibility, retrieval of information, improved search capabilities to return relevant results, and record storage and retention.

Topic 4: Personal Opinion—Perceived Impact of Not Having Access to Library Resources or Services

The discussion groups concluded with participants completing a brief questionnaire about the perceived impact of not having ADOT Library resources or services available to employees. More than half the participants reported that the lack of ADOT Library resources and services would impact their ability to get the information they need for their job, including information they need from other sources, finding information through the use of specialized databases, finding information about ADOT research studies, accessing reading materials, keeping abreast of innovations in transportation and safety, and obtaining help or support with conducting an Internet search and a literature search.

The two managerial/supervisory participants consistently reported being far less impacted by not having ADOT Library resources or services available to them than did the six staff-level participants. (In the responses following, all participants are staff-level personnel unless noted otherwise.

The findings from the questionnaire are presented below, including a breakout of responses by position. Each question garnered eight responses.

The questionnaire asked the following: "If ADOT Library resources or services were not available, what impact (if any) would it have on your ability to:

- Get the information you need for your job from other sources?

    o Two participants reported, "no impact—I can get the information I need from other sources." Both were managerial or supervisory personnel.

    o Five participants reported, "some impact—would make it a bit more difficult or inconvenient for me to get the information I need."

    o One participant reported, "significant impact—would make it very difficult or inconvenient for me to get the information I need from other sources."

- Find information through the use of specialized databases?

    o Two participants reported, "no impact." Both were managers or supervisors.

    o Two participants reported, "some impact."

    o Four participants reported, "significant impact."

- Find information about research studies conducted by ADOT?

    o Two participants reported, "no impact." Both were managers or supervisors.

    o Three participants reported, "some impact."

    o Three participants reported, "significant impact."

- Access reading materials such as professional journals, trade or industry publications?

    o Three participants reported, "no impact." One participant was a manager or supervisor.

    o Three participants reported, "some impact." One participant was a manager or supervisor.

    o Two participants reported, "significant impact."

- Keep abreast of innovations in transportation and safety?

  o Three participants reported, "no impact." Two participants were managerial or supervisory personnel.

  o Five participants reported, "some impact."

  o No participants reported, "significant impact."

- Obtain help or support with research, such as conducting an Internet search?

  o Four participants reported, "no impact." Two participants were managerial or supervisory personnel.

  o Two participants reported, "some impact."

  o Two participants reported, "significant impact."

- Obtain help or support with research, such as conducting a literature search?

  o One participant reported, "no impact." This participant was a manager or supervisor.

  o Four participants reported, "some impact." One participant was a manager or supervisor.

  o Three participants reported, "significant impact."

Three-fourths of the participants (six of eight) reported that not having access to ADOT Library resources or services would impact their ability to get the information they need for their job from other sources; find information through the use of specialized databases; find information about research studies conducted at ADOT; and obtain help or support with research, such as conducting literature search.

Summary of Findings from Employee Survey and Focus Groups

Findings from the ADOT Library survey and focus group provide insights into employees' information and resource needs for the job and how they currently obtain the information they need. Additionally, the findings provide insights into employees' awareness and perceptions of the Library, as well as factors that might encourage increased use of its resources and services. These findings will form the basis of recommendations to be provided to ADOT. Following is a brief summary of the primary findings:

- The top five types of information and resources needed for the job are: (1) manuals, handbooks, and training or procedural guides; (2) standards & specifications; (3) data and statistics; (4) other state or federal DOT publications; and (5) computer and software guides.

- The primary information sources used to obtain the information that respondents need for their job include fellow ADOT employees and use of Internet-related resources. The latter include general Internet searches, the ADOT Intranet site, and the ADOT website.

- Nearly three-fourths of employees overall are unaware of the ADOT Library, and a significant majority have never used the Library.

- Key characteristics of Library customers include the following: primarily work in Maricopa County; have worked at ADOT for fewer than 10 years; likely to be technical staff and/or managerial or supervisory personnel.

- While the majority of survey respondents reported that they were either unlikely to recommend the ADOT Library to a colleague or were somewhat neutral, fifty percent or more were receptive to using ADOT Library services and resources during the next 12 months that included receiving help with an Internet or literature search, using materials in digital format, and using an ADOT online library catalog.

- Survey respondents identified a number of information and information resources as well as services that they would like the ADOT Library to include or expand upon in order to help them do their job. They also provided suggestions on strategies to increase usage as well as create cost savings for ADOT.

CHAPTER 4. EFFECTIVE PRACTICES IN TRANSPORTATION LIBRARY SERVICES

IDENTIFICATION OF EFFECTIVE PRACTICES

To identify and define effective practices in the delivery of transportation library services, the researchers conducted a literature search of relevant publications and other information sources—including studies, surveys, reports, presentations, and papers—to locate information on effective practices of special libraries, particularly transportation libraries. Because developments in technology have significantly changed library practices, as well as the librarian profession's view of what constitutes effective practices, particular emphasis was placed on locating recent studies in such areas as identification of customer needs, organization of collection, marketing of services, and evaluation of performance.

In addition to the literature search, the transportation librarians and/or library directors for eight state DOT libraries were asked to share their insights on effective practices by participating in a brief survey and follow-up phone interview. These libraries were selected because of their similarity to the ADOT Library in staffing levels, physical library size, collection size, and performance of in-house cataloging; use of a commercially available integrated library system (ILS); and the basic services they provide. Additionally, members of the research team had previously worked with most of the selected libraries and were aware that these libraries possessed specific characteristics applicable to the ADOT Library. Detailed information on the survey and the participating libraries is provided later in this chapter, in the section titled *Survey of DOT Libraries.* Following is a brief summary of each participating library's notable characteristics:

- Iowa -- Solo librarian; highly engaged in data stewardship, ad hoc knowledge management (KM) activities of state DOT, and ongoing outreach. Library plans include adding modules to its ILS (through the state library) and barcoding its collection.

- Louisiana – One full-time equivalent (FTE) librarian, highly tech-savvy, with creative ideas for marketing and delivering library services. Location on Louisiana State University campus as well as part of state DOT is unique situation for research collaboration.

- Minnesota – The gold standard of transportation libraries. It has the largest staff, a sizeable dedicated budget, and is recognized nationally for its work by professional organizations such as the Special Libraries Association and the American Library Association.

- New Mexico – Neighboring state DOT; solo librarian has strong academic research background and is actively engaged in research process for NMDOT. Reshaping library by forging relationships with key people in decision-making positions and modernizing library functions.

- New York – Solo librarian, highly motivated to provide high-profile, value-added service to entire department. The librarian markets library services through newsletters, presentations, and branding, and is very active in consortia at the national, state, and regional levels.

- Oregon – Dynamic solo librarian with strong connection to both the research and history and archives departments; highly proactive in leveraging the Western Transportation Knowledge Network (WTKN), one of three regional transportation knowledge networks in the country, and the Library Pooled Fund for direct benefit to ODOT through projects and use of SPR funds.

- Virginia – Recognized for its excellence; also the only DOT known for an established, well-respected knowledge management program of which the library is a vital component. Unfortunately, the library did not respond to the researchers' requests for information.

- Wisconsin – High-functioning, well-integrated library that serves multiple units, including the director's office. Has a staff of 1.5 FTE professional librarians and is actively working with various units on data stewardship.

Based on the information and input provided in their survey responses, a list was developed of practices employed by these highly respected state transportation libraries. These practices, in combination with information obtained through the other components of this study, will be used as the foundation for actionable recommendations for the ADOT Library.

LITERATURE SEARCH

Objectives and Methodology

The goals of the literature search were to:

- Identify and analyze published studies, reports, and other sources of information on special library services, specifically directed toward transportation libraries.

- Synthesize a working definition of effectiveness with regard to transportation library services, based on examined literature.

- Identify effective practices and lessons learned in the areas of collection development, library services, user needs assessment, and technology.

The literature search included research studies and publications that focused on identification of customer needs, effective organization, marketing of services, and performance evaluation of special libraries. Some of the references cited were also reviewed to locate additional information sources. The materials reviewed include the following:

- Primary studies, including *Transportation Library Connectivity Pooled Fund, Final Report (2010); Transportation Librarians Toolkit (2009);* and *Models of Embedded Librarianship: Final Report (2009).*

- Papers published by leaders in the field of librarianship, such as "Marketing in the Special Library Environment" (Powers 1995), "Special Libraries – How to Survive in the Twenty-First Century" (Wittwer 2001), and "An Examination of Best Practices and Benchmarking in Corporate Libraries" (Simon 2011).

- Monographs, including *Proving Your Library's Value: A Toolkit for Transportation Librarians* (2012), *Adding Value in Corporate Libraries and Information Services* (Ard 2012), and *Library Services in Theory and Context* (Buckland 1988).

The amount of published literature focused solely on transportation libraries is extremely limited; therefore, the literature search was expanded to also include effective practices of special and corporate libraries. The material that was retrieved and examined spans 1995 to the present. Although the ways in which library services are delivered have changed over time, such as the move from physical to digital materials, the underlying concepts of information organization, marketing, outreach, and valuation remain highly relevant. Even decades-old library practices in these areas can be germane to today's libraries.

Key Findings

The literature search revealed several dominant themes integral to the daily viability of a special library and its positive contribution to the parent organization. These themes are discussed below:

- Alignment and integration of library with organization goals

- Ongoing monitoring of and response to customer needs

- Organization of collection

- Customer-friendly delivery of library services

- Development of partnerships to enhance library assets and services

- Evaluation of performance

- Marketing of library services and outreach to customers

Alignment and Integration of Library with Organization Goals

To be effective, a library must align itself with the strategic mission of its organization by tailoring its services to that organization's needs. The term *organizational alignment* refers to tailoring the library's activities to promote specific, enumerated organizational goals. Demonstrating the library's value to the organization requires the existence of a visible connection between those activities and goals. Alignment entails determining how the library fits into the organizational "big picture," and is an instrumental step to be incorporated into all library planning processes (Million et al. 2012).

One method to support ongoing examination of the library's organizational alignment is creating, and obtaining regular feedback from, a library advocacy group or steering committee. This group should include influential representatives from various divisions within the organization. At the Wisconsin DOT, for example, the Research and Library Advisory Committee has been focusing on strategic planning for the library and on making sure the library's activities are aligned with the overall mission, vision, and strategic plan of the entire organization (Sacco 2009). This approach assists the library in ensuring that

current issues important to the organization are brought to light, areas for improvement (both in terms of services and collection) are revealed, and evidence-based decisions can be made.

Another strategy to support organizational alignment is embedded librarianship—that is, embedding librarians within research teams. Librarians who take an active role in research projects become better informed about the various issues important to the organization (Shumaker 2009), and are able to apply those insights to collection development decisions. The concept of embedded librarianship is more fully explored later in this chapter, in the section titled *Customer-friendly Delivery of Library Services*.

Ongoing Monitoring of and Response to Customer Needs

Regular assessment of users' needs is necessary to effectively manage collection development activities as well as offer appropriate library services. These assessments can be accomplished through surveys, interviews, focus groups, and other methods of obtaining data from core users to examine such factors as awareness of library services, satisfaction with services, and areas that need improvement. When surveys are used, it is important to be mindful of three issues:

- There is a difference between informal and scientific surveys; informal surveys equate to a straw poll, while scientific surveys gather information from a group that is representative of a larger whole.

- Not all surveys produce accurate results.

- Surveys are only as effective as the process that is used to gather data (Million et al. 2012).

Additionally, it is a good idea to consult with a group of potential participants in order to get their feedback on the survey's viability. Also, any staff or groups within the organization that have experience with survey research—such as marketing or market research—should be sought out as potential resources for the project (Million et al. 2012). Following are two examples of efforts by special libraries to assess their users' needs.

- The Minnesota DOT (MnDOT) Library has received a number of awards for efforts to better serve its customers, including redesign of its space and updating of its resources, and the corollary outreach efforts to make people aware of the changes and resulting improvements in service. Most recently, the MnDOT Library was recognized for its extensive valuation and return on investment study, which included interviews with nationally recognized experts on academic library valuation and a survey on library services conducted with MnDOT staff who were users of the library. Survey results were synthesized with the library's monthly statistical and narrative reports to provide insights on customer areas of inquiry; books and articles requested by employees via interlibrary loan; customer perceptions and suggestions, and several areas of improvement were identified, including the need for much more outreach as well as instructional videos on library services. Survey findings revealed that library users save time, save money, and receive more complete and reliable information than they could find on their

own (Minnesota Department of Transportation 2014). Additional information on the MnDOT survey and findings is provided in the Appendix.

- An example of value creation and user assessment in a corporate library is the Novartis Knowledge Center's (NKC) repositioning of itself from a traditional, localized physical library facility that was inherited from a purchased company to an electronic resource center that provides scientific, technical, medical, and business information resources and services. These services are accessible online, 24/7, to the Novartis organization worldwide.

Novartis is a global company offering a wide range of healthcare products. The repositioning of its NKC took place over an eight-year period beginning in 2002. A particularly significant step was taken in 2007, when NKC initiated a project called Value Assessment Library Use Efficiency (VALUE) to demonstrate how it supports the corporate decision-making process and is a value center rather than a cost center. The project included a variety of efforts, including creation of a baseline measure of customer use of NKC's resources and services, and implementation of an extensive information needs assessment and customer satisfaction study. NKC staff involved firsthand in the VALUE project authored an informative article discussing the project in depth, including the methodology for determining quantitative measures used to evaluate its success, as well as their perception of critical success factors (He et al. 2011).

Organization of Collection

The library collection should be organized based on the needs of the users; one example is to organize the collection in a way that caters to varying levels of users' experience, from novice to expert searcher. Ongoing assessments of users' needs can help steer appropriate collection organization. These assessments can be accomplished through surveys, interviews, and other methods of obtaining data from core users. Tracking of user requests can also help identify needed changes in organization of the library's collection.

The collection should also be able to accommodate users' requests within a reasonable timeframe, either through local collection materials or materials easily obtained through partnership or interlibrary loan. Ongoing relationships with project teams and key stakeholders will help the librarian's efforts to stay on top of trends and anticipate the needs of the organization. With that information, collection decisions can be made that will speed turnaround times on requests and contribute to the success of a project. (Ard 2012).

While the library collection's content and composition are topics outside the scope of the literature search, the survey of DOT libraries did include a question about the make-up of the library's collection, in order to make comparisons with the make-up of the ADOT Library's collection. This information will be discussed later in the chapter, in the section titled *Survey of DOT Libraries.*

Customer-friendly Delivery of Library Services

Nearly all libraries offer the same baseline services to their users: borrowing of materials, interlibrary loan, reference services, and access to digital resources. However, today's knowledge environment also

demands immediate access to information and resources, and a responsive library will offer services at the point of customer need to ensure convenient access to and timely delivery of relevant information. These services can take many forms, such as reference chat (instant messenger reference services), table of contents alerts (e-mail listing of newly published articles of particular interest), journal routing (delivery lists for routing specific journals obtained by the library to those in related work groups), and content management (such as web maintenance and digital content curation).

Embedded librarianship is another form of service that is currently gaining significant momentum. According to Carlson and Kneale (2011), "The idea behind the embedded librarianship model is to enable librarians to demonstrate their expertise as information specialists and to apply this expertise in ways that will have a direct and deep impact on the research, teaching, or other work being done." An embedded librarian works directly with a research team that needs the librarian's information expertise. The librarian is considered a part of the project team, taking on responsibilities and functioning as a researcher like a typical team member would. As the relationship develops, the librarian's knowledge and understanding of the group's work and objectives grow, which in turn lead to greater alertness to the group's information and knowledge needs. The librarian becomes just as engaged in the project as any other team member (Shumaker 2012).

Successful embedded librarians have strong knowledge of their customers' work, and they deliver highly sophisticated, value-added services (Shumaker 2009). For example, many reference requests result in a tremendous amount of information being given to the requestor, who is then left to sift through it all to find relevant and helpful information. This practice is often referred to as a *data dump*. One of the most underappreciated qualities of librarians is their ability to discern valuable, scholarly, and timely material. As a value-added service, librarians can sift through the information and offer suggestions on the best resources. Based on the needs of the requestor, this type of service can be provided on many levels and offer such value-added results as the following:

- Literature search – "A well thought-out and organized search for all the literature published on a topic"

- Literature search summary – "A brief description of ongoing research and published works on a specific topic, the purpose of which is to document previous and current work such that new work can build upon it rather than duplicating it"

- Literature review summary – "The process of reading, analyzing, evaluating, and summarizing materials collected as the result of a literature search about a specific topic"

- Annotated bibliography – "A list of citations or works, usually on a single topic with a brief summary or analysis for each entry"

- Synthesis – "A report on current knowledge and practice, in a compact format . . . provides a compendium of the best knowledge available on those measures found to be the most successful in resolving specific problems" (Shumaker 2009).

Shumaker and Talley (2009) undertook an 18-month study to identify successful embedded library programs. Their key findings on the practices of effective embedded librarians include the following:

- Collaborated with, or contributed to, the customer's work

- Met more than once with a few regular customers to discuss information needs and present results to them

- Provided training on information resources or information management tools away from library facilities, such as in a customer's office, a conference room, or classroom

- Met (in person or virtually) with senior members (e.g., executives, managers, supervisors) of the customer to discuss information-related needs and services

- Attended a meeting, class, or conference devoted to the customer's area of expertise (not oriented to librarians)

- Attended customer meetings to learn about its work and information needs

- Collaborated on or contributed to a customer's electronic communications and/or collaborative workspaces, such as e-mail, wikis, and blogs.

Development of Partnerships to Enhance Library Assets and Services

Cooperating partnerships with organizations can be highly advantageous for special libraries, particularly small ones. It is almost impossible for a library to operate solely on its own because very few libraries can acquire all the relevant items that been written or developed in a particular subject area. Consequently, most libraries have a cooperative borrowing relationship with other local libraries or with other libraries serving a similar population. Examples of such relationships include public and academic libraries using interlibrary loan services.

Several consortiums exist among transportation libraries. The National Transportation Library (NTL) of the US Department of Transportation created three regional transportation knowledge networks (TKNs) to help facilitate access to information in support of transportation development. The NTL website describes the purpose and benefits of TKNs as follows:

"When a transportation library belongs to a sharing network, more people find the information they need, loan requests are distributed more evenly across multiple libraries, and all libraries involved realize increased collection use. Increased resource sharing through formalized library-to-library sharing arrangements is one reason that regional transportation knowledge networks (TKNs) formed. The NTL and leaders of the regional TKNs seek to elevate the state of the practice of resource sharing through automated software, documented procedures, and more formalized communication among participants."

Together, the TKNs include approximately 50 transportation libraries and information centers nationwide. Each of the TKNs—Eastern, Midwest, and Western—sets its own goals based on member

needs. Their first nationwide project, the National TKN Resource Sharing Pilot Project study, was conducted from 2008 to 2010 with grant funding from the Transportation Pooled Fund (TPF) Program, and was aimed at determining "whether benefits are actually accrued to TKN member libraries from resource sharing, which presumably enhances their provision of the information needed by their clientele in a timely, efficient and cost-effective manner." The study findings indicated that resource sharing was of value to TKN libraries, and that the number of TKN member libraries using the standard resource-sharing tool increased as a result of the project (Wilson 2010).

The second TPF-funded study, TPF-5(237), ran from 2010 to 2015, with a final membership of 23 state DOTs, including ADOT, and three university transportation center (UTC) libraries. Its goal was to explore the effectiveness of using the pooled fund program as a funding mechanism to establish and operate a functional library consortium that would benefit the members. Seven specific study objectives were established, the first of which was to "provide technical guidance to members, focused on smaller libraries that are served by only one librarian, while emphasizing an increased reliance on self-sustaining networks."

Evaluation of Performance

Like any other organization units, special libraries are expected to show their value to their organization—that is, how they help the organization achieve its goals. Special libraries often provide highly specific and individualized client services. Tracking and accounting for those services, such as through the use of electronic log entries by library staff, is a way to continually quantify and analyze results. Also, offering each client the opportunity to comment as the service is performed may be an excellent way to evaluate services. Building evaluation into the "reference interview" process and into all written, verbal, and electronic forms of communication provides evaluation information that is integrated with the service (Powers 1995). The reference interview is a conversation between a librarian and a library user, either in person or virtually, whereby the librarian determines the user's information needs via a series of probing questions. This process enables the librarian to identify the most appropriate materials to satisfy the user's information needs and direct the user to those resources.

Tracking user requests for information can assist not only with measuring the library's effectiveness, but also with creating service efficiencies and improving performance. For example, reference-tracking software can store information requests and responses, which librarians can search to determine whether a current information request is one that has been previously answered—thereby eliminating duplicated work and shortening response time.

When evaluating the performance of a library, several traditional quantitative measurements are widely accepted as metrics to gauge a library's effectiveness. These include circulation, reference inquiries (quick/ready reference – less than 15 minutes; detailed reference – longer than 15 minutes) and gate count statistics (number of users physically making use of the library). A simple matrix used by the Midwest TKN is shown in Figure 10.

MTKN Performance Measures Matrix						
MTKN Libraries	**ILL--In**	**ILL--Out**	**Copy Cataloging**	**Original Cataloging**	**Circulation**	**Reference**
Iowa DOT Library						
Hanson Engineering						
Illinois DOT Library						
Kansas DOT Library						
Michigan DOT Library						
Minnesota DOT Library						
Missouri DOT Library						
Northwestern University Library						
PCA Library						
University of Michigan						
Wisconsin DOT Library						
Wiss, Janney						

Figure 10. Midwest Transportation Knowledge Network
Performance Measures Matrix (Sacco 2009)

As technology has changed the library environment, customer expectations of libraries have also changed. Libraries today are expected to:

- Anticipate and meet the digital information needs of customers

- Share information in a way that matches contemporary information consumption, providing access anytime and anyplace

- Provide access to and help in using technology that facilitates sharing information with others inside and outside the organization (Webbmedia Group 2012)

Consequently, evaluative metrics have also evolved to address the accessibility and usage of digital resources. The ways in which they are used and their frequency of use can be informative measures of a library's success in making digital information accessible. In addition, database vendor statistics—obtained from vendors that supply access to paid subscription content—can be invaluable in determining users' areas of interest. The information derived from these metrics can help drive collection development and assist the librarian in developing strategies to promote access. Table 15 presents a variety of metrics that libraries typically track to assess the usefulness of their online digital content (Webbmedia Group 2012).

Table 15. Metrics Concerning Use of Digital Resources

Metric	What to Measure
Usage of downloadable media	• Number of downloads • Turnover of downloadable media
Online research	• Number of times databases are accessed (inside a library or remotely) • Time spent on databases • Turnover
Digital collections	• Total visits • Unique visits • Page views • Bounce rate • Turnover (total collection number/total views • Time spent with digital collections
Website usage	• Total visits • Unique visits • Page views • Bounce rate • Content reports: trending content, entrance paths, exit paths • Time spent on site • Inbound links • Inbound links from search • Other traditional web metrics
Catalog search	• Category distribution • What users are searching or • Number of visits to catalog • Number of holds placed online

Library directors can use these metrics to make comparisons between their library and others similar in size, population served, budget, collection, or any combination of these or other factors. These comparisons of performance measures, referred to as benchmarking, can provide persuasive quantitative data for advocacy, reports to elected officials, fundraising, grant applications, and other uses. For example, benchmarks that show a library as understaffed compared to its peers can help build a case for additional personnel (Ivy Library 2014).

However, the effort to benchmark library performance has a number of limitations:

- There are few established quantitative standards defining success for libraries. Two generally accepted benchmarks are associated with library expenditures:

  o Expenditures for library materials should make up at least 12 percent of the budget.

- o Expenditures for personnel should make up 60 to 70 percent of the budget.

- Numerous opportunities exist for data entry errors, by library staff as well as the databases providing access to the figures.

- Some figures, like the number of items in the collection, need complementary qualitative data to be meaningful. The number of items doesn't reflect the age, relevance, or other attributes that fully describe the quality of the collection.

- Some statistics have hidden "cause-and-effect" attributes that may not be recognized immediately. For example, libraries with short loan periods tend to have more renewals than peer libraries with longer loan periods, thus producing higher circulation figures for the libraries with short loan periods.

- The performance measures tend to focus on transactions and outputs, but the actual changes in user behavior that libraries create are the most convincing measure of library success. These changes are more difficult to document and are typically done for specific projects or grants as opposed to overall library operations, such as measuring the impact of a corporate library's training session for employees on the use of specialized databases (Ivy Library 2014).

Libraries are more than simply transactions and gate counts, however, and performances measures alone are insufficient to assess a library's performance. A comprehensive assessment should use benchmarking in combination with qualitative data, such as customer feedback and surveys. While it can be more difficult to measure the less tangible (i.e., qualitative) impact that the library has on an organization, it is important to make this effort.

The performance evaluation process allows librarians to gather data and draw conclusions about the overall success or impact of library services. Tracking library activities provides senior management, such as chief executive officers, managers, and other decision makers, data that provide a clearer picture of the daily functioning of the library, its impact on the organization, and the overall value of library services (Sacco 2009).

Effective libraries poll their users regularly about satisfaction with the library's services; even simple metrics on satisfaction will assist the library in determining how to redirect resources to address high-use areas as well as areas that need improvement.

Many libraries have taken the Balanced Scorecard (BSC) approach to determine their value and communicate that value to other sectors of the organization, including the administration. The Balanced Scorecard concept—introduced in a Harvard Business Review article and subsequently extended to apply to nonprofit and public sector entities (Kaplan and Norton 1992; Kaplan 2010)—suggests that organizations need to evaluate their performance on the basis of several factors besides simple financial measures like expenditures and operating expense ratios. This premise is particularly applicable to nonprofit and public sector organizations, where a particular mission or social impact is the primary objective, rather than financial success. Thus the BSC approach, as seen in Figure 11, integrates the

measurement of intangible assets into the organization's management systems for measuring performance by supplementing traditional financial measures of organization performance with criteria that measure performance from three additional perspectives—those of customers, internal businesses processes, and learning and growth.

The underlying premise of the balanced scorecard is that it forces organizations to look at all four areas together when engaging in strategic planning and budgeting processes, which helps managers rethink programs and initiatives that compete with one another for resources. For example, a library can use the balanced scorecard approach to make such improvements as becoming more customer focused, shortening response times, improving the quality of the collection, and developing new services—all of which positively impact all four areas (Matarazzo and Pearlstein 2013).
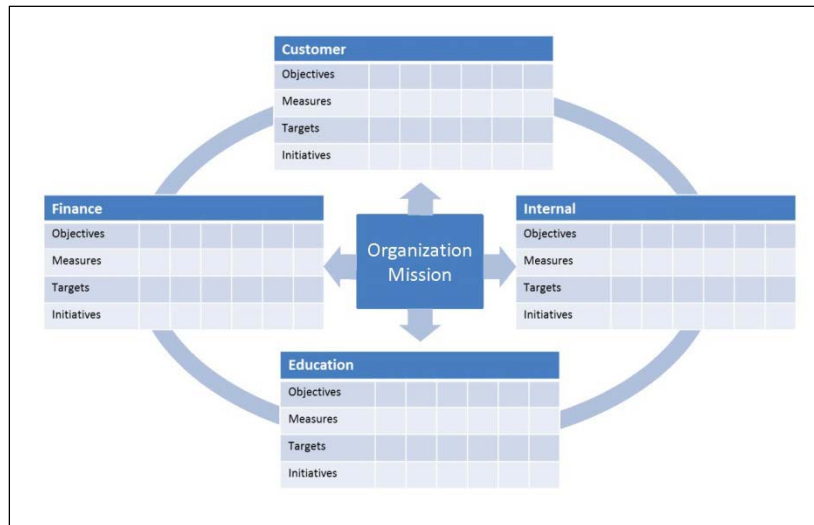
Figure 11. Balanced Scorecard Approach to Demonstrating Value

Marketing of Library Services and Outreach to Customers

Successful special libraries, whether located in profit or nonprofit organizations, increase organizational opportunities by discovering and delivering information that is both relevant and essential. The strategic positioning of a special library within its parent organization begins with development and implementation of a formal, integrated, strategic marketing plan that:

- Communicates the image, philosophy, and mission of the library within the organizational culture
- Integrates library services and functions with organizational goals and objectives
- Outlines strategies to be used by the library to positively influence the behavior and performance of the organization, such as innovative ways of communicating information and assisting in the use of that information

Implementing an integrated strategic marketing planning process within the special library environment helps the library focus on organizational strategic thinking and planning. It also offers the opportunity to develop more effective library services, which may lead to overall improved organizational decision making (Powers 1995).

As discussed earlier with regard to organizational alignment, feedback from a library advocacy group or committee can help keep the library staff up-to-date on current issues of importance to the organization and to specific work groups or other organization units. In developing plans aimed at increasing awareness of the library, its services, and its collections, the librarian can call upon this committee for information on opportunities within different organization units to promote library services, such as a unit's needs for training, reference assistance, literature searches, alerts, or synthesis reports. Leveraging opportunities like these can translate to additional high-value outcomes, the product of staff members' word-of-mouth communication about the positive outcomes they experienced.

Definition of Effective Libraries

Based on the literature search, survey of DOT libraries, discussions with DOT librarians and library directors, and the research team's expertise in this area, the following working definition for library effectiveness was developed.

Effective special libraries:

- Offer collections and services that combine to meet the information needs of their intended customer populations, while saving the parent organization time and money

- Function as integrated team members at the customer, project, and organizational levels

- Provides both core and value-added services that are well integrated with the parent organization's mission as well as the daily activities that contribute to achieving that mission.

SURVEY OF DOT LIBRARIES

Background and Objectives

To supplement the information obtained through the literature review, most of which pertained to special libraries generally rather than specifically to transportation libraries, qualitative research was conducted among state DOTs. Eight state DOT libraries considered to be leaders in effective customer service and marketing practices were contacted and asked to complete a brief online survey regarding their library's practices. The survey examined practices specific to the unique circumstances of governmental agency libraries, particularly DOT libraries, and the ways in which these libraries identify and meet the needs of their internal customers through library services and collection development.

Designed to provide ADOT with a fuller understanding of practices employed by DOT libraries similar to ADOT in staffing, size, and scope of services, the survey examined the following broad areas:

- Resources: annual budgets and staffing levels

- Identification of collection development needs, both subject matter and preferred format

- Integrated library systems and other information management and discovery technology

- Marketing and outreach practices

- Levels of integration of library services with other departmental units and the DOT as a whole

The overall goal of the survey was to provide ADOT with relevant information to aid in answering the following questions aimed at determining how the Library can most effectively leverage resources to meet employees' information needs:

- How do the ADOT Library's services and collection compare with peer libraries?

- What improvements or additional services can the ADOT Library offer to enhance its level of service to employees?

- Could the ADOT Library be better integrated within the research department and ADOT as a whole?

- What technology enhancements would facilitate such improvements?

- How can the ADOT Library most effectively market its services and resources to ADOT employees?

Methodology

Because library services were the focus of the survey, emphasis was placed on identifying and inviting survey participants from libraries sharing similar characteristics and placement within their departments, as well as characteristics similar or applicable to the ADOT Library. Members of the research team had extensive knowledge about state DOT libraries nationwide, as well as firsthand experience in working with many. Utilizing this knowledge, the researchers selected eight DOT libraries to invite to participate—Iowa, Louisiana, Minnesota, New Mexico, New York, Oregon, Virginia, and Wisconsin—based on the following characteristics:

- Staffing levels – The majority of the participating libraries have fewer than two full-time professional librarians, including one library that utilizes occasional interns as paraprofessional library staff. One library has four full-time professional librarians and one full-time and one part-time paraprofessional library staff. In this context, a professional librarian refers to an individual holding a master's degree in library science (MLS) or in library and information science (MLIS) from an accredited university. Paraprofessional library workers are staff that perform specialized library work in support of the services and responsibilities of the professional library staff.

- Physical size – All the participating libraries had previously been visited by members of the research team and were known to be comparable to the ADOT Library facility in physical size. This characteristic is important because the libraries are housed within their DOT headquarters, and internal discussions of these libraries' value to their organizations would likely take into account the use and configuration of the space with regard to current physical and digital hybrid library models.

- Use of commercially available ILS (integrated library system) – Six of the eight libraries use a commercial ILS, as opposed to a homegrown inventory and retrieval system. Another (Iowa) uses an open-source system, and the remaining library (Louisiana) uses a free online cataloging and retrieval application.

- Similar basic services – Each of the libraries provides a set of basic services such as reference and research services, literature searches, interlibrary loan and document delivery, collection development, maintenance of online subscriptions, and technical work such as cataloging and maintaining the ILS.

- Marketing and outreach – Each of the libraries engages in several forms of communication with its customer base to raise awareness of the library services provided.

- Collection size – This characteristic was expected to vary considerably among the invited survey participants and was not a primary factor in their selection; the information here was provided by the seven libraries participating in the survey (Virginia did not participate). The collection size among the respondents ranged from 9,500 to 40,000. One library (New Mexico) has fewer than 10,000 items; four libraries have between 10,000 and 20,000 items (Iowa, New York, Louisiana, and Oregon); and two have collections ranging from 21,000 to 40,000 items (Minnesota and Wisconsin). In comparison, Arizona DOT has nearly 30,000 items in its collection.

The survey was deployed from Monday, June 1, 2015, through Tuesday, June 9, 2015. The selected librarians were sent an e-mail requesting their participation; a follow-up e-mail reminder to complete the questionnaire was sent midway through the survey period. Seven of the eight invited DOTs participated—Iowa, Louisiana, Minnesota, New Mexico, New York, Oregon, and Wisconsin; Virginia did not respond. Before beginning the survey, participants were asked to provide permission for their responses to be shared: "I agree that my responses and identifying information may be used in the ADOT Library Needs Analysis final report. (The report is intended for internal use by ADOT)." All seven respondents agreed and completed the survey.

Although follow-up phone interviews with the respondents had originally been planned, a major national conference for special libraries was being held during this phase of the research, and the individuals completing the survey were unavailable for follow-up interviews. However, it was determined that the participants' survey responses were extensive and thorough, and no additional clarifications or explanations were needed.

Survey Topics

Resources (Budget, staff, cooperative libraries and networks)

The purpose of this group of questions was to uncover the status of peer library resources in the areas of staffing, budget, and cooperative networking at all levels (national, state, regional, and local). The goal was to discover how similarly staffed and resourced libraries are leveraging available resources to the advantage of their customers and departments.

Question: Does your library have an annual budget? If yes, please list the last three years' budget amounts. If you answered NO, please explain your purchasing practices and provide the last three years' expenditures (if available).

The seven participants provided the following budget and expenditure information:

- Four of the seven respondents have annual budgets; two of those have only had designated library budgets for the last two years. The four respondents report budgets that vary widely, from $10,000 to $500,000 annually.

- The three libraries without designated budgets purchase resources from the unit in which they reside in the organizational structure. Their annual expenditures (two of the three provided this information) ranged from $50,000 to $105,000.

The ADOT Library does not have an established annual operating budget, nor is there a formal Research Center budgetary process by which funds are annually appropriated or earmarked for library operations. Additionally, there is no formal budget request process to inform planning regarding anticipated expenditures, and no formal process to review and examine actual expenditures for the purpose of identifying short-and long-term investment needs, such as expansion and/or improvements in collection development, customer services, marketing and outreach, and technology upgrades or purchases.

Observations

Dedicated library budgets are still not standard practice in DOT libraries. Many libraries are unaware of their spending limits, and simply make requests to purchase resources without knowing whether the requests will be approved or not. Two respondents reported that they have had dedicated budgets for only the last two years.

- "When I have a need or request from a patron, I ask permission to purchase and 99% of the time the purchase is approved." (Louisiana DOTD)

- "The 2013–2015 biennium was the first time that the library budget was separated out from the larger group budget." (Oregon DOT)

Question: How many staff members does your library have?

A key purpose of this question was to establish that staffing levels similar to those of the ADOT Library are commonplace among DOT libraries.

- All seven respondents' libraries have at least one professional librarian.

- The majority, five of seven, are solo librarians with no designated, permanent staff support.

Population served

Questions: What is the size of the internal staff population your library serves? (We are primarily concerned with DOT staff, not the public.) How many patrons do you serve per year?

An average for the past three years was requested. Not all respondents were able to produce these figures. Three of seven respondents provided the following approximate customer population (internal DOT staff) figures:

- 5,000 DOT workforce, 8,626 customers served (Minnesota)—*Customers served* refers to the combination of internal DOT staff and members of the general public who have been served by the library, with the former (DOT workforce) being the largest customer base.

- 3,400 approximate (Wisconsin)

- 2,200 (New Mexico)

Cooperative Relationships

Cooperative library networks are another type of resource that libraries typically leverage to increase access to resources and expand services for their customers. These networks may be local, statewide, regional, or national. They may be formal consortia with membership fees, but informal, no-cost network arrangements are also common. Typically, the benefits of membership include access to databases and professional education opportunities at a reduced cost, and access to other libraries' collections through formal and informal borrowing and lending networks.

Questions: Do you have cooperative relationships with other libraries or groups [e.g., state library, university, FHWA's Transportation Pooled Fund Program, TKN, other consortium(s)]? What services do these cooperative libraries and groups provide?

- All seven respondents are leveraging cooperative relationships to increase access to resources for their customers, including membership in the Transportation Library Connectivity and Development Pooled Fund Study, the only national transportation library consortium currently in existence. This consortium is a project funded through the Federal Highway Administration pooled fund program, and member states use State Planning and Research (SPR) funds to participate.

- All are active members of their regional Transportation Knowledge Network (TKN) in their AASHTO region.

- All respondents are members of the Special Libraries Association (SLA) Transportation Division (DTRAN), a national professional association with formal communication and interlibrary loan networks.

- All respondents but one (New York) have relationships with their local university or universities.

- All respondents but one (Louisiana) have cooperative relationships with their state library.

Observations

All respondents are leveraging low-cost and free opportunities to increase access to resources, such as borrowing and low-cost subscriptions available through national, state, regional, and local networks. The ADOT Library is a member of the Transportation Library Connectivity and Development Pooled Fund Study, the WTKN, and Amigos Library Services (a membership-based organization providing consulting and education services and purchasing discounts on electronic databases, software, and supplies for libraries), and maintains a relationship with the Arizona State Library to fulfill depository requirements and to enhance professional development and resource sharing.

Collection and Services

The key purpose of this set of questions was to enrich ADOT's understanding of similarities among peer transportation libraries regarding collection scope trends in physical versus digital format.

Question: What is the current status of your collection and services in terms of digital vs. physical resources (estimated %)?

- All respondents indicated that the majority of their collection, between 60 and 95%, consists of physical resources, with the remainder being accessed electronically.

- Service delivery and use are primarily digital.

Question: What factors are driving your decisions to provide access to services and resources physically and/or digitally?

Observations

DOT librarians are well aware of the increased demand for access to information in digital formats, evidenced by use of online collection resources and delivery of requested information. Customer needs and requests are the primary drivers encouraging libraries to pursue digital collection development and service delivery. The availability of digital resources expands customer access to resources statewide. For example, materials can be accessed directly from each district office on the DOT's network, or can be requested and quickly delivered by e-mail if the request is for "born digital" materials (items created

and managed in digital form). Inhibiting factors in digital collection and services are lack of time and staff to digitize physical items, as well as limited availability of materials in digital format.

- "Requests for resources and information from NYSDOT employees receive top priority. Responses to requests are measured by quality of information, timeliness, and ease of access. More and more frequently this results in a digitized resource."

- "Collection: we want to move toward a majority-digital collection to improve access for all Iowa DOT employees at our more than 100 offices and garages across the state. Services: again, agency is widely distributed across state."

- "Lack of staff time/lack of staff to digitize is the main roadblock to delivering services and resources digitally. Driving the continual effort to digitize are customer demands for electronic document delivery in almost all cases."

- "Customers in other buildings and spread throughout the state. I can send items electronically so that they have them in hand very quickly."

Technology

Library technology refers to the systems used to manage the physical and digital collections, as well as the software and applications used to facilitate discovery of resources both inside and outside the collection. This technology may be purchased outright, licensed, or accessed through paid subscriptions. There are many commercially available options, as well as an increasing number of open source options. However, the commercial library systems dominate, and some excellent products are in use in transportation libraries.

Question: What Integrated Library System (ILS) do you use in your library? Please provide the version and modules in use.

- Six of the eight selected libraries use a commercial ILS, as opposed to a homegrown inventory and retrieval system.

- Three respondents are using EOS products (Wisconsin, Oregon, New York), and one is considering purchasing EOS in the future (Louisiana).

- One respondent is using ExLibris Aleph (Minnesota).

- One respondent is using Softlink (New Mexico).

- One respondent uses an open source system, Koha, through the state library (Iowa).

- One respondent uses a free online cataloging and retrieval application (Louisiana).

- Of those who provided information regarding modules in use, three reported using ILS modules to effectively manage library workflow: Serials, cataloging, circulation, Z39.50, WebOPAC, Reference Tracking, Acquisitions and Patron Reports Services are in use.

Question: Is your catalog a stand-alone or do share your catalog with other libraries (i.e., university, state library, consortium)?

- Five of the seven respondents reported having stand-alone systems, meaning that their library or department has purchased the ILS for its sole use. Two respondents are part of a group catalog, a situation where a large entity purchases the system with a license to have sub-users or additional users, with one large searchable catalog and sub-catalogs.

- Specifically, respondents' group catalogs were Wisconsin's EOS WebExpress and Iowa's Koha system, which is through the State Library of Iowa and the State Law Library.

Question: Does your ILS include mobile access for tablets and smart phones?

- Six of the seven respondents reported that their ILS includes mobile access on customers' tablets and smartphones to information within the system.

- All the ILSs in use, except for Softlink, are mobile enabled.

Observations

Today's workforce demands mobile access to information. It is particularly vital for a decentralized workforce, and therefore highly applicable to the day-to-day functioning and structural organization of DOTs. The libraries participating in the survey have responded to this need by enabling their offsite workforce to use their mobile devices out in the field to access needed information available through the library's catalog. Mobile technology in use in many DOTs includes smart phones, tablets and e-readers.

Question: Does your ILS use a web-scale discovery service?

Web-scale discovery services are tools that search seamlessly across a wide range of local and remote content with the goal of providing a single point of entry into a library's collections. Web-scale discovery allows researchers to search deeply within the library's holding—physical and digital, local and remote—to locate most relevant information available to them in their work. A single user interface allows the researcher to simultaneously search any combination of available sources, such as the library's catalog and licensed digital content.

- None of the respondents are using web-scale discovery services with their ILS.

Collection

Participants were asked about the size and makeup of their collections. Ideally the collection will reflect the critical focus areas of the department. Librarians will often detect shifts in these areas due to their familiarity with customer inquiries, and can uncover needs through surveying customers.

Question: How many items do you have in your collection?

The range of collection size among the seven survey respondents was 9,500 to 40,000. In comparison, the ADOT Library has nearly 30,000 books, magazines, and electronic publications. The survey participants' collection sizes of were reported as follows:

- One library has fewer than 10,000 items (New Mexico).

- Four libraries have between 10,000 and 20,000 items (Iowa, New York, Louisiana, Oregon).

- Two have 21,000 to 40,000 items in their collection (Minnesota and Wisconsin).

Question: Does your library have an official collection development policy?

- Three of the seven participating libraries have written policies in place.

- User satisfaction surveys are not a regular practice; only one respondent (New Mexico) surveys its customers regularly.

- Librarian assessments of collection needs are based on:

    o Circulation, reference, and research statistics

    o Customer interactions

    o Collection development priorities shift in response to projects and research goals

Respondents provided the approximate percentages of subject representation and types of materials that make up their collections. Based on their experience with transportation libraries, the researchers knew that the makeup of their collections is similar among the DOTs, and that approximately 90% of their collections is crossover material (widely duplicated elsewhere), and 10% is unique to the individual DOT, often consisting of state-specific historical materials or geographically significant resources.

Question: What percentages of your collection fall into the following categories? (approximately)

- Technical reports: Average = 27%

- Research materials (science, technical): Average = 22%

- AASHTO, TRB: Average = 37%

- Development, leadership, management: Average = 5%

- Test preparation: Average = 3%

- Other: journals, automotive medicine, police science planning documents, state specific historical (photos, documents), state department of public works documents, misc.

    o IADOT – no answer; LADOT – no answer; MnDOT – 5% journals, 10% misc.; NMDOT – no answer; NYSDOT – NYS historic Dept. of Public Works, these are very rough estimates; ORDOT – 15% History Center collection (photos, documents); WisDOT – 19% automotive medicine, police science, comprehensive planning documents

Marketing and Outreach

Respondents were asked about the existence of a formal marketing plan for their library, and the ways in which they communicate with their customer base about available library services and resources.

Question: Do you have a formal marketing and outreach plan for the DOT library?

- New York was the only library with a formal marketing and outreach policy, which includes a presentation at new-hire orientation, promotion of resources (subscriptions and/or trials), a newsletter, and announcements on the agency intranet. However, all seven respondents engage in outreach and marketing activities in their departments.

Question: What forms of communications do you regularly employ to raise awareness of the DOT library?

All seven respondents provided information on their marketing and outreach activities, as follows:

- Table of contents alerts (2)

- Events in the library (4)

- Presentations (5)

- New-hire orientation (4)

- Promotion of resources and trial subscriptions (3)

- Newsletters (4)

Integration of Library Services

Participants were asked about the level of integration among the library, organization units, and the overall department. Integrated library services within DOTs helps direct the library toward organizational strategic thinking and planning, and avails researchers of critical information needed in the pursuit of high-impact, costly research with the goal of improved organizational decision making.

Question: In your opinion, to what extent are the services of the library integrated into the departmental and/or unit functions?

The open-ended responses show the range and scope of informal integration:

- "I think pretty well, because we regularly supply information to employees throughout MnDOT, especially those in the technical/professional areas." (Minnesota)

- "Library literature reviews are integrated with as a part of our research program project process; in-depth reference and informational white papers are a part of higher-level management requests; document delivery of full-text standards and peer-reviewed journal articles are integral for background knowledge base building and testing information for both our main highway/structures division and our state patrol chemistry testing section." (Wisconsin)

- "The library plays an important role in providing ILL and other information retrieval services to the immediate research bureau. Librarian addresses most all of the literature search requests (quite difficult and time consuming for a 1-person library). The library plays a role across the department by providing materials to many users. There is certainly room for improvement." (New Mexico)

- "Much more so since I shifted to the Research Unit a couple of years ago. I serve them and their customers in a way I didn't before. I am also used for public requests to our Communications folks, and the Public Info. officers often come to me. Part of it has been an ongoing attempt to reach out to folks - as I help one person, they refer others to me." (Oregon)

- "To a great extent at my location (Louisiana DOTD). To a very little extent to DOTD as a whole." (Louisiana)

- "Regular reporting of activities and meetings with management in the Office of Technical Services, Department of Engineering; collection development supports all functions of NYSDOT. Strong intranet presence." (New York)

- "The Iowa DOT Library is highly integrated into the Iowa DOT Office of Research and Analytics. The Library performs initial literature searches on all research requests for funding to determine whether a project should be funded as written. The Library handles all federally mandated technology transfer obligations for final research reports. We also assist researchers during projects by locating information as requested." (Iowa)

Observations

The level of integration varies widely from location-specific, to unit-specific, to department-wide. Although a closer look and more investigation is needed, members of the research team are interested in a possible correlation between effective communication and outreach in marketing the libraries' services and resources and the level of integration of library services in DOT critical functions.

Question: Is there an embedded librarian program or practice at your DOT?

While the concept is frequently discussed in the DOT library community, none of the respondents have embedded librarians in any unit or teams in their DOT. Embedded librarians are assigned at the start of a research project to be part of the process through discovery of information and knowledge that supports the desired project outcomes, rather than integrated as the need arises.

The remaining survey questions pertain to knowledge management and data curation. It has been established that while librarians have specialized skills that may be pertinent to those functions, KM and data functions are separate and distinct areas of responsibility within the ADOT organizational structure.

CHAPTER 5. CONCLUSIONS AND RECOMMENDATIONS

This chapter summarizes findings from this research and presents implementable recommendations based on those findings. Two sets of recommendations have been developed: (1) maintenance-driven recommendations that can be implemented to support the delivery of basic library services within budgetary and resource constraints; and (2) development-driven recommendations that support the planned growth of ADOT Library resources and services within a potentially less constrictive fiscal environment in the future.

SYNOPSIS OF KEY FINDINGS

This report has already presented a broad range of information obtained from a variety of sources. A brief synopsis follows of the effective practices already defined in this report, and the relevant study findings.

Alignment and Integration of the Library with Organizational Goals

To be effective, a library must align itself with the strategic mission of its organization by tailoring library services to the organization's needs. Two possible strategies for supporting a library's organizational alignment are to:

- Create a library advocacy group or steering committee to ensure that current issues important to the organization are identified and improvements are defined for services and collections so that evidence-based decisions can be made.

- Embed librarians within research teams to enhance the teams' awareness and knowledge of organizational priorities and to assist with the research process by, for example, contributing to literature searches.

The study found that the ADOT Library:

- Operates independently of an advisory or steering committee

- Does not embed a librarian within research teams

- Does not appear to be fully integrated into ADOT functions

- Operates in isolation from ADOT Research Center functions

Employee suggestions collected through a survey of ADOT staff included forming a library advisory board to guide library development. Such a board would help ensure that employees have access to the tools and technologies needed to perform their duties, aid their professional development, and foster ADOT-wide collaboration and innovation through information sharing.

Ongoing Monitoring and Response to Customer Needs

Regular assessment of users' needs is necessary to effectively manage collection development and to offer appropriate library services. These assessments can examine such factors as user awareness of library services, user satisfaction, and areas that need improvement.

The study found that the ADOT Library has no formal processes or mechanisms to periodically assess user needs. A survey of ADOT employees showed that a significant majority (63 percent) had never used the Library. Of those employees who had used the Library within the past two years, 58 percent were satisfied with the resources and services. Dissatisfied employees noted that the ADOT Library lacked such services as online and electronic access to materials. Various employees suggested numerous improvements, such as expanded access to specialized databases and improved customer service through outreach, training, and alerts.

Organization of the Library Collection

An effective practice for libraries is organizing collections based on customer needs. Regularly assessing user needs through surveys, interviews, and other data-collection methods can help steer appropriate collection organization. Tracking user requests can also help identify needed organizational changes to a library's collection.

This study found that the current ADOT Library collection holds roughly 30,000 items, with technical reports and research materials making up approximately 98 percent. A number of challenges with current ADOT Library collection development practices have impeded adoption of a proactive and customer-centered approach to meeting information needs. These challenges include the lack of formal standardized processes and procedures, inadequate tracking and reporting capabilities, and limitations in the systems and technologies currently in use. Additionally, the Library does not have a formal collection development policy.

The surveys of ADOT employees showed that 59 percent needed manuals, handbooks, and training or procedural guides More than half of all survey respondents reported use of general Internet searches (70 percent) and of such ADOT online tools as the ADOT Intranet and website, 58 percent and 54 percent respectively, to obtain the information they need for their jobs. These findings highlight the need to conduct periodic assessments to identify information and resource needs and to ensure that the organization of the library collection aptly reflects user-stated needs.

Customer-Friendly Delivery of Library Services

Nearly all libraries offer the same baseline services to their users: lending materials, interlibrary loan, reference assistance, and access to digital resources. However, today's knowledge environment also demands immediate access to information and resources, and a responsive library will offer services at the point of customer need to ensure convenient access to and timely delivery of relevant information.

The study revealed that limited investments have been made in technology systems or upgrades to improve Library services and operational efficiencies. The ADOT Library is not prominently featured on

the ADOT website homepage. Staff members have reported problems regarding ease of use, intuitiveness, and efficiency in finding collection materials. These concerns extended to website searches for ADOT research reports and the current inability to search by emphasis or focus areas. According to the employee surveys, 44 percent preferred accessing ADOT Library resources and services through some combination of a physical and online collection.

Development of Partnerships to Enhance Library Assets and Services

Cooperative partnerships with organizations can be highly advantageous for special libraries, particularly small ones. Few libraries can acquire all the relevant items in a particular subject area. Consequently, most libraries have a cooperative borrowing relationship with other local libraries or with other libraries serving a similar population. Interlibrary loan services between public and academic libraries are an example.

The ADOT Library has existing cooperative relationships that could possibly be used to provide employees access to basic library services during periods of budgetary constraints and resource limitations. The ADOT Library is a member of the Transportation Library Connectivity and Development Pooled Fund Study (recently completed), the Western Transportation Knowledge Network (WTKN), and Amigos Library Services (a membership-based organization providing consulting and education services and purchasing discounts on electronic databases, software, and supplies for libraries). Also the Library maintains a relationship with the Arizona State Library to fulfill depository requirements and enhance professional development and resource sharing. Benefits of ADOT's relationship with the State Library include ADOT employee access to the State Library database subscriptions, Arizona Memory Project (a digital repository curated by the State Library), and additional services, including free use of State Library training facilities.

Evaluation of Performance

When evaluating the performance of a library, several quantitative measurements are widely accepted as metrics to gauge a library's effectiveness. These include circulation, reference inquiries (quick/ready reference – less than 15 minutes; detailed reference – longer than 15 minutes), literature searches, interlibrary loan and document delivery statistics, and gate count statistics (number of users physically making use of the library). Libraries are, however, more than simply transactions and gate counts, and quantitative performances measures alone are insufficient to assess a library's performance. A comprehensive assessment should use benchmarking in combination with qualitative data, such as customer feedback and surveys. While it can be more difficult to measure the less tangible (i.e., qualitative) impact that the library has on an organization, it is important to make this effort.

The review of ADOT Library current practices and subsequent interviews with Research Center personnel revealed that the data collection tools used to document circulation statistics and utilization of library services do not provide the level of detail needed to inform purchasing decisions, making it difficult to synthesize the available data.

- The ADOT Library does not maintain reference request or subject area statistics that would enable tracking of subjects of interest to customers and that would illuminate gaps in the collection based on customers' information requests.

- ADOT has purchased few system upgrades to the Inmagic DB/Text Library Suite, a combined information management and Web-based integrated library system that was acquired in 1999. Typically, system upgrades are offered every two to three years to enable libraries to take advantage of the most recent advances in technology—e.g., by improving workflow efficiency, or by enhancing library management tools, such as the addition of a circulation module to better track usage of certain subject areas.

These findings highlight the need for ongoing assessments to ensure efficiency in library operations, and to ensure that customer needs forms the basis for the Library collection.

Marketing of Library Services and Outreach to Customers

The strategic positioning of a special library within its parent organization begins with implementing a formal marketing plan that: communicates the library's value within the organization's culture; aligns library functions with organizational objectives; and designs library strategies to positively influence the organization's performance, such as innovatively conveying information and assisting in using that information.

The study found that the ADOT Library does not have a systematic approach to educate ADOT employees about Library resources or services, to demonstrate how these resources and services can help employees perform their jobs, or to engage employees for input regarding their needs. While the Library has periodically tried to raise its visibility within ADOT, increase foot traffic, and promote usage, these efforts have been limited, and results have been negligible. As an example, one-third of the survey respondents reported little awareness of ADOT Library resources or services, and an additional 40 percent reported no awareness at all.

RECOMMENDATIONS

ADOT may consider the following recommendations as it seeks to address the extent of support to give Library operations now and in the future. Recommendations are classified as either *maintenance-driven* or *development-driven*.

Maintenance-Driven Recommendations

The maintenance-driven recommendations presented in Table 16 focus on fulfilling FHWA and state depository requirements, and by providing ADOT employees with access to the existing Library collection. These basic recommendations are short-term actions that could be implemented within the next year with existing ADOT resources and staff.

Table 16. Recommendations for Maintaining Basic Library Services

Recommendation	Area of Focus
Contract with private consultants to fill the ADOT Librarian position.	Resource utilization
Use ADOT Research Center staff to deliver basic library services.	Resource utilization
Provide essential functions that fulfill FHWA and state requirements .	Service delivery
Maintain cooperative relationships with other libraries and related organizations.	Service delivery
Identify opportunities for other library partners to help ADOT provide essential library services (interlibrary loans, shared access to specialized databases, reduced subscription fees, and use of a larger library or consortium ILS).	Service delivery
Use ADOT staff to inventory database and journal subscriptions held throughout ADOT to help consolidate subscriptions and convert to site-wide subscriptions or licenses.	Operations

Development-Driven Recommendations

Development-driven recommendations (Table 17) aim to build the ADOT Library of the future as a learning and information center that supports and advances department goals and priorities through information management, technology and knowledge transfer, and support for employee professional development.

These recommendations likely constitute mid-term and long-term implementation actions that depend on budgetary considerations and ADOT's strategic priorities. Mid-term actions may require one to three years to implement and may involve the participation of external partners or financial resources, while long-term actions are likely to require more than three years to implement and may require extensive cooperation and coordination with external partners.

Table 17. Recommendations for Enhancing Library Services

Recommendation	Area of Focus
Align the mission, goals, and objectives of the ADOT Library with ADOT goals and priorities.	Strategic alignment
Expand the librarian role to support ADOT research project functions.	Resource utilization
Include the librarian on ADOT project teams related to information management and technology and knowledge transfer.	Resource utilization
Assess customer needs and expectations, then align services and resources.	Service delivery
Raise awareness of the ADOT Library and inform customers of library services and resources.	Marketing
Regularly document and demonstrate the tangible and intangible benefits that the ADOT Library provides ADOT.	Valuation

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APPENDIX A
ARIZONA REVISED STATUTES 41-151.01 AND 41-151.08
AND ARIZONA ADMINISTRATIVE CODE TITLE 2, CHAPTER 3

As noted in Chapter 2, portions of the Arizona Revised Statutes and the Arizona Administrative Code (Title 2, Chapter 3) address the role and responsibilities of the Arizona State Library as the official archive of Arizona historical documents. The Statutes establish the authority of the Library and identify the subject matter that must be collected, while the rules in the Code govern overall Library policies and practices concerning public use, the archive depository program, and other operational matters. The relevant portions of the Statutes and Code are provided below.

Figure A-1. Arizona Revised Statutes – Title 41, Chapter 1, Article 2.1, Section 41-151.01

Figure A-2. Arizona Revised Statutes – Title 41, Chapter 1, Article 2.1, Section 41-151-08

TITLE 2. ADMINISTRATION

CHAPTER 3. ARIZONA STATE LIBRARY, ARCHIVES AND PUBLIC RECORDS

(Authority: A.R.S. § 41-1331 et seq.)

Editor's Note: The former rules in Title 2, Chapter 3 used the former Administrative Code numbering scheme. These rules are repealed by exempt rulemaking at 11 A.A.R. 3863, effective October 15, 2005 (Supp.05-3). New rules using the current Administrative Code numbering scheme were made by exempt rulemaking at 11 A.A.R. 3863, effective October 15, 2005. The former rules are on file in the Office of the Secretary of State (Supp. 05-3).

ARTICLE 1. RULEMAKING

Sections R2-3-01 through R2-3-03 repealed; new Section R2-3-101 made by exempt rulemaking at 11 A.A.R. 3863; effective October 15, 2005 (Supp. 05-3).

ARTICLE 2. GENERAL PROVISIONS

Sections R2-3-13 through R2-3-18 repealed; new Section R2-3-201 made by exempt rulemaking at 11 A.A.R. 3863; effective October 15, 2005 (Supp. 05-3).

ARTICLE 3. ACCESS AND USE OF MATERIALS

Sections R2-3-28 through R2-3-32 repealed; new Sections R2-3-301 through R2-3-305 made by exempt rulemaking at 11 A.A.R. 3863; effective October 15, 2005 (Supp. 05-3).

ARTICLE 4. RESTRICTING PUBLIC COMPUTER ACCESS TO VISUAL DEPICTIONS THAT ARE HARMFUL TO MINORS, OBSCENE OR PORNOGRAPHIC

Sections R2-3-42 through R2-3-46 repealed; new Section R2-3-401 made by exempt rulemaking at 11 A.A.R. 3863; effective October 15, 2005 (Supp. 05-3).

ARTICLE 5. STATE DOCUMENTS DEPOSITORY PROGRAM

Article 5, consisting of Sections R2-3-501 through R2-3-503, made by exempt rulemaking at 11 A.A.R. 3863; effective October 15, 2005 (Supp. 05-3).

ARTICLE 6. INTERLIBRARY LOAN AND STATE GRANTS-IN-AID

Article 6, consisting of Section R2-3-601, made by exempt rulemaking at 11 A.A.R. 3863; effective October 15, 2005 (Supp. 05-3).

ARTICLE 1. RULEMAKING

R2-3-101.   Rulemaking Procedures

A. The Arizona State Library, Archives and Public Records (Library and Archives) staff shall, with due diligence, research best practices relevant to the proposed rule.

B. The Library and Archives shall seek input from legislators, stakeholders, constituents, and the public on proposed rules.

C. The Library and Archives shall publish all rules in the Arizona Administrative Code and on its agency web site.

Historical Note
New Section made by exempt rulemaking at 11 A.A.R. 3863; effective October 15, 2005 (Supp. 05-3).

ARTICLE 2. GENERAL PROVISIONS

R2-3-201.   Patron Admission

A. The reading rooms and resources of the Arizona State Library, Archives and Public Records (Library and Archives) are available during regular hours to all persons, subject to appropriate, orderly conduct. Children under 12 may use rare materials only when accompanied by an adult or with permission of the Director. Groups of 12 or more are asked to schedule tours in advance.

B. Patrons may be required to check brief cases, containers, overcoats, or other bulky items with Library and Archives staff before entering reading rooms or public stacks. Patrons may bring items essential to their research into reading rooms and public stacks with the approval of Library and Archives staff. Any unchecked items are subject to reasonable inspection at any time.

C. No animals are allowed, except assistance animals.

D. Smoking, eating, drinking, sleeping, and disruptive behavior are not allowed.

E. Individuals violating these rules will be asked to leave. Individuals repeatedly violating these rules may be denied admission.

Historical Note
New Section made by exempt rulemaking at 11 A.A.R. 3863; effective October 15, 2005 (Supp. 05-3).

ARTICLE 3. ACCESS AND USE OF MATERIALS

R2-3-301.   Protection of the Materials

Access, circulation or loan, use, or copying of materials in any of the collections of the Arizona State Library, Archives and Public Records (Library and Archives) may be prohibited or limited if such access, use, or copying could damage the materials.

Historical Note
New Section made by exempt rulemaking at 11 A.A.R. 3863; effective October 15, 2005 (Supp. 05-3).

R2-3-302.   Access

Materials in all of the Library and Archives' collections are collected, described, and preserved for the use of the Legislature, state agencies, and the public with the following exceptions.

1.   Materials held by the Records Management Division are the property of the agency storing the records at the

Figure A-3. Arizona Administrative Code – Title 2, Chapter 3 (Continued)

Records Management Center. All requests for access to these records must come from the agency of origin.

2. Materials that are rare or fragile may be used only by permission of and according to procedures established by the Director.

Historical Note

New Section made by exempt rulemaking at 11 A.A.R. 3863; effective October 15, 2005 (Supp. 05-3).

R2-3-303. Circulation and Loans

A. Materials in circulating collections may be lent for use outside the Library and Archives to employees of the Arizona state government, to registered borrowers, and to other libraries in the United States through an interlibrary loan program if the Library and Archives has a reciprocal agreement with that library.

B. Individuals who fail to return borrowed items must pay the Library and Archives the cost to replace the item plus the costs of cataloging and processing the item.

C. Materials in non-circulating collections, including reference works, single copies of items, and fragile or rare items are not lent for use outside the Library and Archives except by permission of the Director.

D. Materials in non-circulating collections, including reference works, single copies of items, and fragile or rare items may be lent to qualified repositories for exhibition purposes with permission of the Director.

Historical Note

New Section made by exempt rulemaking at 11 A.A.R. 3863; effective October 15, 2005 (Supp. 05-3).

R2-3-304. Copying

A. Copying of materials in any of the Library and Archives' collections is subject to federal copyright law. Patrons are responsible for complying with the provision of that law.

B. Materials in good condition in circulating and reference collections may be copied onsite using agency-supplied equipment.

C. Use of personal cameras, scanners, or other copying technology may be allowed by the Director if the process does not damage the materials and does not distract other patrons.

D. Requests for copies of fragile or special format materials must be approved by the Director.

E. Unique or rare materials may be copied only by Library and Archives staff.

Historical Note

New Section made by exempt rulemaking at 11 A.A.R. 3863; effective October 15, 2005 (Supp. 05-3).

R2-3-305. Publication and Commercial Use

A. Patrons who intend to use copies or reproductions for any commercial purpose must notify the Library and Archives and pay charges required in A.R.S. § 39-121.03.

B. Publication of materials in any of the Library and Archives' collections is subject to federal copyright law. Patrons are responsible for obtaining any necessary permission to publish from the owner of copyright.

C. Publication or commercial use of materials in any of the Library and Archives' collections must include a credit to the Arizona State Library, Archives and Public Records. Some materials may require specific credits or citations.

Historical Note

New Section made by exempt rulemaking at 11 A.A.R. 3863; effective October 15, 2005 (Supp. 05-3).

ARTICLE 4. RESTRICTING PUBLIC COMPUTER ACCESS TO VISUAL DEPICTIONS THAT ARE HARMFUL TO MINORS, OBSCENE OR PORNOGRAPHIC

R2-3-401. Requirements

A. A governing body that operates a public library shall develop, review and provide a written policy with input from the local library board, or its equivalent, for the use of its public access computers for each library in its jurisdiction under A.R.S. § 34-502(E). The policy shall:

1. Provide for blocking access on public access computers to such materials as referenced under A.R.S. § 34-502(B)(1) and (2) and as defined under A.R.S. § 34-501,

2. Provide procedures for library patrons of legal age to disable or request the disabling of technology protection under A.R.S. § 34-502(C) for research or other lawful purposes,

3. List citations to A.R.S. §§ 34-501 and 34-502, and

4. Acknowledge the awareness of, and concern for, a safe educational Internet experience for children despite the unregulated nature of the Internet.

B. Each library shall:

1. Comply with its governing body policy,

2. Post the policy in a conspicuous location as provided in A.R.S. § 34-502(D), and include an outline of the library's complaint process,

3. Establish guidelines and procedures to restrict users from gaining computer access to such materials as referenced under A.R.S. § 34-502(B)(1) and (2) and as defined under A.R.S. § 34-501, and

4. Deploy a technology protection measure to block access to such materials as referenced under A.R.S. § 34-502(B)(1) and (2) and as defined under A.R.S. § 34-501, by either centralized filtering or individual filters on public access computers or by use of a similar technology solution.

Historical Note

New Section made by exempt rulemaking at 11 A.A.R. 3863; effective October 15, 2005 (Supp. 05-3). Amended by exempt rulemaking at 19 A.A.R. 540, effective March 21, 2013 (Supp. 13-1).

ARTICLE 5. STATE DOCUMENTS DEPOSITORY PROGRAM

R2-3-501. Program and Partners

A. The Director of the Arizona State Library and Archives (Library and Archives) may establish agreements with other libraries to establish a state documents depository program to collect, provide access to, and preserve copies of public reports and publications (see Article 2) of state, county and municipal officers, departments, boards, commissions, agencies and institutions, and public archives.

B. Any library that enters into an agreement pursuant to this subdivision shall continue to contribute at least the same level of support to the state documents program and shall not use any monies received pursuant to the agreement to supplant other monies available to the library.

Historical Note

New Section made by exempt rulemaking at 11 A.A.R. 3863; effective October 15, 2005 (Supp. 05-3).

R2-3-502. Public Reports and Publications Included

A. The state documents depository program shall include public reports and publications, whether in print or electronic formats, that are published, disclosed, or distributed to the gen-

Figure A-3. Arizona Administrative Code – Title 2, Chapter 3 (Continued)

eral public (or a targeted audience within the general public); and also at least one of the following:

1. That are required by law as a public report; or
2. That are required by law to be sent to the Governor, President of the Senate, or Speaker of the House; or
3. That describe an agency's activities, programs, or policies, including annual reports; or
4. That are the results of a formal study or investigation.

B. This program does not include non-public reports, including materials of a confidential nature or materials intended for use primarily within the agency, such as correspondence, forms, memos, or other materials produced for internal administrative or operational purposes. Non-public documents and agency copies of public reports and publications should be managed according to records retention schedules, which may specify some materials to be transferred to the Library and Archives at some future date.

Historical Note
New Section made by exempt rulemaking at 11 A.A.R. 3863; effective October 15, 2005 (Supp. 05-3).

R2-3-503. **Submission of Publications**
A. Within 30 days of publication agencies shall send to the Library and Archives at no cost:

1. Six copies of public reports and publications issued in print and, if the document was created in electronic format, one copy in electronic format; or
2. One print copy and one in electronic format of public reports and publications issued electronically.

B. Electronic copies of public reports and publications shall be submitted in Adobe Portable Document Format (PDF or PDF-A).

C. All public reports and publications:

1. Shall include the name of the officer, agency, department, board, commission, or other institution responsible for issuing the report or publication; the title; the date and place of printing or publication; and
2. As appropriate, a public report or publication shall include the names of authors, individuals, or organiza-

tions that assisted in the production of the report or publication; and a citation of the statute or regulation requiring the report or publication.

D. Reports and publications should be sent to: State Documents, Arizona State Library, Archives and Public Records, 1700 W. Washington, Suite 300, Phoenix, AZ 85007. Electronic copies may be sent by e-mail to reports@lib.az.us.

Historical Note
New Section made by exempt rulemaking at 11 A.A.R. 3863; effective October 15, 2005 (Supp. 05-3).

ARTICLE 6. INTERLIBRARY LOAN AND STATE GRANTS-IN-AID

R2-3-601. **Eligibility**
To be eligible for Library Services and Technology Act competitive grants, State Grants-in-Aid (including construction), and access to First Search, a library:

1. Must participate, upon patron or library request, as a lender and/or borrower in the statewide interlibrary loan of circulating print materials, regardless of subject or genre, without charge to their patrons or to other Arizona libraries.
2. Is encouraged, but not required, to share circulating, non-print materials.
3. May limit interlibrary loan requests to six per patron at any one time.
4. May limit requests to materials that have been published for at least a year; not currently on a nationally recognized best-seller list; or not needed by the library's own patrons.
5. With prior notice to the patrons, may pass on to their patrons real and actual charges incurred from out-of-state libraries in the filling of those patrons' interlibrary loan requests, including postage.

Historical Note
New Section made by exempt rulemaking at 11 A.A.R. 3863; effective October 15, 2005 (Supp. 05-3).

Figure A-3. Arizona Administrative Code – Title 2, Chapter 3 (Continued)

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APPENDIX B

VERBATIM RESPONSES: TECHNICAL TOPICS MOST IMPORTANT TO JOB

A primary objective of the employee survey was to determine the types of information and resources that employees need to perform their work. Employees were presented with a list and asked to select the items they need to do their job. Following are the technical resources they most frequently identified:

- Manuals, handbooks, training or procedural guides
- Standards and specifications (e.g., AASHTO, ADOT)
- Data and statistics
- Research reports
- Industry or trade publications
- Professional journals or newsletters
- Test preparation, exam certification materials

As noted in Chapter 3, employees who selected one or more of the technical resources shown above were then presented the following open-end question: "You indicated that technical resources are of interest to you. Please list the topics most important to your job at ADOT. You may list up to three."

The responses covered a wide range of topics, but several topics were reported frequently. For purposes of analysis and reporting, responses were categorized under two main headings: (1) technical topics and (2) general and administrative topics. The number in parentheses after a category title shows the total number of responses within that category, including repetitions of responses shown.

TECHNICAL TOPICS

Building and construction (23 responses)

- Building codes and materials
- Construction plan details
- Construction standards
- Methods and practices
- Construction manuals
- Project special provisions
- Asphalt
- Concrete
- Materials reports
- Materials used by ADOT
- Materials testing
- Sustainable materials and techniques

Computer system and programming resources (16 responses)

- Manuals and training guides
- Programming languages such as COBOL, Python, PL1

- MS Windows server resources
- Best practices for software design

Data and statistics (9 responses)

- Bureau of Labor Statistics
- Commercial vehicle data
- Vehicle crash data

Engineering (4 responses)

- Algorithms for data science and engineering
- Institute of Transportation Engineers
- Systems engineering

Environment (17 responses)

- Biological reports
- Chemical monitoring and health hazards
- Industrial hygiene
- Storm water
- Wildlife/highway interactions
- Landscape design
- Erosion control specs
- National Environmental Protection Act

Federal Aviation Administration (2 responses)

- FAA registry
- Firefighting and FAA material

Information management, technology, systems (17 responses)

- Best practices for IT performance and usability
- Best record retention system practices
- Network security and intrusion defense
- Information management systems
- New computer technology
- ArcGIS platform
- Citrix resources and training materials
- Web development

Maintenance (8 responses)

- Maintenance manuals
- Automotive repair
- Caterpillar diesel manuals

- Mitchell OnDemand online product
- Ford and General Motors diesel manuals

Motor Vehicle Division resources (27 responses)

- Driver license data
- Driver instructor credential requirements in U.S.
- Emissions estimation
- Fleet metrics
- Investigation resources
- Motor vehicle–related technical information
- National Automobile Dealers Association guides
- Vehicle recall information
- Security features on plastic and paper documents
- Location of other MVD offices
- Commercial insurance
- Historical weight and scale enforcement
- Customer flow management queuing systems
- Trending vehicle enhancements

Project management (4 responses)

Research (7 responses)

- Research methods and implementation
- Transportation Research Board
- Federal and other state DOT research reports

Right of way (3 responses)

- Acquisition and relocation

Roadway and bridge design (14 responses)

- Bridge design
- Roadway engineering, construction, design
- Photolog system
- Roadway ecology
- Roadway signage
- Pavement design, striping, markings
- Pavement preservation
- Life cycle road design

Safety (6 responses)

- Safety and health metrics

- Safety codes
- Arizona Division of Occupational Safety and Health
- OSHA Form 300 log

Standards and specifications, testing and certification (23 responses)

- Design standards
- American Society of Civil Engineers specifications
- American Association of State Highway and Transportation Officials "Green Book" and Roadside Design Guide
- Any and all updated test methods
- American Society of Testing Materials
- AASHTO test procedures

Technical tools, systems, equipment (7 responses)

- LIDAR light detection and ranging
- Profilometer
- Radio- and antenna-based network system
- Equipment manuals
- Fabrication, welding, cutting

Traffic (13 responses)

- Traffic control techniques
- Traffic data, traffic analysis
- Traffic engineering
- Traffic laws
- Traffic signals
- Traffic studies

Transportation planning, systems (12 responses)

- Transportation planning
- Intelligent transportation systems
- Transportation systems management, operations
- Travel demand management
- Context-sensitive design
- Behavioral sciences
- Best practices in using socioeconomic data in transportation
- Impact of roadway design on industries, public

GENERAL AND ADMINISTRATIVE TOPICS

Communications (3 responses)

- Public involvement
- Requests for public records
- Technology and information that can be shared among internal staff and external stakeholders

Computer software and applications (21 responses)

- Software
- Microsoft Office that includes Excel, PowerPoint, and ACCESS training
- Search tool for ADOT.net

Finance, accounting, procurement, audit (11 responses)

- Accounting
- Using automation for cash flows
- Financial impacts
- Fraud detection
- Risk management
- Contract forms

Leadership and management (8 responses)

- Best management practices
- Leadership training and development
- Performance management

Legal, legislation, regulation (22 responses)

- Arizona Revised Statutes
- International Fuel Tax Agreement and International Registration Plan
- Code of Federal Regulations
- Law enforcement advances and trends
- Americans with Disabilities Act
- Case law, civil law
- Criminal and traffic law
- Guides and resource directories
- Other state DOT regulations
- Arizona legislative district maps
- Business law reference materials
- Lexis Nexis

Policies, processes, procedures (20 responses)

- Up-to-date policies and forms
- Process improvement methodologies and tools
- Operational procedures
- Other state DOT processes
- Training or procedural guides
- Administrative procedures
- Articles on quality assurance
- Information and data on new procedures

Reference materials (23 responses)

- Administrative law journal
- *Engineering News-Record*
- Technical journals
- Academic journals on traffic engineering
- Auditing trade magazines and newsletters
- Maps
- Recorded maps
- Historical maps and data to compare with current
- Standard drawings
- Construction drawings, as-built information
- Historical places
- Transportation history

Training (3 responses)

- Training manuals
- Automotive Service Excellence test study materials
- Training

Miscellaneous (14 responses)

- Bar code ADOT units for easier processing, routing, ad hoc information needs
- Internal ADOT office communications
- Printer, copy machine, Internet access

APPENDIX C
VERBATIM RESPONSES: EMPLOYEES' DESIRED RESOURCES
AND SERVICES FROM THE ADOT LIBRARY

As noted in Chapter 3, the final survey question offered respondents the opportunity to provide input regarding resources or services that they would like the ADOT Library to provide or expand upon to help them do their job. A total of 129 respondents provided comments, which have been categorized as related to either information and resource needs or expanded service needs. Employee responses regarding information and resource needs are presented in Table C-1, and responses regarding expanded service needs are presented in Table C-2.

Table C-1. Employees' Verbatim Comments Identifying Information and Resource Needs

Manuals, Handbooks, Procedural Guides	Policy and Publication Topics	Journals and Historical information	Career Development	Standards
- Online service and repair manuals for Arizona Department of Transportation (ADOT) equipment - Catalog of all ADOT maintenance equipment safety and operations manuals - Technical and equipment manuals for training - ADOT Transportation Planning guidebook for tribal governments	- ADOT, Arizona Department of Administration, and International Co-operative Alliance policies - Collection of books related to ecology and transportation - Literature on new processes in fabrication, cutting, and welding - Project history - Aeronautic and licensing information - Procuring commodities - Right-of-way info - Economic impact of certain ADOT programs or projects; budgeting, economics	- Journals: *Accident Analysis and Prevention; Journal of Safety Research; Safety Science* - American Society of Civil Engineers - Institute of Transportation Engineers journal; journals covering transportation, geotechnical, environmental fields - *The Police Chief* and other professional association publications for police chiefs - More trade and industry publications; current Federal Highway Administration (FHWA) and American Association of State Highway and Transportation Officials (AASHTO) publications - Historical information (state maps/information, historic routes) - Catalog of historical photographs	- Professional certifications, such as business analyst and project management - Information that would help obtain licensing or certification for other ADOT jobs, resources to assist - Up-to-date Automotive Service Excellence test prep books - Practice tests for Arizona Technical Testing Institute and American Concrete Institute - New Source Performance Standards, National Institute for Certification in Engineering Technologies test prep - Online training and classes in web development, mobile development, human factors engineering, database development, IT Infrastructure library	- Standards publications from AASHTO, American Society for Testing and Materials, American National Standards Institute - Arizona Division of Occupational Safety and Health - National Environmental Policy Act - standards publications - Information on construction industry standard practice - Environmental regulations and engineering: NEPA, Code of Federal Regulations, Resource Conservation & Recovery Act, engineering specifications and building applications - Schematics or drawings- various state, county, or federal standards (reasons behind schematic)

Table C-1. Employees' Verbatim Comments Identifying Information and Resource Needs (Continued)

Computer or Software Information	Law-related Information	Other Information	Motor Vehicle Division (MVD) Information	General Business Information
- Current information on information technology - IT instructional/study material (e.g., A+ and Network+ books) with certification - Computer software for materials, equipment, and other class resources - Software for heavy equipment and truck repair - Computer guides and manuals for software applications - Best practices & standard practices for use of approved free or purchased production systems and software	- Information on fraudulent document recognition - Statistical information - amount, types of fraud crimes, updates and trends, new security detection features - Attorney General briefs filed regarding Superior Court appeals and/or Arizona Court of Appeals arising from Executive Hearing Office - Case law resources	- Landscape architecture - Current street maps for state - Ingredients and "recipes" for items and materials used on our roads - Updated as-builts that are easy to access - Chemical research	- MVD Policies - Plain language-Title 28 law - Current insurance information on endorsement forms, insurance laws, case law - MVD online access to National Automobile Dealers Association books, factory list price information on cab and chassis, mobile homes, dump trucks, etc. - Traffic data - Traffic signal resources - Expansion of NADA information - value and description of vehicles when doing a bond process - Intelligent transportation systems publications, guidelines, specifications from other states; information technology equipment info	- Trending business topics, (productivity, performance management) - Leadership books - Access to current motivational authors - How to manage people - Computer programs & books (Dummies series), Excel training material - VBA manuals -- software manuals to teach basics of commonly used programs in engineering departments - Self-improvement literature - Online access to business management resources - Language books (Rosetta Stone CDs/tapes)

Table C-2. Employees' Verbatim Comments Identifying Expanded Service Needs

Expand Memberships	Expand Databases/Resources	Expand Access Options	Improve Systems and Processes	Improve Services Provided to Library Customers
- ADOT membership-professional organizations (e.g., (Institute of Transportation Engineers) - Expand membership to also receive publications or journals for free (trade organizations) - Network with Arizona State University, University of Arizona, Northern Arizona University, University of Phoenix, Grand Canyon University, and all Maricopa Community College libraries	- Access to more databases and journals; increase size of collection, improve Library Catalog, have more than one reference Librarian - Ability to search Web of Science to find journal articles; obtain journal articles as pdfs - Library could be a good source for old plans and "as built" drawings (online) - Online catalog with images and vector graphics including highway signs, interchange illustrations, construction, aerials, and maps	- Work group currently uses online resources as a primary source for research, called Safari books online - All Federal Highway Administration [FHWA] online manuals available to borrow or for read-only - Improve the online service; include online subject category of items in Library; more robust search function for reports and documents - More info on accessing online library that I could navigate from my desk - Put link on ADOTNet to search library catalog online	- Centralized system documentation; single repository for different types of documents for research projects - Preserve and catalog collection of books, reports, maps, and geotechnical reports not in ADOT Information Data Warehouse - Not have to put in a heat ticket to get a plugin installed in order to view materials—i.e., American Association of State Highway and Transportation Officials *Roadside Design Guide*	- Live technical support person; phone contact information for Librarian - Email contact (purchase requests). Address long-term retention needs (vs. returning materials to Library) - Training (e.g., catalog of links to online product/process tutorials) - Bigger presence on ADOT intranet—provide as a tool one can use to access additional information - Make online services more efficient - Link/access to Library not highly visible; user-friendly means of accessing information - Current online memos; traffic and weather daily for work

APPENDIX D: ADOT EMPLOYEE SURVEY QUESTIONNAIRE

The following questionnaire was used for the online survey examining information needs of the ADOT staff as well as their perceptions of the Library's effectiveness in meeting those needs. Because the survey was conducted online, the questionnaire shows programmer instructions in parentheses; these instructions did not appear on the questionnaire viewed by survey participants.

To recruit potential participants for the employee focus groups to be held subsequently, the final survey question asked respondents if they were interested in learning more about participating in a group discussion (focus group).

Please briefly tell us about yourself.

1. In which work group or Division do you work? **[Single choice]**
   - □ Motor Vehicle Division
   - □ ITD Development
   - □ ITD Operations
   - □ Multimodal Planning Division
   - □ Information Technology Group
   - □ Financial Management Services & Budget
   - □ Enforcement and Compliance Division
   - □ Communications and Government Relations
   - □ Administrative Services
   - □ Other

2. What is your current position? **[Single choice]**
   - □ Senior manager
   - □ Manager or supervisor
   - □ Technical staff
   - □ Operational staff
   - □ Administrative staff

3. How long have you worked for ADOT?
   - □ Less than one year
   - □ 1–4 years
   - □ 5–9 years
   - □ 10–14 years
   - □ 15 years or longer

4. In which county do you primarily work? **[Single choice]**
   □ Apache
   □ Cochise
   □ Coconino
   □ Gila
   □ Graham
   □ Greenlee
   □ La Paz
   □ Maricopa
   □ Mohave
   □ Navajo
   □ Pima
   □ Pinal
   □ Santa Cruz
   □ Yavapai
   □ Yuma

Information needs and sources

5. Please identify the types of information or resources that you **most** need for your job. Select all that apply. **[Permit multiple selections. If selects any of the highlighted answer choices, continue at Q6. Otherwise, skip to Q7]**
   □ Data and statistics
   □ Reference materials such as a dictionary, thesaurus, encyclopedia
   □ Research reports
   □ ADOT publications other than research reports
   □ Other state or federal DOT publications
   □ Other Arizona state and local agency publications (transportation and non-transportation related)
   □ Manuals, handbooks, training or procedural guides
   □ Industry or trade publications
   □ Standards and specifications (e.g., AASHTO, ADOT)
   □ Professional journals or newsletters
   □ Historical materials
   □ Computer and software guides
   □ Leadership, management, self-improvement resources
   □ Test preparation, exam certification materials
   □ Other (please specify): _____
   □ None of the above

6. You indicated that technical resources are of interest to you. Please list the **topics** most important to your job at ADOT. You may list up to three.

7. When assigned a project that requires you to research a topic or obtain information that is not readily available to you, what process or steps do you typically follow to seek out and obtain needed information? Please briefly describe the process in the text box below.

8. Which of the following people do you most often turn to for the information you need for your job? Select up to three. **[Permit maximum of 3 selections]**
   - □ ADOT manager, supervisor, and/or coworkers
   - □ ADOT librarian
   - □ Professional colleagues at partner agencies/organizations (includes universities)
   - □ Professional colleagues at other DOTs
   - □ Networks or professional associations I belong to
   - □ Other people (please specify): _____
   - □ None of the above

9. Which of the following resources do you most often use to obtain the information you need for your job? Select up to five. **[Permit maximum of 5 selections]**
   - □ ADOT Library
   - □ ADOT **Intranet** site
   - □ ADOT **Internet** site
   - □ FHWA website
   - □ Specialized databases, such as TRID
   - □ General Internet (e.g., using Google or similar search engines)
   - □ Professional and industry publications (your personal subscription)
   - □ Conferences
   - □ University, state, or public library collections
   - □ Other state DOT websites or DOT library collections (please specify):

     _____
   - □ None of the above

10. When finding information on your own, to what extent do you rely on a general Internet search? Using a scale of 1 to 7, where 1 is "not at all" and 7 is "extensively," please indicate how much you rely on a general Internet search to obtain information you need. **[If selects 1 (not at all), skip to Q12. All others continue at Q11]**
    - □   1 Not at all **[Skip to Q12]**
    - □   2
    - □   3
    - □   4
    - □   5
    - □   6
    - □   7 Extensively

11. You indicated that you sometimes search the Internet to find information you need for your job. For each aspect of Internet search experiences shown in the table below, please rate your level of satisfaction using a scale of 1 to 7, where 1 is "not at all satisfied" and 7 is "highly satisfied."

	1 Not at all satisfied	2	3	4	5	6	7 Highly satisfied
Amount of time it takes me to find the information I need via Internet searches							
Success in finding the information I need on the Internet							

12. In an earlier question, you indicated that you need various types of information or resources for your job; the types of information and resources that you selected are shown in the table below. Assuming that the ADOT Library had what you needed, would you prefer to obtain this information by visiting the ADOT Library in person, using the ADOT online library catalog, or some combination of the two? If you would probably **not** use the ADOT Library at all, please select the "would not use ADOT Library" answer choice.

[Insert answer choice selections from Q5]

[Populate with Q5 responses – all Q5 answer choices are listed below]	Visit ADOT Library in person	Use the online catalog	Combination (in-person and online)	Would not use the ADOT Library at all
Data and statistics				
Reference materials such as a dictionary, thesaurus, encyclopedia				
Research reports				
ADOT publications other than research reports				
Other state or federal DOT publications				
Other Arizona state and local agency publications (transportation and non-transportation related)				
Manuals, handbooks, training or procedural guides				
Industry or trade publications				
Standards and specifications (e.g., AASHTO, ADOT)				
Professional journals or newsletters				
Historical materials				
Computer and software guides				
Leadership, management, self-improvement resources				
Test preparation, exam certification materials				
Other **[Insert open-ends from Q5, if any]**				

Awareness and use of the ADOT Library

13. How aware are you of ADOT Library resources and services? Using a scale of 1 to 7, where 1 is "not at all aware" and 7 is "highly aware," please rate your level of awareness. **[If selects 1 (not at all), skip to Q15. All others continue at Q15]**
    - □ 1 Not at all aware **[Skip to Q15]**
    - □ 2
    - □ 3
    - □ 4
    - □ 5
    - □ 6
    - □ 7 Highly aware

14. How did you become aware of ADOT Library resources and services? Select all that apply. **[Permit multiple selections]**
    - □ Presentation by ADOT Librarian
    - □ Presentation by ADOT Research Center personnel
    - □ Participation in ADOT Research Center study
    - □ Word-of-mouth from ADOT employee
    - □ Signage or physical location of Library
    - □ Other (please specify): _____

15. Have you **ever** used ADOT Library resources or services?
    - □ Yes **[Continue at Q16]**
    - □ No **[SKIP to Q19]**
    - □ Not sure/do not recall **[SKIP to Q19]**

16. Which of the following best describes your use of ADOT Library resources and services **over the course of the past two years?**
    - □ Daily
    - □ Weekly/semi-weekly
    - □ Monthly/semi-monthly
    - □ Every few months
    - □ Once or twice a year
    - □ Not at all during the past two years **[SKIP to Q19]**

17. Which of the following ADOT Library resources or services have you **used during the past two years?** Please select all that apply. **[Permit multiple selections]**
    - □ Visited the ADOT Library and looked through the collection but did not check out materials
    - □ Borrowed materials – checked out books or reports
    - □ Interlibrary loan – accessed materials outside of the ADOT Library
    - □ Searched the ADOT Library online catalog

□ Reviewed the monthly list(s) of new additions to the ADOT Library posted on its web page
□ Requested a literature search
□ Received training on how to conduct an online search
□ Other (please specify): _____
□ None of the above **[SKIP to Q19]**

18. How would you rate your overall satisfaction with ADOT Library resources and services? Using a scale of 1 to 7, where 1 is "not at all satisfied" and 7 is "highly satisfied," please rate your overall level of satisfaction.
□ 1 Not at all satisfied
□ 2
□ 3
□ 4
□ 5
□ 6
□ 7 Highly satisfied

<Programming note- Q19 is only displayed to respondents who skip the Q15-Q17 series—as noted in routing instructions for Q15, Q16, and Q17. In all other instances, respondents skip to Q20>

19. You indicated that you have not used ADOT Library resources or services during the past two years or at all. Please tell us why not. Select all that apply. **[Permit multiple selections]**
□ Found information on my own
□ Didn't know about the ADOT Library
□ Work responsibilities did not require use of library services
□ Didn't think the ADOT Library could offer the type of information or services I needed **(please explain in the text box below)**
□ Used other library resources (e.g., public library, State Library, university libraries)
□ Other (please specify): _____

If you did not think the ADOT Library could offer the type of information or services you needed, please explain why in the text box below.

Access to ADOT Library services

Regardless of your use or level of awareness of the ADOT Library prior to taking this survey, please take a moment to answer these questions.

20. Listed below are services that the ADOT Library currently offers, as well as services that could be offered in the future. How likely are you to use each of these services over the course of the **next 12 months**? Using a scale of 1 to 7, where 1 is "not at all likely" and 7 is "very likely," please indicate your response for each resource or service.

	1 Not at all likely to use	2	3	4	5	6	7 Very likely to use
Help in conducting an Internet search or literature search							
Access to self-service check-out and check-in of borrowed materials							
Mobile device access to ADOT Library catalog via smartphone or tablet							

21. Listed below are resources that the ADOT Library currently offers, as well as resources that could be offered in the future. How likely are you to use each of these resources over the course of the **next 12 months**? Using a scale of 1 to 7, where 1 is "not at all likely" and 7 is "very likely," please indicate your response for each resource or service.

	1 Not at all likely to use	2	3	4	5	6	7 Very likely to use
ADOT Library online catalog							
Materials obtained through interlibrary loan (materials outside the ADOT Library collection)							
Materials in hard copy format							
Materials in digital format (e.g., pdf)							
e-Books							

22. What is your overall preference regarding access to ADOT Library information resources and services?
    □ Physical collection only – collection located in a building
    □ Online collection only
    □ Some combination of the two (physical and an online library)
    □ Not likely to use the ADOT Library – have no preference

23. How likely are you to recommend the ADOT Library to a colleague? Using a scale of 1 to 10, where 1 is "not at all likely" and 10 is "extremely likely," please indicate your response.
    □ 1 Not at all likely
    □ 2
    □ 3
    □ 4
    □ 5
    □ 6
    □ 7
    □ 8
    □ 9
    □ 10 Extremely likely

24. Now we would like to give you the opportunity to tell us about any resources or services that you would like the ADOT Library to provide or expand upon to help you do your job.

25. We greatly appreciate your input. In closing, if Partners In Brainstorms were to conduct a follow-up focus group discussion regarding the ADOT Library with employees -- those who have used the library as well as those who have not used it or have used it on a limited basis -- would you be interested in learning more about this group discussion and/or participating?

    □ Yes
       Please provide us the following contact information. This information will only be used by Partners In Brainstorms to notify and invite employee participation in a discussion group.
       First name: _____
       Last name: _____
       E-mail address: _____
    □ No, I'm not interested

Thank you again for taking time to participate in this survey.