OVERSIZE/OVERWEIGHT PUBLIC DOCUMENTATION BENCHMARKING AND EFFECTIVENESS STUDY

FINAL REPORT AUGUST 2015

Submitted by

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In cooperation with
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Department of Transportation
Bureau of Research

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EXECUTIVE SUMMARY

In the State of New Jersey, commercial vehicle rules are presented to industry in the form of complex official codes and regulations, making it difficult for industry to clearly understand what is expected of them. Cambridge Systematics, Inc. (Cambridge) was tasked by the New Jersey Department of Transportation (NJDOT) with examining best practices in the dissemination of OS/OW information by State Departments of Transportation (DOT) and Departments of Motor Vehicle (DMV) in order to provide background, context, and guidance for the development of supplemental oversize/overweight (OS/OW) educational material.

This research occurred in five distinct tasks:

- 1) An extensive literature review examining the state of the practice for OS/OW information dissemination by state DOTs/DMVs;
- An in-depth examination of material and methods used by five "best practice" states as well as five neighboring states of New Jersey;
- 3) A survey of carriers to determine industry opinion of outreach methods and material:
- 4) A gap analysis to identify and explain inconsistencies between the research team's rating of documents and their actual use by industry; and
- 5) A final report detailing the results of the above analysis.

These tasks identified the need for a multifaceted outreach strategy to provide differing levels of information to various OS/OW operators. The research also provided guidance on preferred outreach methods and industry attitudes towards the emerging use of social media as an information source. This knowledge allowed the research team to suggest material and methods for the NJDOT that will maximize the effectiveness of industry outreach with the goal of increasing compliance.

BACKGROUND

Operating a commercial vehicle in the United States requires an understanding of the many Federal and State rules that govern the industry. Often, this information is provided to the commercial vehicle industry in the form of official codes and regulations which can be complex, making it difficult for industry to clearly understand what is expected of them. Further compounding this difficulty is the fact that regulations vary from state to state and municipality to municipality. Finally, the Federal Highway Administration (FHWA) is also examining the potential impacts of raising the national weight limit; if enacted, the decision would likely affect operations at the state level. The combination of these issues can make understanding how to legally operate a commercial vehicle a challenge.

The State of New Jersey is an example of a state where commercial vehicle rules are provided to the industry in the form of code and regulatory documents. Of particular concern are the rules and regulations related to the size and weight limitations of commercial vehicles operating in the State. Rules and regulations provided in the form of code and regulatory documents can be difficult to comprehend and can create confusion for industry. By better understanding national best practices in information dissemination, New Jersey can create more effective educational material and outreach methods with the goal of increasing compliance in the industry.

OBJECTIVES

The goal of this research was to benchmark current practices and tools utilized by State Departments of Transportation or Departments of Motor Vehicles to disseminate commercial oversize/overweight statutes and regulations to commercial carriers and the public, and assess their effectiveness in increasing regulatory compliance. Research findings can be used to enhance the language of rules and regulations surrounding commercial vehicle operations in New Jersey and improve the methods and resources used by NJDOT to educate the commercial vehicle industry on commercial size and weight regulations.

INTRODUCTION

The performed research was designed to provide the NJDOT with an overview of national oversize/overweight information dissemination practices and recommend best-practices that the NJDOT can utilize to guide the development of their own educational material.

The research team accomplished this through:

- A literature review of national state-of-the-practice or synthesis documents and an initial scan of websites and documents from all 50 states;
- An in-depth examination of resources from 10 states;
- Industry outreach and survey to gauge operators' views on outreach material and methods;
- A gap analysis to discover and explain differences between hypothesized best practices and industry preferences; and
- A final report detailing the results of the research activities.

The tasks performed are explained further in the Summary of Work Performed section.

SUMMARY OF LITERATURE REVIEW

In order to better understand the state-of-the-practice for OS/OW information dissemination, a literature review was conducted to locate studies that compared

different outreach methods. While best practice research or synthesis documentation is readily available on topics including the creation of OS/OW regulations or the development of online permitting, the research uncovered no documents that dealt specifically with the dissemination of OS/OW regulations material. Information dissemination practices by State DOTs on any topic are difficult to find, though there are a handful of generic sources available. One is intended for U.S. Department of Transportation Drafters titled, "Writing User-Friendly Documents." This document is not targeted to any particular topic, and provides suggestions on how to "Engage Your Readers," "Write Clearly," and "Write in a Visually Appealing Style."

Due to the lack of any prior literature on this topic, an additional scan of state websites and documents was undertaken. This scan showed that the national state of the practice is relatively poor when it comes to producing innovative and easy-to-understand outreach material for OS/OW operators. Many state websites offer only basic information with links to large PDF files that contain all the regulations related to commercial vehicle operations in the state. These documents are often written using legal terminology and jargon and contain actual regulations and statutes that can make them difficult to comprehend. A limited number of state DOTs provide any condensed or highlighted material, or a prominently featured link that contains all the basic information a new operator might need presented in layman's terms. After an initial scan of all 50 States, ten sites were explored in further detail—five neighboring states to New Jersey, and five best practice states.

Resources that contained information related to OS/OW operations in these 10 states fit into four main categories:

- Manual or Handbook: Large documents that contained information on all matters related to commercial vehicle operations in the state. OS/OW information was typically included as a chapter.
- Guidebook or Permit Manual: Large documents with information specific to OS/OW operations and/or permit requirements. These were either stand-alone documents, or chapters pulled from a manual or handbook.
- Summary Document: Short documents in multiple formats (tri-fold, single-page, flyer, etc.) that contained summarized information or information on a specific topic.
- Website: Information available directly on the website (instead of in a separate document) and online mapping resources.²

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¹ Plain Language Action and Information Network for the U.S. Department of Transportation. "Writing User-Friendly Documents." http://www.dot.state.fl.us/emo/pubs/QED08-U.S. DOT-Writing%20User-Friendly%20Documents.pdf Accessed Nov 24, 2014.

² Online mapping is one of the most useful tools used in the OS/OW industry. However, because it is not a narrative resource document, this outreach method was not examined in detail in this study.

SUMMARY OF WORK PERFORMED

At the direction of the NJDOT, Cambridge Systematics analyzed the state of the practice for OS/OW information dissemination and developed recommendations for the NJDOT. Specific tasks are described below:

Literature Review

The initial literature review searched for any documents that highlighted OS/OW information dissemination best practices, provided a state of the practice, or included a synthesis on OS/OW outreach and education. This was done both through a web search using a variety of terms ("dissemination," "education," "outreach," "best practices," "guidelines," etc.) as well as searches on organization websites including the American Trucking Research Institute, National Highway Transportation Safety Administration, Institute of Transportation Engineers, and the American Association of State Highway Transportation Officials.

The above searches did not produce any national synthesis documents. As a result, the research team initiated a scan of resources produced by all 50 states. This examination began with a web search utilizing the search terms: "[State] Oversize overweight permits." Links to each state DOT or DMV were then followed and the website examined for ease of use, clarity, and completeness of information. The basic question examined was, "How easy is it to find and understand information about oversize and overweight shipments in a state?" Based on this examination, five neighboring states to New Jersey and five best practice states (highlighted in Table 2) were identified during the initial national scan and their specific resources were explored in further detail in later Tasks. Interviews with officials from the 10 selected states were conducted to confirm initial information and further explore practices.

Results from the initial scan are shown below. Table 1 contains the following information:

- State
- The format that the majority information is provided in
- The availability of a truck map, either static or interactive, with routing or weight restrictions
- An ease to use score based on:
 - 1) Ability to find and navigate the website;
 - 2) Clarity of information presented; and
 - 3) Completeness of information presented.

Table 1 – National Scan of OS/OW Information Dissemination

Truck **Route Information** Ease to use State **Format** Map (Y/N)? (1 easy - 3 hard) PDF **ALABAMA** PDF/Online/Video ALASKA Ν 2 Online N (broken link) **ARIZONA** PDF 3 **ARKANSAS** Υ 2 **CALIFORNIA** PDF/Online **COLORADO** PDF/Online Υ 1 CONNECTICUT PDF/Online Ν 2 3 **DELAWARE** PDF Y (have to order) 2 **DISTRICT OF COLUMBIA** PDF/Online Υ 2 **FLORIDA** PDF Υ Υ 2 Online/Word **GEORGIA HAWAII** PDF Ν 3 **IDAHO** PDF/Online Υ 2 PDF/Word γ 1 **ILLINOIS** 2 **INDIANA PDF** Υ 2 Υ **IOWA** PDF/Online 3 PDF Ν **KANSAS** Υ **KENTUCKY** PDF/Online 1 3 **LOUISIANA** PDF/Online Ν Υ 2 MAINE Online **MARYLAND** PDF/Online Υ 1 Ν 2 **MASSACHUSETTS** PDF/Online **MICHIGAN** PDF/Online Υ 2 Υ 1 **MINNESOTA** Online 3 PDF/Online Υ **MISSISSIPPI** Υ 3 PDF **MISSOURI** Υ 3 **MONTANA** Online **NEBRASKA** PDF Υ 2 2 **NEVADA** Online Ν 3 Online Ν **NEW HAMPSHIRE** 3 **NEW JERSEY** PDF/Online Ν PDF 3 **NEW MEXICO** 2 Υ PDF **NEW YORK** Υ 2 **NORTH CAROLINA** PDF Υ 2 **NORTH DAKOTA PDF** OHIO **PDF** Ν 3 **OKLAHOMA** PDF/Online Υ 2

OREGON	PDF/Online	Υ	1
PENNSYLVANIA	PDF/Online	Υ	3
RHODE ISLAND	PDF/Online	Υ	3
SOUTH CAROLINA	PDF	Υ	3
SOUTH DAKOTA	PDF/Online	N	2
TENNESSEE	PDF	Υ	3
TEXAS	Online	Υ	1
UTAH	PDF/Online	Υ	3
VERMONT	PDF	Υ	3
VIRGINIA	PDF/Online	N	2
WASHINGTON	PDF/Online	Υ	2
WEST VIRGINIA	PDF	N	2
WISCONSIN	PDF/Online	Υ	2
WYOMING	Online	N	2

Highlighted entries delineate the 10 states selected for further evaluation

Examination of Informational Resources

This Task consisted of a detailed analysis of resources produced by Departments of Transportation or Departments of Motor Vehicles for the 10 states identified in Task 1 (five neighboring states and five "best practices" states). The analysis examined the following metrics for each document or resource:

- Format Is the resource available as a Microsoft Word document, PDF, power-point, web-based text, or other format?
- Resource Style Is the resource presented as a guidebook/handbook, a single-page flyer, a report, a legal document, a short document (less than 15 pages), a tri-fold brochure, a website, a graphic, or some other presentation style.
- Contact Information Is phone and/or email contact information for relevant DOT/DMV personnel available?
- Difficulty to Locate Resource Is the resource easy to locate on the DOT/DMV website or does it take a concerted effort to locate the information?
- Readability Using the Flesch-Kincaid Reading Ease Readability Formula, scores represent the grade-level of the text based on the U.S. education system (i.e. 8.2 means that an eighth grader should be able to read the document). Scores above 22 indicated graduate level text.³ Scores are based on sample text (a paragraph or more) drawn from the oversize/overweight section of the resource. If these sections do not exist or do not have enough text, samples from the introduction or purpose sections is used. Scores of "N/A" indicate that there was not a sufficient

-

³ Flesch-Kincaid Readability Score. Online at: https://readability-score.com/

- amount of text available to calculate a score.⁴ For the documents scored, the average was 12.5 and the median was 11.6.
- Resource Organization How is the resource organized? Is information split into chapters based on content, organized around frequently asked questions, organized online by content, or is some other structure used?
- Language Style Utilized Is information presented in simple layman's terms, or is the majority of information in the resource presented in "legalese" that is a restatement or reproduction of statute language?
- Explicit Disclaimer or Warning Does the resource contain a warning that it is meant as a guide or reference only and is not a legal document? (If applicable)
- Inclusion of Policy Language Does the resource contain language regarding policy?
- Use of graphics/charts/info graphics Does the resource contain rich, informative, and easy to understand graphics, charts, or info graphics that help convey important information.

Two sample analysis matrixes for are shown in Figure 1 and Figure 2 below.

Figure 1 – Sample Analysis Matrix - New York State's *Divisible Load Overweight*Permits: A Customers Guide

Analysis Matrix						
	Metric	Result				
ility	What format is the resource? (Word/PPT/PDF/Web/etc.)	PDF				
Accessibility	What style is the resource?	Short Document				
Acce	Are phone and/or email contacts listed?	No				
	How difficult is it to locate the resource?	Easy				
	What is the Readability Score?	13.0 (Purpose and Divisible				
	which is the head will be a control of the control	Load)				
	How is the resource organized?	Sections by organizing				
bilit		question				
ında	Is the resource written in layman's terms or does it use legal language	Layman's terms				
ersta	copied from statute?					
Understandability	Does the resource contain an explicit disclaimer or warning if it is not a legal	No				
	document?					
	Is policy included in the resource?	No				
	Is the resource rich in Graphics/Charts/Infographics?	Yes				

⁴ Note that scores can vary widely depending on the specific section of text used. Location of sample text is noted (where applicable) for each document.

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Figure 2 – Sample Analysis Matrix - Pennsylvania Code Chapter 179

Analysis Matrix						
	Metric	Result				
Accessibility	What format is the resource? (Word/PPT/PDF/Web/etc.)	Web or PDF				
	What style is the resource?	Legal Document				
Acce	Are phone and/or email contacts listed?	No				
	How difficult is it to locate the resource?	Easy				
	What is the Readability Score?	29.8 (Purpose)				
	How is the resource organized?	Section by topic				
bilit	Is the resource written in <u>layman's terms</u> or does it use legal language	Legal language				
Understandability	copied from statute?					
	Does the resource contain an explicit disclaimer or warning if it is not a legal	NA				
	document?					
~	Is policy included in the resource?	No				
	Is the resource rich in Graphics/Charts/Infographics?	No				

Although resources were not ranked, certain characteristics were hypothesized to be conducive to more effective outreach. These characteristics included:

- A mid-range readability score: Scores that were on the high-end of the range indicated difficult reading material or "wordy" language. Scores on the low-end of the range indicated very limited or simplified language that may not contain adequate information.
- Ease to locate: The resource was easily found within the State DOT/DMV website with a minimal number of "clicks" necessary to locate it.
- Layman's terms: The resource utilized layman's terms to explain concepts in a clear, concise manner rather than legal language that may have been copied from statute.
- Rich graphics/charts/info graphics: The document contained a large number of quality graphics, charts, or other visual material that replaced or supplemented textual information.
- Simple organization: Information within the resource is easy to locate due to a coherent organization scheme.
- Short length: Shorter documents were typically considered superior as long as they included necessary information. Larger resources with a logical organization, simplified language, and a variety of visuals were also considered effective.

Table 2 below shows the resources that were reviewed as part of the in-depth examination of resources from the five "best practice" and five neighboring states.

Table 2 – Resource Attributes

Document Name State Resource Attributes			ibutes		
		Document Type & Format	Readability Score	Language Type	Comments/Highlights
Maryland Motor Carrier Handbook	MD	Manual/ Handbook <i>PDF</i>	17.7	Layman's	-Clear, logical organization -Provides links to additional information -Charts and call out boxes with important information
Maryland OS/OW Hauling Permit Manual	MD	Guidebook/ Permit Manual <i>PDF</i>	9.3	Layman's	-Includes examples of related forms (both incomplete and completed) -Short sections/bullet points used to relate information
Non-Divisible Load Permit General Information	СТ	Summary Document <i>PDF</i>	14.8	Layman's	-Targeted – only for non-divisible loads
Regulations of Connecticut State Agencies Department of Transportation OS/OW Vehicle Permit Regulations	СТ	Summary Document PDF	13.7	Legalese	-Bolded headings in different color aid in finding information
OS/OW Hauling Permit Policy and Procedures Manual	DE	Guidebook/ Permit Manual <i>PDF</i>	18.4	Legalese	-Comprehensive information specific to OS/OW operation
Divisible Load Overweight Permits: A Customers Guide	NY	Summary Document PDF	13.0	Layman's	-Text with color photographs to reinforce concepts -Topics organized around frequently asked questions
Legal Dimensions, Weights & Gross Weights for New York State (Permit 71B)	NY	Summary Document PDF	N/A	Layman's	-One-page summaryHighlights differences between parts of state and types of road allows for quick comparison
Information Concerning Oversized/Overweight Vehicles (MV519)	NY	Summary Document <i>PDF</i>	14.3	Layman's	-Text summary of width, height, and length laws
Pennsylvania DOT Truckers Handbook	PA	Manual/ Handbook <i>PDF</i>	9.7	Layman's	-OS/OW Section contains simple graphics to illustrate concepts Contact information included
Pennsylvania Code Chapter 179: OS/OW Loads and Vehicles	PA	Other- Statute Web or PDF	29.8	Legalese	-Comprehensive legal document. Clean, simple format
Transportation Safety Day Presentation	PA	Summary Document PowerPoint	9.0	Layman's	-Graphic-rich presentation format

					-Topic-specific (well development) but information is generally applicable
DMV Permit Website	TX	Website Web	6.6	Layman's	-Interactive, detailed, online resource
					-Specific information categorized by topic with graphics complementing text
Truck Tips	TX	Summary Document <i>PDF</i>	10.9	Layman's	-Tri-fold brochure with summary information including OS/OW load permits, contact information, IFTA, registration and safety
OW/OD Summary Document	KY	Summary Document	N/A	Layman's	-Frequently asked questions section
		PDF			-All information in chart form - clean layout
Motor Carrier Education Manual	OR	Manual/ Handbook <i>PDF</i>	13.7	Layman's	-Comprehensive document with sections on specific topics including size/weight -Heavy use of diagrams, charts, pictures
					-Links provided to outside resources (maps)
Truck Size and Length Limits	OR	Summary Document <i>PDF</i>	5.9	Layman's	-Simple format – 3 pages -Color used to distinguish sections
Truck Weight Limits	OR	Summary Document PDF	11.6	Layman's	-Graphics used in conjunction with charts -Information specific to weight
Oregon DOT Motor Carrier Transportation: Over- Dimension Operations	OR	Website Web	7.2	Layman's	-Comprehensive, interactive website -Information presented on actual website instead of linked in PDFs/documents
Over-Dimension Permitting	OR	Other- Presentation PowerPoint	9.9	Layman's	-Detailed, image-laden, presentation specific to over-dimension permitting -Not-publically available through website
For your Information Flyers	СО	Summary Document <i>PDF</i>	7.2	Layman's/ Legalese	-Topic-specific, short flyers -Blend summary language and legal language (with citations)
Permit Office Policy Manual	IL	Guidebook/ Permit Manual <i>PDF</i>	14.9	Legalese	-Interactive Table of Contents -Legal language copied from Administrative Code
Form OPER753 – Maximum Legal Dimensions & Weights	IL	Summary Document <i>PDF</i>	N/A	Layman's	-Significant use of tables and diagrams to portray information

Full Citations for all documents are provided in the Bibliography

Industry Outreach Survey

In order to better understand the industry's use of and thoughts on current outreach material, an online survey was developed. The survey was emailed to industry contacts including members of the Specialized Carriers & Riggers Association and permit applicants from the New Jersey DOT Permitting System. The survey ran for approximately two months (April 15 – June 12) and received 89 full responses out of 117 initiated (76% completion rate). It is important to note that while the survey results are informative, they do not represent a scientific study. Although attempts were made to reach as diverse an audience as possible, survey respondents do not represent a random sample and results should not be projected to the country at large.

Answers to the preliminary questions reveal some interesting trends.

- The majority of respondents work for companies with a small number of trucks, but they carry a significant number of OS/OW loads in a year.
- Most permit applications are handled by a specific person or group within the
 organization instead of by individual drivers. Implying that better education and
 outreach to a small number of people may be effective in increasing compliance
 throughout the trucking fleet. Individuals completing permit applications could
 relay important details about each load to drivers, rather than the DOT/DMV
 needing to reach each driver individually.
- In general, websites, guidebooks/handbooks, and speaking to a person on the phone were the most effective means for obtaining information across all industry organizations (State DOT/DMV, SC&RA, JJ Keller, WideLoadShipping.com, and State Motor Carrier Association).
- Training videos, social media, or presentations either online or at industry events were generally viewed as "ineffective" or were not utilized at all.

At the state-specific level, online information such as real-time GIS mapping, shown in Figure 3 below, and state permit portals received the highest ratings. This is not surprising, as these two resources are critical to the day-to-day functioning of a carrier and directly influence their ability to get permits and move shipments. For information and education resources, short summary documents generally were not highly regarded, with many of the flyers or pamphlets receiving "neutral" replies indicating a general ambivalence towards the short summary material. Interestingly, the DOT/DMV websites—many of which include similar information as the summary documents—scored well. This may indicate a preference for web-based information over Word or PDF documents, even though the information provided is similar.

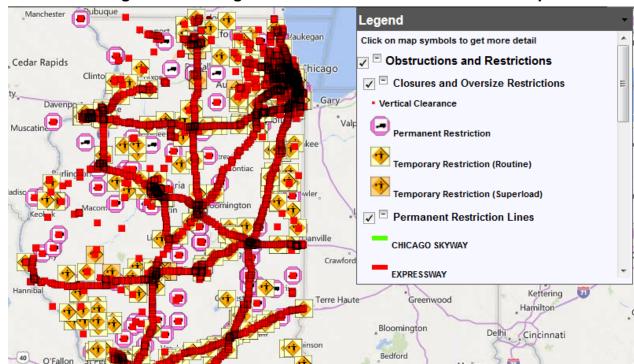


Figure 3 – Getting Around Illinois – Online Interactive Map

Another interesting conclusion from the survey is the relatively positive ratings for dense resources such as trucker manuals or guidebooks. Since most of the contacts reached for the survey had previously applied for permits, they may represent more experienced drivers who already have a basic understanding of the laws for their given operating area and need specific, detailed information for each state that would only be found in the more data-intensive documents. Stated requests for detailed information on "goofy" rules for each state or municipality corroborate this idea. However, respondents also stated the need for a national "quick-glance" reference guide that would allow them to easily identify inconsistencies between multiple states.

Gap Analysis

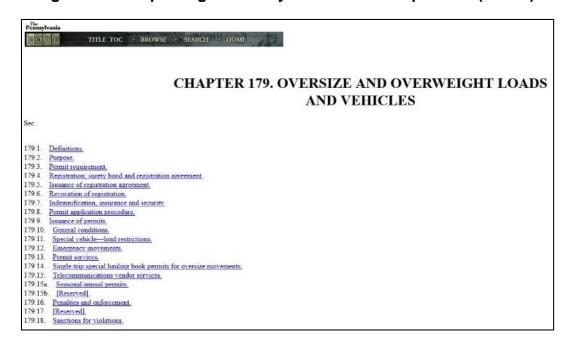
The Gap Analysis discovered some important differences between the research team's initial assumptions developed during Task 1 and Task 2 and industry opinions collected in Task 3. Significantly, scores of "very useful" and "useful", the top two ratings categories (of four), for many of the documents that initially were assumed to represent best practices were low. For example, Colorado's FYI Flyers and Texas' Commercial Truck Operation Flyer (see Table 1) were both identified as potentially effective documents in Task 2. However, they received fewer "very useful" or "useful" ratings than other documents in their respective states. New York State's *Divisible Load Overweight Permits: A Customers Guide*, was another document that was expected to score well due to its simplified language, use of photographs and other graphics, and relatively short length. Among New York State's resources however, it received the most ratings of "not used or not useful." Figure 4 below shows a sample page from the document.

Figure 4 – Sample Page - New York State's Divisible Load Overweight Permits: A Customers Guide



Similarly, some resources received higher ratings than expected. Pennsylvania's Statutes and Regulations, shows below in Figure 5, received a total of 9 "very useful" or "useful" ratings (out of 12), and tied for first among the four Pennsylvania resources rated in the survey. Statute documents were generally graded very low by the research team during Task 2 due to their use of complicated language, lack of graphics, high readability score, and other attributes (including the lack of contact information in Pennsylvania's case).

Figure 5 – Sample Page - Pennsylvania Code Chapter 179 (online).



More generally, assumptions concerning the use of graphics and a document's size and readability were not borne out in the survey results, though these variables were not addressed directly in each of the state resources. There appears to be little connection between the length of a document or its readability score and the rating it received from industry users. The Pennsylvania Statues and Regulations utilized legal language and complex sentences yielding a high grade level readability score, yet was rated as "useful" or "very useful" by 75% of respondents. Some of the longest and most complicated documents—handbooks/guidebooks and permit manuals—received mixed reviews in every state that they were rated (Delaware, Maryland, Illinois, Pennsylvania, and Oregon). In all cases, the number of "very useful" and "useful" ratings they received placed them in the middle of each state's resources.

Although the exact reasons for the gaps noted above were not explored in depth, some logical assumptions can be made. First, the Task 3 survey was sent to known industry contacts and to carriers who had previously applied for permits through the New Jersey DOT Permit Office. Although efforts were made to contact a wide range of drivers, it is likely that the vast majority of respondents were experienced operators. This demographic likely has different information needs than new OS/OW drivers, or drivers that are new to a particular state. Experienced drivers should know basic OS/OW requirements for the states they operate within, and would require detailed information resources such as a trucker quidebook in order to answer specific questions, rather than a summary document. This would help explain the low ratings for documents such as New York State's Divisible Load Overweight Permits: A Customers Guide. Additionally, all of the supplemental material rated in the survey was available online through a DOT or DMV website, with the exception of Oregon's Over-Dimension Permitting slideshow. Lower scores for the summary documents than the generic website may indicate a preference for presenting summary information in an online format rather than as separate files on the website. Finally, the survey did not account for outreach efforts by other State DOTs/DMVs. Comprehensive outreach efforts by a state to highlight a document that were not obvious from the website or were not mentioned during the Task 1 interviews could result in a higher score for a resource than would otherwise by expected.

Another important finding is the limited use of and lack of interest in social media resources such as Twitter and Facebook. Some states do not utilize social media at all (Connecticut) while others use Facebook, Twitter, and/or YouTube in order to provide information to carriers (Texas and Illinois). Of all the outreach methods available to DOTs and DMVs, utilizing social media to advertise changes, updates, or important announcements received the fewest "very useful" and "useful" ratings. One reason for this could be the set of drivers who responded to this survey. As discussed above, it is likely that the majority of respondents were experienced drivers who are likely older and less prone to utilize social media. This could change as younger drivers who have grown up with a social media presence enter the workforce. Social media could also function as an outreach tool to help attract this demographic to a job that is facing a severe labor shortage.

Final Report

The final report for this project highlights the objectives, background, and goals of this research. It also includes a summary literature review and combines information from the four main Tasks to provide conclusions and recommendations for the NJDOT.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The research presented in this report appears to be the first national examination of information dissemination practices for oversize and overweight regulations and policy. It is also the first to examine industry opinion on outreach methods and material on a multi-state level.⁵

The research team determined that there is a need for a multifaceted outreach strategy to provide differing levels of information for various OS/OW operators. The research also provided some guidance on preferred outreach methods and industry attitudes towards the emerging use of social media as an information source. A final set of suggested resources for NJDOT along with a schedule for updates was developed.

Recommendations

Based on information collected during the previous four tasks, the research team believes the following general recommendations and best practices are applicable to all states:

- Provide current OS/OW information on an easily found website;
- Create outreach material targeted at multiple audiences;
- Further explore the development of a smart-phone application that can provide mobile mapping and paperless permit options; and
- Transition documents and permitting to an online format whenever possible.

In combination with the need to target outreach material at multiple audiences is the need to create multiple styles of outreach documents. A multifaceted approach that utilizes multiple document types has the best chance of reaching a wide audience and increasing compliance.

Commonly encountered documentation, along with recommended application are found below. Recommendations are based on best practices drawn from resources in the 10 best practice states.

⁵ Both Oregon and Texas have conducted industry surveys that include questions on outreach. However, the surveys do not include document-specific questions.

Manual or Handbook: This is a large documents that contains information on all matters related to commercial vehicle operations in the State including topics such as registration, permits, insurance and taxes. OS/OW information is typically included as a chapter. This comprehensive, detail-oriented document is meant to be the main source of information for all commercial vehicle operations in the state.

Guidebook or Permit Manual: This is a detailed, comprehensive document with information specific to OS/OW operations and/or permit requirements. These resources are traditionally created as stand-alone documents, and could also be included as a chapter in a manual or handbook. This resource is targeted at drivers who operate OS/OW trucks and need to find information quickly on this topic alone.

Summary Document: This resource style uses multiple formats (tri-fold, single-page, flyer, etc.) that contain summarized information or information on a specific topic. These are created as quick-glance documents designed to be mobile and could carried on-board vehicles, and typically lack the detailed information found in guidebooks, manuals, or handbooks. The majority of documents researched summarized OS/OW rules; however, industry outreach indicated a need for documents that highlight recent regulatory changes, seasonal information, and unusual rules and regulations (either topical or geographic). Industry outreach also indicated a need for summary *between* states, rather than a focus on OS/OW rules *within* a state. These should can be used to help publicize a rules change, bring attention to a regulation that is frequently being misunderstood, or to help a DOT get out a targeted message on a specific topic.

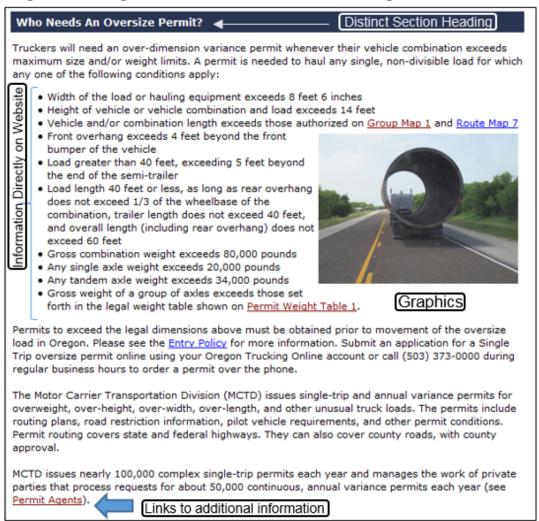
Website: Researched websites had multiple configurations. For some states, such as Oregon and Texas, they serve as the main resource for OS/OW information. Nearly all material is found directly on the site itself instead of through attached documents. While this can make it easier to find information, especially if accessed through a slow internet connection or mobile device, it is a more difficult task for DOTs or DMVs who do not have a skilled technology department to create and maintain the site. Other states use websites as a starting point, providing some limited information directly on the site with the majority of information available as attached resources.

While it is valuable identifying the types of resource materials commonly used by other State DOTs in disseminating OS/OW information; it is equally as valuable to understand their appropriate application and method of distribution. The following provides recommended examples and discusses how outreach could be distributed and highlights key elements for inclusion.

Providing updated OS/OW information on a website that is easily found during both an internet search and within a host DOT or DMV website is the most critical outreach method. While influencing search results may be somewhat beyond the ability of a state to control, creating logical and easy to find paths to OS/OW information from the main DOT or DMV site is something that states can and should pursue. The importance of this is illustrated by Colorado. Prior to a recent website redesign, Colorado's OS/OW information was found through a "Commercial Vehicle Permits" link on the main site. The same information is now located in the Business Center of the DOT website.

location that is not easy to find according DOT personnel.⁶ Ease of accessibility also applies to online permitting portals. Figure 6 represents an easily found, web-based resource with key attributes highlighted.

Figure 6 – Oregon DOT OS/OW Website Home Page



Source: This portion of Oregon's Over-Dimension Operations website is the first link that appears during a Google search for "Oregon Oversize Overweight". The hyperlink to this specific section of information is clearly visible at the top of the initial page.

The need to develop outreach material should be approached through multiple lenses. First, DOTs and DMVs should provide in-depth, up-to-date, and specific information through a Trucker Handbook, Guidebook, or Manual for experienced users. Due to the complexity of information, this material is difficult to summarize, though making an OS/OW chapter available as a separate document in addition to including it as part of a Commercial Vehicle Operation manual or guide may be prudent. Survey results indicate that total length and readability are not factors in determining use; emphasis should be

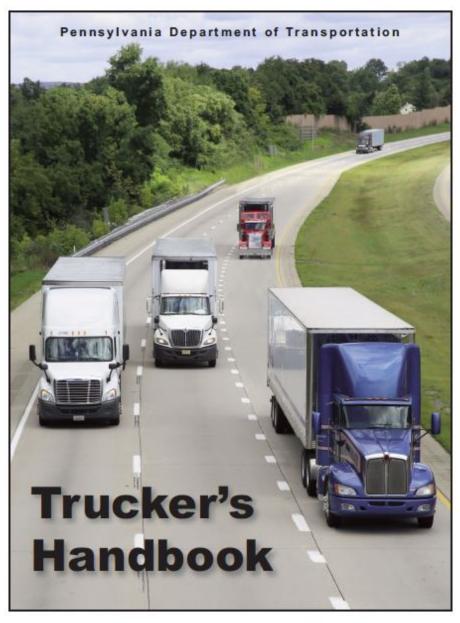
17

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⁶ Interview with Christopher Johnson, Colorado DOT Permit Office. February 19, 2015.

placed on providing comprehensive, detailed information. Providing a link to the actual statute or regulation may also be helpful. Pennsylvania's Truckers Handbook is a good example of a comprehensive, detailed handbook. Sample pages from the document are shown in Figure 7 below.

Figure 7 – Select Pages from Pennsylvania DOT *Trucker's Handbook*





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BRIDGE FORMULA

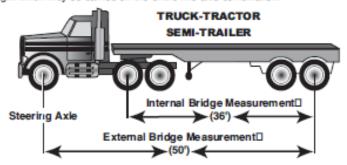
Axle weights and maximum gross weight for combinations registered in Classes 21 through 25 (greater than 73,280 pounds) and carrying more than 73,280 pounds are determined by the Bridge Formula.

Note: The Bridge Formula also applies to out-of-state combinations registered or authorized to carry and carrying more than 73,280 pounds.

Instructions for determining Bridge Formula Allowance.

First Step: Measure the external bridge of the combination, the center-to-center distance between the first and last axles. With this distance, you can determine the maximum allowable gross weight of the combination.

Example: Using the illustration as an example, the external bridge measures 50 feet. Using the Bridge Formula Table – Table 2 (page 25), locate 50 feet in the left-hand column. Follow the 50 feet line to the column title "5 axies." The table shows that 79,500 pounds is the maximum gross weight which may be carried on the entire five-axie combination.



Second Step: Measure the internal bridge of the combination, the center-to-center distance between the second and last axles. With this distance, you can determine the maximum allowable gross weight on this group of axles.

Example: Again using the illustration, the internal bridge measures 36 feet. Using the Bridge Formula Table – Table 2 (page 25), locate 36 feet in the left-hand column.

Follow the 36 feet line to the column title "4 axies." The table shows that 68,000 pounds is the maximum allowable gross weight, which may be carried on the four-axie group.

The Bridge Formula Law further specifies that the overall gross weight on any group of two or more consecutive axies cannot exceed that produced by using the Bridge Formula. (For example, two axies on a four-foot spacing are permitted to carry 34,000 pounds for the pair according to the Bridge Formula table.) The law also allows two consecutive pairs of axies to carry up to 34,000 pounds each, if the overall distance between the first and last axies of the consecutive pairs is at least 36 feet.

With the Bridge Formula Law applying to any group of two or more consecutive axies, experience shows that axie groups two and three, four and five, two through five (internal bridge), and one through five (external bridge) are the critical groups that should always be checked.

Figure 7 - Continued

III. It is not driven, hauled or towed at a speed greater than 25 miles per hour;

IV. It is driven, hauled or towed by a person who is at least 18 years of age;

V. It is followed by a vehicle that is displaying an "Oversize Load" sign on the rear of the vehicle and is operating continuously activated hazard signal lamps; and,

VI. It is covered by the minimum levels of liability insurance coverage on the vehicle as are required to be maintained under Chapter 17 (relating to financial responsibility) by owners of registered motor vehicles. The requirement of this subchapter shall be met if the minimum amounts of liability insurance coverage for the implement of husbandry have been provided under farm liability coverage maintained generally by the owner. Coverage prescribed under Subchapter B of Chapter 17 (relating to motor vehicle liability insurance first party benefits) shall not be required to be maintained or provided for the implement of husbandry."

SPECIAL HAULING PERMITS

A vehicle or combination with a nondivisible load exceeding any legal length, width, height, or weight limit may qualify for a Special Hauling Permit to operate on state highways in a manner which preserves the safety of highway users, protects the structural integrity of highways and bridges, and promotes the efficient movement of traffic.

Application Procedure

To obtain a Special Hauling Permit, first complete an application (Form M-936A) giving particulars on the vehicle, load, and proposed routing. Then submit your completed application to the Transportation Department District Office nearest the point of origin (see page 41). Applicants who have an updated account number may also submit permit applications via the internet. Most web-submitted applications are processed in under a minute using the Department's state-of-the-art APRAS program (APRAS is the acronym for Automated Permit Routing/Analysis System). Web-submitted applications will be sent by e-mail. Persons not having an account number need to submit a current Insurance Certificate evidencing coverage of at least \$1,000,000 combined single limits and naming the Commonwealth of PA as an "additional Insured". Permits may also be obtained through any registered permit service. The District permit staff will review each application in its entirety, giving particular attention to completeness, accuracy, nondivisibility, and the proposed route of travel.

Your proposed routing may be changed for one or more of the following reasons:

- overlength and overwidth vehicles are routed around highway and bridge construction projects which cannot accommodate the permitted vehicle, due to lane changes or reduced lane widths:
- overheight vehicles are routed around overhead structures that do not provide adequate vertical clearance for the permitted vehicle;
- overweight vehicles are routed around bridges which would be loaded beyond their Operating Rating by the permitted vehicle; AND,

Survey comments also indicated a need for summary material that addresses unusual rules within a state or municipality, as well as a need for a general comparison between states. This type of focused summary material can act as a quick reference guide for trucks that operate across multiple states or within municipalities with rules that differ from the state at large. Outreach to a small group of carriers may help better identify problem areas for each state. A standard format that highlights similarities and differences between states (maximum weight limits, hours of operation, escort requirements, divisible/non-divisible status, etc.) could be beneficial. An example used by the Governors Highway Safety Association is shown in Figure 8 below.⁷ Professional organizations such as the Northeast Association of State Transportation Officials (NASTO), which are already discussing the possibility of coordinating size and weight regulations and permitting, are logical places to begin developing a template that could be shared between multiple states.⁸

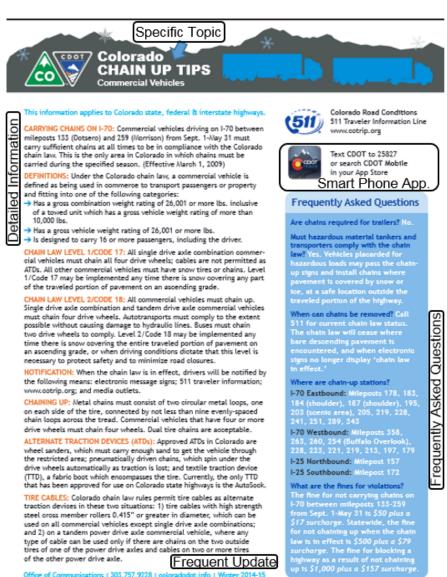
Figure 8 – Governor's Highway Traffic Safety Administration Fact Sheet

⁷ Governors Highway Safety Association. Highway Safety Laws by State. Online at: http://www.ghsa.org/html/stateinfo/bystate/index.html Accessed Nov 24, 2014.

⁸ Interview with Stephanie Molden, Connecticut DOT Permit Office. February 2, 2015. Also interviews with Dennis Blades and Jeff Kohel, Delaware DOT Hauling Permit Section. February 4, 2015.

The need for summarized introductory information is less obvious, as the vast majority of permit applications are handled by a specific group or person rather than by each individual driver. This implies a large degree of institutional knowledge that drivers can and do turn to instead of summary information provided by the State. However, short pamphlets or flyers that address particular areas of concern such as uncommon rules or regulations that have recently changed would be beneficial. These should be viewed as short-term documents that will need to be frequently updated or phased out. For example, although Colorado's FYI Flyers on size and weight did not score well in the survey, the DOT also produces a flyer on winter chain use (See Figure 9 below). Although this document is not directly related to OS/OW, further outreach should be conducted to see if this style of document concerning an uncommon OS/OW rule would better match survey requests for summary material on unusual regulations.

Figure 9 – Colorado Chain Up Tips



State DOTs and DMVs should further explore the development of a smart-phone application. This was one technology that received a large number of positive ratings. Specific requests from survey respondents indicates a desire for mobile mapping/routing restrictions and the ability to have permits on the phone, allowing paperless operation. Illinois currently allows drivers to keep a Special Vehicle Movement Permit Provision (OPER 993) on an electronic device. This trend is likely to continue as the demographics of the trucking fleet change and older, more experienced drivers (who were more likely to answer this survey) are replaced with younger drivers more accustomed to smart-phones and social media. Similarly, DOTs and DMVs should seek to make as much information as possible available digitally. In alignment with requests for a smart-phone application and the high use of websites, information such as permits, summary documents, and sections of larger documents should be available online, preferably in a mobile webbrowser friendly format. Permitting should also be available online through a web portal if not already, as this was the preferred method for permit applications. The figure below shows New York State's online pre-screening tool for OS/OW routing.

DEPARTMENT OF TRANSPORTATION A-Z Site Index | Contact NYSDOT HOME TRAVEL CENTER BUSINESS CENTER Projects Safety Transportation Partners Travel Related Info Oversize / Overweight Vehicle Pre-Screening Tool OVERSIZE / OVERWEIGHT T > OVERSIZE / OVERWEIGHT OS/OW Layers Oversize / Overweight Vehicle Pre-Screening Tool Welcome to the New York State Department of Transportation Oversize / Overweight Vehicle Pre-Screening Tool (OS/OW PST) website. PRE-SCREENING TOOL Please Note: Screen resolution of 1280 x 1024 or higher is Launch Pre-screening Tool recommended for optimal viewing. · How to Use This Tool · Printable Listing of Travel Please be aware that given the sizes of the images used by this tool, a high speed Internet connection is recommended. If you are using a low · Commercial Vehicle Permits speed (dial-up) connection, printable listing of travel restrictions are Contact Us available here. The pre-screening tool has been developed to help the transportation industry and the general traveling public with choices in both OS/OW and legal vehicle routing. This tool will help to identify appropriate routes of travel and travel restrictions. Travel restrictions depict physical constraints such as closed or weight restricted bridges as well as constraints of a more temporary nature, such as maintenance or construction projects.

Figure 10 - New York State Oversize/ Overweight Vehicle Pre-Screening

NJDOT Recommendations

The research team also developed a list of resources, target audiences, resource settings, and an update timeline specific to the needs of the NJDOT. These are listed in Table 3 below.

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⁹ Interview with Geno Koehler, Permit Unit Chief, Illinois DOT. January 29, 2015.

Table 3 – Resource Recommendations for the NJDOT

Document Type	Setting for Use and	Purpose	Contents	Update Timeline
	Target Audience			
Manual or Handbook **Stephand Stephan Center Manufool, **Revised OSC(20089887, 2012 A. **Individual Stephand William Stephand Manufool **Individual Steph	- Paper copies in office setting - All Commercial Vehicle Operators	Main reference for all CVO in the state.	- Detailed, comprehensive regulations for all Commercial Vehicle Operations (CVO) including sections on OS/OW operation	5-6 years or in response to major changes in policy or regulations.
Guidebook or Permit Manual WESSILVERHILLER MANUAL PRINT FULCT LEAF PRINCESSES NAME PLUCT LEAF PRINCESSES NAME *** *** *** *** *** *** ***	- Paper copies in office setting, digital in truck - OS/OW Operators	Field reference with detailed information specific to OS/OW operations in a shorter and more convenient format than a full Manual/Handbook	- Detailed, comprehensive information on OS/OW permits and operations. May be a chapter of a Handbook/Manual	2-3 years or in response to major policy or regulation change
Summary Handouts (Pamphlets, Flyers, Tri- fold Brochures)	- Paper copies and/or digital in truck - All Commercial Vehicle Operators	Quick reference guide for identified important topics	 Unusual regulations Comparison guide between neighboring states Topics of focus for prevention/enforcement Recent regulation changes 	-Rotating topics or updated every year. -Comparison guide with neighboring states should be updated when one of the included states makes a significant change.
Website Website The property of the property	- Digital in office and truck - All Commercial Vehicle Operators	Serve as a gateway to all information on CVO including OS/OW specific details. Basic information should be directly on the site with links to documents with further details. Provide a Link/Portal to permitting.	- Truck-specific real- time GIS mapping. Clear links to all above documents. News feed with alerts. Online permitting can also be through this site, or if another portal is used, it should be prominently linked.	Ongoing basis
Video Introduction and Overview	- Digital in office - New operators in NJ	Multimedia introduction of resources	-Description of available resources	Change in administration

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- State of Connecticut Department of Transportation. *Non-Divisible Load Permit General Information*. No date. Online at: http://www.ct.gov/dot/lib/dot/Documents/dpermits/eh_ndlgi.pdf
- State of Connecticut Department of Transportation. Regulations of Connecticut State
 Agencies Department of Transportation Oversize/Overweight Vehicle Permit
 Regulations. Online at:
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 No date. Online at:

 ftp://ftp.dot.state.pa.us/public/Bureaus/HighwaySafety/Web%20Development/HOP%20Strike%20Off/2011Transportation_Safety_Day_Presentation.pdf
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