Developing a Statewide Transload Facility Inventory:

Challenges and Lessons Learned

Sadie Smith
PhD Candidate
Department of Civil Engineering, University of Arkansas
4190 Bell Engineering Center
Fayetteville, Arkansas 72701
Tel: 479-575-6028
Fax: 479-575-75168
E-mail: ses007@uark.edu

Sarah Hernandez, PhD
Assistant Professor
Department of Civil Engineering
University of Arkansas
4190 Bell Engineering Center
Fayetteville, Arkansas 72701
Tel: 479-575-4182
Fax: 479-575-7168
E-mail: sarahvh@uark.edu

Andrew Braham, PhD, P.E.
Assistant Professor
Department of Civil Engineering, University of Arkansas
4190 Bell Engineering Center
Fayetteville, Arkansas 72701
Tel: 479-575-6028
Fax: 479-575-7168
E-mail: afbraham@uark.edu

Submitted to TRB Standing Committee on Intermodal Freight Transportation (AT045)

Submitted on August 1, 2016
Words: 5,171
Tables and Figures: 2*250 + 4*250 = 1500
Total Word Count: 6,671

ABSTRACT

In order to shift freight between modes, transfer facilities such as intermodal and transload sites must be available to shippers and receivers. The ability for a state or region to offer a wide array of transportation options can bolster economic development programs aimed at attracting new industries to a region. Transload facilities, in particular, are necessary to move bulk or break-bulk commodities between modes. Intelligent siting of transload facilities better leverages multi-modal transportation networks by tapping into the latent demand for short line rail, regional rail, and marine port terminals. This paper describes the process undertaken and documents the challenges and lessons learned in developing a statewide inventory of transload sites in Arkansas. Such an inventory is needed to support the joint efforts of the Arkansas State Highway and Transportation Department's (AHTD) freight transportation planning and Arkansas Economic Development Commissions' (AR EDC) economic development programs to increase the economic productivity of Arkansas. An online survey sent to transload facility managers was designed to gather data on existing transload facilities characteristics such as warehouse space, equipment, commodities handled, and facility history. Primary challenges in survey development included creation of the sampling frame from limited, outdated, and disparate databases and the design of a questionnaire to address the proprietary nature of private facilities. Based on feedback from facility managers, this paper provides recommendations for developing statewide facility surveys and suggests alternative methods to supplement information not obtained in the survey.

INTRODUCTION

Increasing transportation costs are a concern for both suppliers and consumers. These costs have spurred major innovation in both logistics and planning in the transportation sector. In addition to the economic concerns, there is a demand for building a clean and efficient 21st century transportation network. As the price of fuel, concerns of environmental degradation, and costs to maintain highway infrastructure continue to increase, shifting freight to more efficient modes is critical. While trucks benefit from the high accessibility provided by the roadway network, barge and trains are frequently more cost effective for long haul shipments and are attributed with less emissions and infrastructure damage. Provision of conveniently located freight transfer facilities such as intermodal rail terminals, marine ports, or bulk-transfer facilities give freight shippers and receivers the ability to choose the most cost effective modes, giving them a strategic advantage over competitors. Moreover, the ability for a state or region to offer a wide array of transportation options can bolster economic development programs aimed at attracting new industries to a region.

The type of freight transfer facility to best serve a region and promote optimal modal distributions is highly dependent on regional freight and transportation network characteristics. Considerations as to the type, quantity, and shipment distances of import/export commodities are key factors in determining the type and size freight transfer facilities *(1)*. Similarly, the availability and confluence of waterways, rail networks, and highway routes in a region play a significant role in determining the location of potential transfer facilities *(2)*.

One solution to optimizing the modal distribution of freight flows is by establishing transload facilities. This type of facility is of particular interest to regions with significant amounts of bulk, warehouse, and dimensional commodities freight moving over longer distances *(3)*. Transload facilities are defined as "receiving and distributing [facilities] for lumber, grain, concrete, petroleum, aggregates, and other such bulk products" that provide access to multiple transportation modes *(2)*. In addition to truck, highway, and barge, it should be noted, pipeline transport is can also be incorporated into a transload facility. Pipelines are highly efficient for shipping liquid products. However, pipelines were not considered in this research project. A transload facility differs from an intermodal facility which primarily handles containerized goods *(4)*. Transload facilities handle commodities that, unlike containerized freight, can be broken down into smaller volumes and shifted between storage types (e.g. railcar, semi-tractor trailer, barge storage).

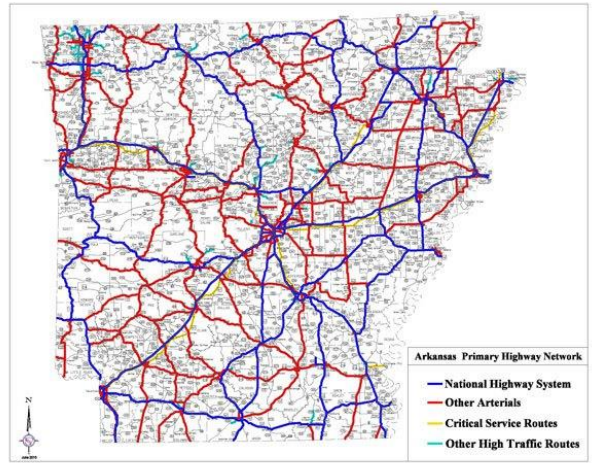
Transload facilities range from small, single location sites that provide transfers between only two modes and are managed by a single company, to larger facilities with multiple locations across the state, region, or country that handle a variety of commodities, provide access to multiple modes, and are managed by a larger conglomerate. Locations of transload facilities are typically driven by proximity to railroads and/or a waterway. **Figure 1** provides an aerial image of a transload site in Northwest Arkansas. This site is located along a Class III rail line that connects to a Class I rail line. The site contains railcar storage, covered storage, paved and unpaved outdoor storage, and warehouse storage and handles a variety of commodities.

FIGURE 1 Example of a transload site in Northwest Arkansas (image from maps.google.com)

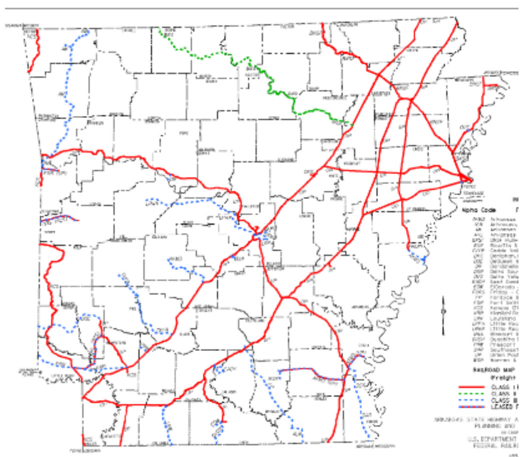
In Arkansas, the Arkansas River has a robust marine port network (**Figure 2a**), 24 short line railroads, seven Class I railroads (**Figure 2b**), and 16,444 miles of state highways (8,447 of which are the Arkansas Primary Highway Network, APHN; **Figure 2c**). However, the provision of a multi-modal transportation network alone does not warrant demand for a given type of freight transfer facility. Commodity characteristics such as type (i.e. bulk, dimensional, warehouse), distance shipped, and weight and volume of shipments affect the location and type of transload facility. Distance shipped is a key criterion that varies significantly by commodity since modal substitutions from truck to rail or barge are more likely for long haul shipments. In Arkansas, cereal grains are potential candidates for modal substitution as they tend to be transported between 100 and 250 miles *(3)*. Gravel, on the other hand, tends to be transported less than 50 miles which limits its modal substitution potential *(3)*.

Given the potential of transload facilities to shift freight to more efficient modes to protect highway infrastructure and to attract industry to the state, the Arkansas State Highway and Transportation Department (AHTD) and the Arkansas Economic Development Commission (AR EDC) jointly sponsored a project to determine the potential market and location of new transload facilities in Arkansas. The intelligent siting of transload facilities to shift freight from truck to barge and train would better leverage the multi-modal transportation network of the State of Arkansas by tapping into the latent demand for short line rail, regional rail, and marine port terminals. However, optimal locations, types, costs, and impacts of potential transload facilities in Arkansas have not been previously established.

(a) Waterway Network *(6)*



(b) Highway Network *(7)*



(c) Rail Network *(8)*

FIGURE 2 Multimodal transportation networks in Arkansas.

As a preliminary step in locating potential facilities, a statewide inventory of existing transload facilities was developed. This paper describes the process undertaken and documents the challenges and lessons learned in developing a statewide inventory of transload sites in Arkansas. In addition to serving as a baseline from which to determine new facility locations, the statewide transload facility inventory serves as a valuable resource for the AR EDC's statewide Building and Sites Database, ArkansasSiteSelection.com *(5)*. This tool provides a searchable database with mapping applications to help economic developers, site selectors, real estate consultants, and business owners geographically analyze potential development sites. While the tool currently allows uses to query development sites based on proximity to rail, highway, and waterway networks as well as river ports, it does not provide locations of transload sites. This means that although a development site may be near a rail line, there is no information indicating whether there is access to that rail line via a transload facility.

The remainder of this paper is organized as follows. A background on freight transfer facility locations and inventories is presented in the next section. The survey development is then described in terms of the creation of the questionnaire, sampling frame, and delivery platform. Results of the survey are summarized and challenges and lessons learned are outlined. Based on feedback from facility managers, recommendations are provided addressing the challenges encountered in developing the statewide facility survey and suggestions for alternative methods to supplement information not obtained in the survey are detailed.

BACKGROUND

Multi-modal freight transportation has grown rapidly over the last thirty years, and is often considered the fastest growing segment of transportation *(9)*. Multi-modal freight movements present an efficient alternative to long-haul trucking and freight transfer facilities play a key role in multi-modal connectivity. The potential of modal shifts to reduce congestion, pavement damage, and emissions has urged transportation planners to closely examine the role of freight transfer facilities in multi-modal transportation networks *(10)*. As a result, several states including Ohio, Maine, and Washington have invested in transload facilities to alleviate highway congestion caused by freight movements *(10)*. Available land space near rail-lines and/or waterways is often a primary determinant for the location of a transload facility *(11)*.

Until recently, public transportation planning agencies had not realized the need to involve private freight facility operators more directly in the planning and implementation processes *(11)*. Typically, large-scale infrastructure developments, such as a transload facility, are proposed and evaluated for the increased profit potential by a private entity, whereas, public agencies typically consider projects like this in order to optimize a system for the overall public benefit. These differing perspectives create a disconnect when it comes to partnering on projects like this, as the sharing of information is often limited by the proprietary nature of private investments *(11)*. This concept was reinforced by Caplice and Phadnis, who explore the dichotomy of private businesses, chasing quarterly profits and life cycles typically less than five years, and government agencies, building cycles over multiple years with active service for decades *(14)*. While a private investor may be necessary to lead the development of a new facility, public agencies can improve the accessibility facilities have to multiple modes of transportation through infrastructure improvements *(15)*. According to Berwick *et al.*, the greatest limiting factor to many companies, especially smaller rural companies, choosing to transload their product is the proximity to transload facilities *(16)*. Increasing the distance to an intermodal facility increases the transport time and cost, thus making truck transport seem to be a simpler and more affordable option.

Comprehensive, accurate, and up-to-date databases describing the location and type of transload facilities available for use are needed to attract industry to a region and assess modal shift potentials for freight planning. However, such databases are either non-existent or extremely limited. The Transload Distribution Association of North America (TDANA) provides a list of transload facilities with the limitation that only members of the organization are included in the list *(17)*. What is commonly encountered are disparate lists of locations that must be hobbled together from multiple facility operator or railroad websites in order to form a comprehensive site inventory. This is because transload facilities are most often operated and managed by a private entities. It is important to understand the hierarchy and organization of the ownership and operation of each facility. The managerial structure of the transload facility dictates the ability for a shipper or receiver to utilize that facility and also presents challenges when inventorying locations of transload facilities. For instance, in Arkansas, the Arkansas Missouri Railroad (AM), a Class III railroad, accesses both the Union Pacific (UP) and BNSF rail lines through Ozark Transmodal

(OTI), a transload site in northwest Arkansas. OTI is jointly managed by AM and Allied Enterprises, Inc, which is a professional sales organization representing manufacturers and value-added services. The facility handles a wide array of commodities which include food-grade, lumber, and construction materials and different types of steel coils. Other transload facilities in Arkansas are managed by the Class I railroads directly. UP, for instance, has a transload site in West Memphis, Arkansas, at the Marion Railport Industrial Park. Other managerial arrangements involve large terminal operators that build and operate transload facilities across the nation. Kinder Morgan, for instance, owns and operates several facilities in Arkansas. The facility in southern Arkansas handles liquid and dry bulk commodities and provides access to the Mississippi River, BNSF railway, and two major interstate routes *(12)*. Mid-South Bulk Services, Inc. (MSBS) is an example of an independently, locally-owned and operated company with only one location. MSBS was founded in 1995 as a response to the regional needs for transload and storage services for dry-bulk, servicing truck and BNSF railway *(13)*.

While sources such as the TDANA database or private company website listings may serve as a starting point, they do not provide an all-inclusive list of all sites within a state. They also do not typically provide complete information on facility size, commodities handled, storage capacity, transportation modes, and contact information. Without a statewide inventory of transload sites it is impossible to accurately define existing conditions of the transload industry. This limits the ability to forecast future demand and opportunities for growth or development of new transload sites. A statewide inventory of existing facilities is necessary to understand the private ownership of facilities, identify the role public agencies may play, and create a comprehensive list of the specific locations and types of facilities operating around the state. In order to capture these characteristics, a survey was developed and sent to existing transload facilities in Arkansas. While other states have performed similar surveys to gather data on multi-modal freight facilities *(18)*, none have specifically targeted transload facilities. A survey of transload facilities has to address unique challenges related to the ownership and operation of the facility and the proprietary nature of the freight transportation industry.

SURVEY DEVELOPMENT

This section documents the development of the survey questionnaire, sampling frame, and survey instrument, recruitment procedure, and results.

Survey Questionnaire

Due to the competitive nature of the freight industry and private ownership of most of the transload facilities in the state, it was necessary to design a questionnaire that would solicit as much information as possible without imposing on proprietary data. For instance, while it was necessary to determine the commodities moved through a particular facility, asking specific details regarding the tonnages moved through the facility would likely encroach on proprietary information. Therefore, striking the balance between obtaining necessary information and avoiding private information was an intentional effort throughout the development process.

The survey was compiled from questionnaires developed by Bhamidipati and Demetsky and BNSF Railroad *(19, 20)*. Bhamidipati and Demetsky *(19)* conducted phone-based interviews of intermodal terminal managers in Virginia to better understand planning decisions and requirements of shippers and railroad companies. The BNSF *(20)* survey was developed for internal audits of facilities that access the BNSF railroad. Questions extracted from these surveys were tailored to transload facilities. Questions related to the history of the facility, current operations, coordination with public and private stakeholders, future growth, capacity, storage, and commodities transported. **Table 1** summarizes the topics included in the questionnaire and provides examples of 32 questions included in the survey.

Survey Sampling Frame

The sampling frame consisted of all transload facilities in Arkansas. As one of the goals of the survey was to determine a complete list of transload facilities, this meant the list of sites was not known apriori so compiling the sampling frame was a significant challenge. Historical data, industry and stakeholder contacts, and facility operator websites were used to develop an initial sample frame. AHTD provided a list of transload and intermodal sites from 1998 that was derived from the US DOT Bureau of Transportation Statistics' National Transportation Atlas Database (NTAD) *(21)*. The AHTD file represents the Arkansas portion of the Intermodal Terminal Facilities data set and contains data on highway-rail and/or rail-water transfer facilities in Arkansas. Contacts were made at Class I and III railroads, and although these railroads may not have owned or operated their own facilities, some were able to provide lists of facilities that serviced their rail-lines. Additionally, larger transload companies with multiple facilities, statewide or nationally, were identified and contacted for more information regarding specific locations.

After the abovementioned resources were synthesized and a list of facilities generated, specific contacts at each facility were identified. Understanding the ownership and organization of facilities became especially helpful during this step of the survey process. For local facilities, plant managers were typically the person with the authority to complete the survey and who could most accurately answer the questions. However, for companies with multiple locations around the state, individual plant managers often had to obtain approval from the corporate office before agreeing to participate. With this in mind, it was most effective to first make a contact with the corporate office, which could then distribute the survey to the correct person at each facility. In some cases, the corporate manager agreed to complete the survey for each facility in the state.

Overall, 43 transload facilities were identified in Arkansas as shown in **Figure 3**. Of these, 12 are independently owned and operated and the remaining 31 are owned by one of eight companies operating multiple facilities. This distribution of company size and structure captures the diversity of managerial and organization structures practiced by transload facilities. Further, Arkansas' existing multi-modal transportation network, including the Arkansas River's marine port network, multiple Class I and III railroads, as well as the vast state highway network, allow for a mixed distribution freight transportation modes at each of the listed facilities. Eleven sites provided access to three modes (truck, rail, and water), ten provided access to truck and rail, and 22 provided access to truck and water.

TABLE 1 Transload Facility Questionnaire

Topic	Questions
History of the facility	1. When was the terminal established? 2. How was the terminal originally funded? 3. What factors influenced its original location? 4. What were the private and public roles in establishing the terminal?
Current operations	5. What work units (public or private) are involved in the operation of the terminal? 6. Is the terminal exclusively used for COFC/TOFC freight? 7. Is the intermodal traffic domestic, international, or both? 8. What is the extent of the market covered in terms of maximum drayage distance? 9. What are the various services provided at the terminal? 10. What are the major commodities handled by the terminal?
Coordination stakeholders	11. What are the possible sources of funding for improvements? 12. What public support, if any, is needed to sustain the terminal?
Future of the facility	13. What are the critical factors that influence a shippers' decision to use intermodal service? 14. What are the critical factors that contribute to the success of an intermodal terminal? 15. What are the deterrents to the success of intermodal terminals?
Facility type	16. Does the facility accommodate the following transportation modes? (rail, water, truck, pipeline) 17. Is the facility located in close proximity to a port? To a highway? 18. Which railroads have access to the facility?
Capacity	19. How many railcar spots does the facility have? 20. How many rail tracks does the facility have? 21. What is the total length of track? 22. How many truck spots does the facility have? 23. Is there a truck scale on site? 24. How many berths/docks does the facility have? 25. What type of storage does the facility have? 26. What is the area of outdoor paved storage? Unpaved?
Ownership	27. Who owns the facility? (public agencies, private firms, a combination)
Rail equipment	28. What rail equipment in the following list is served by the facility? (boxcar, flatcar, pneumatic hopper, bulkhead flat, etc.)
Transload equipment	29. What transload equipment in the following list is served by the facility? (forklift, bale clamp, conveyor, excavator, etc.)
Commodities handled	30. What dimensional commodities in the following list are transloaded at this facility? (feedstocks, panel products, lumber, etc.) 31. What warehouse commodities in the following list are transloaded at this facility? (paper food and beverages, perishables, etc.) 32. What bulk commodities in the following list are transloaded at this facility? (fertilizers, chemicals, petroleum products, etc.)

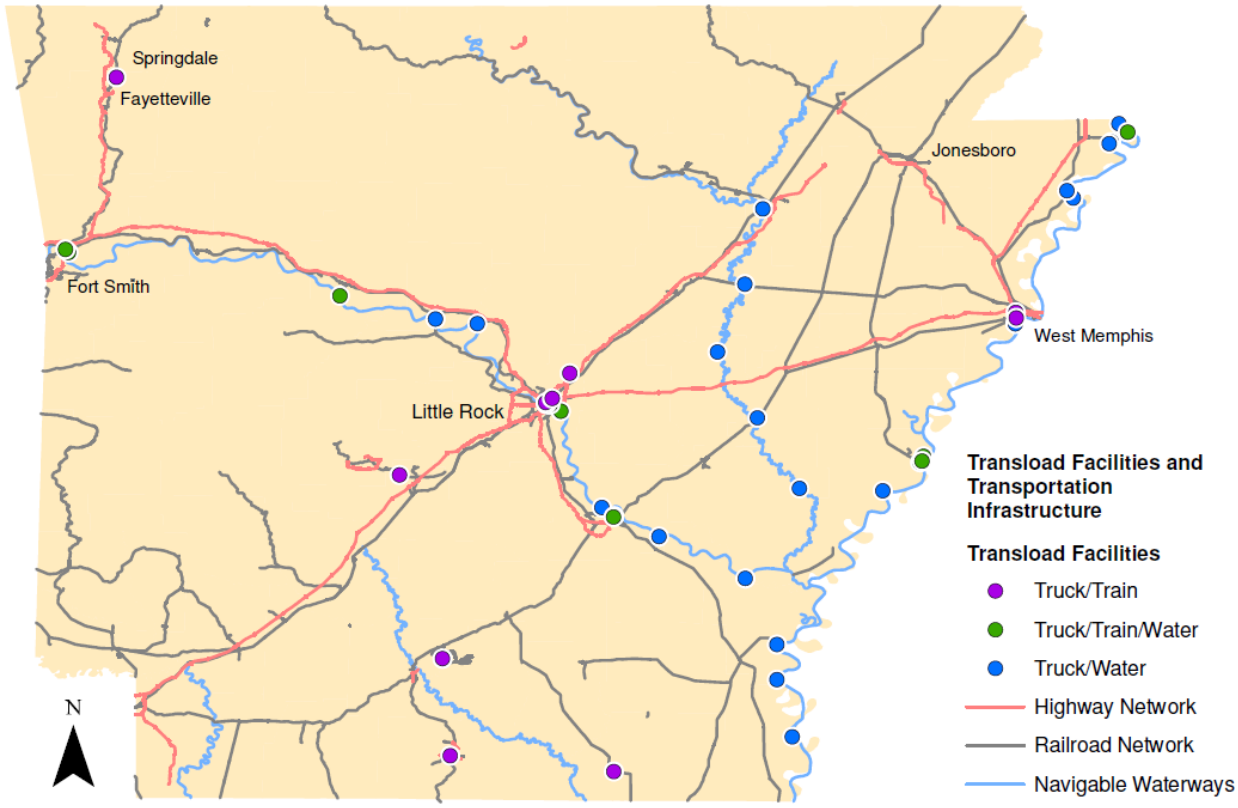


FIGURE 3 Transload facilities and transportation infrastructure in Arkansas

Survey Instrument

This study selected to use an online platform to implement the survey. Unlike paper based surveys (e.g. mail out-mail back), an online platform is more cost effective. Also, previous studies *(22)* indicated that online surveys enhance completion rates and response errors by incorporating logic into the design of the survey. The online survey can allow respondents to skip over sections of the survey that do not pertain to their facility based on answers to preliminary questions.

The survey was designed using Qualtrics *(23)*, a professional online survey tool. Qualtrics allows the survey preparer to incorporate flow logic, use a variety of question formats, and has a mobile friendly interface as shown in **Figure 4**. The survey was designed to be completed in approximately 15 minutes.

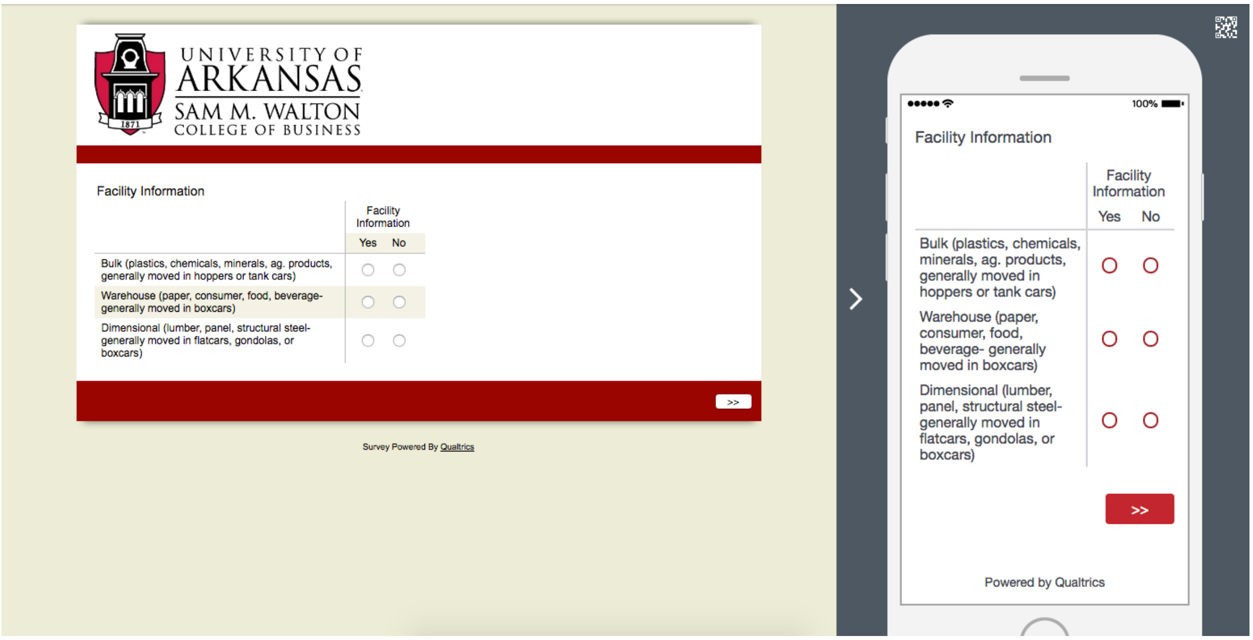


FIGURE 4 Example of the online survey developed in Qualtrics.

Survey Recruitment

An initial phone call was made to each of the 43 facilities identified in the compilation of the sampling frame in order to recruit facility managers to participate in the survey. During the initial phone call, the project was introduced and managers were asked if they would be willing to participate in the survey. If the contact was willing to participate, the survey was then e-mailed to the participant. After one week, each participant that had not completed the survey received a reminder e-mail. Additional reminder e-mails were sent over the two weeks following the initial reminder. The survey remained open for a period of one month from the time the first survey was distributed to the time the last response was collected.

Survey Results

The survey was sent to 16 facilities identified in Arkansas from which six complete responses were obtained. Five responses were gathered after initial contact with the facility. An additional response was gathered following the first reminder. No responses were received as a result of the second and third reminders. While the participant could not be identified because the survey was not completed, it is interesting to note that the survey was opened but not completed at least 6 times.

Two of the 16 facilities decided not to participate after receiving the survey and five facilities did not respond. In the initial phone conversation with facility managers, several issues were raised that led the facility manager to decline participation. These included:

- Did not receive permission from corporate office
- Negative viewpoint on public participation in private industry affairs
- Did not think their services were relevant to the project

Overall, 42% of facilities were either unwilling or unable to participate in the survey. Contacts were never made at four facilities, although their existence was verified either through websites or by reaching their voicemail.

A response rate of 14% resulted for all facilities identified in the sampling frame and 37.5% response rate for those who agreed to participate. The response rate relative to the identified sampling frame (14%) is in line, and slightly better, than surveys of this nature which have reported response rates between 2 and 5% *(22)*.

The information collected from the six complete responses provided valuable information on facility operations, equipment required, and the commodities handled. One major finding, for instance, was that the majority of facilities in Arkansas are privately owned, operated, and funded. Additionally, knowing specific equipment utilized for each mode of transportation or for particular commodities shipped allows for a more thorough understanding of costs associated with operating a transload facility. **Table 2** summarizes the overall findings that relate to the history and funding of the facility.

TABLE 2 Sample of Survey Responses

Question	**Overall Findings**
Who owns the facility?	The responses came from one publically owned facility with the rest owned by private firms. None of the responses indicated joint public-private ventures.
When was the terminal established?	Transload facilities in Arkansas were established over a wide time period. The oldest facility was established in 1960 and the most recent in 2014.
How was the terminal originally funded?	The majority of responses indicated private funding sources. Only one facility reported the use of general obligation funds and a tax levy from the city to support original development of the facility.
What were the private and public roles in establishing the terminal?	The majority of responses indicated that no public agencies played a role in establishing the terminal. The exceptions were one facility that reported involvement of the local port authority and another that reported working with the local Class III railroad.
What are the possible sources of funding for improvements?	The following were reported sources of public funds: TIGER grants, FASTLANE grants, Arkansas Highways (AHTD), sales tax initiatives, and general bond issues. Most facilities reported private funding as the main source improvement funds.
Is there a potential need to expand any of your existing operations?	All but one of the respondents reported that there is a potential need to expand existing operations. Several respondents mentioned the need to add truck bays, railcar storage, barge loading facilities, warehouse and outside storage. None indicated any need to expand to handle different commodities.

CHALLENGES AND LESSONS LEARNED

Through the generation of a statewide inventory of transload facilities in Arkansas, multiple challenges arose related to defining the sampling frame, low survey response rate due to willingness to participate, difficulty identifying contacts at each facility, and determining alternate means through which the necessary information may be gathered. Each are discussed in this section.

Identifying Appropriate Contacts

The survey sampling frame included facilities that were privately owned and operated, those owned and/or operated by Class I and II railroads, and those owned and/or operated by large, national facility managers. This presented a significant challenged when identifying appropriate contacts at each of the facility locations. Often, facilities owned by larger entities were either not willing or able to provide individual contacts for their facility managers. Access to information about individual facilities was then limited because contacts at the corporate office or main office did not share additional contacts. For example, Bruce Oakley has four locations, with their headquarters in North Little Rock. A contact was made at the North Little Rock Office, but the survey was not distributed to the other three locations, limiting responses to only the North Little Rock Terminal. Likewise, finding the appropriate contact within a larger company who was knowledgeable about the facilities in Arkansas and who was willing to participate in the survey proved to be a significant challenge. When identifying appropriate contacts, a clear understanding of the ownership and operation of the facilities is required.

To address this challenge, the research team suggests conducting the survey through phone or on-site interviews rather than surveys. In fact, the research team was able to conduct onsite interviews at two transload facilities prior to the online survey request being sent to those facilities. Through these in-person interviews the research team garnered most of the information requested in the survey and was able to convince the facility managers to participate in the survey.

Survey Recruitment

The low response rate was not completely unexpected, as this is typical for surveys. However, based on feedback from respondents and facility managers that did not participate, one reason for this lack of participation was concern over the private ownership of facilities and proprietary nature of information regarding commodities shipped through these facilities. This hesitancy to share information should be initially addressed by tying the goal of the survey with the goals of private industry within the survey cover letter and participant recruitment script. Emphasis needs to be placed on the economic development aspect of the project, rather than the facility inventory. Economic development programs are seen as tools that would benefit private industries. Further, replacing the online survey with an in-person or phone interview would address the recruitment challenges. During the initial contact with facility managers, it was evident that they were willing to discuss content covered by several questions on the survey, yet were unwilling to participate in the survey itself.

Questionnaire Development

When recruiting participants for the survey, several contacts expressed concerned over a publically funded entity (i.e. the university or AHTD) gathering private data in a driven market. While none of the survey questions requested proprietary information such as tonnages of commodities handled or transportation costs, the perception was in disagreement with this reality. While the recruitment procedure would address this challenge to some degree, design of the questionnaire can also have a positive effect. It is important for the facility operators, management companies, and railroads to be involved in the planning phases of the survey, especially the questionnaire design. This would ensure that their interests are being served and that the data collected does not infringe on proprietary information.

Survey Alternatives

Because the limited responses to the survey did not provide a comprehensive inventory of transload sites in Arkansas, alternate means for obtaining this information were carried out. Methods include browsing facility websites, contacting the railroads serviced by facilities, and visual inspection through satellite images. Facility websites may provide additional information about the ownership of the facility and its history of operations, although these sites rarely list transload equipment or funding/investment histories. Contacts at railroads have proven to be helpful in identifying the ownership and operation of particular facilities, as well as determining location of existing facilities. Google Earth can be used to visually inspect warehousing capacities, rail car, and dock/berth spaces, modes of transportation serviced, larger equipment utilized, and in some cases detect commodities handled. While this is not a perfect replacement for obtaining exact information from each facility, it is a relative estimate that is readily available.

CONCLUSIONS

A statewide inventory of existing transload facilities is necessary to accurately assess the current condition and future potential for the transload industry in Arkansas. In order to provide the AR EDC with the information necessary to continue to grow and draw new industry to Arkansas, accurately capturing existing facilities' operations, stakeholders, capabilities, and commodities was critical. This paper documents the development of a transload facility inventory survey, the challenges encountered, and the lessons learned.

Some of the greatest difficulties with developing a comprehensive transload facility inventory survey were identifying an initial list of facilities, confirming contacts at each of the facilities, and recruiting willing participants. The initial list of transload facility sites in Arkansas provided by the NTAD contained only nine locations, a fraction of the final 43 sites included in the final sampling frame. Contact information for the facility managers at 16 of the 43 sites was obtained and six complete surveys were acquired. The information contained in the completed surveys provides valuable information on facility operations, equipment used, warehousing capacities, and funding and ownership. With a response rate of 14%, alternative means of data collection such as visual inspections using Google Earth were necessary to produce a comprehensive transload facility inventory.

To address the challenges encountered in survey development and implementation, the research team suggests the online survey be replaced with phone or in-person interviews. Additionally, issues raised over unwillingness to participate due to misunderstanding of whether the survey would collect proprietary information are best addressed by including facility managers as stakeholders early and often in the survey design process. In this way, the questions included in the survey and the recruitment procedures could be better tailor to address the concerns over proprietary data sharing. Future work will involve utilizing this information to continue to understand the existing condition of the transload industry in Arkansas, the economic impact of this industry in the state, and opportunities for expansion.

ACKNOWLEDGEMENTS

The authors thank the Arkansas State Highway and Transportation Department for their financial support of this project under TRC1608, “Locating Transload Facilities to Ease Highway Congestion and Safeguard the Environment”.

REFERENCES

1. Thompson, D. “Transloads- Freight Movement Efficiencies in the Next Decade,” Presented at the ASME/ASCE/IEEE 2012 Joint Rail Conference, April 17-19, 2012, Philadelphia, Pennsylvania.

2. Steele, C.W., Hodge, D., Fitzgerald and Halliday, Inc., Halcow, Inc., and Resource Systems Group, Inc., “Background Research Material for Freight Facility Location Selection: A Guide for Public Officials,” NCFRP Report 13, 2011.

3. Bureau of Transportation Statistics (BTS), US Department of Transportation, Commodity Flow Survey, accessed online at http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/commodity_flow_survey/index.html, May 4th, 2015.

4. Jones, B., Cassady, R., Bowden, R., “Developing a Standard Definition of Intermodal Transportation,” National Center for Intermodal Transportation Final Research Project, 2000.

5. Arkansas Site Selection Center, Entergy Corporation, accessed online at http://www.arkansassiteselection.com/About.aspx, July 25, 2016.

6. Arkansas Waterways Commission, accessed online at http://waterways.arkansas.gov/SiteCollectionDocuments/RiverPorts.pdf, July 25, 2016.

7. Arkansas Primary Highway Network, America’s Transportation Awards, accessed online at https://americastransportationawards.org/past-projects/2011-2/ar-arkansas-primary-highway-network/, July 25, 2016.

8. Arkansas State Highway and Transportation Department, Statewide Planning, accessed online at http://www.arkansashighways.com/planning_research /statewide_planning/rrmap11x17_01_2009.pdf, July 25, 2016.

9. Ozment, J., “Demand for Intermodal Transportation in Arkansas,” Walton College of Business, University of Arkansas, 2001.

10. Bryan, J., Weisbrod, G., Martland, C., Wilbur Smith Associates, Inc., "Rail Freight Solutions to Roadway Congestion—Final Report and Guidebook," NCHRP Report 586, National Cooperative Highway Research Program, 2007.

11. Barton, J., Selness, C., Anderson, R., Lindberg, D., and Foster, N., "Developing a Proposal for a Multi-User Intermodal Freight Terminal as a Public-Private Partnership: Lessons Learned About Public and Private Perspectives, Timing, and Roles," Transportation Research Record: Journal of the Transportation Research Board, No. 16559, Transportation Research Board of the National Academies, Washington, D.C., 1999, pp. 145–151.

12. Blytheville, AR Terminal, Kinder Morgan Terminals, accessed online at http://www.kindermorgan.com/content/docs/terminalbrochures/mr_Blytheville.pdf, July 25, 2016.

13. Mid-South Bulk Services, Inc., accessed online at http://midsouthbulk.com, July 25, 2016.

14. Caplice, C. and Phadnis, S., "A Better Approach to Infrastructure Planning," Harvard Business Review, 2014.

15. Anderson, K. and Walton, C., "Evaluating Intermodal Freight Terminals: A Framework for Government Participation," Southwest Region University Transportation Center, Research Report 467505-1, 1998.

16. Berwick, M., "Intermodal Highway/Rail/Container Transportation and North Dakota," Mountain-Plains Consortium, Report No. MPC 01-127.01, 2001.

17. Transload Distribution Association of North America, Membership Directory, accessed online at https://tdana.z2systems.com/np/clients/tdana/publicaccess/membershipDirectory.do?md=1, July 25, 2016.

18. Brogan, J., Brich, S., Demetsky, M., "Application of a Statewide Intermodal Freight Planning Methodology," Virginia Transportation Research Council, Report No. FHWA/VTRC 02-R5, 2001.

19. Bhamidipati, C. and Demetsky, M. "Framework for Evaluation of System Impacts of Intermodal Terminals using Commodity Flow Data," University of Virginia Center for Transportation Studies, Research Report No. UVACTS-14-5-111, 2008.

20. BNSF, Premier Transloader Directory, accessed online at http://domino.bnsf.com/website/premtransloader.nsf/mapprlocations?open, May 5th, 2015

21. Arkansas GIS Office, accessed online at http://www.geostor.arkansas.gov, July 25, 2016.

22. Jeong, K., Tok, A., Ritchie, S., and Park, J., "California Vehicle Inventory and Use Survey: Pilot Study Insights," Transportation Research Board 95th Annual Meeting, Transportation Research Board of the National Academies, Washington, DC, 2016.

23. Qualtrics, accessed online at qualtrics.com, July 25, 2016.