

ALLIANCE FOR UNIFORM HAZMAT TRANSPORTATION PROCEDURES

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(NCSL)

By

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ALLIANCE FOR UNIFORM HAZMAT TRANSPORTATION PROCEDURES

1.0 INTRODUCTION

The Alliance for Uniform Hazmat Transportation Procedures (Alliance) has been in operation for 14 years and, desires to expand its membership from the current seven states and attract other states to join the Alliance. The National Conference of State Legislatures (NCSL) engaged the Battelle research team to develop a set of recommendations that the Alliance could use for demonstrating the advantages of the Alliance to new states interested in joining the Alliance. These recommendations will in part be based on identified weaknesses, threats, and/or obstacles that exist in practice and will include specific suggestions for overcoming the issues identified.

1.1 Objectives

The three major objectives of the project are:

1. To conduct a comprehensive review of benefits and costs from the experience of the member states and carriers, and from the comparison between member and non-member states, and from carriers inside and outside of the Alliance. The net benefits include three key components: safety benefits, cost savings, and revenue benefits.
2. To provide NCSL with the documentation needed to make a persuasive case to non member states to join the Alliance. This case will include evidence showing the specific benefits derived from cost savings, increase in state revenues and improvements in public safety from the program.
3. To identify obstacles to growth and recommend areas of improvement in order to enhance the Alliance's effectiveness and attractiveness to other states.

1.2 Study Methodologies

In order to conduct this study, the Battelle Team relied on diverse information sources. These sources made use of both published and unpublished documents. For safety analyses, key sources of information included the Census, Crash and Inspection Files of the Motor Carrier Management Information System (MCMIS). To identify carriers, both in and outside the Alliance, the research team used the Pipeline and Hazardous Materials Safety Administration (PHMSA) hazmat carrier registration file and the spreadsheet of carriers permitted in the Alliance maintained by the state of Ohio.

Interviews with state officials and carriers provided important inputs for the analysis. Questionnaires were developed and used for both categories of interviewees. Sections 3 and 4 provide overview of both surveys. Detailed descriptions of survey results are presented in Appendices A and B. In addition to interviews with carriers and States, the team also talked to key experts knowledgeable in hazmat transportation in such organizations as FMCSA to collect their insights concerning potential recommendations for improving the Alliance.

A key portion of the research focused on determining if safety benefits existed for those carriers that operate in the Alliance compared to those carriers that operate outside the Alliance. For the safety analysis, the Battelle Team used the MCMIS Crash and Inspection files along with PHMSA's registration database. The analysis also developed a comparison in crashes between Alliance and non-Alliance carriers. In addition, comparisons were made between out-of service (OOS) rates for the two carrier groups. These comparative data were monetized by using dollar values for crashes and OOS incidents and an assessment was made of the potential safety related benefit if all carriers were in the Alliance. Section 2 presents detailed discussion of the safety analysis.

1.3 Recommendations

One of the major focuses of the project is to identify how being an Alliance member can be more attractive to both member and non-member states as well as carriers. Recommendations were developed based on interviews with states and carriers as well as selected knowledgeable experts. The recommendations, which are presented in Section 5, are based on both quantitative and qualitative assessments of the Alliance program.

2.0 THE SAFETY BENEFITS OF CARRIERS REGISTERING IN ONE OR MORE ALLIANCE STATES

The purpose of this evaluation is to assess the safety benefits of carriers registering and obtaining a permit to transport hazardous materials (hazmat) and hazardous waste in Alliance States. The first step is to identify the carriers that operate in the Alliance states and those that do not. From these two lists, the safety performance will be evaluated using three files maintained by the Federal Motor Carrier Safety Administration (FMCSA) and the Pipeline and Hazardous Material Safety Administration (PHMSA). The three FMCSA files are in the Motor Carrier Management Information System (MCMIS) and include the Census, Crash and Inspection files. The Crash file comprises all “serious” crashes involving large trucks. This includes applicable hazardous materials (hazmat) crashes. The PHMSA files include a Hazardous Material Registration File and for hazmat spills, the Hazardous Material Incident Reporting System (HMIRS). HMIRS is almost completely limited to incidents involving hazmat spills.

The evaluation is to provide an unbiased assessment of the safety benefits of carriers registering and obtaining a permit to transport hazardous materials and hazardous waste in Alliance States. The Alliance States’ Registration file obtained from the Public Utility Commission of Ohio provides the basis for identifying those carriers that operate fully or partially in Alliance States and the PHMSA Registration file can be used to identify those Hazmat Carriers that operate completely outside the Alliance States. The Motor Carrier Management Information System (MCMIS) maintained by FMCSA, includes the Census, Crash and Inspection files. They can then be used to identify possible safety benefits of obtaining a permit from the Alliance states. The MCMIS Crash file comprises all “serious” crashes involving large trucks. This includes applicable hazardous materials (hazmat) crashes. The PHMSA files include a registry of all Hazardous Materials carriers. PHMSA also maintains the Hazardous Material Incident Reporting System (HMIRS) a database that is almost completely limited to incidents involving hazmat spills.

In order to identify a carrier’s safety performance using applicable data, the carrier’s DOT number must be correlated to either a particular inspection or crash. Without the US DOT Number they are very difficult to identify. A limitation of using the Census and Inspection files is that not all carriers that are registered with the Alliance have a DOT number. One reason for this is that some intrastate waste carriers may not be transporting placarded hazmat wastes and consequently would not have to register with FMCSA and would not be given a US DOT Number. Although they still are likely to be inspected and may be involved in crashes, the process of matching carriers to relevant data is extremely difficult without the number. Consequently, the safety assessment is based on the Alliance Registrants with DOT numbers and the PHMSA Registrants with DOT numbers that do not operate in the Alliance States.

Based on the Alliance state Registration File, about 40 percent of the waste haulers do not have US DOT Numbers. A query of the Alliance Registration File revealed that there were 222 carriers that registered in the “hazmat waste only” states of Illinois, Michigan or Oklahoma. One hundred and twenty nine, about 58 percent, appeared to possess valid DOT Numbers – a number containing no letters and having less than 9 digits. Excluding these carriers in the safety

performance statistics for the Alliance registrants skips only about 3 percent of the Alliance carriers.

Rather than attempting the tedious process of identifying them by carrier name, this assessment was based on only the Alliance Registrants with DOT numbers and the PHMSA Registrants that do not operate in the Alliance States. The differences between the two samples were assumed to be unbiased. While with great difficulty it might be possible to identify some of the Alliance non placarded waste only haulers that operate in only one State, there is not an effective method for identifying the waste only haulers that operate in only one state outside the Alliance. Thus, adding the waste only haulers operating in one Alliance State might actually introduce a bias.

While the records for waste only haulers that operate in only one state are difficult to capture if they do not have a US DOT Number, a query of the Alliance Registration File revealed that there were 222 carriers that registered in Illinois, Michigan or Oklahoma. In addition, 129, about 58 percent, appeared to have valid DOT Numbers – a number containing no letters and having less than 9 digits. As will be shown below, the failure to include these carriers, less than 100 of them, in the safety performance statistics for the Alliance registrants will skip about three percent of the Alliance carriers with unique DOT numbers.

2.1 Alliance Carriers

In this evaluation analysis, Alliance carriers are defined as those carriers that have permits and operate in the Alliance states. The process identifying the Alliance carriers started with two lists, the list of registered Alliance carriers and the PHMSA list of carriers that registered to transport HM materials by truck in June of 2008. Since carriers transporting hazardous materials and waste in Alliance States must register, the list of these carriers is known and for those with a US DOT Number their safety can be assessed. In late 2008 there were 4,163 Alliance registrants with unique site names. There were 125 of the registrants with blank DOT numbers. Consequently, the total number of Alliance carriers with unique US DOT Numbers and site names was 4,038. The 125 carriers were excluded from all the analyses shown in this section because no DOT Number was included when they applied for the permit.

2.2 Non-Alliance Carriers

Non-Alliance carriers are defined as those carriers that do not operate in any Alliance state. Such carriers would not be influenced by any safety programs that are unique to Alliance States. Identifying carriers that do not transport any hazmat through the Alliance States is a bigger challenge. The approach followed was to begin with the listing of carriers that requested and received a PHMSA registration for transporting hazardous materials in 2008. As part of the registration process, the carriers were asked to specify the states through which they plan to transport hazardous materials. In June of 2008, a total of 35,896 carriers registered with PHMSA. Of those, 6,833 entered the entry *No State Defined* or *48 Contiguous States*, making it impossible to determine whether they transport hazardous materials in any Alliance States. Lastly, 12,972 entries did not specify a US DOT Number. After the exclusions, the number of registrants remaining was 16,139. Of these carriers, 9,373 carriers remained after eliminating any carriers that registered as operating in an Alliance State. The safety performance of these

9,373 carriers will be compared with the safety performance of the 2,115 carriers that have permits to operate in the Alliance States.

Since fleet size may be related to such operational characteristics of carriers as the implementation of safety procedures, the MCMIS Census File was used to compare the size of the carriers included in each group. The file specifies fleet size by an alphabetic character as shown in Table 2-1.

Table 2-1. Fleet Designations Used in the FMCSA Census File

| Fleet Size | Number of Power Units | Fleet Size | Number of Power Units |
|------------|-----------------------|------------|-----------------------|
| A | 1 | N | 45 – 55 |
| B | 2 – 3 | O | 56 – 75 |
| C | 4 – 6 | P | 76 – 100 |
| D | 7 – 8 | Q | 101 – 200 |
| E | 9 - 11 | R | 201 – 300 |
| F | 12 – 14 | S | 301 – 400 |
| G | 15 – 17 | T | 401 – 550 |
| H | 18 – 20 | U | 551 – 999 |
| I | 21 – 23 | V | 1000 – 2000 |
| J | 24 – 28 | W | 2001 – 3000 |
| K | 29 – 32 | X | 3001 – 4000 |
| L | 33 – 38 | Y | 4001 – 5000 |
| M | 39 - 44 | Z | Over 5000 |

Table 2-2 shows the distribution of carriers identified as Alliance State Registrants and those who do not operate in any of the Alliance States.

Table 2-2 shows that in the Alliance there are more larger carriers with more power units and that although the number of carriers in the mid-range is smaller for the Alliance carriers, the percentage of the total carriers in the mid-range is significantly larger. The table also shows that for the sample of non-Alliance carriers, over 50 percent are small, in the A – C fleet size classification. At the other end of the spectrum, over 10 percent of the Alliance carriers fall in the S – Z fleet size classification and less than one percent of the non-Alliance carriers fall in the same fleet size classification. Although there are more non-Alliance carriers in the mid range fleet size classification, because there are fewer Alliance carriers overall, the percentage of mid range carriers is actually larger for those operating in the Alliance States. Using the number of carriers in each Fleet Size category, the average fleet size for the Alliance is *I* and average fleet size for the non-Alliance carriers is a *C*. The difference is large because so many of the non-Alliance carriers fall are in the *A – C* fleet size categories. The difference in carrier size is expected because the large carriers that conduct business in almost every state would be forced to register with the Alliance. If you are hauling hazmat from the central part of the country to New England, it would be difficult to avoid Ohio and West Virginia. However, if you were a relatively small carrier with 10 power units located in Georgia you likely could haul a large quantity of hazmat and never have a contract to pickup or deliver those materials in one of the

Alliance States. Thus, the smaller the carrier, the less likely it would be that they have to register with an Alliance State. The following three sections will look to determine if there are significant differences first in accident rates, then in the frequency of violations and out of service (OOS) rates, and lastly the number of satisfactory, conditional and unsatisfactory ratings from carrier compliance reviews.

Table 2-2. Fleet Sizes for the Selected Alliance and Non-Alliance Carriers

| Fleet Size | Number of Power Units | Number of Alliance Carriers / Percentage | Number of Non-Alliance Carriers / Percentage |
|-------------------|------------------------------|---|---|
| A | 1 | 107 / 5.1% | 1,215 / 13.5% |
| B | 2 – 3 | 212 / 10.1% | 1,833 / 20.4% |
| C | 4 – 6 | 210 / 10.1% | 1,689 / 18.8% |
| D | 7 – 8 | 110 / 5.3% | 720 / 8.0% |
| E | 9 - 11 | 106 / 5.1% | 735 / 8.2% |
| F | 12 – 14 | 84 / 4.0% | 512 / 5.7% |
| G | 15 – 17 | 83 / 4.0% | 355 / 4.0% |
| H | 18 – 20 | 52 / 2.5% | 172 / 1.9% |
| I | 21 – 23 | 82 / 3.9% | 269 / 3.0% |
| J | 24 – 28 | 82 / 3.9% | 257 / 2.9% |
| K | 29 – 32 | 60 / 2.9% | 135 / 1.5% |
| L | 33 – 38 | 81 / 3.9% | 170 / 1.9% |
| M | 39 - 44 | 57 / 2.7% | 125 / 1.4% |
| N | 45 – 55 | 79 / 3.8% | 185 / 2.1% |
| O | 56 – 75 | 119 / 5.7% | 186 / 2.1% |
| P | 76 – 100 | 81 / 3.9% | 129 / 1.4% |
| Q | 101 – 200 | 160 / 7.7% | 159 / 1.8% |
| R | 201 – 300 | 82 / 3.9% | 51 / 0.6% |
| S | 301 – 400 | 50 / 2.4% | 30 / 0.3% |
| T | 401 – 550 | 41 / 2.0% | 16 / 0.2% |
| U | 551 – 999 | 70 / 3.4% | 20 / 0.2% |
| V | 1000 – 2000 | 41 / 2.0% | 8 / 0.1% |
| W | 2001 – 3000 | 17 / 0.8% | 0 / 0.0% |
| X | 3001 – 4000 | 7 / 0.3% | 1 / 0.0% |
| Y | 4001 – 5000 | 4 / 0.2% | 1 / 0.0% |
| Z | Over 5000 | 12 / 0.6% | 0 / 0.0% |
| Total | | 2,089/ 100.0% | 8,973/ 100.0% |

2.3 Accident Rate

The Census File contains two parameters, the accident rate and total annual mileage that are obtained when a FMCSA or state inspector performs a compliance review of the carrier. The names of the parameters in the Census File are *ACCRATE* and *MLG151*. The latter specifies the accident rate for million miles traveled and the mileage is the actual total annual miles driven by the all the power units the carrier uses. Since the compliance reviews are not performed on a regular basis, the date of the review was used to eliminate any results that were based on data obtained before calendar year 2000. In addition, there are many carriers where one or both of the entries are blank.

To obtain an average accident rate for a group of carriers, the ACCRATE parameter was multiplied by the MLG151 and then divided by 1,000,000 to get the number of accidents used to estimate the accident rate. This number was rounded to the nearest whole number to eliminate the truncation error that occurs when the accident rate is only specified to a couple of decimal places. For the group of carriers, the accidents and the mileage were summed and then the total accidents represented by the carriers with non-blank entries to obtain an average accident rate. The results are shown in Table 2-3.

Table 2-3. Total Miles, Accidents and Accident Rate – Alliance and Non-Alliance Carriers

| | Number of Carriers | Total Annual Miles | Total Accidents | Annual Accident Rate |
|--|--------------------|--------------------|-----------------|----------------------|
| Non-Alliance Carriers | 635 | 5.377E+08 | 391 | 7.27E-07 |
| Alliance Carriers | 245 | 2.128E+09 | 1188 | 5.58E-07 |
| Total | 880 | 2.666E+09 | 1579 | 5.92E-07 |
| Alliance Carriers if average rate | 245 | 2.128E+09 | 1261 | 5.92E-07 |

Although over 2,000 Alliance carriers and 9,000 non-Alliance carriers were identified in the Census File, approximately 7 percent of the non-Alliance carriers and 12 percent of the Alliance carriers had sufficient information on the accident rate and total miles to meet the criteria of being reviewed in the year 2000 or later with entries for the accident rate and mileage. Although there are only 245 Alliance carriers that met these criteria, their total annual mileage was almost four times greater than the mileage driven by the 635 non-Alliance carriers. The accident rate is lower for the Alliance carriers. If all the carriers, Alliance and non-Alliance, were treated as a group, the average accident rate is 5.9×10^{-7} per mile (5.9 accidents per ten million miles). Using the average accident rate and applying it to all the carriers, 31,698 non-Alliance carriers that registered with PHMSA and the 4,198 Alliance carriers that registered with PHMSA results in a total of 12,556 accidents per year associated with non-Alliance carriers and 21,599 accidents per year associated with Alliance carriers. By not being registered in an Alliance State and therefore applying the higher non-Alliance accident rate increases the number of accidents per year to 16,358, an increase of 3,036 accidents. Similarly, if the Alliance accident rate is applied to all the carriers, there is a decrease of 1,243 HM accidents per year. The difference, 4,279 accidents per year, would be realized if all carriers that haul hazardous materials went through the review and approval process and received an Alliance permit. This number represents the reduction in accidents if the Alliance accident rate was applied to all hazmat carriers.

There is some concern that the accident rate might be a function of the size of the carrier. Table 2-4 shows the results obtained when the fleet size is broken into groups of 5 different sized carrier groups. The accident rate is per million miles traveled. The table shows a correlation between the size of the carrier and the accident rate with the smaller carriers typically having higher accident rates.

Table 2-4. Effect of Fleet Size of Accident Rate

| Fleet Size | Alliance Accident Rate / Percent of Total Accidents | Non-Alliance Accident Rate / Percent of Total Accidents |
|------------------------|--|--|
| A-E (1 - 11) | 1.13 / 02% | 1.04 / 19% |
| F-J (12 - 28) | 0.66 / 05% | 0.89 / 21% |
| K-P (29 - 100) | 0.71 / 12% | 0.74 / 31% |
| Q-U (101 - 999) | 0.57 / 41% | 0.53 / 28% |
| V-Z > 999 | 0.49 / 39% | 0.00 / 00% |

Table 2-4 shows a relationship between fleet size and accident rates. For Alliance and non-Alliance carriers, the trend is for lower rates as the fleet size increases. If the effect of fleet size is considered, because a greater percentage of the non-Alliance carriers are smaller and the smaller carriers show a higher accident rate for both the Alliance and non-Alliance carriers, if the Alliance rate is applied to the non-Alliance carriers, about 245 accidents per year would be prevented. This is based on just the 9,300 HM carriers that registered with PHMSA and did not register to operate in any of the Alliance States. Since this savings should be applicable to all 31,000 HM carriers registered with PHMSA that do not operate in Alliance States, applying the savings to all the non-Alliance carriers will result in a savings of about 750 accidents per year. This estimate takes into account the observed effect of carrier size on the accident rate and is therefore likely to be a better estimate of the number of accidents prevented than the estimate that did not consider that the non-Alliance carriers had a larger percentage of smaller carriers and that for both the Alliance and non-Alliance carriers, the smaller carriers tended to have a higher accident rate.

Table 2-3 shows that the accident rate for Alliance carriers is significantly lower than the average accident rate using the data for both Alliance and non-Alliance carriers. Table 2-4 shows that the difference observed in Table 2-3 is attributable to the greater percentage of non-Alliance carriers that are in the A – E fleet size categories and the higher accident rates for those categories for both the Alliance and non-Alliance carriers. The opposite effect is observed in the large fleet size categories where the accident rate is lower and a much larger percentage of the Alliance carriers are found than for the non-Alliance carriers. For example, the accident rate for non-Alliance carriers in Fleet Size categories Q-U have an accident rate of 0.53 accidents per million vehicle miles and represents 28 percent of the fleets. However, Fleet Size categories V-Z, represent 39 percent of the Alliance carrier fleets and has an accident rate of 0.49 per million vehicle miles. In fact, if one averages the accident rate for Q-U and V-Z, the Alliance accident rate is 0.53 per million vehicle miles, the same as Q-U for the non-Alliance carriers. However this low rate represents 80 percent of the Alliance carriers and only 28 percent of the non-Alliance carriers. This explains why the accident rate for all Alliance carriers is less than the accident rate for all non-Alliance carriers. While the effect of fleet size on the accident rate for both Alliance and non-Alliance carriers favors the larger carriers, the reason for this effect is unknown and there is no data from this study that would provide additional insight into the observed effect of Fleet Size. Based on the analysis conducted, if more States joined the

Alliance more accidents involving HM carriers would be prevented. If everyone joined, the total number of accidents prevented could easily be 750 accidents per year.

Table 2-5 shows the estimated potential savings that could be realized if all hazmat carriers outside the Alliance were permitted in the Alliance and experienced the same crash rate as those carriers.

The numbers of reduced crashes are based on applying Alliance crash rates to the Alliance carriers. The estimated savings for avoiding a crash are based on dollar estimates calculated from earlier research. The ratio of serious to “non-serious” crashes is based on work developed for the Serious Crash Project prepared by Battelle for FMCSA in 2005. As shown in Table 2-5, if all carriers experienced a reduced crash rate the reduction in approximately 750 crashes per year would represent a potential savings of about 139 million dollars.

Table 2-5. Potential Safety-Related Savings from Reduction in Hazmat Crashes if All Carriers Crash at the Same Rate as Alliance Carriers

| | Reduction in Crashes and Benefits if All Carriers Crash at the Same Rate as Alliance Carriers |
|--|--|
| Reduced Number of Crashes per year | 750 |
| Reduced Number of Serious Crashes per year | 188 |
| Percent of serious crashes | 25% |
| Percent of non-serious crashes | 75% |
| Average Cost per serious crash (in 2000 \$)* | \$414,000 |
| Average Cost per serious crash (in 2008 \$)** | \$517,630 |
| Average Cost per non-serious crash (in 2000 \$)*** | \$59,153 |
| Average Cost per non-serious crash (in 2008 \$)** | \$73,959 |
| Total Dollar value of safety saving from serious crash | \$97,314,440 |
| Total dollar value of safety saving from non-serious crash | \$41,602,196 |
| Total Savings | \$138,657,821 |

**Comparative Risks of Hazardous Materials and Non-Hazardous Materials Truck Shipment Accident/Incidents; Prepared by Battelle for FMCSA, March 2001.)*

***Based on BLS inflation estimates*

****(Revised Cost of Large Truck and Bus Involved Crashes; prepared by the Pacific Institute for FMCSA, (Zaloshnja, 2002)*

2.4 Carrier Inspections

FMCSA maintains a database of all carrier inspections that are performed. The roadside inspections can be performed at various levels. Table 2-6 describes the inspection levels as defined by the Commercial Vehicle Safety Association (CVSA).

Table 2-6. Description of CVSA Inspection Levels

| Inspection Level | Description of Inspection |
|------------------|---|
| 1 | Includes an examination of the driver's license, medical examiner's certificate, skill performance evaluation certificate (if applicable), alcohol and drugs, driver's record of duty status as required, vehicle inspection report (if applicable) brake systems, coupling devices, exhaust systems, frame, fuel systems, lighting devices safe loading, steering mechanism, suspension, tires, wheels and rims, HM requirements as applicable (by certified HM inspector) |
| 2 | Same as Level 1 with the exception that the vehicle walk around inspection will not include inspecting those items that require physically getting under the vehicle. |
| 3 | Driver/Credential Inspection part of Level 1 |
| 4 | Special Inspections – typically focusing on a specific items |
| 5 | Vehicle Inspection part of Level 1 (performed without driver present) |
| 6 | Level 1 inspection plus specific inspections for vehicles hauling Transuranic Waste and Highway Route Controlled Quantities of Radioactive Materials |
| 7 | Jurisdictional Mandated Commercial Vehicle Inspections |

From the standpoint of comparing the performance of Alliance and non-Alliance carriers, the data on Level 1 and 2 inspections probably provide the best basis for comparison. Table 2-7 shows the data for Alliance carriers based on inspections performed over a four-year period, beginning in the year 2002 and ending in 2005.

Slightly over 200,000 inspections were performed on Alliance carriers during the four-year period and approximately 83 percent were Level 1 or 2 Inspections. Table 2-8 shows the same data for non-Alliance carriers.

Slightly over 70,000 inspections were performed on the non-Alliance carriers during the four-year period and approximately 87 percent were Level 1 or Level 2 Inspections. Fewer non-Alliance inspections are anticipated because the rate of roadside inspections is somewhat a function of the number of annual vehicle miles traveled and as shown in Table 2-3, where the accident rate was evaluated, the non-Alliance carriers drove less miles by a factor of almost 4. Thus the factor of three difference in the number of inspections, 200,000 for the Alliance carriers and 70,000 for the non-Alliance carriers would be anticipated. The data in Tables 2-6 and 2-7, show that although the difference in the number of inspections is about a factor of three, the difference in Violations and OOS Rates is less. This difference will be quantified in subsequent tables. The first set of two tables, one for the Alliance carriers and the other for the non-Alliance carriers will show the ratios obtained by dividing the Violation and OOS Rate columns by the number of Inspections by Level of Inspection. These ratios are shown in Tables 2-9 and 2-10 respectively.

Table 2-7. Alliance Carrier Inspections, Violations and Out-Of-Service (OOS) Rates for the Years 2002 though 2005

| Inspection Level | Inspections | Violations | OOS | Driver Violations | Driver OOS | Vehicle Violations | Vehicle OOS | Hazmat Violations | Hazmat OOS |
|------------------|-------------|------------|--------|-------------------|------------|--------------------|-------------|-------------------|------------|
| 1 | 72,779 | 129,452 | 21,385 | 13,849 | 1,631 | 115,370 | 19,754 | 15,795 | 3,389 |
| 2 | 97,906 | 117,130 | 15,335 | 29,645 | 2,895 | 87,398 | 12,440 | 28,381 | 5,877 |
| 3 | 32,977 | 15,194 | 1,701 | 10,464 | 985 | 4,725 | 716 | 3000 | 514 |
| 4 | 809 | 813 | 173 | 132 | 17 | 666 | 156 | 136 | 39 |
| 5 | 373 | 371 | 48 | 0 | 1 | 371 | 47 | 60 | 3 |

Table 2-8. Non-Alliance Carrier Inspections, Violations and Out-Of-Service (OOS) Rates for 2002 though 2005

| Inspection Level | Inspections | Violations | OOS | Driver Violations | Driver OOS | Vehicle Violations | Vehicle OOS | Hazmat Violations | Hazmat OOS |
|------------------|-------------|------------|--------|-------------------|------------|--------------------|-------------|-------------------|------------|
| 1 | 32,113 | 76,259 | 12,096 | 6,494 | 821 | 69,706 | 11,275 | 10,998 | 2,138 |
| 2 | 29,950 | 49,127 | 5,433 | 9,041 | 808 | 40,058 | 4,625 | 10,933 | 1,843 |
| 3 | 7,849 | 5,297 | 450 | 3,547 | 236 | 1,749 | 214 | 1,004 | 162 |
| 4 | 397 | 364 | 55 | 82 | 9 | 282 | 46 | 61 | 9 |
| 5 | 824 | 1,107 | 184 | 1 | 1 | 1,104 | 183 | 216 | 52 |

Table 2-9. Alliance Carrier Violations and OOS Rates per Inspection for Driver, Vehicle and HM Inspection Categories

| Inspection Level | Violations/ Inspection | OOS/ Inspection | Driver Violations/ Inspection | Driver OOS/ Inspection | Vehicle Violations/ Inspection | Vehicle OOS/ Inspection | Hazmat Violations/ Inspection | Hazmat OOS/ Inspection |
|------------------|------------------------|-----------------|-------------------------------|------------------------|--------------------------------|-------------------------|-------------------------------|------------------------|
| 1 | 1.78 | 0.29 | 0.19 | 0.02 | 1.59 | 0.27 | 0.22 | 0.05 |
| 2 | 1.20 | 0.16 | 0.30 | 0.03 | 0.89 | 0.13 | 0.29 | 0.06 |
| 3 | 0.46 | 0.05 | 0.32 | 0.03 | 0.14 | 0.02 | 0.09 | 0.02 |
| 4 | 1.00 | 0.21 | 0.16 | 0.02 | 0.82 | 0.19 | 0.17 | 0.05 |
| 5 | 0.99 | 0.13 | 0.00 | 0.00 | 0.99 | 0.13 | 0.16 | 0.01 |

In Table 2-9, it appears the Violations per Inspection and OOS Rate per Inspection totals in the second and third columns respectively do not include the HM Violation and OOS Rates. Adding them in would increase the Violation to Inspection ratio for Level 1 inspections from 1.78 to 2.00 and the OOS Rate from 0.29 to 0.35. The Vehicle Violation and OOS Rates per inspection are the dominant contributors to the overall total. The Driver Violations per Inspection and the HM Violations per Inspection ratios are the same, but the OOS rates for the hazmat violations are about twice the OOS rate for the driver violations.

Table 2-10 shows the inspection data for the non-Alliance carriers.

For the Level 1 inspections, adding in the HM violations per inspection to the total results in a value of 2.81 and for the OOS Rates, the total is 0.45. As was the case with the Alliance carriers, the vehicle provides the greatest contribution to the overall rates. For the Violations to Inspection Rate, the HM Violations/Inspection rate appears to be higher than the Driver Violation to Inspection Ratio. The same situation is true for the OOS Rates.

Table 2-11 shows the ratio of the ratios shown in Tables 2-8 and 2-9, Alliance Rates over non-Alliance Rates.

Most of the ratios of the ratios shown in Table 2-11 are less than 1.0 indicating that in general the performance of the Alliance carriers is superior to the performance of the non-Alliance carriers. The focus of the ratios should be on the Level 1 and 2 inspections because these represent 83 percent of the Alliance inspections and 87 percent of the non-Alliance inspections. For those two inspections, the Level 2 inspections of the driver have ratios equal or greater than 1.0. All the other ratios are 15 to 35 percent less.

For the accident rate evaluation there seemed to be a strong effect of Fleet Size on the Accident Rate. Since the Fleet Size distribution is quite different for the selection of Alliance and non-Alliance carriers, it is important to evaluate if the differences seen above are the result of Fleet Size differences. Table 2-12 summarizes the Alliance Level I Violation and OOS Ratios for five Fleet Size groupings.

The data in Table 2-12 show almost no effect of Fleet Size on the Violation and OOS Ratios. The driver violations per inspection show a gradual decrease as the Fleet Size increases but on all the other columns, the most common observation is that the ratio for the smallest fleet size category, A_E, is very similar to the ratio for the largest Fleet Size category. Table 2-13 presents the same results for the inspection of non-Alliance carriers.

When comparing Table 2-12 with 2-13, it is important to look at the number of inspections represented by each Fleet Size category. The total inspections by category and the percent of the total is shown in Table 2-14.

Table 2-10. Non-Alliance Carrier Violations and OOS Rates per Inspection for Driver, Vehicle and HM Inspection Categories

| Inspection Level | Violations/ Inspection | OOS/ Inspection | Driver Violations/ Inspection | Driver OOS/ Inspection | Vehicle Violations/ Inspection | Vehicle OOS/ Inspection | Hazmat Violations/ Inspection | Hazmat OOS/ Inspection |
|------------------|------------------------|-----------------|-------------------------------|------------------------|--------------------------------|-------------------------|-------------------------------|------------------------|
| 1 | 2.37 | 0.38 | 0.20 | 0.03 | 2.17 | 0.35 | 0.34 | 0.07 |
| 2 | 1.64 | 0.18 | 0.30 | 0.03 | 1.34 | 0.15 | 0.37 | 0.06 |
| 3 | 0.67 | 0.06 | 0.45 | 0.03 | 0.22 | 0.03 | 0.13 | 0.02 |
| 4 | 0.92 | 0.14 | 0.21 | 0.02 | 0.71 | 0.12 | 0.15 | 0.02 |
| 5 | 1.34 | 0.22 | 0.00 | 0.00 | 1.34 | 0.22 | 0.26 | 0.06 |

Table 2-11. Non-Alliance Carrier Violations and OOS Rates per Inspection/Alliance Carrier Violations and OOS Rates

| Inspection Level | Violations/ Inspection | OOS/ Inspection | Driver Violations/ Inspection | Driver OOS/ Inspection | Vehicle Violations/ Inspection | Vehicle OOS/ Inspection | Hazmat Violations/ Inspection | Hazmat OOS/ Inspection |
|------------------|------------------------|-----------------|-------------------------------|------------------------|--------------------------------|-------------------------|-------------------------------|------------------------|
| 1 | 0.75 | 0.78 | 0.94 | 0.88 | 0.73 | 0.77 | 0.63 | 0.70 |
| 2 | 0.73 | 0.86 | 1.00 | 1.10 | 0.67 | 0.82 | 0.79 | 0.98 |
| 3 | 0.68 | 0.90 | 0.70 | 0.99 | 0.64 | 0.80 | 0.71 | 0.76 |
| 4 | 1.10 | 1.54 | 0.79 | 0.93 | 1.16 | 1.66 | 1.09 | 2.13 |
| 5 | 0.74 | 0.58 | 0.00 | 2.21 | 0.74 | 0.57 | 0.61 | 0.13 |

Table 2-12. Alliance Carrier Level 1 Violations and OOS Rates per Inspection as a Function of Fleet Size

| Fleet Size | Violations/ Inspection | OOS/ Inspection | Driver Violations/ Inspection | Driver OOS/ Inspection | Vehicle Violations/ Inspection | Vehicle OOS/ Inspection | Hazmat Violations/ Inspection | Hazmat OOS/ Inspection |
|-----------------|------------------------|-----------------|-------------------------------|------------------------|--------------------------------|-------------------------|-------------------------------|------------------------|
| A-E (1 - 11) | 1.83 | 0.31 | 0.24 | 0.024 | 1.59 | 0.29 | 0.25 | 0.060 |
| F-J (12 - 28) | 2.00 | 0.36 | 0.22 | 0.026 | 1.77 | 0.34 | 0.20 | 0.040 |
| K-P (29 - 100) | 1.79 | 0.33 | 0.22 | 0.029 | 1.56 | 0.30 | 0.21 | 0.047 |
| Q-U (101 - 999) | 1.73 | 0.28 | 0.18 | 0.021 | 1.55 | 0.26 | 0.18 | 0.036 |
| V-Z > 999 | 1.81 | 0.29 | 0.19 | 0.022 | 1.61 | 0.27 | 0.26 | 0.061 |

Table 2-13. Non-Alliance Carrier Level 1 Violations and OOS Rates per Inspection as a Function of Fleet Size

| Fleet Size | Violations/ Inspection | OOS/ Inspection | Driver Violations/ Inspection | Driver OOS/ Inspection | Vehicle Violations/ Inspection | Vehicle OOS/ Inspection | Hazmat Violations/ Inspection | Hazmat OOS/ Inspection |
|------------------------|---------------------------|--------------------|-------------------------------------|------------------------------|--------------------------------------|-------------------------------|-------------------------------------|------------------------------|
| A-E (1 - 11) | 2.44 | 0.40 | 0.23 | 0.028 | 2.21 | 0.37 | 0.39 | 0.075 |
| F-J (12 - 28) | 2.53 | 0.42 | 0.22 | 0.031 | 2.30 | 0.39 | 0.36 | 0.074 |
| K-P (29 - 100) | 2.44 | 0.36 | 0.18 | 0.024 | 2.26 | 0.34 | 0.30 | 0.057 |
| Q-U (101 - 999) | 1.91 | 0.31 | 0.15 | 0.017 | 1.75 | 0.30 | 0.27 | 0.055 |
| V-Z > 999 | 1.53 | 0.25 | 0.13 | 0.012 | 1.40 | 0.24 | 0.18 | 0.038 |

Table 2-14. Alliance and Non-Alliance Inspections and Percent of Total by Fleet Size

| Fleet Size | Alliance Level 1 Inspections / Percent of Total | Non-Alliance Level 1 Inspections / Percent of Total |
|------------------------|--|--|
| A-E (1 - 11) | 2,646 / 3.6% | 11,198 / 34.3% |
| F-J (12 - 28) | 3,253 / 4.5% | 6,929 / 21.2% |
| K-P (29 - 100) | 8,051 / 11.1% | 8,422 / 25.8% |
| Q-U (101 - 999) | 34,147 / 47.0% | 5,854 / 17.9% |
| V-Z > 999 | 24,631 / 33.9% | 260 / 0.8% |
| Total | 72,728 | 32,663 |

The differences in the number of inspections versus Fleet Size are striking. More than 50 percent of the non-Alliance vehicle inspections are in Fleet Size Categories A through J and for the Alliance carriers, less than 10 percent of the inspections are in the A through J Fleet Size Categories. At the other end, almost a third of the inspections of Alliance permitted vehicles are for large carriers with fleets greater than 999 power units, the Fleet Size Categories V through Z. Given the differences in the number of inspections, any comparisons of inspection performance are more uncertain for the carriers with very small and very large fleets. Table 2-15 shows the ratio of Violations and OOS Rates per inspection for Alliance carriers divided by the same ratio for non-Alliance carriers. Because over the four-year period there are only 260 Level 1 inspections of large non-Alliance carriers, Fleet Sizes V through Z, the ratio for this range of Fleet Sizes is more uncertain and probably should not be used when looking at the effect of Fleet Size on inspection performance.

The last line of Table 2-15, shows ratios for the large carriers with more than 1,000 power units. These carriers are represented by almost 25,000 inspections of Alliance permitted vehicles but only 260 inspections of non-Alliance permitted vehicles. Because there are so few non-Alliance inspections in this category the values shown in the last line are uncertain. For the other lines, as shown in Table 2-14, there are at least several thousand inspections of both Alliance and non-Alliance vehicles in each of the Fleet Size groupings so the ratio differences should be more significant. As observed in the previous comparisons, the ratios in Table 2-11, the total violations and OOS rates per inspection for Alliance carriers divided by the total violations and OOS rates per inspection for non-Alliance carriers shown in Table 2-15, demonstrate the superior performance of the Alliance vehicles. The total does not appear to include the HM performance but since all the HM ratios except the last line are less than 1, including the HM inspections in the overall performance totals would just make the ratios for the total violations and OOS rates more favorable to the Alliance carriers. The driver performance for the Alliance carrier's shows ratios that are greater than 1 for several Fleet Size categories, indicating that vehicle performance is really driving the favorable overall performance of the Alliance carriers.

One approach to quantifying the lower number of violations and lower OOS rates for Alliance carriers, is to apply the Alliance violation and out-of-service rate to all the non-Alliance inspections. The result is shown in Table 2-16.

Table 2-16 shows that almost 41,000 violations and 4,200 OOS violations would have been prevented if the protocols for reviews and inspections associated with obtaining a permit for driving HM trucks in Alliance States were used by all States.

Another approach to the analysis is to examine how many violations and OOS incidents are prevented because the Alliance carriers are permitted in the Alliance states. The assumption made for this analysis is that if the Alliance did not exist, the violation rate would be the same as that of the non-Alliance carriers. Table 2-17 shows the violations and OOS incidents that are presented as a result of the Alliance.

Table 2-15. Alliance /Non-Alliance Carrier Level 1 Violations and OOS Ratio as a Function of Fleet Size

| Fleet Size | Violations/ Inspection | OOS/ Inspection | Driver Violations/ Inspection | Driver OOS/ Inspection | Vehicle Violations/ Inspection | Vehicle OOS/ Inspection | Hazmat Violations/ Inspection | Hazmat OOS/ Inspection |
|------------------------|---------------------------|--------------------|-------------------------------------|------------------------------|--------------------------------------|-------------------------------|-------------------------------------|------------------------------|
| A-E (1 - 11) | 0.75 | 0.78 | 1.05 | 0.88 | 0.72 | 0.77 | 0.64 | 0.81 |
| F-J (12 - 28) | 0.79 | 0.87 | 0.98 | 0.85 | 0.77 | 0.88 | 0.56 | 0.54 |
| K-P (29 - 100) | 0.73 | 0.91 | 1.20 | 1.19 | 0.69 | 0.89 | 0.71 | 0.83 |
| Q-U (101 - 999) | 0.91 | 0.89 | 1.14 | 1.20 | 0.89 | 0.87 | 0.68 | 0.65 |
| V-Z > 999 | 1.18 | 1.17 | 1.42 | 1.92 | 1.15 | 1.13 | 1.44 | 1.58 |

Table 2-16. Non-Alliance Violations and OOS Prevented if All Carriers Were Members of the Alliance (3-year period)

| Inspection Level | Violations Prevented | OOS Prevented |
|------------------|----------------------|---------------|
| 1 | 23212 | 3303 |
| 2 | 15546 | 787 |
| 3 | 1971 | 85 |
| 4 | -33 | -40 |
| 5 | 369 | 123 |
| All | 41064 | 4258 |

Table 2-17. Alliance Violations and OOS Currently Prevented by Carriers becoming Members of the Alliance (3-year period)

| Inspection Level | Violations Prevented | OOS Prevented |
|------------------|----------------------|---------------|
| 1 | 52,606 | 7,485 |
| 2 | 50,820 | 2,573 |
| 3 | 8,280 | 356 |
| 4 | -68 | -82 |
| 5 | 167 | 56 |
| All | 111,805 | 10,389 |

The results in Table 2-17 show that in a three-year period about 10,000 fewer OOS and over 100,000 fewer violations could be attributed to the reviews and approvals performed by Alliance states prior to the carrier being permitted. Although the exact reason for this significant improvement in performance cannot be determined, the reduction in violations likely reflects an effort on the part of Alliance States to require that carriers comply with all applicable safety regulations. The review process itself enables carriers to identify and resolve problems. The net result is a significantly lower violation and OOS rate for Alliance carriers. Since safer vehicles and drivers can translate into safer performance, and since many of the Alliance carriers haul hazmat in all states, the Alliance benefit is provided to the citizens of both Alliance and non-Alliance states.

The discussion above has demonstrated that carriers that are permitted in the Alliance experience fewer OOS violations than carriers operating outside of the Alliance but did not estimate the reduction in OOS violations for carriers currently permitted in the Uniform Program. Table 2-16 shows the estimated reduction in the number OOS violations that would be experienced by Alliance carriers if they experienced OOS violations at the same rate as non-Alliance carriers. The table also shows that carriers permitted in the Alliance although experiencing considerable fewer OOS violations but accumulate all violations at a higher rate than non-Alliance carriers. Permitting in the Alliance results in about 3,500 OOS violations prevented per year for the permitted carriers. However, total violations increase by about 550 violations per year.

Table 2-18 shows the estimated potential savings that could be realized if all hazmat carriers outside the Alliance were permitted in the Alliance and experienced the same OOS rate as those carriers in the Alliance. The numbers of reduced OOS total 4,258 and results when the OOS rate for Alliance carriers is applied to non-Alliance carriers. The estimated savings for reducing OOS rates are based on dollar estimates calculated from earlier research. As shown in Table 2-18, if all carriers experienced a reduced OOS rate the reduction in approximately 4,258 OOS per year would represent a potential savings of about 2.5 million dollars.

Table 2-18. Savings Realized from Reduction in OOS if All Carriers Experienced OOS at the Rate of Alliance Carriers

| Violations Prevented | OOS Prevented | Average Hours of Downtime per OOS | \$ Per Hour of Downtime (in 2005 \$) | \$ Per Hour of Downtime (in 2008 \$) | Total Savings Related to OOS |
|-------------------------|---------------|-----------------------------------|--------------------------------------|--------------------------------------|------------------------------|
| Level 1 23,212 | 3,303 | 8.7 | \$57.00 | \$70.00 | |
| Level 2 15,546 | 787 | 8.7 | \$57.00 | \$70.00 | |
| Level 3 1,971 | 85 | 8.7 | \$57.00 | \$70.00 | |
| Level 4 (33) | (40) | 8.7 | \$57.00 | \$70.00 | |
| Level 5 369 | 123 | 8.7 | \$57.00 | \$70.00 | |
| Total 41,065 | 4,258 | 8.7* | \$57.00** | \$70.00*** | \$2,592,974 |

*(*Effectiveness of Cargo Securement Final Rule Concerning the Transportation of Solid Waste*; Prepared by Battelle for FMCSA, 2004)

** Use \$57 per hour (estimated by Dan Murray of the American Trucking Research Institute in 2004 in Assessment of Potential Benefits and Costs to Certify Commercial Motor Vehicle Brake Mechanics, by Battelle for FMCSA, 2005)

***Based on BLS inflation estimates

2.5 Compliance Reviews

Federal and state officials perform compliance reviews at carrier sites. Some of these reviews are targeted based on various indicators of unsafe performance and others are chosen randomly. Thus, although there is bias in the selection, it is doubtful that the Alliance States perform more targeted inspections than non-Alliance States. However, that is a possibility that could bias the results presented. Using the results shown in the FMCSA Census File, Table 2-19 summarizes the compliance review findings for Alliance and non-Alliance carriers for each of the three categories, unsatisfactory (U), conditional (C) and satisfactory (S).

Table 2-19. Compliance Review Results

| Rating | Alliance | Non-Alliance |
|--------|-----------------------------|---------------|
| | Number/ Percent of Carriers | |
| U | 0 / 0.0% | 2 / 0.11% |
| C | 73 / 7.6% | 204 / 11.1% |
| S | 882 / 92.4% | 1,638 / 88.8% |

One of the conditions for obtaining a permit in an Alliance State is that a carrier not have an unsatisfactory performance rating. The results in Table 2-16 are consistent with this requirement. The data also show that the number of conditional performance ratings issued to non-Alliance carriers is higher by almost a factor of 1.5, 7.6 percent versus 11.1 percent.

2.6 MCMIS and HMIRS Performance Assessments

FMCSA maintains the MCMIS Crash database and PHMSA maintains the HMIRS database. Both these databases are tabulations of crashes. To identify meaningful differences the tabulation of Alliance and non-Alliance crashes must be put on a common basis. This comparison is made more challenging because although there are many more non-Alliance carriers, they have on average smaller fleet sizes and as a result represent less travel and fewer total power units. In some previous studies, differences in the HM spill percentage and the fatal crash to total crash ratios have been used to identify performance differences. These ratios will be employed here as well. Although both MCMIS and HMIRS have been maintained for almost 20 years, it was not until 2005 that HMIRS was restructured and the US DOT Number was incorporated as a field. Because the analyses of Alliance and non-Alliance carriers is based on the knowledge of a carriers DOT number, the HMRIS analysis will be limited to only a few years of data, beginning in 2005. Table 2-20 presents the comparison of HM spills for Alliance and non-Alliance carriers.

Table 2-20. Percent of MCMIS Crashes Releasing HM for Alliance and Non-Alliance Carriers

| Year | Alliance Carriers Percent of Accidents Releasing HM | Non-Alliance Carriers Percent of Accidents Releasing HM | Spill Ratio Alliance/ Non-Alliance |
|---------|---|---|------------------------------------|
| 2003 | 12.1% | 11.3% | 1.07 |
| 2004 | 10.9% | 14.4% | 0.76 |
| 2005 | 11.8% | 12.5% | 0.94 |
| 2006 | 9.6% | 14.3% | 0.67 |
| 2007 | 11.7% | 15.9% | 0.74 |
| 2008 | 9.0% | 16.1% | 0.56 |
| Overall | 11.0% | 14.1% | 0.78 |

The Alliance carriers show a lower spill per crash ratio than the non-Alliance carriers. Since spills are expensive to clean up and potentially damaging to the population residing close to the accident as well as to the environment, a lower spill to crash ratio is considered significant. While that improved performance might be a result of the Alliance permitting process, other factors could improve performance. For example, since the Alliance is made up of larger carriers, they are more likely to have the resources to update their equipment more frequently. The fact remains that spill performance is better for Alliance carriers.

The same type of analysis can be done to look at Fatal Crash Ratios. In this case, all crashes, not just HM crashes will be used in the comparison. Table 2-21 shows the comparison of the performance of Alliance and non-Alliance carriers using the Fatal Crash Ratio performance measure.

Table 2-21. Fatal Crash Ratios for Alliance and Non-Alliance Carriers

| Year | Alliance Carriers Percent of Accidents Resulting in Fatalities | Non-Alliance Carriers Percent of Accidents Resulting in Fatalities | Fatal Crash Ratio Alliance/ Non-Alliance |
|---------|--|--|--|
| 2003 | 3.46% | 4.85% | 0.71 |
| 2004 | 3.18% | 4.09% | 0.78 |
| 2005 | 3.65% | 3.41% | 1.07 |
| 2006 | 3.51% | 4.30% | 0.82 |
| 2007 | 3.17% | 4.33% | 0.73 |
| 2008 | 2.68% | 2.63% | 1.02 |
| Overall | 3.44% | 4.02% | 0.85 |

In Table 2-21, the ratio of the fatal crash to crash ratio for Alliance and non-Alliance carriers shows that the Alliance carriers have better performance using the ratio of the number of fatalities to the number of crashes. Over the years shown, 2003 through part of 2008, the ratio for the Alliance carriers was 85 percent of the ratio for the non-Alliance carriers. While it is not known if the trend shown is significant, it can be stated that the trend shows that on average, an Alliance carrier accident is less severe than a non-Alliance carrier. This could be due to a combination of factors associated with the screening that takes place before a carrier is given a permit to drive in an Alliance State. Two factors that come to mind are better equipment and better trained drivers.

2.7 Summary of the Safety Analysis

Three performance measures were considered, accident rates, inspection violation and OOS rates, and compliance performance ratings and in all three cases, the Alliance carriers had superior performance. Sufficient data were not available to determine the exact reason for the better performance. This analysis also estimated potential reductions in crashes and OOS incidents if the respective crash rates and OOS rates experienced by Alliance carriers were applied to all non-Alliance carriers. The analysis shows that

- Approximately 750 crashes involving hazmat vehicles would be prevented
- About 4,250 OOS service violations would be prevented if all hazmat carriers were subject to Alliance permitting requirements.

Dollar values representing savings derived from the reduction of incidents were calculated for crashes and OOS violations showing that approximately \$141.2 million in savings could be realized by carriers, the states and the public if Alliance crash and OOS rates were applied to all non-Alliance hazmat carriers.

3.0 ANALYSIS OF SURVEY RESULTS FROM STATE GOVERNMENTS

State governments are the members of the Alliance. The experience of the current members should show the importance and relevance of the program. The views from non-Alliance states should reveal the reasons why those states are hesitant to join the Alliance. For the purpose of gaining the insights into the states' experience with the Uniform Program, the Battelle Team conducted surveys and collected data and information from 48 contiguous states. For two Alliance states, Ohio and West Virginia, interviews were conducted in person. For Ohio, two separate in-person interviews were conducted with officials at the Public Utility Commission (PUCO). For the remaining states 46 contiguous states, interviews were conducted either via telephone, email, or both to solicit their views on the Alliance program and to collect information on their current hazardous materials permitting and/or registration program. Additional data and analyses on the results found in the state surveys are found in Appendix A.

This section of the report summarizes and analyzes the results of the surveys from the responses received from states. The section is organized as follows:

- Section 3.1 describes the response rate from the surveys
- Section 3.2 discusses the quality of the survey response
- Section 3.3 provides an overview of the surveys
- Section 3.4 presents revenue and cost analysis for the Alliance states.

3.1 Response Rates from the State Survey

The overall response rate for the 48 contiguous states was about 58 percent. The response rate differed between the Alliance and non-Alliance states. For the Alliance states, all seven states that are currently members of the Alliance were contacted and all responded. For the forty one states that are not in the Alliance program at the time the survey was conducted, twenty one states (or 51 percent) responded.

3.2 Quality of the Survey Responses from the State Survey

States whether they are members or non-members of the Alliance program were cooperative and supportive of the survey efforts. The responses for the questions provide useful and high quality information about what states thought about the Alliance program. Some states suggested specific legislation that in their view deserves the Alliance's immediate attention.

Collecting revenue and cost related data proved to be challenging. This is not totally unexpected since changes in computer systems and staff have resulted in difficulties obtaining sufficient data for analysis. After several attempts, however, the Battelle Team has managed to collect some meaningful data from states.

3.3 Overview the State Survey Responses

This section summarizes the survey responses and highlights important points in key questions for the states. The analysis focuses on Alliance states first and then presents results from non-Alliance states.

Alliance States

- All current members have been with the program from 9 to 15 years. However, the State of Minnesota is considering legislation that will abolish the membership applying to all hazmat excluding waste.
- Changes in legislations, obtaining supports from the industry and key politicians, and threat of a trucking association lawsuit were cited as reasons for joining the Alliance program.
- Very few to none carriers were rejected from their application and compliance review. In some cases, the applications were just put on hold until carriers came into compliance.
- States were unsure the number of roadside inspections, and the fees received from the Alliance program were spent on highway, emergency response, administrative costs, and others.
- Five out of seven member states indicated that their revenue for the most recent year ranged from \$200,000 to \$623,000, and the percentage of the administrative costs to the total revenue ranged from 18 percent to 62 percent.
- All member states have been using Internet or computer-processing the application.
- The safety benefits experienced included: better communication among carriers, reduced number of unsafe carriers, reduced accident rate, and others.
- Other benefits reported included: higher carrier satisfaction, reduced number of carriers to manage, and others.
- The weaknesses of the Alliance program included: not enough states joined, administratively unaggressive, lack of online payment, failure to have federal mandate, and others.
- The actions to overcome the weakness include: more marketing, ensuring federal funding, providing more training, and others.

Non-Alliance States¹

- Nine out of 21 states that responded to the survey have hazmat permit and/or registration program.
- Very few to none carriers were rejected from their application and compliance review.
- The advantages of the current system include control by the states themselves.
- The disadvantages of the current system include: lack of uniformity and reciprocity. But, they do not believe that the Alliance program is better than their systems.

¹ Revenue and cost data for non-Alliance stats are unavailable.

- Human processing dominates the application process though some states have begun to allow the online application.
- Only three (3) states indicated that there will be advantages of joining the Alliance program. Six (6) states do not believe that there will be advantages of joining the program, while and other six (6) states expressed in an opinion of “maybe/unknown.”
- The obstacles for joining the Alliance program include: lack of information about the program, resistance to the program by politicians and carriers, dislike the formula used by the program, and others.

3.4 Revenue and Costs Analysis for the Alliance States

Five Alliance states, including Ohio, Illinois, Minnesota, Nevada, and West Virginia, reported the revenue and administrative costs for the most recent years. The revenue is generated by collecting fees from registration, granting permits, and hazardous materials or wastes, though the collection for specific fees varies from state to state. For instance, the State of Illinois charges fees on hazardous waste only but not on hazardous materials. The total revenues collected by those five states are ranged from \$200,000 to more than \$600,000. As shown in Table 3-1, the State of Nevada has generated more than \$622,519 in Fiscal Year 2008, while the State of West Virginia generated \$200,000. The difference in revenue between states is a result of fees charged to carriers, percentage of mileages driven by carriers in each state, and percentage of hazardous material/waste activities conducted by carriers in each state.

Table 3-1. Alliance States’ Revenue and Administrative Costs from Hazardous Materials/Waste Program

| State | Total Revenue(*) | Total Administrative Costs | % of Total Administrative Costs to Total Revenue |
|---------------|------------------|----------------------------|--|
| Ohio | \$342,270 | \$175,000 | 51.1% |
| Illinois | \$321,310 | \$198,000 | 61.6% |
| Minnesota | \$224,100 | \$133,941 | 59.8% |
| Nevada | \$622,519 | \$113,739 | 18.3% |
| West Virginia | \$200,000 | \$100,000 | 50.0% |

(*) The FY 2007 revenue and cost figures are reported by Ohio, while the FY 2008 data are reported by Illinois, Minnesota, Nevada, and West Virginia.

Four out of those five states also reported the total administrative costs that include labor, overhead, printing, computers, and other administrative costs.² The total administrative costs for those four states are from \$100,000 (for West Virginia) to \$198,000 (for Illinois). The percentages of the total administrative costs to the total revenue for four states are in a range of

² The State of Minnesota only provided the labor costs of administrating the program. The total administrative costs for Minnesota was imputed by multiplying the average administrative cost per carrier from other four states by the number of carriers reported by MN.

50 to 60 percent with an exception of Nevada. According to the cost data provided by the State of Nevada, the total administrative cost counts only 18 percent of total revenue collected from the Alliance program. The percentages of administrative cost to total revenue are an important indicator, which shows that the cost of managing the Alliance program is recoverable. In other words, the Alliance program is able to support itself financially.

4.0 ANALYSIS OF SURVEY RESULTS FROM HAZMAT MOTOR CARRIERS

Hazmat motor carriers (or carriers) are one of the important participants of the Alliance program. Carriers' opinions and experience with the Alliance, no matter whether they are in the program, are important for future expansion of the program. The Battelle Team conducted surveys and collected data and information from carriers operating both in and outside of the Alliance by implementing a questionnaire. The questionnaire was developed as the vehicle that was sent to selected carriers for eliciting information. This section describes and analyzes the results from the surveys. The response rate for the surveys conducted for carriers in the Alliance is reasonable and survey results provided a base for analysis. Though the response rate from carriers outside of the Alliance was unexpectedly low, some useful information has been obtained from those returned questionnaires. Additional data and analyses on the results found in the carrier surveys are found in Appendix B.

This section summarizes and reviews the survey results from the responses received from the carriers. The section is organized as follows:

- Section 4.1 describes the sample selection and the response rates from the surveys
- Section 4.2 discusses the quality of the survey responses
- Section 4.3 provides an overview of the survey responses

4.1 Sample Selection and Response Rates for the Carrier Survey

A total of 400 carriers was selected randomly from databases for carriers that were permitted to operate in the Alliance states and for carriers operating outside of the Alliance. The database for the Alliance carriers was a list of Uniform Program (Alliance) carriers maintained by the Public Utilities Commission of Ohio (PUCO). The sample of non-Alliance carriers was selected from the Pipeline and Hazardous Materials Safety Administration (PHMSA) registration file for hazmat carriers.

Battelle took the following steps to conduct surveys:

- Email contacts were made initially with both Alliance and non-Alliance carriers. The initial response rate to this effort was inadequate and even follow-up calls failed to elicit a satisfactory response.
- The questionnaire was next distributed to carriers by conventional mail. However, the response rate from the mailing was also very low.
- Repeated contacts were made to the carriers via telephone, email, or both to solicit their responses to the questionnaires.

Through those efforts, thirty-eight (38) carriers that operate in the Alliance responded to the questionnaire. For carriers that operate in non-Alliance states, there were only eight (8) carriers that responded to the survey.

4.2 Quality of the Carrier Survey Responses

The questionnaires received from the carriers provided valuable qualitative information. That included especially useful suggestions for potential modifications to the Alliance that would improve its attractiveness to carriers. Collecting quantitative information from the carriers proved to be a difficult task. The operational cost data for the Alliance program received was occasionally fragmented and somewhat inconsistent. However, the data received enabled the project team to conduct a preliminary analysis of benefits and costs for carriers.

4.3 Overview the Survey Responses

This sub-section summarizes the survey responses and highlights important points raised by carriers operating in Alliance states and the non-Alliance states.

Carriers Operating in Alliance States

- Most of the carriers surveyed have been in business for more than 25 years, and have been operating in Alliance States for more than 12 years.
- The most common types of hazardous materials shipped are flammables, corrosives, oxidizers, Class 9, and hazardous waste.
- Majority (61%) of carriers do not operate only within one state.
- Half of the carriers initially supported states joining the Uniform program. More than half (74%) of the carriers surveyed still support the states joining the Uniform program or have started supporting states joining.
- 23 percent of carriers that responded to the survey are small size with less than 20 power units; 26 percent of carriers are medium size with 75 to 200 power units; 11 percent of carriers are large size with 700 to 1,000 power units; and 1 extra large carrier with more than 8,500 power units.
- For small carriers, the reported registration, administrative, and compliance costs are ranged from \$130 to \$2,000 with revenue from \$30 to \$500,000. For medium carriers, the costs are from \$50 to \$4,000, while the cost for the extra large carrier was \$7,500 with revenue of \$128 million.
- Of all the carriers surveyed, the main benefit seen was simplified permit application procedures.
- Majority (68%) of carriers indicated that the program would be more beneficial if more states joined.
- FMCSA was the primary agency cited to help improve the Uniform program.

Motor Carriers Operating in Non-Alliance States

- All of the carriers surveyed have been in business more than 20 years, some of the more common hazardous materials shipped include: Class 3 – Flammable or Combustibles/Fuel and Oxidizers.
- Majority of carriers (75%) operate in multiple states, with most (66%) operating more than two but in 10 or less states.

- Only three (3) small carriers with less than 50 power units reported costs, which are ranged from \$200 to \$12,300, and revenues, which are ranged from \$231 to \$8 million.
- Six out of eight motor carriers responded to the survey that they were knowledgeable of the Uniform Program.
- Half of the carriers support the Uniform Program.
- Suggestions for improvements in the Uniform Program that would make the program more attractive to carriers included, but were not limited to:
 - Allocate exemptions and have the price of permit reflective
 - Make it more streamlined, if they only had the federal regulations to deal with it would be better
 - Need to be more informed on where the money is going—how it is divided, prove that education, training and enforcement programs are in place
 - Get all states to join the Uniform program.
- Suggestions on how national and/or state motor carrier associations can help expand the coverage of the Uniform Program included:
 - Make it more understandable and easier to complete
 - Some states have their own trucking associations that could help get the message out
 - Prove to carriers that program will help prevent accidents, include inspection and repair training
 - Go after safety in cargo tank training and develop clarity in the regulations involving maintenance.
- FMCSA, state legislatures, and PHMSA were cited as agencies to help improve the Uniform Program and attract more states to join.
- A couple of carriers mentioned that uniformity and a single state contact are advantages of the program.
- One carrier stated that all Class 1 through Class 8 hazmat should be included in the Uniform program, but that Class 9 should be excluded.
- A few carriers mentioned uniformity and simplified permit application procedures as benefits of the Uniform program.
- Loss of revenue and loss of control were listed as reasons and concerns that prevent states from joining the Uniform Program.
- Reasons and concerns that prevent carriers from wanting the states they operate in to be members of the Uniform Program included, but were not limited to: costs; another unnecessary fee; additional paperwork; time-consuming detail to monitor with no real gain; duplicates much of an already existing program; carriers do not receive any of the money for training, does not promote safety; and no benefit to carriers.

- The disadvantages of the Uniform Program indicated by carriers, but were not limited to:
 - The program does not include all states,
 - Not helpful to unique trucking companies that have exemption with many states,
 - Unnecessary fee and additional paperwork,
 - Time-consuming to monitor with no real gain, and
 - Duplicates much of an already existing program.

5.0 INTERVIEWS WITH PARTICIPANTS AND INFORMED OBSERVERS OF THE ALLIANCE

To better understand the views from people who are either participants or observers of the Alliance, the Battelle Team conducted in-depth person-to-person interviews with a number of participants and those who as observers of the Alliance are knowledgeable about its operation. In general, members of major motor carrier organizations such as the National Tank Truck Carriers (NTTC) and the American Trucking Association (ATA) and organizations supporting highway safety such as the Commercial Vehicle Safety Alliance (CVSA) are very supportive of the organization. They recognize that the Alliance not only reduces paperwork and administrative costs but encourages safe practices and screens out the carriers with the poorest safety records.

One former participant believes that the Alliance has played a key role in educating carriers about hazmat regulations. Before the Alliance was formed, many hazmat carriers in one state (especially intrastate carriers) had no idea about how the hazmat regulations functioned. That was exacerbated by the fact that when the Alliance began, FMCSA was not required to enforce hazmat regulations for intrastate carriers. Furthermore, applicants had to be educated concerning how to complete an application with the correct information. One major improvement was in insurance coverage. Carriers often lacked coverage even though required by law to obtain a minimum level of coverage. They signed up for insurance once forced to. Some carriers were rejected for permits because they did not have a satisfactory SafeStat rating. That measure eliminated the least safe carriers from transporting hazmat in the state. However, the rejection could be reversed if a carrier eventually earned a satisfactory rating from FMCSA.

Informed observers and participants agree that the Uniform Program could be improved by informing states of the benefits of joining the Alliance. One Federal official believes that the states should be informed through a consistent outreach program that joining the Alliance will be beneficial with little downside. Benefits should be described clearly to states and wherever possible quantified. One potential example of a successful national program that could be described to states and carriers alike would be the Single State Registration Program. For carriers, the message should be that joining the Alliance would simplify the need to obtain multiple permits and replace them with one uniform permit. That should reduce administrative costs and the confusion associated the current system that is characterized by many different state permits and requirements.

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6.0 RECOMMENDATIONS FOR INCREASING MEMBERSHIP IN THE ALLIANCE

The Alliance program has brought many indisputable benefits to both the member states and carriers. After running successfully for more than 14 years, the Alliance program has offered not only uniformed permit application and compliance procedures, but also generated savings in safety related costs and reduction in OOS incidents for carriers.

Through surveys, the states, carriers and other knowledgeable stakeholders, provided invaluable suggestions for the future development of the Alliance program. They emphasized that increasing membership will be an important indicator showing the continuous success of the Alliance program. The recommendations from states and carriers combined with those of the project team, are summarized into the following key areas:

1. Conduct aggressive educational/marketing campaigns to retain the current members and to recruit new members
2. Seek strong federal legislative and financial support including a more active role for FMCSA to be a leading agency in the Alliance
3. Improve the operational efficiency, consistency and uniformity of the program
4. Provide assistance and training to states initiating programs.

6.1 Aggressive Educational/Marketing Outreach Campaign

The Alliance states indicated in their responses to the surveys that the program should conduct more marketing, while the non-Alliance states pointed out that they possess insufficient information about the program. The responses from member and non-member states all call for the Alliance program to conduct aggressive marketing outreach campaigns. The purpose of the marketing campaign is not only to increase awareness and recruit new members, but also to retain existing members. As discovered through surveys, one of the member states has been considering leaving at least a portion of the program. This potential event increases the need and urgency for an effective marketing campaign.

6.1.1 Marketing to Carriers

Surveys indicated that many carriers are unaware of the benefits of the Alliance. Specific educational/marketing activities directed at carriers include the following suggestions:

- Prepare information in the form of brochures and presentations for distribution to carriers
- Potential marketing channels include ATA and the NTTC
- The brochures and other marketing materials should emphasize the benefits of the Alliance to carriers and would include the following information:
 - Carriers in Alliance States are predominantly satisfied with the program and consider it worthwhile
 - Carriers in the Alliance have a significantly lower OOS rates, which equates to cost savings for carriers

- Carriers in the Alliance have fewer crashes per mile traveled when compared with non-Alliance carriers. Reduced crashes benefit the industry in two-fold: (1) by reducing costs and (2) and more importantly, fewer hazmat crashes result in a direct safety benefit to the general public and lessen the pressure to enact more restrictive HM regulations.
- If the Alliance expands, carriers would be able to reduce the number of permits, which will result savings in labor costs from eliminating multiple permit applications.

6.1.2 Marketing to States

Specific marketing/educational activities directed to states include the following:

- Prepare marketing/educational information for both member and non-member states
- Candidates for receipt of the information include staff involved in hazmat, state government officials, and state legislators
- The materials should stress the benefits of the program and would include the following information:
 - Improved safety of hazmat carriers operating in a state
 - Carriers with an “unsatisfactory” rating would be denied a permit, and carriers with deficiencies must mitigate them before being granted and receiving a permit. As a result, unsafe carriers would be eliminated from the state’s roads
 - Reduced OOS rates of carriers in program indicates that safer vehicles and drivers are on the road
 - The Alliance states generate sufficient revenues from carriers plus NCSL grants that ensure state operating costs are covered
 - Membership in the Alliance provides an opportunity to work with other states in improving the efficiency of the program.

6.2 Federal Legislation and Financial Support

The survey responses indicated that states are expecting to have strong federal supports both in legislative enforcement and financial funding. Accordingly, the specific actions to gain federal supports include:

- Prepare information including a summary of advantages of the Alliance program and recommendations for further involvement by the federal government
- Federal agencies that should be targeted for obtaining additional support include FMCSA, Department of Homeland Security, and others
 - The information compiled for FMCSA would include:
 - Developing regulations requiring Alliance membership for all states
 - Providing funds to support states entering the program during the first two years

- Providing annual grants to ATA and the NTTC to develop outreach materials to encourage carriers to join the Alliance
- Increasing funding for the NCSL to sponsor and support the program and to provide a staff member to work with new member states during startup and to respond to carrier questions and assist interested states by holding information meetings for legislators and carriers in their states
 - i. Including a session at the TRB Annual Meeting in January to focus on the benefits of the Uniform Program and opportunities for expansion.

6.3 Improve Operational Efficiency, Consistency and Uniformity

In the survey responses, the member states pointed out that the Alliance program should consider improving its operations and enhancing uniformity. Specific actions that have been suggested for the NCSL and the Alliance management for improving the program include:

- Simplifying the application as much as possible without eliminating key information
- Enhancing the registration process to be more efficient by including online payments
- Ensuring the use of an electronic application for initial applications and renewals
- For new applicants, populating the fields in the application using PHMSA Registration and MCMIS Census File information
- Establishing a two tier fee structure with a lower fee for intrastate carriers than for interstate carriers
- Enabling States to process applications for any carrier based in their state even if another state accounts for a higher mileage number for travel in a year.
- Providing “seed money” in a range of \$75,000 for each of two years for all new State members of the Alliance
- Providing free registration and permitting to carriers during year one and two of the program.

6.4 Provide Assistance and Training to States Initiating a Program

One way to increase awareness of the Alliance program and conduct effective marketing is to provide assistance and training to member and non-member states. As indicated in the responses, states are looking for assistance from the Alliance program to develop a permitting program. They expect that the Alliance program will provide education and help them develop:

- Model legislation
- Testimony
- Presentations
- Training.

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7.0 CONCLUSIONS

7.1 Benefits of the Alliance Program

This report summarizes the comprehensive study conducted for the Alliance. The methodology implemented in the study included a combination of analyzing publically available databases and conducting surveys from state governments, carriers, and other stakeholders. The study reveals the benefits experienced by Alliance member states and carriers. Major quantifiable benefits identified from the study include:

- Carriers would reduce 750 crashes per year if all hazmat carriers crash at the lower crash rate as Alliance carriers
- The total safety-related annual savings from reduction in crashes would be about \$139 million, if all hazmat carriers crash at the same rate as Alliance carriers
- Carriers would reduce 4,258 OOS violations if all hazmat carriers experienced OOS violations at the lower rate of Alliance carriers
- The total annual savings from reduction in OOS would be about \$2.6 million, if all hazmat carriers experienced OOS at the rate of Alliance carriers
- The total administrative costs for the Alliance member states are at most 61 percent of the revenue collected from hazmat/hazardous waste carriers
- 74 percent of Alliance carriers that responded to the survey still support the program, while 50 percent of carriers initially supported states joining the program
- Half of non-Alliance carriers that responded to the survey support the program
- Other stakeholders including organizations such as NTTCC, ATA, and CVSA are very supportive of the Alliance. They recognize that the Alliance not only reduces paperwork and administrative costs, but encourages safe practices and screens out the carriers with the poorest safety records.

States, carriers, and other stakeholders contacted by the Battelle Team all provided valuable suggestions for potential improvements of the Alliance. The recommendations summarized in Section 6 provide a list of actions the Alliance may take to increase awareness and visibility as well as to attract new members.

7.2 Meeting Project Objectives

The major project “study elements” are divided into those for states and those for motor carriers and were expressed in the original RFP as questions. Each group of study elements is summarized in a separate table. For states, the project fulfills the major study elements/objectives in four areas: Program Benefits, Obstacles to Growth, Conclusions and Recommendations. Each of these areas has sub-objectives. Table 7.1 lists the objectives and sub-objectives and discusses the project results for each. Table 7.2 provides the same information for motor carrier study elements but only covers two areas: Program Benefits, and Recommendations.

Table 7-1. Meeting Program Objectives for the State Study Elements

| Key Objectives and Sub-objectives | Findings and Results |
|--|---|
| Program Benefits | |
| 1. What benefits, changes, improvements or differences occurred after the Alliance States implemented the program? | The Alliance programs assisted carriers with training and hazmat regulatory compliance; registered carriers have a significantly lower accident and OOS rate. |
| 2. What cost savings resulted for states? | Administrative costs are lower – one electronic application registers a carrier in multiple Alliance States. |
| 3. What are the observed safety benefits? | Lower accident rate, lower OOS rate translates into lower costs to carrier and state |
| 4. Has program enhanced public health and safety? | Yes, because carriers registered with the Alliance have significantly lower accident rates and are operating more safely. |
| 5. What are the revenue implications of the program? | Revenue to alliance states ranged from 200 to 600 thousand dollars/year; benefits totaled over 100 million. See Table 3-1, 2-5 and 2-18 |
| 6. What are the program benefits relative to preventing terrorism | Security/terrorism audit included as part of safety audit. See Appendix A. States are inconsistent in distributing materials |
| 7. What have been the observed security benefits and what additional benefits could be procured in the future? | The security benefits are difficult to measure. However, the Alliance could provide additional information to carriers about security alerts. |
| Obstacles to Growth | |
| 1. What are the reasons new states are reluctant to join the Alliance? | States satisfied with their current program, legislative climate not favorable, intrastate carriers do not want it. |
| 2. What is the cost and process for a new state joining the Alliance? | Responses to survey showed the process would vary by state, costs would therefore vary greatly. |
| 3. What are the results of a survey of 8 to 10 non-Alliance States about their perception of obstacles? | See Table A-2, also the disadvantages listed in response to Interview Question A.2.6. |
| Conclusions | |
| 1. What are the key benefits should new states consider in evaluating adoption of the Uniform Program? | Improved safety fitness of hazmat carriers, fewer hazmat accidents and lower OOS rates, reduced paperwork costs for interstate carriers. |
| 2. What are the key obstacles that new states should consider when evaluating adoption of the Uniform Program? | Legislative climate not conducive to change. Legislatures do not see the benefits of imposing another financial burden on truckers. |
| Recommendations | |
| 1. What are the key implementation issues for new states to consider | See Section 6.0 for a listing of recommendations |

Table 7-2. Meeting Program Objectives for the Motor Carrier Study Elements

| Key Objectives and Sub-objectives | Findings and Results |
|---|---|
| Program Benefits | |
| 1. Generally, what benefits/changes/improvements/ differences accrued to regulated motor carriers after the Alliance program was implemented in each of the seven states? | In general, the Alliance program reduces paperwork and administrative costs, screens out unsafe carriers and encourages safe practices resulting in fewer accidents and a lower OOS rate. |
| 2. What have been the direct cost savings to industry after implementation of the Uniform Program? | Administrative costs are lower – one electronic application registers carrier in multiple Alliance States. |
| 3. What have been indirect cost benefits to industry? | Lower accident rate, lower OOS rate translates into lower costs to carriers |
| 4. What have been the observed safety benefits to participating motor carriers? | Unsafe carriers are denied membership and once carriers are registered with the Alliance have significantly lower accident and OOS rates than non-Alliance Carriers |
| 5. What may be the program benefits relative to preventing terrorism from an industry perspective? | The current benefits related to reducing terrorism are difficult to measure. However, the Alliance states could provide additional information about terrorist activities and alerts. |
| 6. What have been the observed security benefits of the Uniform Program from an industry perspective? | Security benefits are difficult to measure. Distributed pamphlets and included security audit is part of safety audit. See Appendix A |
| Recommendations | |
| 3. What can national motor carrier associations do to support implementation of the Uniform Program in additional states? | Educate members about the benefits of the Alliance including cost benefits from reduced paperwork and improved safety. Lobby for increased involvement of FMCSA including new regulations requiring membership and funding for new members. |
| What can state motor carrier associations do to support implementation of the Uniform Program in additional states? | Inform members about benefits of the Alliance related to reduced paperwork and improved safety with fewer crashes and OOS inspections. Stress that reduced paperwork and improved safety save money |

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Appendix A: Surveys from State Governments

A.1. The Detailed Responses from the Alliance States

The responses from the Alliance states are summarized by interview questions. The interview questions cover seven (7) key questions:

- Length of time in the Alliance program, hazmat included, and types of program
- Steps taken to join the Alliance program, support, and opposition
- Application and compliance review
- Roadside inspections and fee allocation
- Revenue and cost data
- Administrative procedure, safety, and security benefits
- Other advantages, weaknesses, improvements, and recommendations

Interview Question A.1.1: Length of Time in the Alliance Program, Hazmat included, and Types of Program

Table A-1. The Responses to the Interview Question 4.1

| State | Length of Time in Alliance Program (# of Years) | Hazmat Included | Registration and Permit Program |
|---------------|---|------------------------|---------------------------------|
| Illinois | 11 (since 1998) | Hazardous waste only | Both |
| Michigan | 11 (since 1998) | Hazardous waste only | Both |
| Minnesota | 15 (since 1994) ^(*) | All hazardous material | Both |
| Nevada | 15 (since 1994) ^(*) | All hazardous material | Both |
| Ohio | 15 (since 1994) ^(*) | All hazardous material | Permit only |
| Oklahoma | 9 (since 2000) ^(**) | Hazardous waste only | Both |
| West Virginia | 15 (since 1994) ^(*) | All hazardous material | Both |

(*) MN, NV, OH, and WV were the founding members of the Alliance program. (**) The person interviewed is not aware of the exact time Oklahoma joined the program because she came on board after the state already became a member. However, according to the Alliance, Oklahoma became a member in 2000.

Interview Question A.1.2: Steps taken to join the Alliance Program, Support, and Opposition

The steps taken to successfully join the Alliance program vary slightly by state. Some of the common practices included:

- Modifying the current permit/registration system
- Creating new legislation
- Modifying existing legislative language and statutes.

Others participated in initial discussion groups regarding the Alliance program took the following actions:

- Piloted study groups
- Held meetings to inform people about the Alliance program
- Created a hazardous materials transportation act.

States expressed that the following supports are the reason(s) for them to join the Alliance program:

- Industry support
- The public utilities commissioner's support and help
- A response to a trucking association lawsuit
- Threatened with preemption to their Special Waste Hauling Program that they must join the Alliance or lose their own program.

However, a couple states were unsure how support was gained from key politicians and motor carrier groups since the current staff were not there at the time their state joined the Alliance program.

In regarding states' opposition to joining the Alliance program, the responses indicated:

- Three states had not opposition from key organizations.
- The four other states indicated that there was opposition, most specified that there was more opposition from intrastate carriers. Some intrastate carriers felt they had the least to gain because prior to the state joining the Alliance program, they were not subjected to Federal hazmat regulations.
- One state specified that Petroleum Marketers were the biggest opposition.

Interview Question A.1.3: Application and Compliance Review

All seven Alliance states indicated that very few to none carriers are rejected from their application and compliance review process, and that in some cases they are just put on hold until they come into compliance.

Some of the reasons for rejection or holding an application included:

- High out of service rates
- Not meeting insurance requirements or falsification
- Non-satisfactory SAFER rating
- Document falsification
- Missing hazmat training certificates
- Missing Emergency Response Plan that must be carried in the vehicle including emergency contact number
- Paperwork errors or omissions
- Not current with fee payments.

Interview Question A.1.4: Roadside Inspections and Fee Allocation

Most states were unsure about the number of roadside inspections done based on the Uniform Program participation, but that they were done by either MCSAP highway patrol, state department of transportation or state police. One state indicated they had roving 24/7 365 enforcement, others stated that no special inspections are ordered.

Fees received from the Alliance program are spent in various areas, which included:

- The truck highway system
- Emergency response
- Administrative costs
- First responder activities
- Transportation inspections
- Safety and training
- Enforcement and officer education

Interview Question A.1.5: Revenue and Costs

Battelle has made several attempts to collect revenue and cost related data. The initial attempt involved to gather the annual data for three years: the year right before the state joined the Alliance program, the first year after the state joined the program, and the most recent year. However, most states except Illinois had difficulties to locate the 10- or 15-year old data at the time the states joined the program. The difficulties were caused by changing or updating computer systems and changing in staff, which resulted institutional deficiency in data awareness.

The second attempt Battelle made was to contact the state budget offices for collecting revenue data. The attempt came out short of the revenue data expected because hazmat related fees and permit fees are relative small and are combined with other budget items. Though states Battelle contacted were very cooperative and made special efforts to discover the revenue data from their computer databases, the data either include environmental cleanup fees or are much larger than expected for unknown reasons.

The third attempt Battelle made was to collect only the total revenue and administrative cost data from states for the most recent year they can provide. The final attempt proves to be the most successful. The revenue and cost data from the Alliance states for the most recent year are summarized and presented in Table 3-1 in Section 3.4.

Interview Question A.1.6: Administrative Procedure, Safety, and Security Benefits

All Alliance states indicated that human processing is beginning to be replaced by Internet or computer processing in a phased approach. Currently carriers can complete the application online, but then the application must then be printed out and mailed in with payment for processing.

Some of the safety benefits from joining the Alliance program included:

- Better communication with motor carrier industry and out-of-state carriers,
- Proactive carrier contact,
- Reduced number of carriers rated as unsafe,
- Improved carrier maintenance and safer mechanical systems,
- Improved selection of drivers,
- Increased number of carriers covered by appropriate insurance,
- Reduced out of service findings in inspections, and
- Reduced accident rate.

However, all of the states indicated that the Alliance program does not distribute information on terrorist activities or provide security alerts.

Interview Question A.1.7: Other Advantages, Weaknesses, Improvements, and Recommendations

Some of the other benefits recognized by states included:

- Reduced number of carriers to manage,
- Higher carrier satisfaction,
- Improved hazmat records for carriers,
- Improved insurance coverage,
- Confirmation that they are in compliance with such important regulatory requirements such as training and proper licensing,
- The program is very beneficial for transporters
- Unprecedented communication and cooperation state-to-state, as well as within the state, and that the variety of state agencies administering the program brings different strengths to the program.

Some weaknesses of the Alliance program that were identified included:

- Not enough states have joined
- Administratively unaggressive
- The registration process could be more efficient by including online payment
- Failure to have Federal enforcement or mandate
- Lack of political will
- The waste administrators (hazmat waste only) lack the technical proficiency present in that the transportation and the commerce commissions.
- We are gradually learning to work together to make a comprehensive program, but it will never be uniform.

While most states were unsure how to address these weaknesses, some indicated the following actions could be taken:

- Conducting more marketing
- Instituting Federal requirements
- Ensuring that there is Federal funding to support the Alliance program

- Keeping communication open
- Providing more training
- Having a forced Uniform Program for all hazmat that truly emphasizes safety.

In regarding to recommending other non-Alliance states to join, the responses are as follows:

- Five states said that they would recommend the Alliance program to other states
- Other states said their recommendation would be dependent on each state's situation and that most states would have difficulty joining the Alliance program because it would significantly change the way they do business
- Another state indicated that it would be more beneficial if other states joined the program.

It is worth pointing out that there is currently pending legislation to modify Minnesota's membership with the Alliance program to exclude all hazmat transportation except hazardous waste. This is occurring for the following reasons:

- The trucking industry is feeling overburdened and over-taxed
- Since not many other states joined the Alliance program, the State of Minnesota relies mostly on the federal government regulations.

The survey indicates that the legislation to modify their Alliance membership should pass their legislature.

A.2. The Detailed Responses from Non-Alliance States

In this section, the responses from the survey to the non-Alliance states are summarized into the following six questions:

- Number of states that currently have permit or registration program for hazmat
- Application and Compliance Review
- Advantages/Disadvantages of Current System
- Revenue and Cost Data
- Administrative Procedure, Safety and Security
- Views on the Alliance Program.

Interview Question A.2.1: Number of States that currently have Permit or Registration Program for Hazmat

The pie chart in Figure A-1 below shows the number of the non-Alliance states that responded to the questionnaire currently has or does not have a hazardous materials permitting and/or registration program. Among the 21 states responded to the survey, 9 states (or 43 percent) indicated that they have hazmat permit and/or registration program.

Table A-2 provides detailed information on the non-Alliance states including which hazmat are included in the current program and reasons for or against having a program.

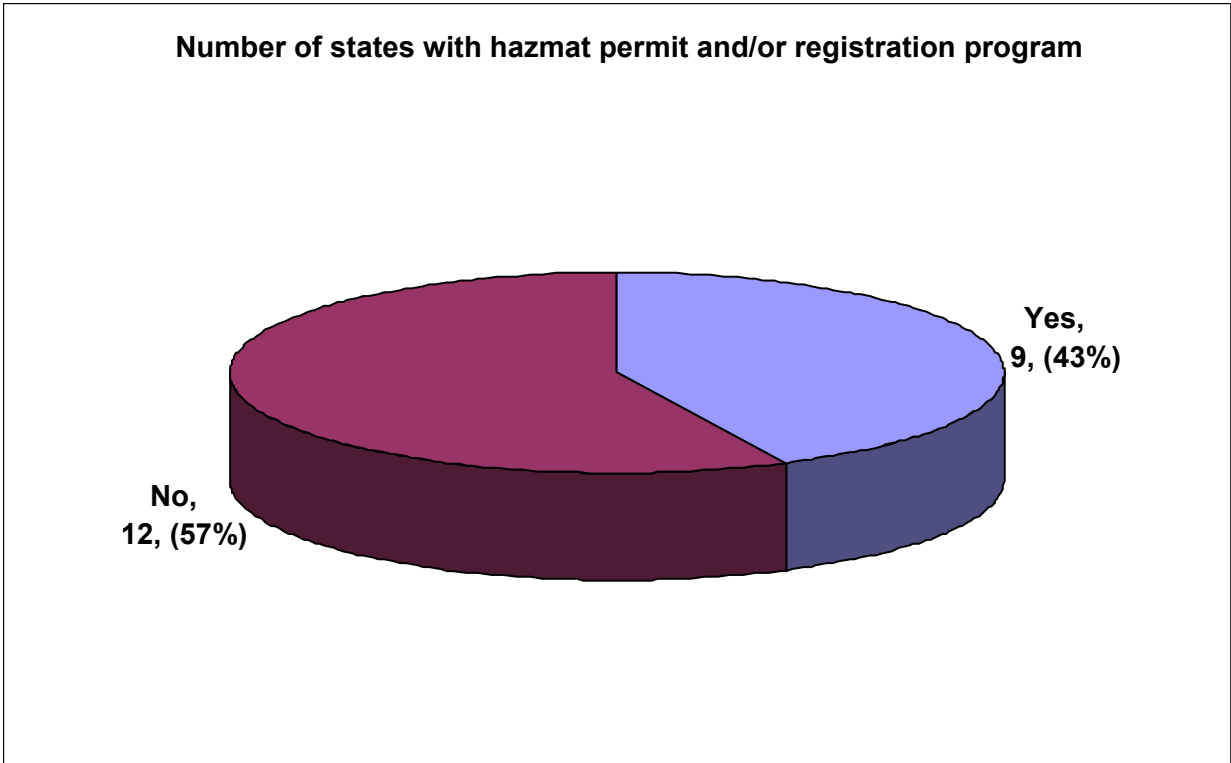


Figure A-1. Number of the Non-Alliance States with Hazmat Permit/Registration Program

Table A-2. Detailed Information Related to Hazmat Permit/Registration Program in the Non-Alliance States

| State | Hazmat Permit and/or Registration program | Hazmat Included | Reason for or Not to have Hazmat Permit or Registration Program |
|---------------|---|--|--|
| Alabama | No | | Only require AL Department of Environmental protection permit and to comply with federal regulations, no separate registration or permitting is required and no additional fees are collected. |
| Arizona | No | | |
| Arkansas | No | | Federal motor carrier regulations have been adopted as state law through legislation " Arkansas Motor Carrier Act" |
| California | No | | Currently in rulemaking process to make FMCSA permit available; they have a licensing registration and BIT (biennial inspection of terminals) process |
| Colorado | Yes, permit program only | Permit program only; two tier system, one for all hazmat (even radioactive) excluding nuclear, the other tier covers nuclear | CO has other programs it supports with the permit revenue |
| Connecticut | Yes, permit only | Waste Part B permit | |
| Idaho | No | | IA adopts the Federal regulations and does not think the legislative climate would be conducive to change |
| Indiana | Yes | | Currently only uses the Federal Hazmat Regulations and feels they are adequate for Indiana's HAZMAT Enforcement. |
| Iowa | No | | |
| Kentucky | No | | The only requirement for hazmat transportation in KY is the Federal hazmat registration |
| Maine | Yes | Waste haulers only | Mass Dept of Environmental Protection regulates waste haulers and workers intrastate operations, they have very few carriers domiciled in Mass so they follow the Federal program |
| Maryland | Yes | Hazardous waste - petroleum products | Decision made by state legislature in the early 1980s |
| Massachusetts | Yes, has both | | |

Table A-2. Detailed Information Related to Hazmat Permit/Registration Program in the Non-Alliance States **(Continued)**

| State | Hazmat Permit and/or Registration program | Hazmat Included | Reason for or Not to have Hazmat Permit or Registration Program |
|--------------|---|--|--|
| Missouri | Yes, has both | Regulate transporters of hazardous waste and Intrastate for-hire carriers transporting hazardous materials. All classes/division of HM are regulated as part of the programs described above. As part of the Hazardous Waste program, some materials that are not classified as hazardous are regulated. Medical Waste is one example. | MoDOT administers the Hazardous Waste program, however it is codified by the Department of Natural Resources. By executive order, MoDOT administers this program. All collected fees go to DNR. The HM is regulated as part of Missouri Intrastate authority regulation. There are not any additional requirements (other than liability limits) for HM carriers than property carriers to obtain authority. |
| Nebraska | No | | This decision was made under the prior administration. At this time we see no need for such a program. It would cause us to hire more staff to administer the program |
| New Mexico | No | | NM had a hazardous materials transportation permit requirement. The permit was administered by the NM Taxation and Revenue Department's Motor Vehicle Division. A state law, effective in 1991 diverted revenue from the Annual Safety and Training Fee to the State General Fund. Previously the fee had been distributed to the law enforcement training fund (50%) and to the Emergency Response Fund (50%). Laws 1996, Chapter 37 repealed the Annual Safety and Training Fee and enacted the Hazardous Materials Transportation Act, directing the Hazardous Materials Transportation Permit fee to the State General Fund. In the summer of 2000 the state received litigation backed by the American Trucking Association under the name of the plaintiff C.R. England Trucking. The trucking industry's contention is that all taxes and fees relating to interstate transportation must be apportioned in accordance with the company's use of New Mexico's highways. The permit requirement was dropped as the result of the litigation. |
| Oregon | Yes, permit program only | Only permitting for radioactive waste | Carrier can get an annual permit or a trip permit |
| Pennsylvania | No | | PA does not have any hazardous materials permit or registrations program required and no additional fees are collected. Hazardous waste is governed by the department of environmental protection |
| Tennessee | Yes | Transuranics and radioactive materials | To help defray the costs of the level VI training, equipment, escort, and to pay for the costs of troopers overtime for the shipments |

Table A-2. Detailed Information Related to Hazmat Permit/Registration Program in the Non-Alliance States **(Continued)**

| State | Hazmat Permit and/or Registration program | Hazmat Included | Reason for or Not to have Hazmat Permit or Registration Program |
|------------|---|-----------------|---|
| Utah | No | | Chose several years ago to accept the Federal Hazmat Registration as the document of choice. |
| Washington | No | | The registration process employed by Washington Department of Ecology had been meeting the State's needs. However, in order to meet changing needs, we are evaluating the implementation of a permitting program. Washington Department of Ecology has a registration program for Hazardous Wastes Utilizing the Environmental Protection Agency (EPA) Registration Process |

Interview Question A.2.2: Application and Compliance Review

The nine (9) states that have hazmat registration and/or permitting programs indicated that very few to none carriers are rejected from their application and compliance review process. Some of the reasons for carrier rejection included:

- Proof of citizenship
- Insufficient insurance
- Inadequate emergency response
- Repeated failure to provide required information.

Interview Question A.2.3: Advantages/Disadvantages of Current System

Some advantages states listed to their current system included:

- State has complete control
- Help the carriers and drivers maintain an above average safety record
- They have had a satisfactory rating at all terminals for the past three years.

One state indicated that a disadvantage was a lack of uniformity and reciprocity, but also indicated that because of these problems, the current Alliance program will not work.

Interview Question A.2.4: Revenue and Costs

This question uncovered limited information for the project. Consequently, the results have not been included in this report

Interview Question A.2.5: Administrative Procedure, Safety and Security

Some states indicated that state regulations had to be changed or clarified to accommodate their permit/registration system. Another state indicated that they are in the process of changing laws to allow for fee collection.

States indicated that human processing has not been replaced by internet or computer processing. Some states allow carriers to complete the application online, but then the application must then be printed out and mailed in with payment for processing. Other states still have a completely manual program process.

Safety benefits from states' current permit program included:

- Monitoring and tracking of hazmat shipments
- Attempting to ensure legitimate carriers are moving hazmat
- Ensured regulation compliance
- Possible reduction of the number of motor carriers rated as unsafe.

Information about terrorist activities and security alerts are distributed by states in a variety of ways and included:

- Officers distributing pamphlets to hazardous materials carriers
- An information analysis center and are connected with private counterparts
- Safety security reviews are performed during safety audits

- Performed through emergency management agency
- Have full time staff assigned to Homeland Security
- Personnel are also part of the FBI's JTTF
- Disseminated through established protocols to the law-enforcement community
- Sent out alerts and B.O.L.O's to look out for suspected terrorist activities and security alerts
- Participates in Operation STOP at the Scale sites, or have a State Emergency Management Agency (SEMA) and when there is any type of threat or state emergency this agency releases all information to the public.

Some states indicated that information about terrorist activities and security alerts are not distributed. Another state indicated that following 9/11 they did a lot but it is not an ongoing process, but they do monitor it closely.

Interview Question A.2.6: Views on the Alliance Program

Answers from states varied regarding if advantages would be accrued from joining the Alliance program. The pie chart in Figure A-2 shows answers from a general group of states'. Some states gave additional information such as:

- Improved safety fitness of hazmat carriers
- Improved emergency preparedness and response equipment
- Improved safety fitness of hazmat carriers
- Can only hypothesize that it would generate some revenue for the state requiring HM carriers to obtain the permit, possibly but that would be up to legislation, safety and security are enhanced as all carriers are held to same standard
- It has a built-in method for achieving equivalence with the federal hazmat safety permit.

Answers from states also varied regarding if disadvantages would be accrued from joining the Alliance program and if revenues would be reduced. The pie charts in Figures A-3 and A-4 show how states answered generally.

Some states gave more information on disadvantages such as:

- They do not see any advantages—it is just another fee for motor carriers and do not think the legislative climate would be conducive to change
- They do not want to put undue burden on motor carriers but they do need to make budget, staffing and management would be an issue,
- They are already overtaxed with current assignments, entering into another program with current staffing would be difficult.
- Motor carriers would be unhappy due to more fees/requirements and the bad economy,
- Loss of information on who is transporting hazardous waste in state, and
- Program seen as solution looking for a problem.

Responses to whether revenues would be reduced included:

- The Answer is “YES”—Based on the Alliance’s formula and two-year process and also motor carrier resistance

- The Answer is “NO”—Current registration program now so revenue could not go down, does not see any cost benefit from joining, unknown, and a cost analysis would have to be completed.

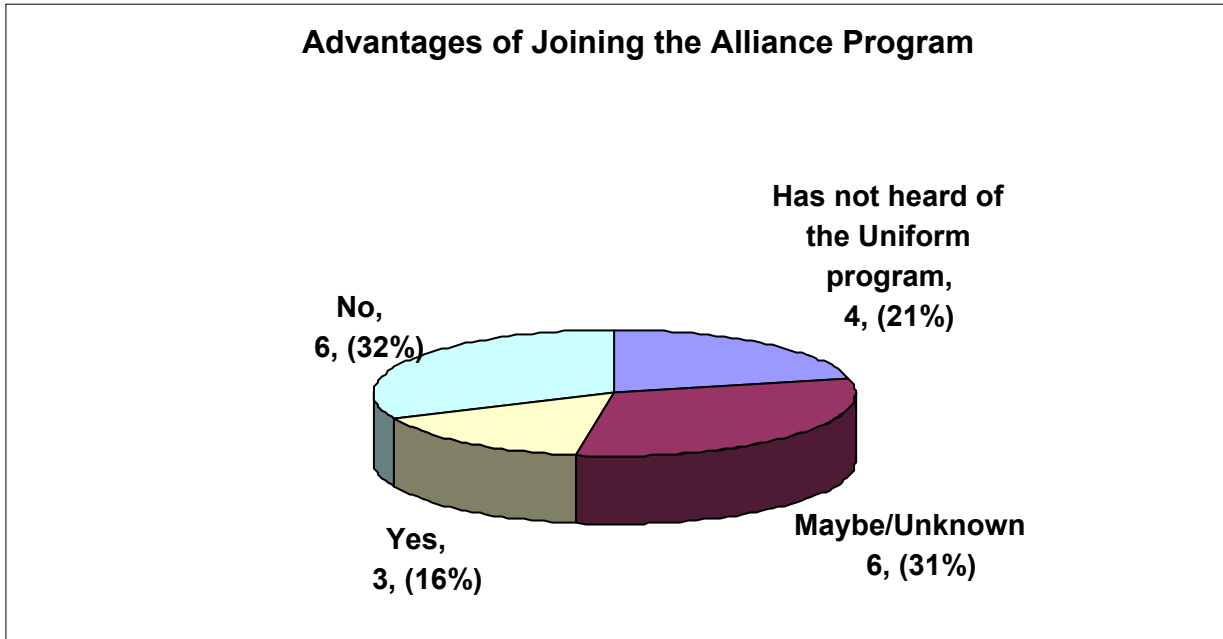


Figure A-2. Advantages of Joining the Alliance Program

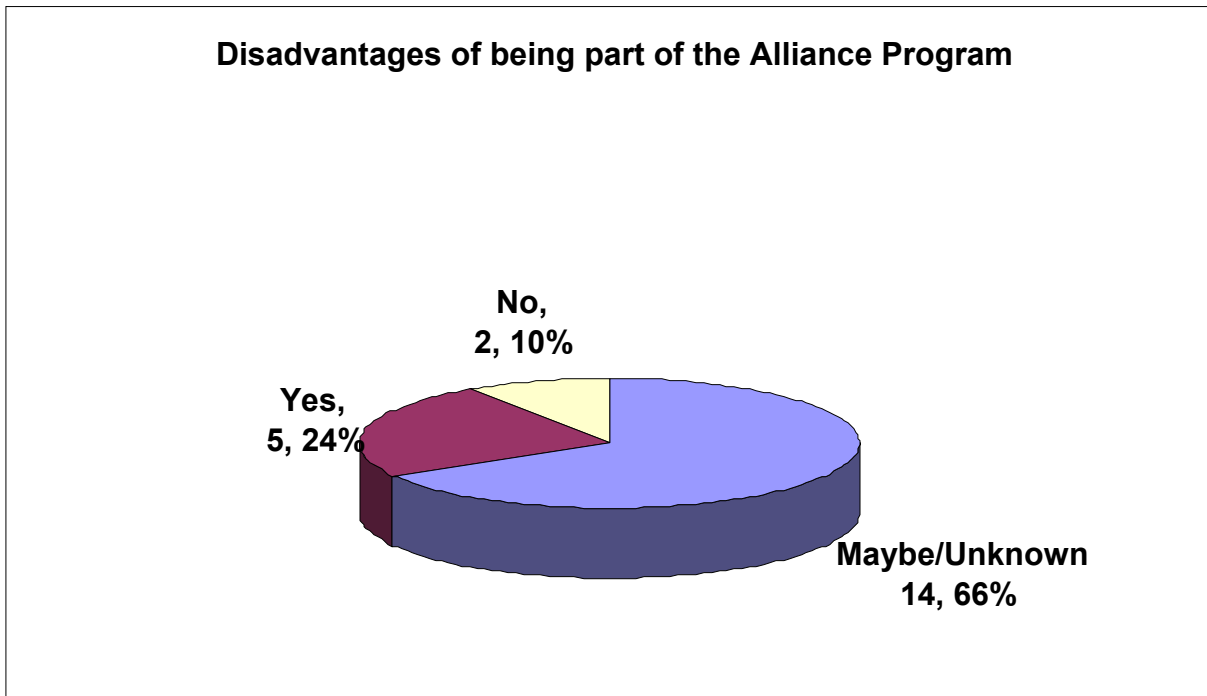


Figure A-3. Disadvantages of Being Part of the Alliance Program

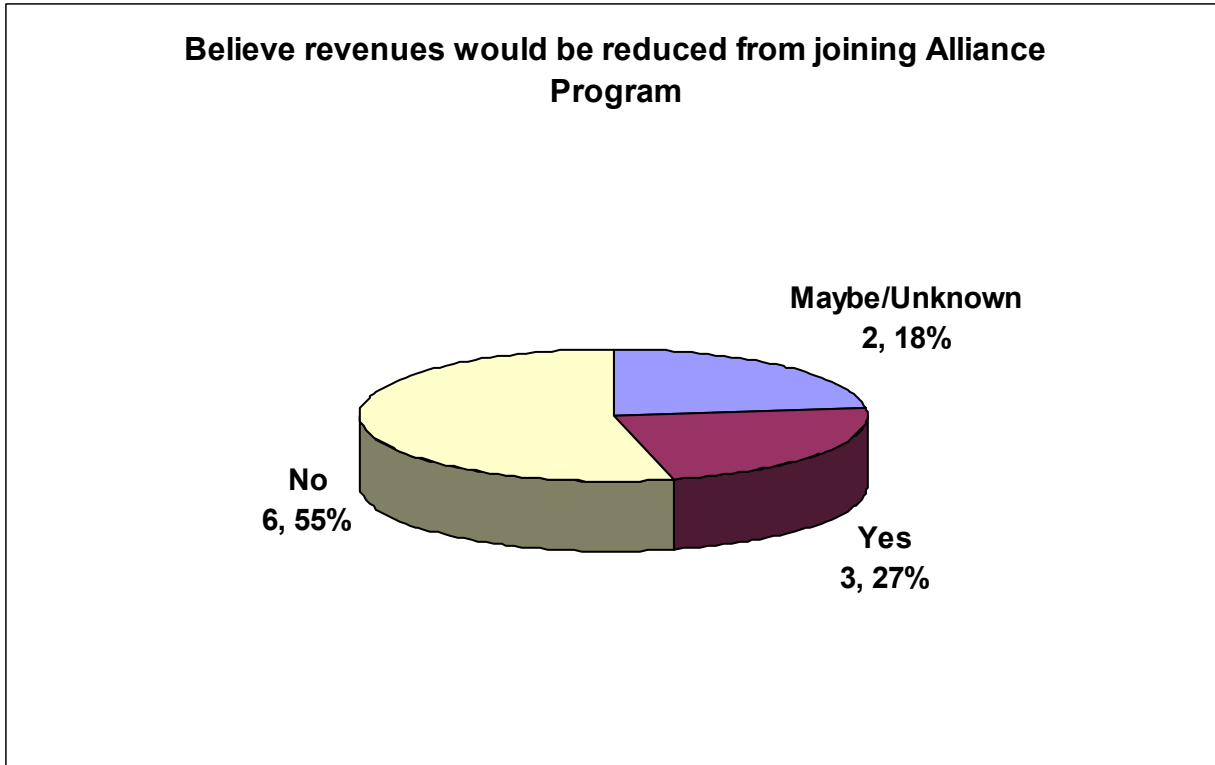


Figure A-4. Potential Revenue Reduction from Joining the Alliance Program

State listed several obstacles that would have to be overcome if they decided to join the Alliance program: (Figure A-5 summarizes the common obstacles.)

- Lack of information about the Alliance program was the most common obstacle noted
- Limited funding to support the Alliance program
- Resistance to program by state politicians
- Resistance to program by carriers
- Others including
 - They are supportive of uniformity and reciprocity but the current Alliance program is not setup well for states the already have working permitting program in place
 - Unwilling to surrender a state program to a federal-and-state program from state agencies
 - Unwilling to surrender a state program to a federal-and-state program from state legislatives
 - Obstacles unknown at this time.

States said that the Alliance program could assist them in overcoming these obstacles through

- Further education
- Providing assistance in developing a permitting program which will include:
 - Model legislation
 - Testimony
 - Presentations
 - Training

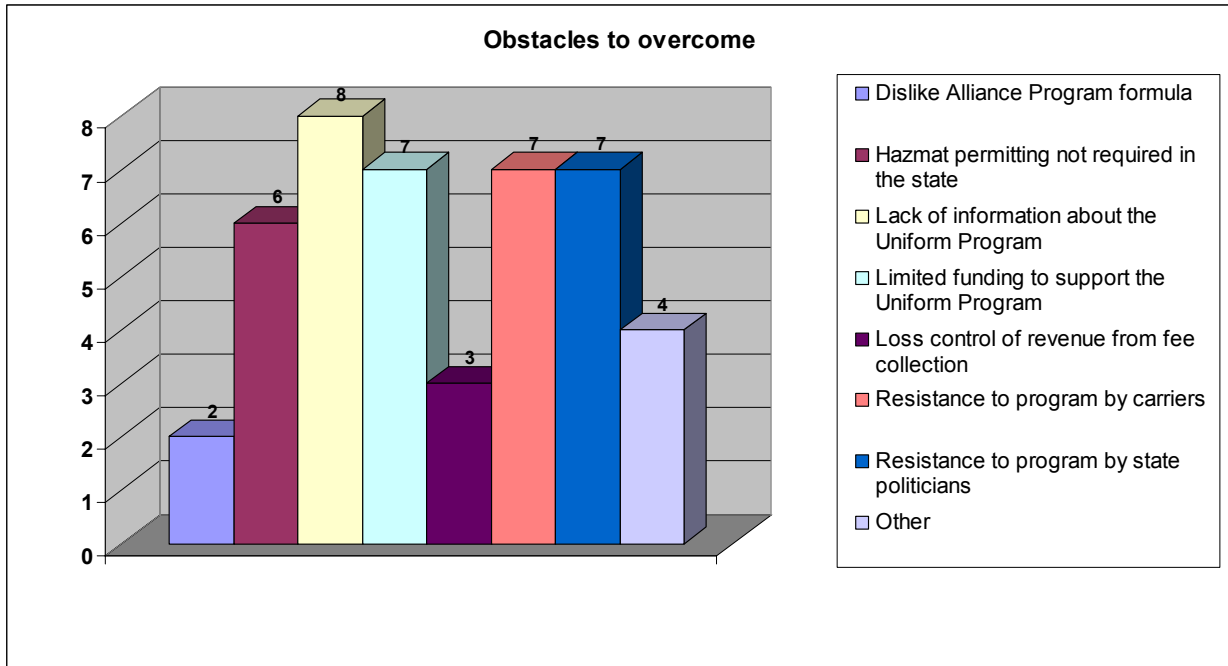


Figure A-5. Obstacles to Overcome

Appendix B: Surveys from Carriers

B.1. The Detailed Responses from the Carriers Operating in Alliance States

The responses from the hazardous materials motor carriers that operate in Alliance states are summarized by interview questions. The interview questions cover eight (8) key questions:

- Length of time in the hazmat transportation business, and operating in Uniform program states
- Predominant type(s) of hazmat shipped
- Number of power units operated, drivers employed, and total mileage for fleet
- Total time spent annually by staff for administrating hazmat registration and compliance
- Revenue and cost data
- Primary Operations
- Support state's membership of the Uniform Program
- Other advantages, weaknesses, improvements, and recommendations

Interview Question B.1.1: Length of time in the hazmat transportation business, and operating in Uniform program state

As shown in Table B-1 and Figures B-1 and B-2, more than 89 percent of carriers that responded to the surveys have been in hazmat business for more than 10 years. Also, 68 percent of carriers indicated that they have been in the Alliance program for more than 10 years.

Table B-1. The Responses to the Interview Question 1

| Carrier | # of Years in Business | How Long Operating in Uniform Program States (# of Years) | Carrier | # of Years in Business | How Long Operating in Uniform Program States (# of Years) |
|---------|------------------------|---|---------|------------------------|---|
| 1 | 20 | 12 | 20 | 30 | 12 |
| 2 | 7 | 7 | 21 | 15 | 15 |
| 3 | 32 | 14 | 22 | 38 | 15 |
| 4 | 60 | 3 | 23 | 15 | Since start (15 years) |
| 5 | 18 | Since start (15 years) | 24 | 41 | 4 |
| 6 | 85 | 15 | 25 | 35 | |
| 7 | 25 | 14 | 26 | 25 | 15 |
| 8 | 2 | 2 | 27 | 14 | Since start (15 years) |
| 9 | 17 | 15 | 28 | 20 | 12 |
| 10 | Since the 1980s | 13 | 29 | 7 | 7 |
| 11 | 30 | 15 | 30 | 32 | 14 |
| 12 | 43 | 14 | 31 | 60 | 3 |
| 13 | 39 | 14 | 32 | 18 | Since start (15 years) |
| 14 | 26 | 14 | 33 | 85 | 15 |
| 15 | 37 | 3+ | 34 | 25 | 14 |
| 16 | 14 | 14 | 35 | 2 | 2 |
| 17 | 50 | 15 | 36 | 17 | 15 |
| 18 | 11 | 11 | 37 | Since the 1980s | 13 |
| 19 | 30 | 15 | 38 | 30 | 15 |

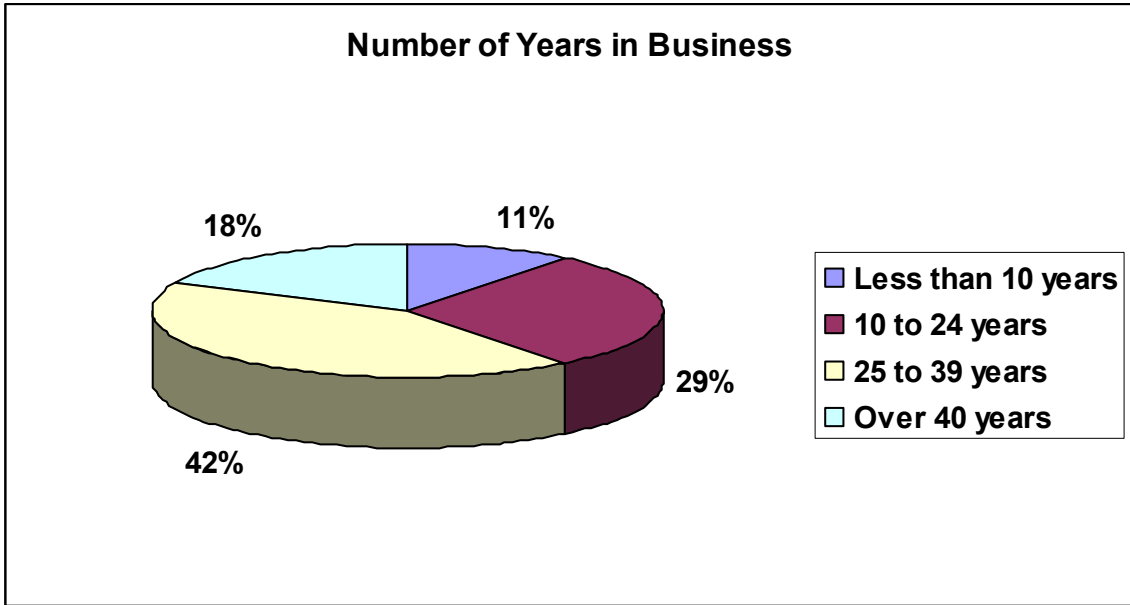


Figure B-1. Number of Years in Business

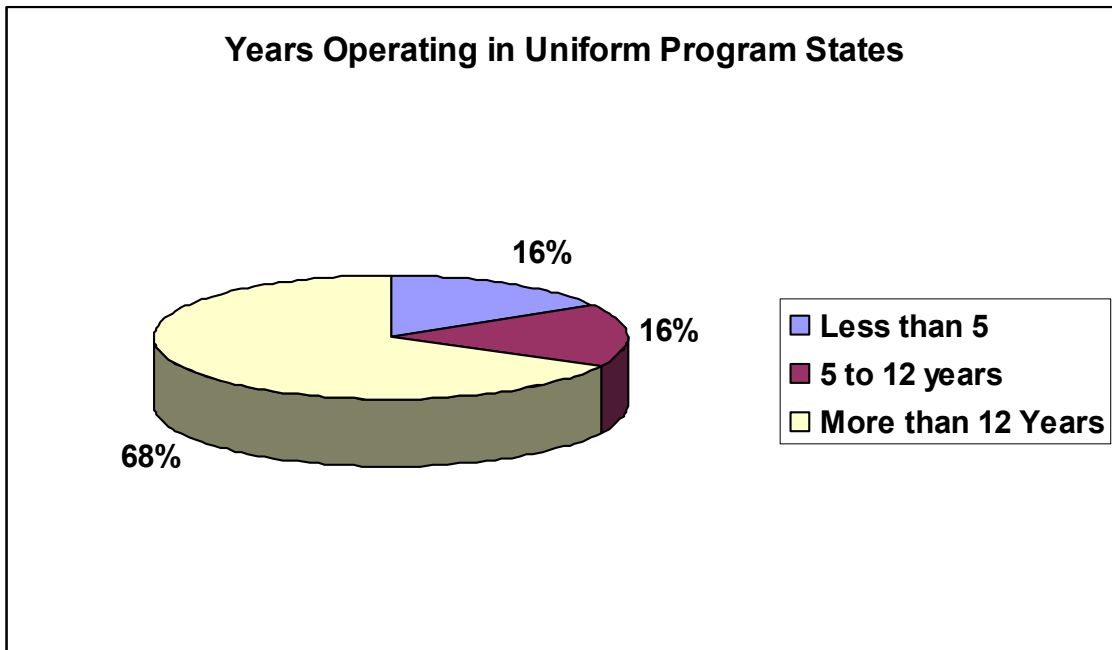


Figure B-2. Years Operating in Uniform Program States

Interview Question B.1.2: Predominant types of hazmat shipped

The responses summarized in Table B-2 show that ten out of 38 carriers shipped flammables, nine carriers shipped corrosives, seven carriers shipped Class 9, six carriers shipped oxidizers, and five carriers shipped hazardous wastes.

Table B-2. The Responses to the Interview Question 2

| Carrier | Type of Hazmat | Percentage shipped by category by carrier |
|---------|-----------------------------|---|
| 1 | Class 9 | 100% |
| 2 | Flammables | 90% |
| | Corrosives | 10% |
| 3 | Flammable, combustible | 52% |
| | Corrosives | 22% |
| | Class 9 | 21% |
| | Oxidizers | 30% |
| | Poisons | 2% |
| 4 | Corrosives | 94% |
| | Flammables | 5% |
| | Oxidizers | 1% |
| 5 | Alloys | 20% |
| | Hazardous Contaminated Dirt | 60% |
| 6 | Flammables | 25% |
| | Corrosives | 45% |
| | Oxidizers | 10% |
| 7 | Class 2 | 5% |
| | Class 3 | 50% |
| | Class 4 | 10% |
| | Class 5 | 10% |
| | Class 8 | 15% |
| | Class 9 | 10% |
| 8 | Rubber Buffing Waste | 100% |
| 9 | Hazardous Waste | 100% |
| 10 | Class 8 | 20% |
| | Div 5.1 | 20% |
| | Class 3 | 20% |
| | Div 2.2 | 20% |
| | Div 1.3 & 1.4 | 20% |
| 11 | Jet A | 100% |
| 12 | Hazardous Waste | 100% |
| 13 | Hazardous Waste | 100% |
| 15 | Propane | 100% |
| 16 | 1.3G Fireworks | 98% |
| | 1.4G Fireworks | 2% |
| 18 | Liquid oxygen (medical) | 10% |
| | Compressed medical gas | 10% |
| 19 | Flammables | 90% |
| | Corrosives | 10% |

Table B-2. The Responses to the Interview Question 2 (Continued)

| Carrier | Type of Hazmat | Percentage shipped by category by carrier |
|---------|-----------------------------|---|
| 20 | #2 diesel fuel | 95% |
| | #1 diesel - kerosene | 5% |
| 21 | Class 9 (road oil) | 1% or less |
| 22 | Gasoline | 30% |
| | Diesel fuel | 70% |
| 23 | Crude oil | 100% |
| 24 | Ammonia | 52% |
| | Propane | 10% |
| | Hot Oil | 2% |
| | Fuel | 1% |
| 25 | Flammable liquid | 100% |
| 26 | Nitrogen | 5% |
| | Dry Ice | 5% |
| 27 | Hazardous Waste | 75% |
| 28 | Class 9 | 100% |
| 29 | Flammables | 90% |
| | Corrosives | 10% |
| 30 | Flammable, combustible | 52% |
| | Corrosives | 22% |
| | Class 9 misc | 21% |
| | Oxidizers | 3% |
| | Poisons | 2% |
| 31 | Corrosives | 94% |
| | Flammables | 5% |
| | Oxidizers | 1% |
| 32 | Alloys | 20% |
| | Hazardous Contaminated Dirt | 60% |
| 33 | Flammables | 25% |
| | Corrosives | 45% |
| | Oxidizers | 10% |
| 34 | Class 2 | 5% |
| | Class 3 | 50% |
| | Class 4 | 10% |
| | Class 5 | 10% |
| | Class 8 | 15% |
| | Class 9 | 10% |
| 35 | Rubber buffing waste | 100% |
| 36 | Hazardous waste | 100% |
| 37 | Class 8 | 20% |
| | Div 5.1 | 20% |
| | Class 3 | 20% |
| | Div 2.2 | 20% |
| | Div 1.3 & 1.4 | 20% |
| 38 | Jet A | 100% |

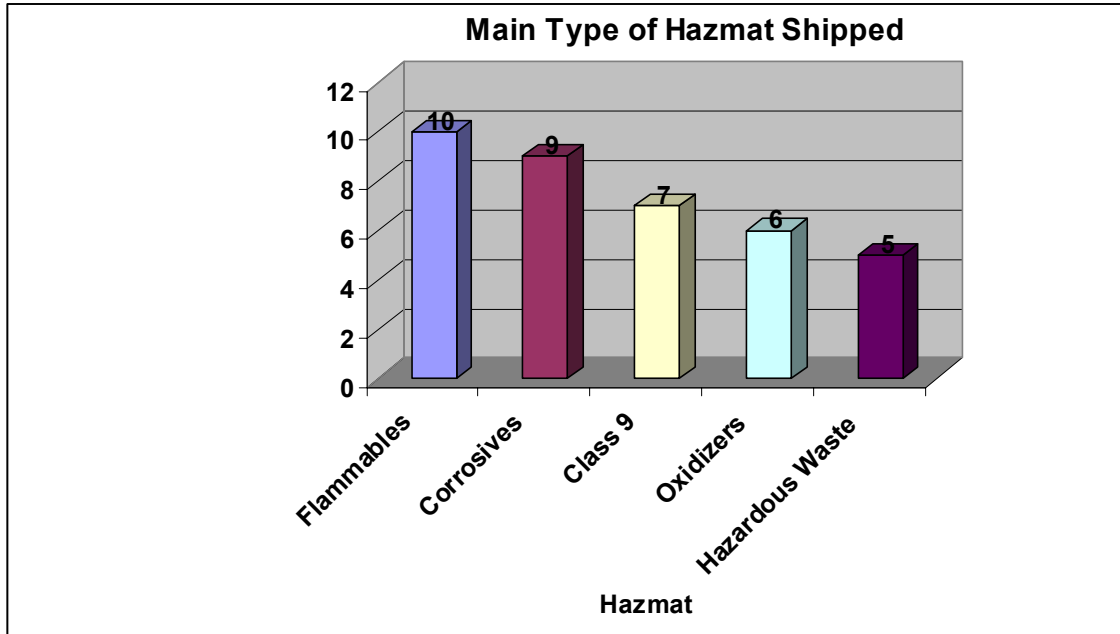


Figure B-3. Main Type of Hazmat Shipped

Interview Question B.1.3: Number of power units operated, drivers employed, and total mileage for fleet

According to the power units reported, the 38 carriers can be classified in the following manner:

- **Small size carriers**—23 carriers (or 61 percent of the total number of carriers) with less than 20 power units
- **Medium size carriers**—10 carriers (or 26 percent) with more than 75 but less than 250 power units
- **Large size carriers**—4 carriers (or 11 percent) with more than 700 power units but less than 1,000 power units
- **Extra large size carriers**—1 carrier with more than 8,500 power units that reported to have more than 601 million miles traveled.

Table B-3 shows a summary of data provided by Alliance carriers.

Table B-3. The Responses to the Interview Question 3

| Carrier | Power Units | No. of Drivers | VMT for Fleet |
|----------------|--------------------|-----------------------|----------------------|
| 1 | 100 | 100 | 3,000,000 |
| 2 | 18 | 18 | 1,854,267 |
| 3 | 820 | 985 | 72,893,132 |
| 4 | 8 | 9 | 595,700 |
| 5 | 250 | 0 | ~18,000,000 |
| 6 | 744 | 783 | 27,290,000 |
| 7 | 80 | 41 | 998,797 |
| 8 | 4 | 3 | 356,491 |
| 9 | 10 | 8 | 708,614 |
| 10 | 75 | 85 | 10,000,000 |
| 11 | 12 | 12 | 103,000 |
| 12 | 200 | 240 | 17,418,040 |
| 13 | 151 | 153 | 12,170,530 |
| 14 | 8,542 | 14,135 | 601,922,838 |
| 15 | 2 | 2 | 20,000 - 24,000 |
| 16 | 2 | 4 | 50,000 |
| 17 | 4 | 3 | 60,000 |
| 18 | 2 | 2 | |
| 19 | 1 | 1 | 30,000 |
| 20 | 2 | 3 | 120,000 |
| 21 | 1 | 1 | 125,505 |
| 22 | 5 | 4 | 70,000 |
| 23 | 7 | 5 | ~333,900 |
| 24 | 13 | 13 | 300,000 |
| 25 | 3 | 4 | 36,000 |
| 26 | 5 | 5 | 45,000 |
| 27 | 5 | 4 | 270,032 |
| 28 | 100 | 100 | 3,000,000 |
| 29 | 18 | 18 | 1,854,267 |
| 30 | 820 | 985 | 72,893,132 |
| 31 | 8 | 9 | 595,700 |
| 32 | 250 | 0 | ~18,000,000 |
| 33 | 744 | 783 | 27,290,000 |
| 34 | 80 | 41 | 998,797 |
| 35 | 4 | 3 | 356,491 |
| 36 | 10 | 8 | 708,614 |
| 37 | 75 | 85 | 10,000,000 |
| 38 | 12 | 12 | 103,000 |

Interview Question B.1.4: Total time spent annually by staff for administrating hazmat registration and compliance

According to Table B-4, carriers spent on average 58 days annually on administrating registration and compliance. For different size of carriers, the following observations can be made:

- Small size carriers spent the average 14 days to administrate registration and compliance
- Medium size carriers spent 100 days
- Large size carriers spent 190 days
- Huge size carriers spent only 8 days.

Table B-4. The Responses to the Interview Question 4

| Carrier | Number of Days | Carrier | Number of Days |
|----------------|-----------------------|----------------|-----------------------|
| 1 | 50 | 20 | 15 |
| 2 | 25 | 21 | 1 |
| 3 | 350 | 22 | 14 |
| 4 | 10 | 23 | 20 |
| 5 | 168 | 24 | 10 |
| 6 | 30 | 25 | 5 |
| 7 | 78 | 26 | 4 |
| 8 | 12 | 27 | 75 |
| 9 | | 28 | 50 |
| 10 | 65 | 29 | 25 |
| 11 | 5 | 30 | 350 |
| 12 | 200 | 31 | 10 |
| 13 | 80 | 32 | 168 |
| 14 | 8 | 33 | 30 |
| 15 | | 34 | 78 |
| 16 | 25 | 35 | 12 |
| 17 | 3 | 36 | 26 |
| 18 | 2 | 37 | 65 |
| 19 | 1 | 38 | 5 |
| Average | | | 58 |

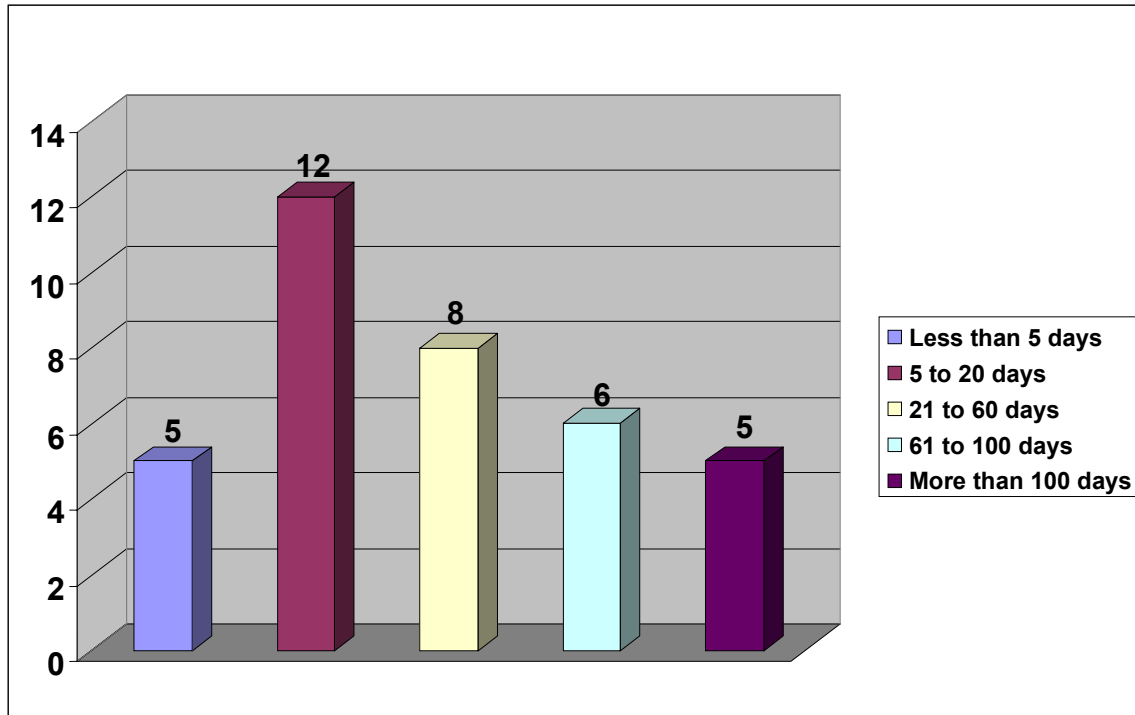


Figure B-4. Total Time Spent Annually for Hazmat Related Administration

Interview Question B.1.5: Revenue and Costs

16 out of 38 Alliance carriers provided their revenue and cost data in the recent year. Among those carriers that reported revenue and costs, 9 of them are small size of carriers as defined in Question 3 above, 6 are medium size of carriers, and one huge size of carrier.

The following observations can be made from Table B-5:

- For *Small Carriers*,
 - Registration and permit costs incurred by small carriers incurred vary from \$70 to \$1,000. One small carrier (# 24) indicated that the registration cost was 25 percent of its total cost.
 - Administration and compliance costs also vary from \$60 to \$1,000. Carrier #24 also indicated that the administration and compliance costs were 25 percent of its total cost.
 - Only two small carriers provided their revenue data that are \$30 and more than \$500,000 for each of them, respectively.
- For *Medium Carriers*,
 - Registration and permit costs are ranged from \$350 to \$12,700. Two carriers indicated that registration costs were only a small portion (0.5 percent) of their total costs.
 - Two carriers reported \$1,500 of administration and compliance costs.
 - No carrier reported revenue.

- For Huge-sized Carrier,
 - Registration and permit costs were \$4,500.
 - Administration and compliance costs were \$3,000.
 - Revenue was more than \$128 million. Hence, the combined costs for registration, administration, and compliance for the Uniform Program are extremely low.

Table B-5. Revenue and Costs in the Most Recent Year

| Carrier ^(*) | Size in Terms Power Units | Registration / Permit Costs (% of Total Cost) | Administration and Compliance Costs | Total Revenue |
|------------------------|---------------------------|---|-------------------------------------|-----------------|
| 7 | Medium | \$12,700 | | |
| 10 | Medium | \$350 (<0.5%) | \$1,500 (<0.5%) | |
| 13 | Medium | \$1,060 | | |
| 14 | Extra Large | \$4,500 | \$3,000 | \$ 128,633,271 |
| 16 | Small | \$200 | | \$500K - \$525K |
| 17 | Small | \$150 | \$600 | |
| 18 | Small | \$1,000 | \$1,000 | |
| 19 | Small | \$345 | \$500 | |
| 20 | Small | \$590 | | |
| 21 | Small | \$145 | | |
| 23 | Small | | \$850 | |
| 24 | Small | \$70 (25%) | \$60 (25%) | \$30 |
| 25 | Small | \$110 | | |
| 26 | Small | \$120 | | |
| 34 | Medium | \$12,700 | | |
| 37 | Medium | \$350 (<0.5%) | \$1,500 (<0.5%) | |

(*) Carrier #1 to #6, #8 to #9, #11, #12, #15, #22, #27 to #33, #35, #36, and #38 did not provide revenue and cost related data.

Interview Question B.1.6: Primary Operations

About 39 percent of the Alliance carriers indicated that they operated in one state, while the other 61 percent of carriers indicated that they operated in more than one state.

Interview Question B.1.7: Support state's membership of the Uniform Program

The responses received from carriers indicate the following results:

- **Support**—50 percent of the Alliance carriers initially supported the state joining the Uniform Program and 74 percent supported now

- **Do not support**—The percentage of carriers that did not support the program both initially and by now remains at 21 percent
- **Unknown**—29 percent (or 5 percent) of carriers did not provide a clear indication whether they support the program initially (or by now).

These results indicate a change in positive direction, which shows increasing in the number of carriers that support the program.

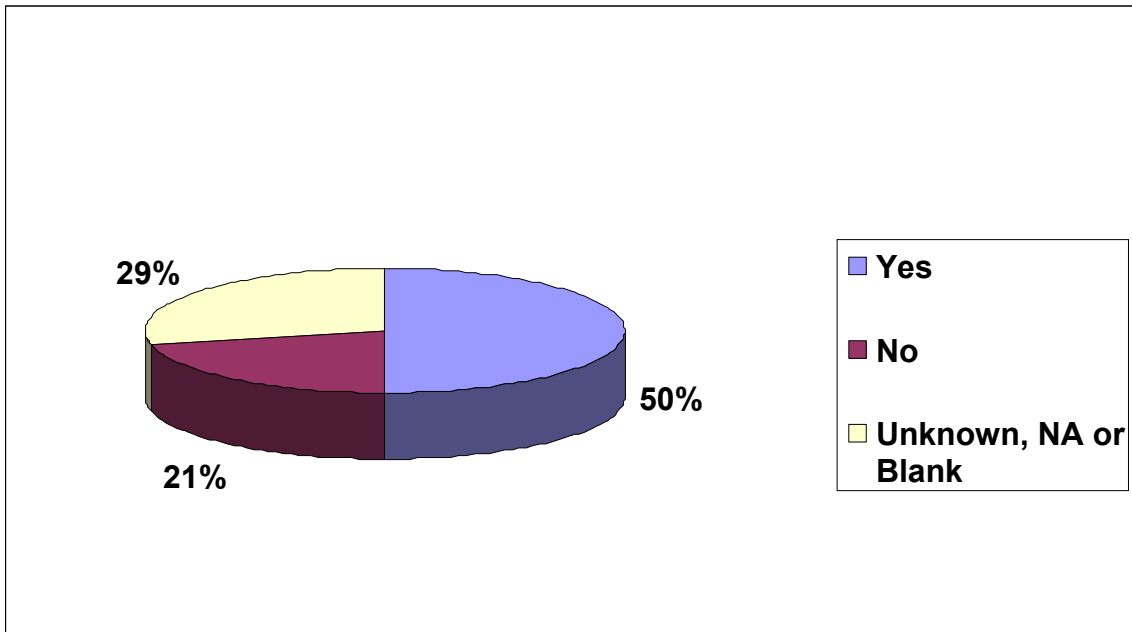


Figure B-5. Initially Supported State Membership

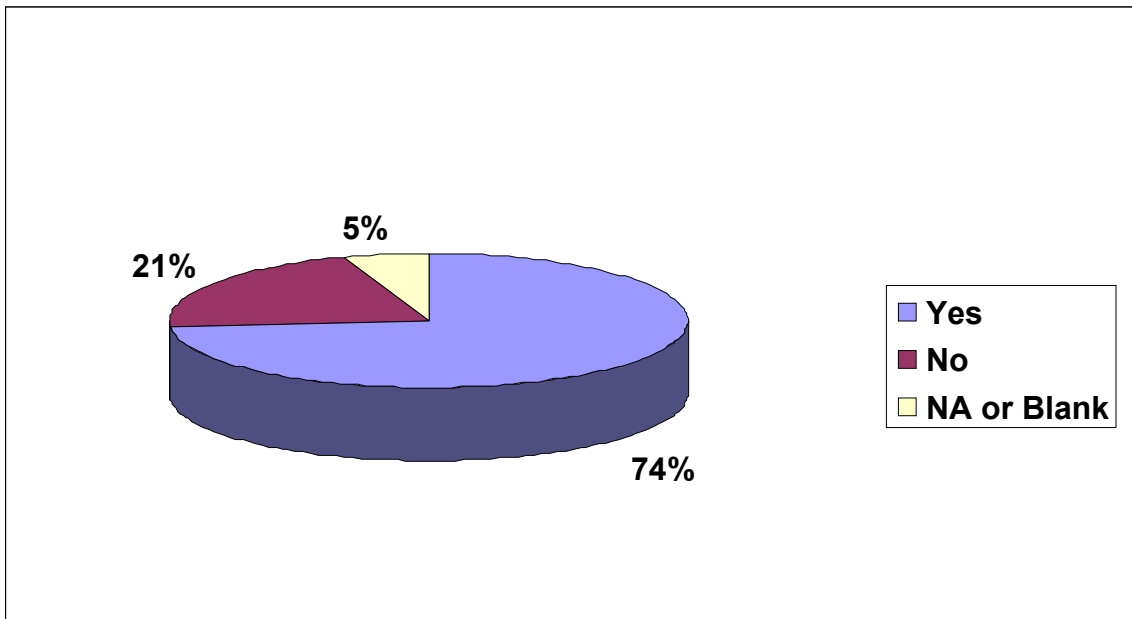


Figure B-6. Still or Now Support State Membership

Interview Question B.1.8: Other Advantages, Weaknesses, Improvements, and Recommendations

As shown in Figure B-7, 69 percent of carriers indicated that simplified permit application procedure is one of the main benefits they experienced. Other benefits include cost savings (cited by 19 percent of carriers) and safety improvements (10 percent).

For the issue of whether more states join the program would be beneficial, more than 68 percent of carriers believed that it would be. However, 27 percent of carriers expressed their negative view on this issue.

In terms of which agency/organization would be helpful for improving the program, 24 out of 38 carriers indicated that FMCSA would be the leading government agency. Other agencies/organizations that received the similar responses are: state government/legislatures, federal government, and National and State Motor Carrier Associations.

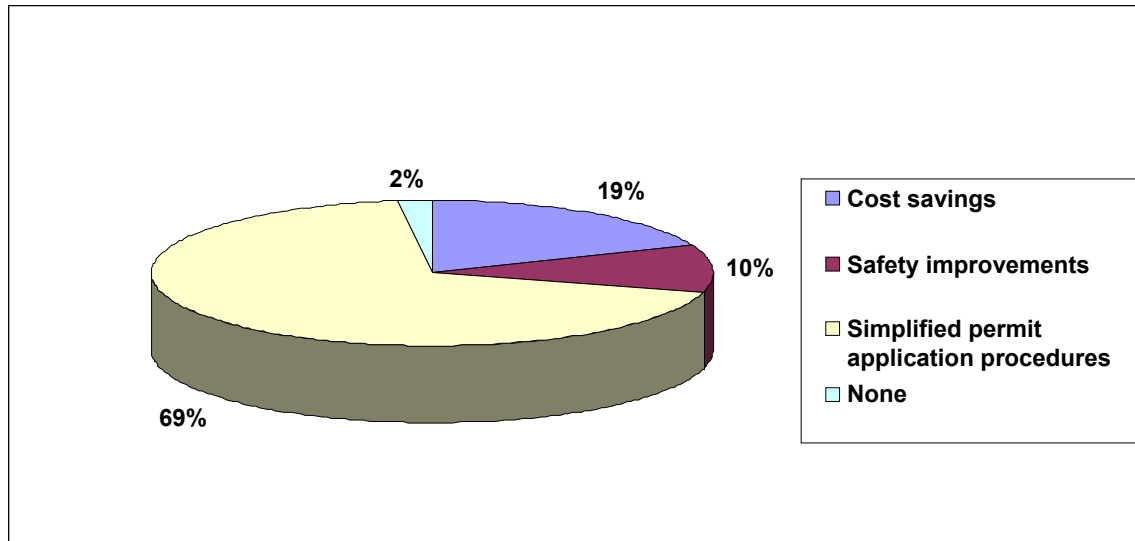


Figure B-7. Maine Benefits

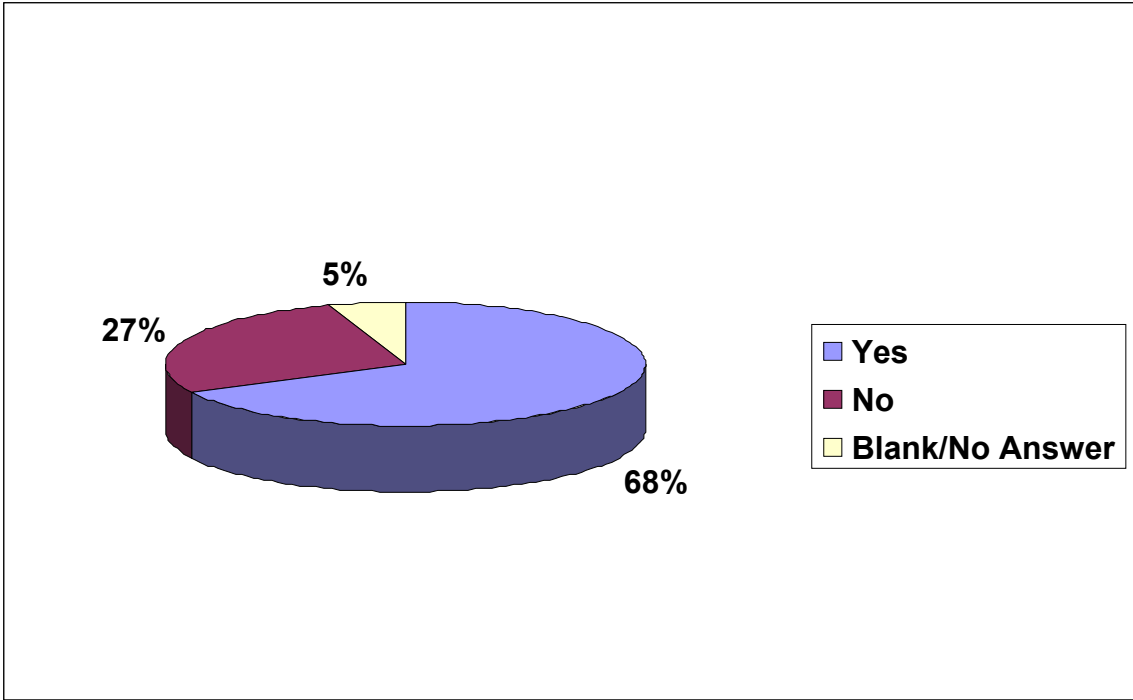


Figure B-8. Beneficial if More States Join

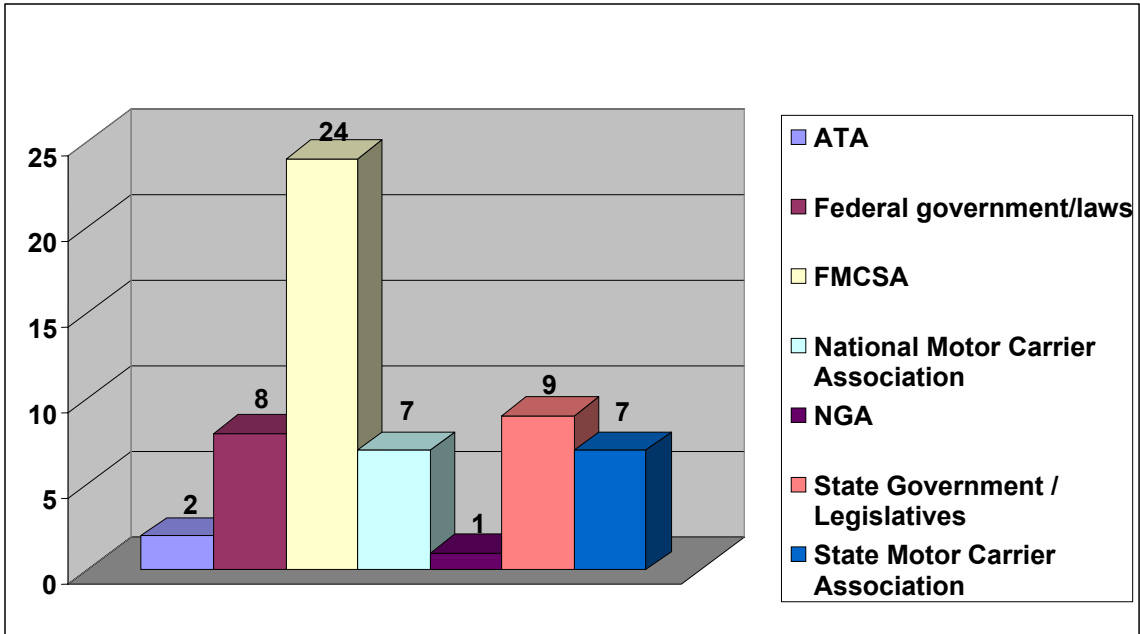


Figure B-9. Agency to Help Improve Program

B.2. The Detailed Responses from Carriers Operating in Non-Alliance States

In this section, the survey responses from the carriers operating in the non-Alliance states are summarized into the following twelve (12) questions:

- Knowledge of the Uniform Program
- Advantages/Disadvantages of the Uniform Program
- Type(s) of hazmat that should and should not be included
- Main benefits that would be experienced if operating in states that were members of the Uniform Program
- Reasons and concerns that prevent states from joining the Uniform Program
- Reasons and concerns that prevent carriers from wanting the states they operate in to be members of the Uniform Program
- Improvements and recommendations
- Length of time in the hazmat transportation business and predominant types of hazmat shipped
- Number of power units operated, drivers employed, and total mileage for fleet
- Total time spent annually by staff for administrating hazmat registration and compliance
- Revenue and cost data
- Primarily operate within a state and/or number of states operating in

Interview Question B.2.1³: Knowledge of the Uniform Program

Figure B-10 shows the number of carriers that are currently not in Uniform Program but were knowledgeable about the program. Among the eight carriers that responded to the survey, 6 (or 75 percent) of them indicated that they were knowledgeable of the program.

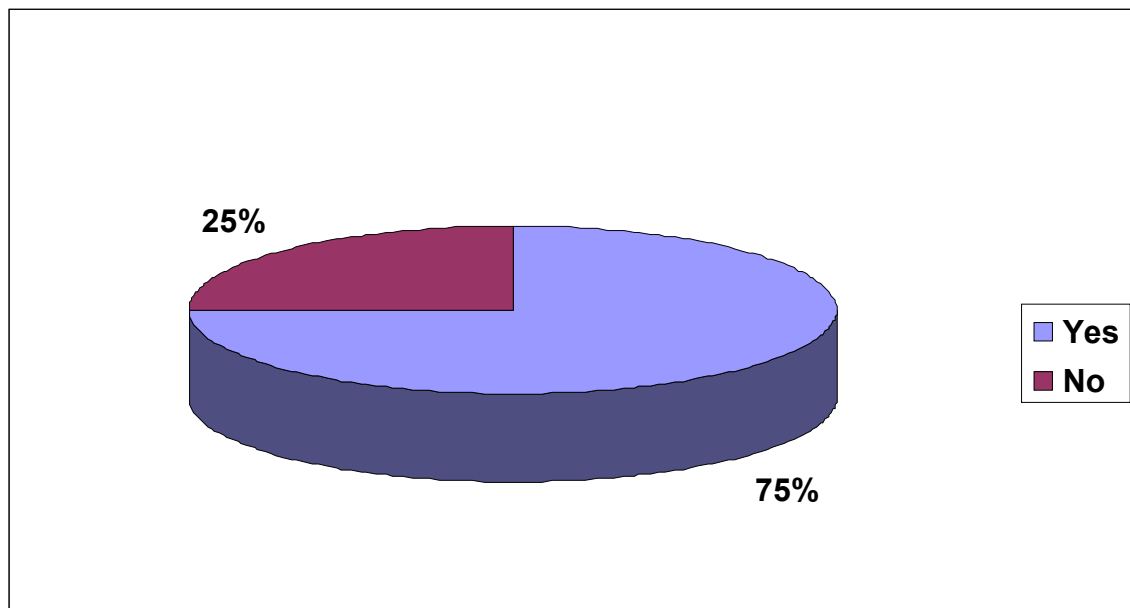


Figure B-10. Knowledgeable of the Uniform Program

³ N-1 denotes the 1st question for non-Alliance carriers.

Interview Question B.2.2: Advantages/Disadvantages of the Uniform Program

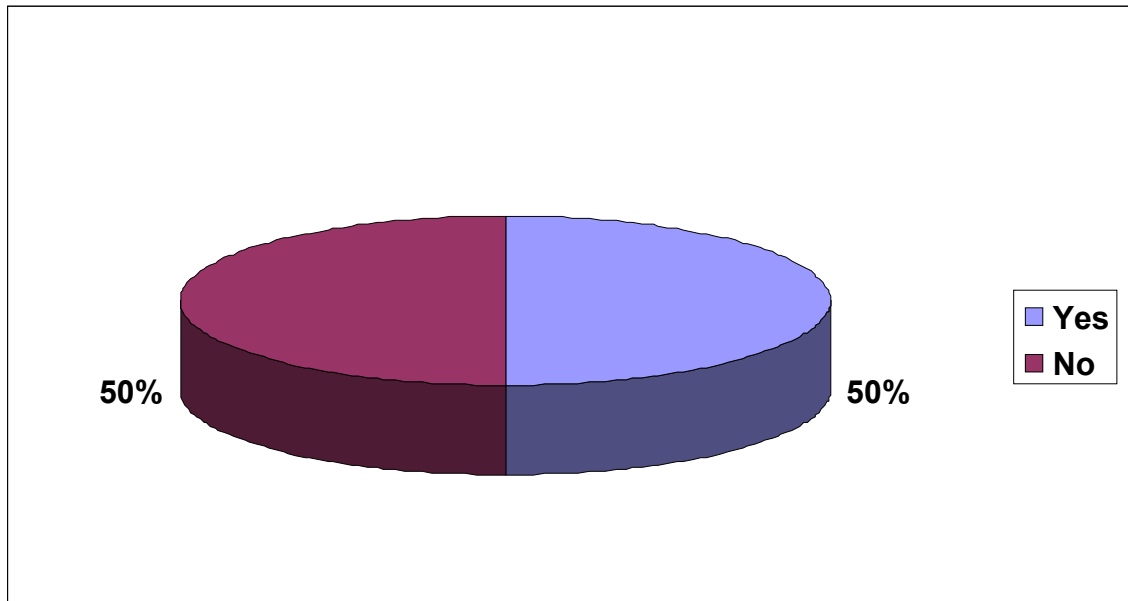


Figure B-11. Support the Uniform Program

Although majority of the non-Alliance carriers were aware of the Uniform Program, only half of them indicated that they would support the program. One possible explanation is that many carriers did not know what specific advantages the Uniform Program has, except the uniformity and registration through a single state contact.

Some views on the disadvantages of the Uniform Program expressed by the non-Alliance carriers included:

- The program does not include all states
- It is not helpful to unique trucking companies that have exemption with many states
- Unnecessary fee and additional paperwork
- Time-consuming to monitor with no real gain
- Duplicates much of an already existing program
- Not helpful for intrastate carriers
- Not sure where the money collected is going
- Have not received training or education to prevent accidents
- Existing regulations are a mess
- Waste of money, already have U.S. hazmat credential.

Interview Question B.2.3: Type(s) of hazmat that should and should not be included in the Uniform Program

Since lacking of general interest in the Uniform Program, many carriers skipped this question. One carrier indicated that hazardous materials Class 1 through 8 should be included and Class 9 should be excluded.

Interview Question B.2.4: Main benefits that would be experienced if operating in states that were members of the Uniform Program

A few carriers mentioned uniformity and simplified application procedures would be main benefits.

Interview Question B.2.5: Reasons and concerns that prevent states from joining the Uniform Program

In carriers' responses, loss of control and revenue were listed as the reasons that may prevent states from joining the program. Specifically, carriers indicated that

- States may feel that they are losing revenue
- States do not want to give up control to join the program, especially California
- Less money in their pockets, they must not trust the program.

Interview Question B.2.6: Reasons and concerns that prevent carriers from wanting the states they operate in to be members of the Uniform Program

The non-Alliance carriers indicated the following reasons and concerns related to Question N-6:

- The costs associated with the permit. It is hard to put one price on a permit when there are exclusions for some companies.
- Another unnecessary fee, paperwork, and time-consuming detail to monitor with no real gain; duplicates much of an already existing program.
- Costs, but if better streamlined could lessen that burden.
- Carriers do not receive any of the money for training; just a reason to collect taxes and does not promote safety.
- Does not see the point of it, not benefiting carriers.

Interview Question B.2.7: Improvements and recommendations

Suggestions for improvements of the Uniform Program that would make the program more attractive to carriers included:

- To allocate exemptions and have the price of permit reflective these
- Make it more streamlined, if they only had the feds to deal with it would be better
- Need to be informed of program benefits, more informed on where the money is going—how it's divided, prove that education, training and enforcement programs are in place
- Unsure, it just seems to be another filing; they now have to get three different certificates.
- The Uniform program was sold as if everyone would buy into it, and since that has not happened it's not worthwhile
- Make it more understandable and easier to complete.

Agencies, organizations, or federal laws that can help improve the Uniform Program and attract more states to its membership and suggestions how national and/or state motor carrier associations can help expand the coverage of the Uniform Program included:

- California and other states have their own trucking associations that could help get the message out

- Prove to carriers that program will help prevent accidents, include inspection and repair training
- Go after safety in cargo tank training and develop clarity in the regulations involving maintenance.

FMCSA, state legislatives, and PHMSA were cited as agencies to help improve the Uniform Program and attract more states to join.

Interview Question B.2.8: Length of time in the hazmat transportation business and predominant types of hazmat shipped

All of the carriers that responded to the survey have been in business for more than 20 years, while about 38 percent of these have been in business more than 50 years. Some of the more common hazardous material shipped included: Class 3-Flammable or combustibles/fuel and oxidizers. Table B-6 shows a breakdown of the major hazmat types shipping by these carriers.

Table B-6. Types and Percentage of Hazmat Shipped by Non-Alliance Carriers

| Carrier | Types of Hazmat | Percent Shipped by Category by Carrier |
|---------|-------------------------------------|--|
| 1 | Anhydrous ammonia | 100% |
| 2 | Agricultural chemicals | 100% |
| 3 | Class 3 fuel | 100% |
| 4 | Class 3 fuel | 100% |
| 5 | Class 8 – Corrosive | 50% |
| | Class 3 – Flammable or Combustibles | 20% |
| | Oxidizer 5.1 | 5% |
| | Poisons 6.2 | 5% |
| | Liquid Gas/Propane | 1% |
| | Chlorine | 1% |
| 6 | Class 3 fuel | 100% |
| 7 | N/A | N/A |
| 8 | Flammables | N/A |
| | Corrosives | N/A |
| | Oxidizers | N/A |
| | Combustibles | N/A |
| | Acids | N/A |

Interview Question B.2.9: Number of power units operated, drivers employed, and total mileage for fleet

Implementing the same criteria used for the Alliance carriers, the eight non-Alliance carriers can be classified by size:

- **Small size carriers**—5 carriers with less than 50 power units
- **Medium size carriers**—2 carriers with more than 100 but less than 300 power units
- **Large size carriers**—1 carrier with 500 power units.

Table B-7 shows the relative size of the carriers.

Table B-7. Number of Drivers and VMT

| Carrier | Power Units | No. of Drivers | VMT for All Trucks (miles) |
|---------|-------------|----------------|----------------------------|
| 1 | 7 | 7 | 150,500 |
| 2 | 2 | 2 | 2,800 |
| 3 | 17 | 20 | 125,000 |
| 4 | 34 | 40 | 1,892,000 |
| 5 | 105 | 200 | 13,000,000 |
| 6 | 8 | 10 | 800,000 |
| 7 | 500 | 362 | 29,722,000 |
| 8 | 285 | 301 | 16,200,000 |

Interview Question B.2.10: Total time spent annually by staff for administrating hazmat registration and compliance

Although carriers did not provide complete information for this question, observations that can be made from Table B-8 include:

- Small size of carriers spent 37 days or less to administrate registration and compliance
- Medium size of carriers spent approximate 85 days.

Compared to the Alliance carriers, small size of the non-Alliance carriers spent more time on administrating registration and compliance (i.e., 37 days for non-Alliance carriers versus 14 days of the small Alliance carriers).⁴ For medium size of carriers, the time spent by non-Alliance carriers is about the same as the Alliance carriers (i.e., 85 days for non-Alliance carriers versus 100 days of the medium Alliance carriers).

⁴ It is worth pointing out that 37 days for non-Alliance carriers were reported only by one carrier.

Table B-8. Staff involved and Associated Time, and Labor Cost

| Carrier | Admin Staff / % (part-time) | Total Time | Associated Labor Cost |
|---------|-----------------------------|--------------------|-----------------------|
| 1 | 1 / 1% | | |
| 2 | 1 / .5% | 10 hrs | |
| 3 | 1 / 10% | 37 days | |
| 4 | | | |
| 5 | 2 | 1/3 approx 85 days | \$18,000.00 |
| 6 | 1 / 40% | | |
| 7 | 6 to 7 | | |
| 8 | 5 | | \$10,000.00 |

Interview Question B.2.11: Revenue and cost data

Only three small non-Alliance carriers provided revenue and cost data that are shown in Table B-9. The data indicate that the costs for registration are in a range of \$200 to \$300, while the administrative and compliance costs vary from \$750 to \$12,000. For Carrier #3 that provided both revenue and cost data, the combined cost of registration, administration, and compliance is only 0.15 percent of total revenue, which was \$8 million.

Table B-9. Revenue and Cost from the non-Alliance Carriers

| Carrier ^(*) | Registration/ Permit Costs / % | Admin and Compliance Costs | Total Revenue |
|------------------------|--------------------------------|----------------------------|---------------|
| 1 | \$231 | | \$231 |
| 2 | \$350 | \$750 | |
| 3 | \$300 | \$12,000 | \$8,000,000 |

^(*) Carriers #4 to #8 did not provide revenue and cost related data.

Interview Question B.2.12: Primarily operate within a state and/or number of states operating in

The majority (or 75 percent) of carriers operate in multiple states. About 66 percent of carriers operated in more than two states but in 10 or less states. An even distribution of carriers (i.e., 17 percent) that operated in less than 5 states or in more than 10 states is observed from the responses. This is shown in Figure B-12.

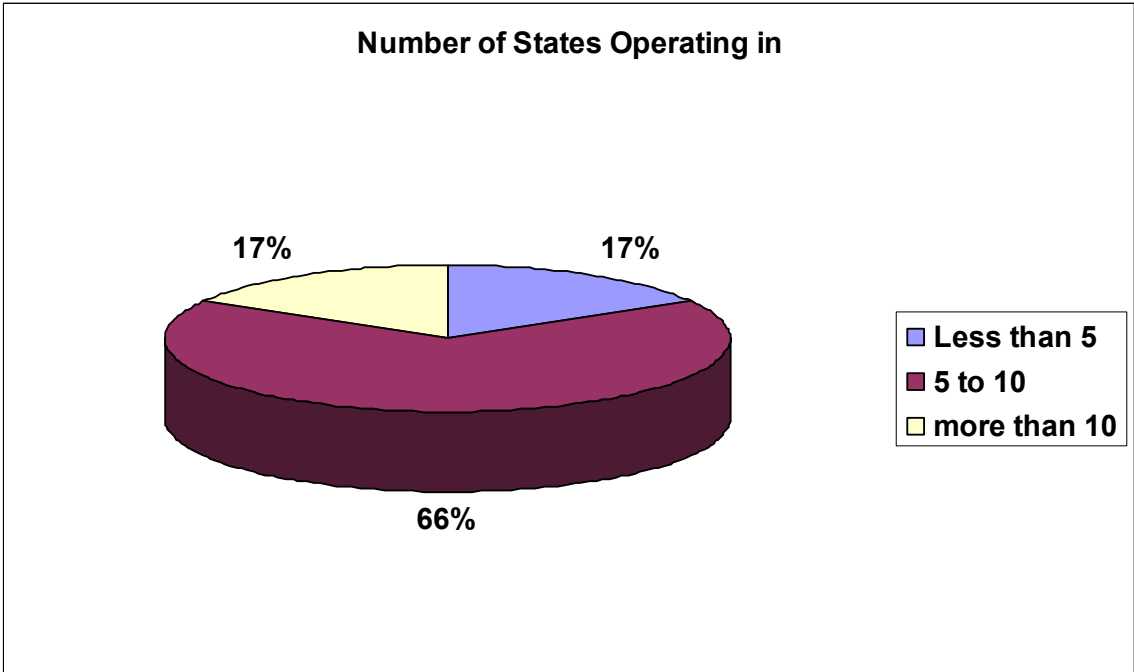


Figure B-12. Number of States Operating in