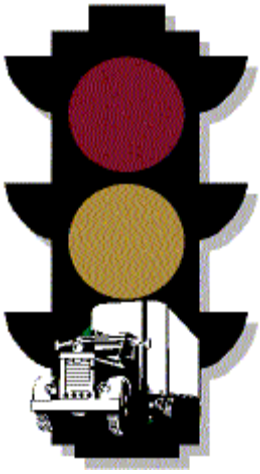

Oregon Green Light

CVO Evaluation

DRAFT FINAL REPORT

DETAILED TEST PLAN 11

Evaluation of Motor Carrier Acceptance

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Transportation Research Report No. 00-18
Transportation Research Institute
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The authors are indebted to the personnel of ODOT's Motor Carrier Transportation Branch, who have provided information and data to the evaluation team throughout the project. We are particularly indebted to Ken Evert, Gregg Dal Ponte, Randal Thomas and David Fifer. Ken's untimely death in 1998 meant that he did not see his vision completed. The evaluation team is forever indebted to him for his support and for the opportunity to participate in the deployment.

DISCLAIMER

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EXECUTIVE SUMMARY

The Oregon Department of Transportation (ODOT) has been testing several transportation technologies since 1983 designed to improve the efficiency of commercial vehicle operations. The Oregon Green Light Project was initiated in 1995 to fulfill Oregon's vision of creating an automated and intelligent truck transportation system. Green Light consists primarily of mainline pre-clearance systems that were installed at 21 specific sites throughout Oregon.

The assessment of motor carrier acceptance of Green Light technologies was one of the evaluation goals undertaken as part of the Green Light Evaluation. After reviewing several alternatives, a survey was designed as a way to monitor and assess motor carrier acceptance of new technology. Two surveys ("before" and "after") were sent to carriers who operate in Oregon. The first survey was conducted as part of test measure 3.1.1 of the Green Light Evaluation in 1998. The second survey was conducted in February/March of 2000.

The main goal of the questionnaire surveys was used to determine user attitudes in two distinct areas:

- User attitudes toward electronic screening and its perceived impacts on the motor carrier.
- User attitudes toward new services such as Road Weather Information System (RWIS) and Downhill Speed Information System (DSIS).

The first survey is presented in part 1 of this report and the second in part 2. This executive summary compares the results of the two surveys. The results of test measure 3.1.2 – Transponder Penetration, are also summarized.

Comparison of the results of the "before" and "after" surveys presented challenges. Some differences could not easily be measured due to differences in regard to the questionnaires, population size, and number of responses. In addition, there were different carriers questioned in the surveys, though both were sampled from the same population. As the surveys were conducted in different time period, this had a small influence on the result. None the less, a common sampling pool, sampling methodology and survey design allows for some comparison of the results.

The survey design was based on the design method described in the "Mail and Telephone Surveys – Total Design Method" by Don A. Dillman. Mailing included an initial cover letter, the survey itself with accompanying a brief description of Green Light components, a follow-up postcard, and finally a second survey identical to the first, but with a slightly different cover letter.

Questionnaires were mailed to a random sample of carriers registered to operate in Oregon. The population of motor carriers was divided into three strata based on the location of the carriers listed in ODOT's database. Twelve hundred Oregon carriers made up the first stratum (Oregon carriers). One thousand carriers based in Washington, California, Idaho, and Nevada comprised a second stratum (Pacific Norwest carriers), while 1,000 of carriers of the remaining states and Canadian provinces made up the third stratum (Other carriers).

The percentage of respondents to the survey was about 10 % less in the "after" survey than in the "before" survey. The experience level of the participants is evenly distributed across strata with no significant variations in both "before" and "after" surveys. Nearly half (50%) of the participants filling out the survey had been working in the industry for more than 20 years. Overall, smaller carriers dominated the sample with about three-quarters (75%) having fleet sizes of one to ten trucks. However, the medium fleet size (11 – 99 tractors) showed significant changes in the "after" or second survey.

A summary of findings is listed below:

- About 80% said they had been working in the industry more than 10 years in both surveys.
- 41% of carriers agree (19% disagree) that Mainline Preclearance will benefit their company in the "before" survey while about 32% of carriers agree (25% disagree) with this statement in the "after" survey.
- 60% of carriers agree that the Road Weather Information System (RWIS) will benefit their company in the "before" survey and 52% of carriers agree with this statement in the "after" survey. Approximate 15% disagree with the statement in both surveys.
- Over 50% of carriers agree with the policy of screening trucks for possible inspection based on recent compliance with federal safety regulations (nearly 16 % disagree) in both "before" and "after" surveys.
- Over 60% of carriers rate the overall performance of ODOT's Motor Carrier Services as "good" (nearly 26% rate it "Fair" and about 4% rate it "poor") in both "before" and "after" surveys. 9% rate it "Excellent" in the "before" survey while 6% in the "after" survey.

The surveys were successful in documenting that many of Oregon's carriers are not only adopting Oregon's Green Light technology, but are finding it to be a useful resource in the way they conduct business.

The results for test measure 3.1.2 – Transponder Penetration, are presented in part 3 of this report The number of transponders issued has increased steadily since 1997 with a substantial increase in March 2000 when ODOT decided to issue transponders at no cost to carriers. The data show that (with nearly 11,000 transponders issued through March 2000) the motor carrier industry is accepting mainline pre-clearance by installing transponders. At the time this report was prepared specific data were not available for transponders issued in April through June 2000. However, ODOT issued approximately another 1500, and, would have issued many more if their stock had not run out. A new order for 12,500 more transponders was delayed; once delivered it is anticipated that they will be distributed quickly.

The following summarizes the findings:

- Nearly 12,500 transponders were in use by the motor carrier industry by June 2000..
- The number of transponders issued increased slowly until ODOT elected to distribute them free of charge.
- Transponder issuance increased dramatically (over 1,500 %) in March 2000 when the decision was made to distribute them at no cost to carriers.

PART ONE

Motor Carrier Acceptance – First Survey

Oregon State University
Transportation Research Institute
July 1998

1 INTRODUCTION – FIRST SURVEY

1.1 Background

Advances in transportation technology in the next five to ten years will affect time and costs of shipping goods on our nations highways. Satellite tracking, two-way communications, on-board computers, weigh-in-motion (WIM) systems, automatic vehicle identification and other electronic systems are helping to streamline the shipping process, making both the motor carriers and the existing infrastructure more efficient.

The Oregon Department of Transportation (ODOT) has been testing several of these technologies since 1983. With the completion and approval of the Intelligent Highway Vehicle System Strategic Plan for Commercial Vehicle Operations (IVHS/CVO), ODOT has begun to deploy advanced technology such as Oregon Green Light, improving the efficiency of commercial vehicle operations within Oregon.

Green Light consists primarily of mainline preclearance systems which will be installed at up to 22 specific sites throughout Oregon. Consisting of weigh scales embedded into freeways and highways upstream from existing weigh stations, and vehicle identification readers, the system allows trucks to be effectively weighed and checked for appropriate credentials at highway speeds, enabling trucks to bypass scale houses. The resulting network of preclearance sites will serve as a model for national deployment of such technology. Enforcement sites are being developed and installed to monitor truck traffic along by-pass routes around weigh stations. In addition, several safety enhancements are being installed as part of Oregon Green Light. These include highway warning systems for weather related hazards, and downhill truck speed informational systems.

1.2 Purpose

As part of the appropriations grant that funded most of the project, the Federal Highway Administration (FHWA) requested a complete independent evaluation of Green Light. The purpose of the evaluation is to ensure how well the goals of Green Light are being met with respect to safety, operational efficiency of motor carriers and state regulatory authorities, productivity gains, future potential, and the identification of any legal and institutional issues. ODOT contracted the Oregon State University Transportation Research Institute to conduct the evaluation. This report outlines findings from a survey distributed to motor carriers asking their opinions about the components being installed under Oregon Green Light.

Distinct goals were recommended to guide the evaluation, one of which is the assessment of motor carrier acceptance of Green Light technologies. Accomplishment of these evaluation goals directly support relevant ITS National Program Plan goals (i.e., improve safety, increase efficiency, and enhance productivity). In addition, certain test measures were developed in support of these goals, described in a volume of detailed test plans. For more on the overall evaluation goals and subsequent test plans see the compendium Oregon Green Light CVO Evaluation Detailed Test Plans 1 Through 14, revised 3/15/98, available from Oregon State University.

The survey was conducted as a part of test measure 3.1.1 of the Green Light Evaluation. After reviewing several alternatives of how to monitor and assess the acceptance of the motor carrier industry, it was determined that before/after surveys be conducted of carriers who operate in Oregon. The before survey (referred to as the “First Survey”) was conducted between November 1997 and January 1998. The after survey (referred

to as the “Second Survey”) was conducted in January and February 2000, as late in the evaluation as possible. The surveys were distributed to include both interstate and intrastate carriers from around the country who operate in Oregon.

The questionnaire surveys were used to determine user attitudes in two distinct areas:

1. User attitudes toward electronic screening and its perceived impacts on the motor carrier
2. User attitudes towards new services such as the RWIS and DSIS technologies and the Integrated tactical Enforcement Network (ITEN), and selecting vehicles for inspection based on inspection and compliance status

1.3 Scope

Part One of this report provides some background into the methodology used for the first survey and highlights some of the key findings in the form of figures and tables. Chapter 2 briefly describes the methodology used in the survey. Chapter 3 highlights results for mainline pre-clearance, road weather information systems, downhill speed information systems, and the integrated tactical enforcement network.

Details about the sampling methodology, sample and population demographics, and response rates are in Appendix A. Appendix B contains figures for all of the survey questions in the form of bar charts. Frequency estimates in the form of data tables for categories of response for each question are found in Appendices C-F. A brief description of how to read the tables is found at the beginning of Appendix C. A copy of the survey and cover letter is in Appendix G.

2 METHODOLOGY – FIRST SURVEY

Oregon keeps records of roughly 60,000 motor carriers who have conducted business at some time in Oregon. These carriers range from small parcel delivery companies (with a fleet of one) to large interstate carriers with hundreds of trucks in its fleet. Any carrier who conducts business in Oregon, even once, is required to get necessary permitting and pay the necessary taxes. The database keeps record of the carriers activity as well as other information such as address, fleet size, and standing within ODOT. From this database a sample universe was defined using the methodology outlined in Appendix A. The resulting population was roughly 20,000 carriers from all over the United States and Canada.

In November-January of 1997 and 1998 a survey was mailed to a random sample of 3200 of these carriers from all over the United States and Canada. The target population included both drivers and owners, taken from names and addresses from ODOT's motor carrier files. Of these, 1552 surveys were returned for inclusion in the study (48.5%).

The survey design incorporated a stratified sampling plan that divided the population into three strata based on the home address of the carriers. Oregon carriers made up one strata, Oregon's neighboring states (California, Nevada, Idaho, and Washington) comprised a second, with the remaining states and Canadian provinces making up the third strata.

3 RESULTS – FIRST SURVEY

This section will highlight some of the key findings from the "before" survey conducted by OSU along with graphical representation of selected questions. The sample population was subdivided into three strata based on the state of residence of the motor carrier. The strata are:

- Oregon carriers
- Pacific Northwest carriers (PNW
- All others

A detailed description of the sampling plan may be found in Appendix A.

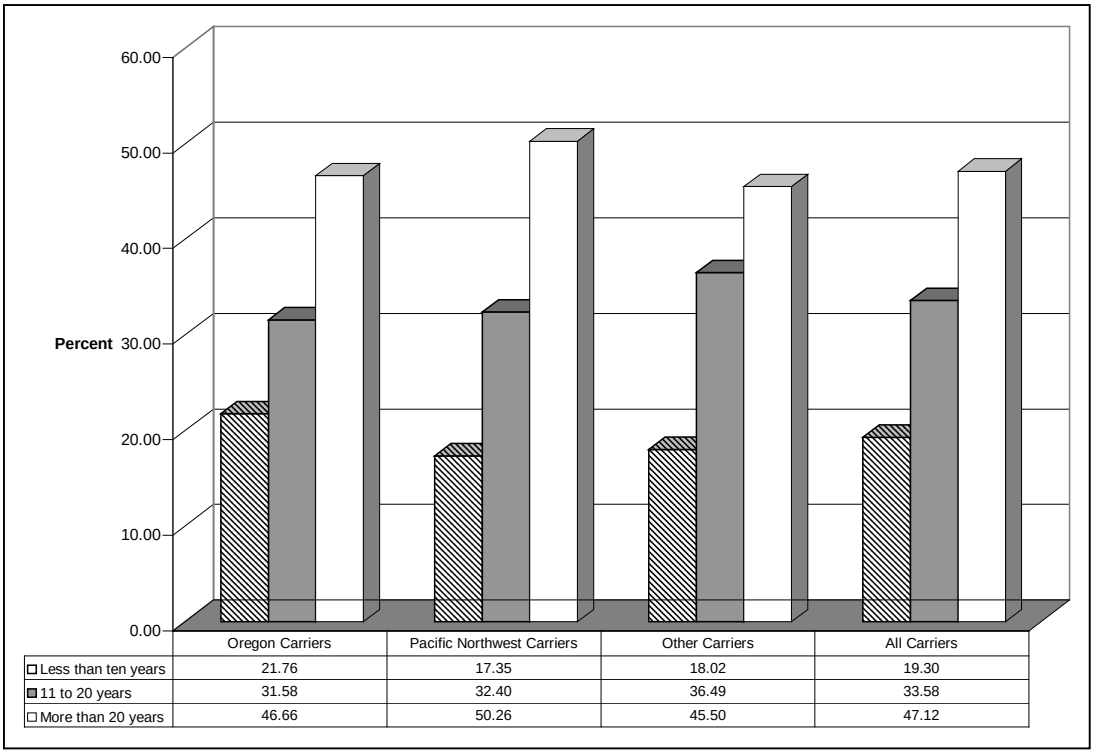
3.1 Population Demographics

Several questions were asked to define the makeup of the survey participants. Included were questions about the experience of the participants in terms of how many years they had been working in the industry (Figure 3-1), and the size of the carrier in terms of fleet size (Figure 3-2).

The experience level of the participants is evenly distributed across strata with no significant variations in the three subcategories. Nearly half of the participants filling out the survey had been working in the industry in some capacity or another for more than 20 years, and approximately one-third having 11 to 20 years of experience.

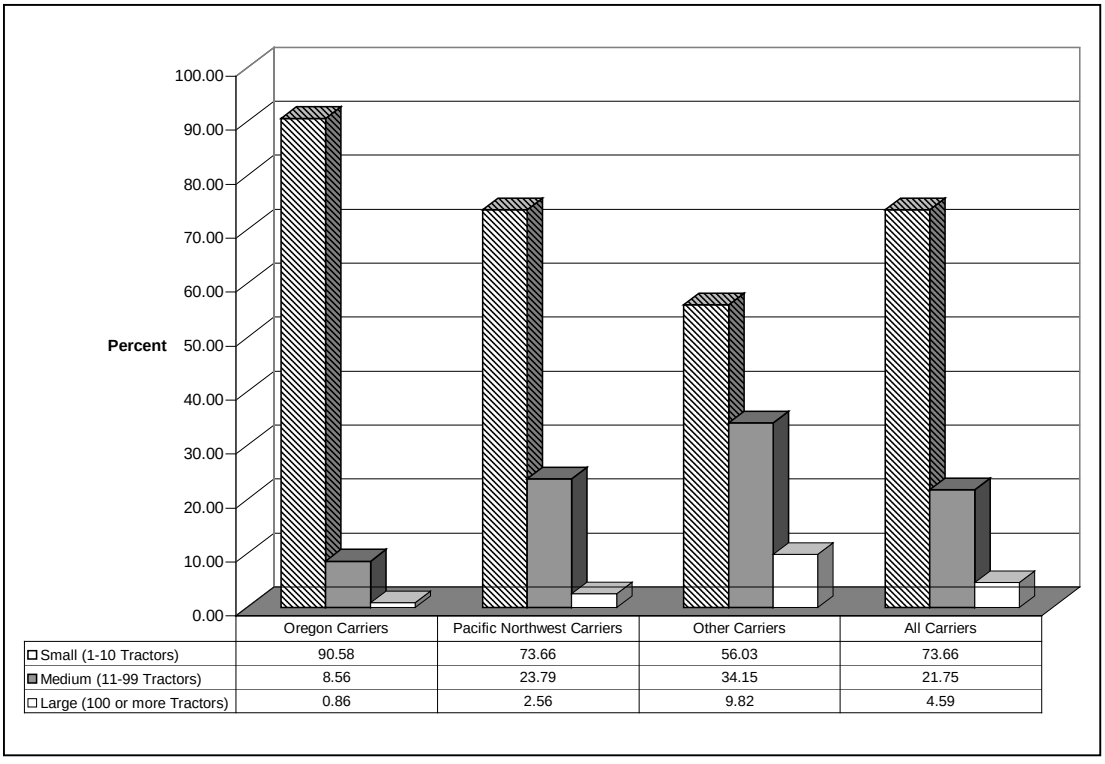
Overall, the sample was dominated by smaller carriers with nearly three-quarters (73.7%) having fleet sizes of one to ten trucks. The fleet size characteristics do show significant effects of stratifying the sample

Figure 3-1 Distribution of Experience Level of Participants



	Oregon Carriers	Pacific Northwest Carriers	Other Carriers	All Carriers
Less than ten years	21.76	17.35	18.02	19.30
11 to 20 years	31.58	32.40	36.49	33.58
More than 20 years	46.66	50.26	45.50	47.12

Figure 3-2 Distribution of Fleet Size of Participants

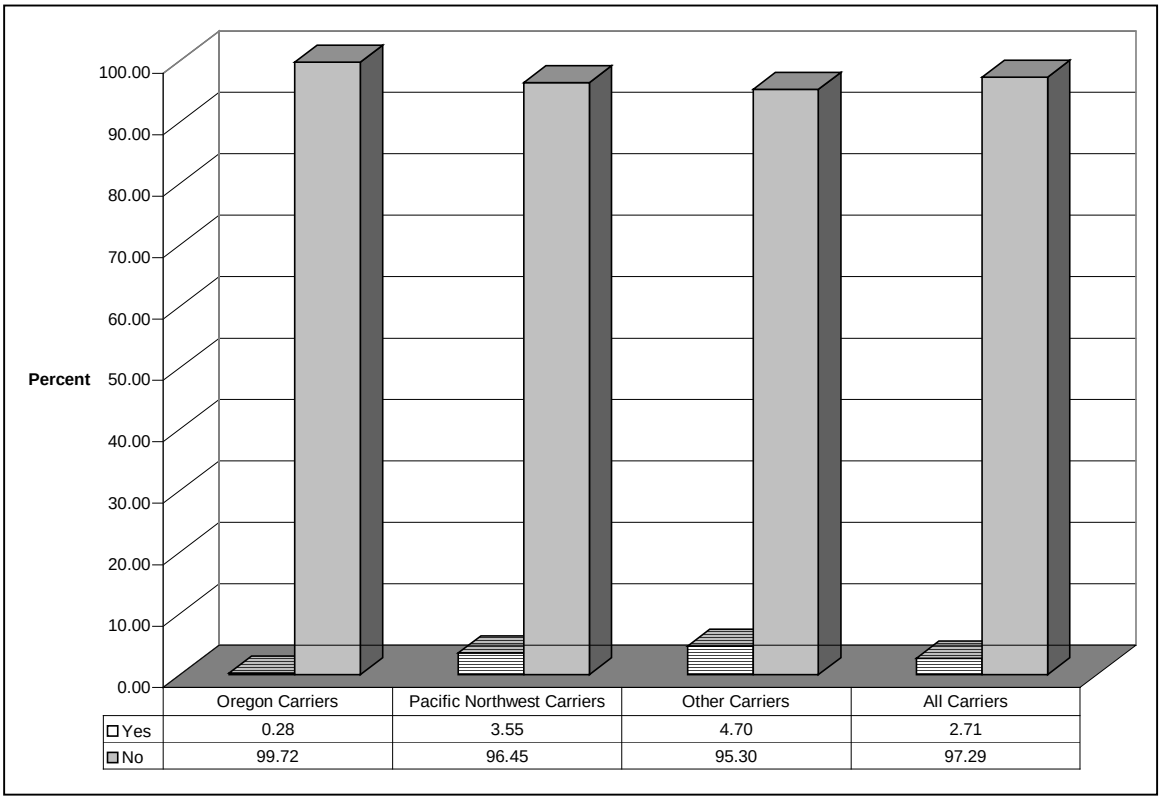


	Oregon Carriers	Pacific Northwest Carriers	Other Carriers	All Carriers
Small (1-10 Tractors)	90.58	73.66	56.03	73.66
Medium (11-99 Tractors)	8.56	23.79	34.15	21.75
Large (100 or more Tractors)	0.86	2.56	9.82	4.59

Very few (less than 9%) medium-sized carriers participating in the survey were based in Oregon. The vast majority were small operations with 10 or less trucks in the fleet. Carriers who were sampled from outside of Oregon contained significantly more medium and large carriers. This reflects the profile of the out-of-state companies who conduct business in Oregon, many of which are larger interstate carriers.

Participants were asked if they had participated in any transponder-based mainline prescreening such Advantage 75 or the HELP-Crescent Project. The distribution of carrier participation is shown in Figure 3-3.

Figure 3-3 Previous Participation in Transponder-Based Mainstreaming



	Oregon Carriers	Pacific Northwest Carriers	Other Carriers	All Carriers
Yes	0.28	3.55	4.70	2.71
No	99.72	96.45	95.30	97.29

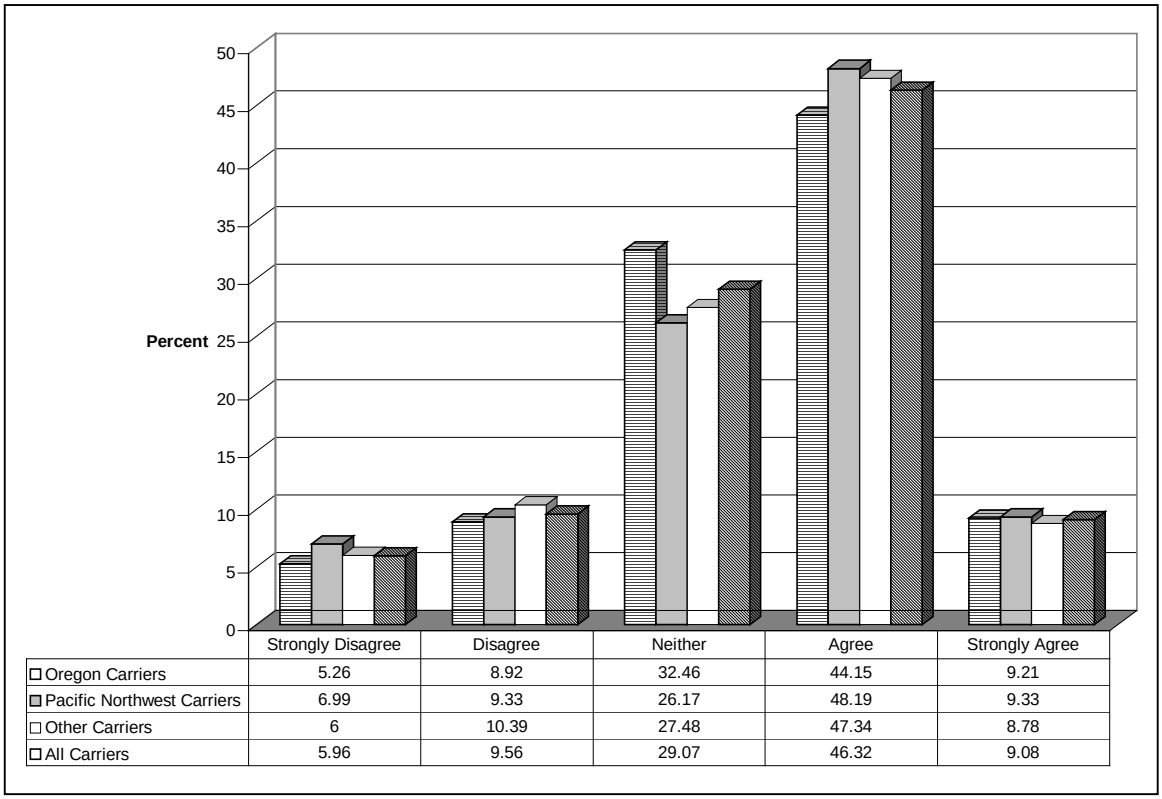
While very few of the Oregon carriers had previously used transponders for pre-clearance, nearly five percent of carriers outside of the Pacific Northwest had participated in some sort of transponder based mainstreaming or pre-clearance.

3.2 Mainline Pre-clearance

In the evaluation, the researchers wanted to measure to what degree carriers saw Green Light as providing benefit for their operations. In addition, it would be useful to know what were the perceived stumbling blocks carriers had with participating in a program such as Green Light. This section presents some of the key findings about how carriers perceive the benefits and liabilities of transponder based mainline prescreening.

The survey asked carriers about how strongly they agreed with the pre-screening of vehicles based on compliance with the Federal Motor Carrier Safety Regulations (FMCSR). The distribution of the responses to this question is shown in Figure 3-4.

Figure 3-4 Pre-screening of Vehicles Based on Compliance With FMCSR

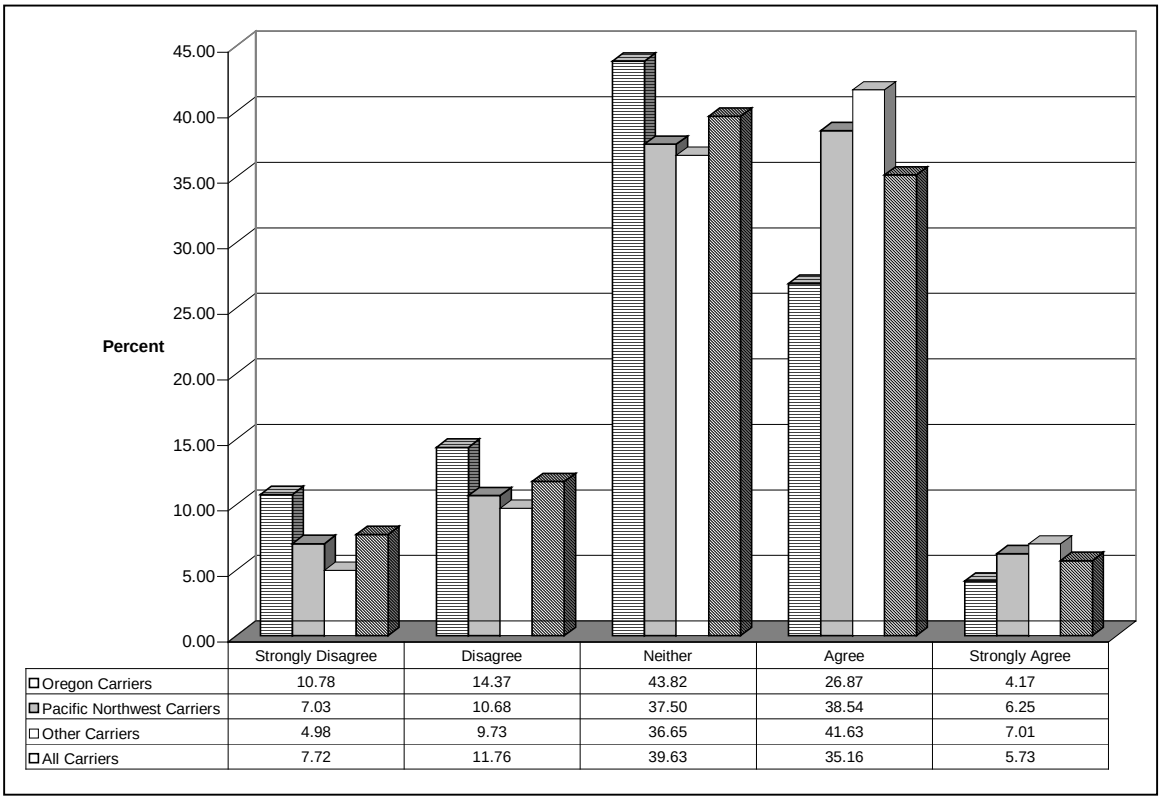


	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	5.26	8.92	32.46	44.15	9.21
Pacific Northwest Carriers	6.99	9.33	26.17	48.19	9.33
Other Carriers	6	10.39	27.48	47.34	8.78
All Carriers	5.96	9.56	29.07	46.32	9.08

Again the responses were evenly distributed across the three strata. Nearly half of the responses agreed with the idea of mainline pre-clearance based on previous inspection result. Approximately 15% of the responses were in disagreement and 30% neither agreed or disagreed.

Figures 3-5 through 3-7 highlight results of questions asking to what extent carriers agree with certain statements about mainline pre-clearance.

Figure 3-5 Will Mainline Preclearance Benefit My Company?

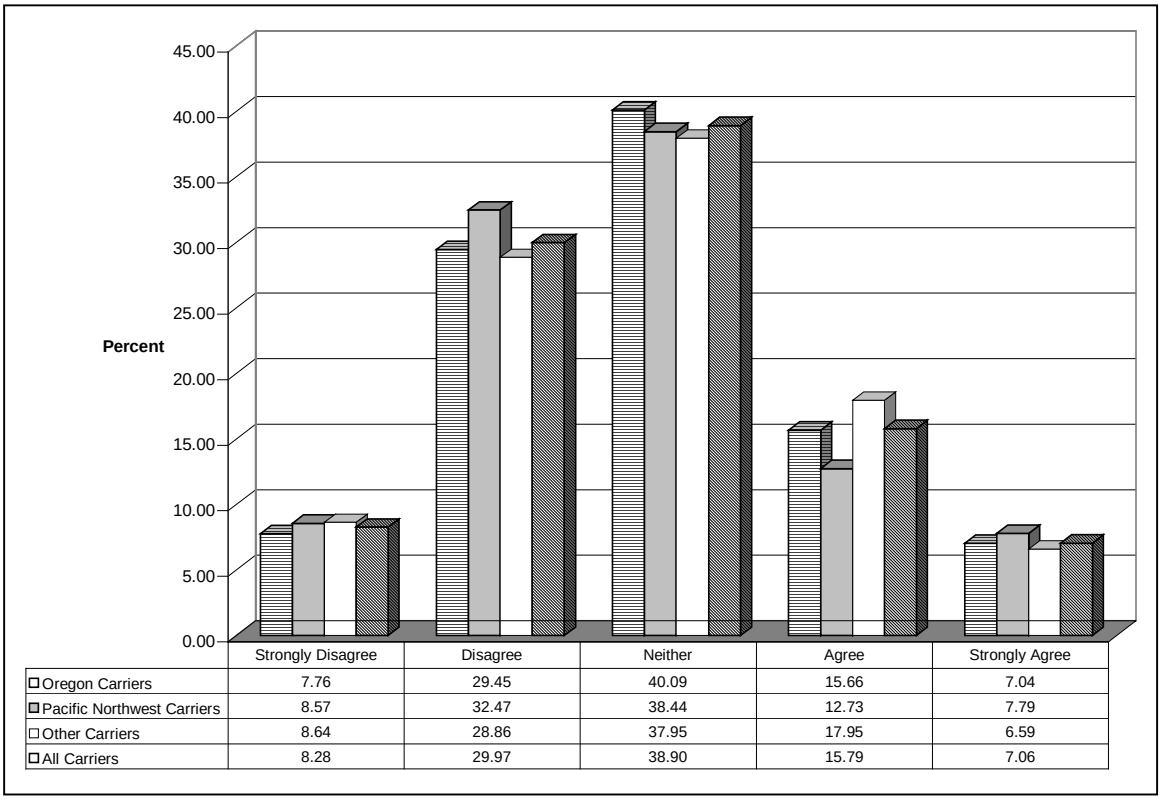


	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	10.78	14.37	43.82	26.87	4.17
Pacific Northwest Carriers	7.03	10.68	37.50	38.54	6.25
Other Carriers	4.98	9.73	36.65	41.63	7.01
All Carriers	7.72	11.76	39.63	35.16	5.73

Overall, carries perceive that mainline pre-clearance will provide a benefit to their commercial vehicle operations. The PNW and others strata had nearly 45% of the responses either in agreement or strong agreement with the statement. Responses for Oregon were slightly lower, with a 43.8% of the responses in the “Neither” category.

Figure 3-6 illustrates responses to how much carriers feel transponder based mainline pre-clearance invades upon their privacy by the state or federal government. Over a third of the responses across strata selected neither, meaning that they had no opinion one way or the other. 38% of the carriers surveyed believed that mainline pre-clearance did not invade upon their privacy, while 22% agreed with the statement.

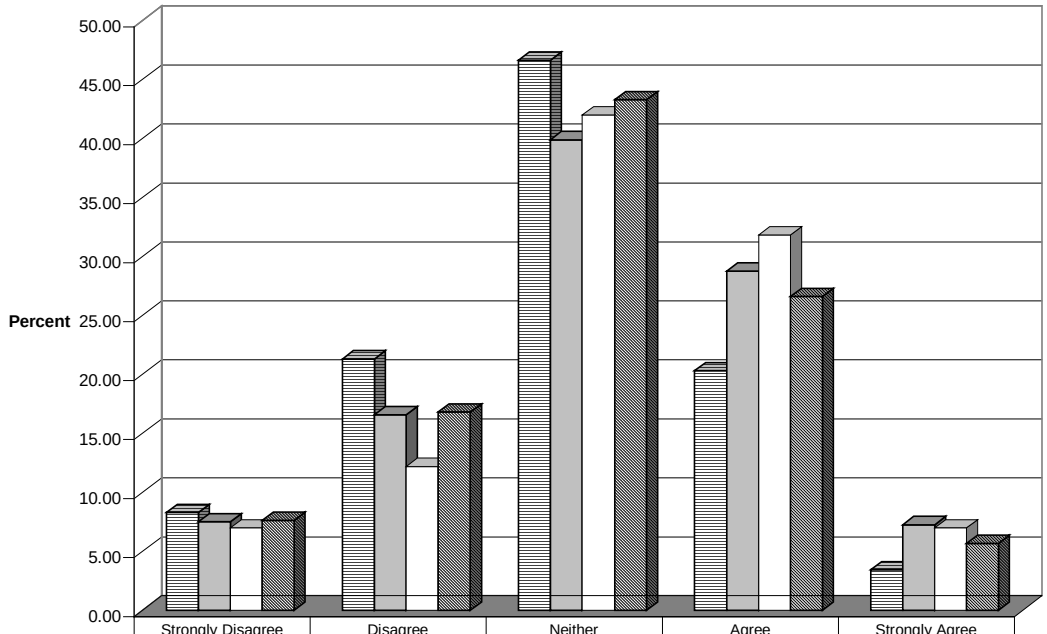
Figure 3-6 Is Mainline Preclearance An Invasion of Privacy?



	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	7.76	29.45	40.09	15.66	7.04
Pacific Northwest Carriers	8.57	32.47	38.44	12.73	7.79
Other Carriers	8.64	28.86	37.95	17.95	6.59
All Carriers	8.28	29.97	38.90	15.79	7.06

Figure 3-7 shows carriers agreement with the statement that mainline pre-clearance will improve the service the carrier is able to provide to their customer. Again the responses were evenly distributed across strata. Nearly 27% of carriers in agreement with the statement while about 17% disagreed with the statement.

Figure 3-7 Will Mainline Pre-clearance Improve Services Provided By Carriers?



	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	8.30	21.32	46.64	20.31	3.43
Pacific Northwest Carriers	7.51	16.58	39.90	28.76	7.25
Other Carriers	7.00	12.19	41.99	31.83	7.00
All Carriers	7.63	16.80	43.28	26.62	5.68

4 SUMMARY - FIRST SURVEY

The first survey was conducted from November 1997 through January 1998. It was designed as a way to monitor and assess motor carrier acceptance of new technology. The researchers sought to check user attitudes toward (1) electronic screening and its perceived impact on carriers, and (2) new services such as the RWIS and DSIS, as well as the ITEN, and selecting vehicles for inspection based on inspection and compliance status. In a "before/after" approach, this initial survey outreach will be repeated in another survey mailed to carriers at some point in the future when Green Light technologies are in place and more carriers are familiar with them.

Questionnaires were mailed to a random sampling of 19,686 carriers registered to operate in Oregon, separating them into three strata so that they reached 1,200 Oregon-based carriers, 1,000 carriers based in Washington, California, Idaho, and Nevada (a "Pacific Northwest" carrier group), and 1,000 carriers based throughout other states and Canada.

Respondents to the survey included more than 700 of the Oregon-based carriers, nearly 400 of the Pacific Northwest carriers, and more than 400 of the other carriers. The respondents described themselves as follows:

81% said they had been working in the industry more than 10 years.

74% operate small fleets (1-10 trucks)

22% operate medium fleets (11-99 trucks)

4% operate large fleets (100 or more trucks)

The survey methodology included the mailing of (1) a "pre-letter" from ODOT announcing that a survey would be arriving soon, (2) a survey form and cover letter, (3) a small postcard reminder to non-respondents, and (4) a second survey form and cover letter to non-respondents. Approximately 400 returned responses from each stratum was needed to be within 10% of the truth, with a 95% confidence level. A higher degree of confidence in the results from Oregon carriers, than from the entire population, was achieved by the moderate oversampling of Oregon carriers.

A summary of highlights is listed below:

- 41% of carriers agree that Mainline Preclearance will benefit their company (19% disagree and 40% have no opinion about the potential for benefit).
- 60% of carriers agree that a Road and Weather Information System (RWIS) will benefit their company (14% disagree and 26% have no opinion).
- 47% of carriers agree that a Downhill Speed Information System (DSIS) will benefit their company (20% disagree and 33% have no opinion).
- 32% of carriers agree that an Integrated Tactical Enforcement Network (ITEN) will benefit their company (24% disagree and 43% have no opinion).
- 55% of carriers agree with the policy of screening trucks for possible inspection based on recent compliance with federal safety regulations (16% disagree and 29% have no opinion).
- 61% of carriers rate the overall performance of ODOT's Motor Carrier Services as "Good" and 9% rate it "Excellent" (26% rate it "Fair" and 4% rate it "Poor").

PART TWO

Motor Carrier Acceptance – Second Survey

Oregon State University
Transportation Research Institute
May 2000

5 INTRODUCTION – SECOND SURVEY

5.1 Background

The Oregon Green Light is a Federal Highway Administration funded operational test of Intelligent Transportation Systems on Oregon's highways. Thus, the Federal Highway Administration (FHWA) requested a complete independent evaluation of the Oregon Green Light. The purpose of the evaluation is to ensure how well the goals of the Oregon Green Light are being met with respect to safety, operational efficiency of motor carriers and state regulatory authorities, productivity gains, future potential, and the identification of any legal and institutional issues. The Oregon State University Transportation Research Institute was contracted to conduct the evaluation. This report outlines findings from the "after" or "Second Survey" distributed to motor carriers around the United States and Canada by asking their opinions about the components being installed under Oregon Green Light.

The assessment of motor carrier acceptance of Green Light technologies is one of the evaluation goals. The accomplishment of this goal directly supports relevant ITS National Program Plan goals that include improving safety, increasing efficiency, and enhancing productivity. In addition, certain test measures developed in support of these goals were described in a volume of detailed test plans. For more on the overall evaluation goals and subsequent test plans see the compendium Oregon Green Light CVO Evaluation Detailed Test Plans 1 through 14, revised 3/15/98, available from Oregon State University Transportation Research Institute.

The survey was conducted as a part of test measure 3.1.1 of the Green Light Evaluation. After reviewing several alternatives of how to monitor and assess the acceptance of the motor carrier industry, an “after” or second survey was mailed to motor carriers who operate in Oregon. The survey was to include both interstate and intrastate carriers from around the United States and Canada. The findings of the “after” survey will be used to compare to those of the “before” or initial survey. Questions on the “after” survey are similar to the “before” survey, so the comparison of the findings are un-biased.

The questionnaire survey was used to determine user attitudes in two distinct areas:

1. User attitudes toward electronic screening and its perceived impacts on the motor carrier.
2. User attitudes towards new services such as the RWIS and DSIS technologies.

5.2 Scope

This part of the report provides some background into the methodology used for the second survey and highlights some of the key findings in the form of figures and tables for the second survey. Chapter 6 briefly describes the methodology used in the survey. Chapter 7 highlights results for mainline pre-clearance, road weather information systems, and downhill speed information systems.

Details about the sampling methodology, sample and population demographics, and response rates are in Appendix A. Appendix B contains figures for most of the survey questions in the form of bar charts. Frequency estimates in the form of data tables for categories of response for each question are found in Appendices C-F. A brief

description of how to read the tables is found at the beginning of Appendix C. A copy of the survey and cover letter is in Appendix G.

6 METHODOLOGY – SECOND SURVEY

Over 60,000 motor carriers have conducted business at some time in Oregon. These carriers range from small parcel delivery companies (with a fleet of one) to large interstate carriers with hundreds of trucks in its fleet. Any carrier who conducts business in Oregon, even once, is required to get necessary permitting and pays the necessary taxes. Records of the carrier's activity as well as other information such as address, fleet size, and standing within ODOT were kept in the ODOT's commercial motor carriers database. From this database a sample universe was defined using the methodology outlined in Appendix A. The resulting population was roughly 22,000 carriers from all over the United States and Canada.

In January-February of 2000, the second survey was mailed to a random sample of 3200 of these 22,000 carriers from all over the United States and Canada. The target population included both drivers and owners, taken from names and addresses from ODOT's commercial motor carrier database files. Of these, 1213 surveys were returned for inclusion in the study (37.9%).

The survey design incorporated a stratified sampling plan that divided the population into three strata based on the home address of the carriers. Oregon carriers made up the first strata (Oregon carriers). Oregon's neighboring states (California, Nevada, Idaho, and Washington) comprised the second strata (Pacific Northwest carriers). The remaining states and Canadian provinces made up the third strata (Other carriers).

7 RESULTS – SECOND SURVEY

This section will highlight some of the key findings from the “after” or second survey conducted by OSU Transportation Research Institute along with graphical representation of selected questions. The sample population was subdivided into three strata based on the state of residence of the motor carrier. The strata are:

- Oregon carriers
- Pacific Northwest carriers
- Other carriers

A detailed description of the sampling plan can be found in Appendix A.

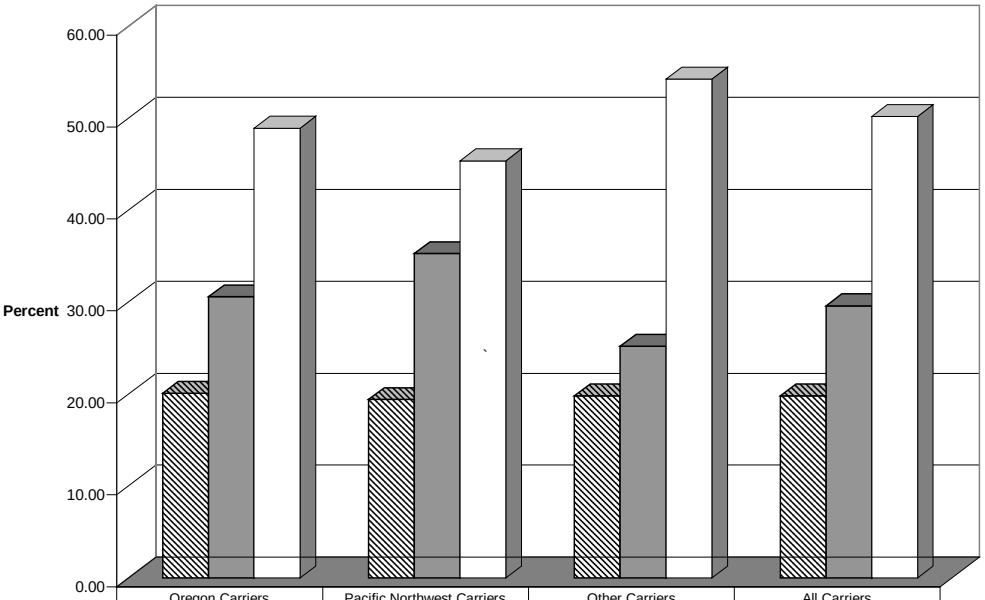
7.1 Population Demographics

Several questions were asked to define the makeup of the survey participants. Included were questions about the experience of the participants in terms of how many years they had been working in the industry (Figure 7-1), and the size of the carrier in terms of fleet size (Figure 7-2).

The experience level of the participants is evenly distributed across strata with no significant variations in the three subcategories. Nearly half of the participants filling out the survey had been working in the industry in some capacity or another for more than 20 years, and approximately 30 % of the participants having 11 to 20 years of experience.

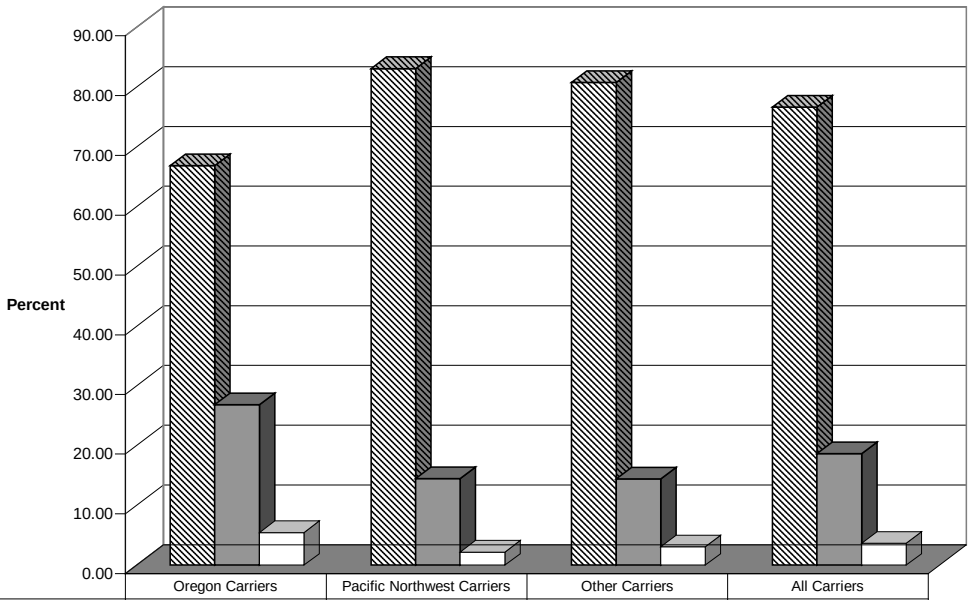
Overall, smaller carriers dominated the sample with over three-quarters (76.8%) having fleet sizes of one to ten trucks. The fleet size characteristics do show significant effects of stratifying the sample

Figure 7-1 Distribution of Experience Level of Participants



	Oregon Carriers	Pacific Northwest Carriers	Other Carriers	All Carriers
Less than ten years	20.09	19.40	19.79	19.79
11 to 20 years	30.57	35.25	25.19	29.58
More than 20 years	48.91	45.36	54.24	50.17

Figure 7-2 Distribution of Fleet Size of Participants

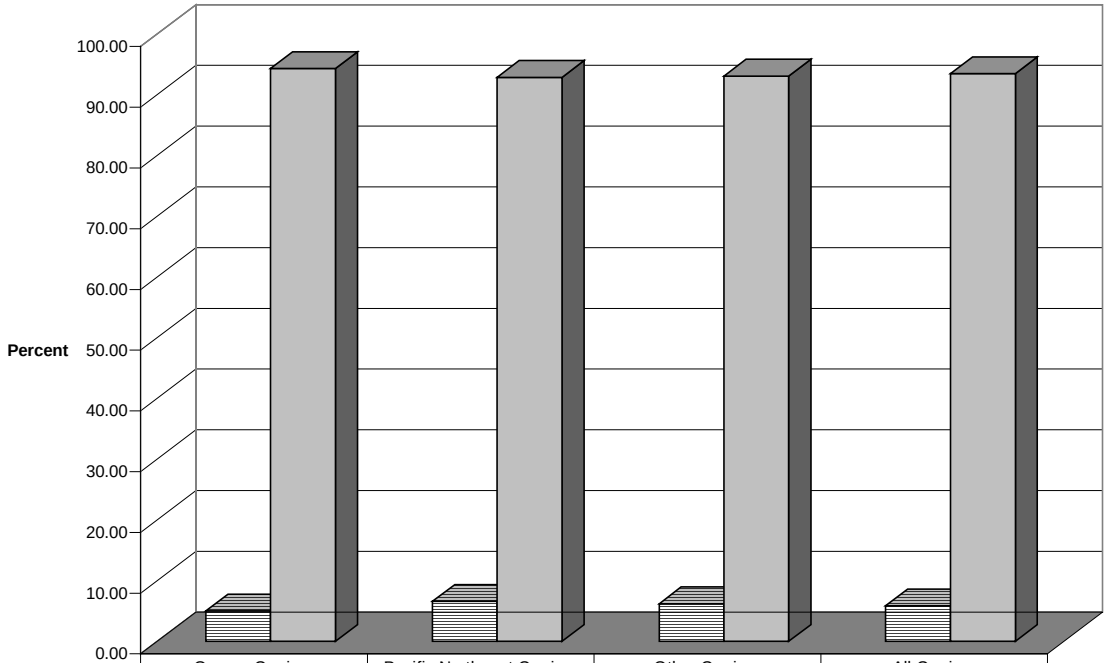


	Oregon Carriers	Pacific Northwest Carriers	Other Carriers	All Carriers
Small (1-10 Tractors)	66.81	83.06	80.72	76.61
Medium (11-99 Tractors)	26.86	14.48	14.40	18.63
Large (100 or more Tractors)	5.46	2.19	3.08	3.66

Oregon has the highest medium-size carriers participating in the survey (over 26.0%). The vast majority were small operations with 10 or less trucks in the fleet. Carriers who were sampled from outside of Oregon contained significantly less medium and large carriers. This reflects the profile of the out-of-state companies who conduct business in Oregon, many of which are smaller interstate carriers.

Participants were asked if they are currently participating in the Oregon Green Light Program. The distribution of carrier participation is shown in Figure 7-3.

Figure 7-3 Current Participation in Oregon's Green Light Program



	Oregon Carriers	Pacific Northwest Carriers	Other Carriers	All Carriers
Yes	5.02	6.56	6.17	5.88
No	94.32	92.90	93.06	93.46

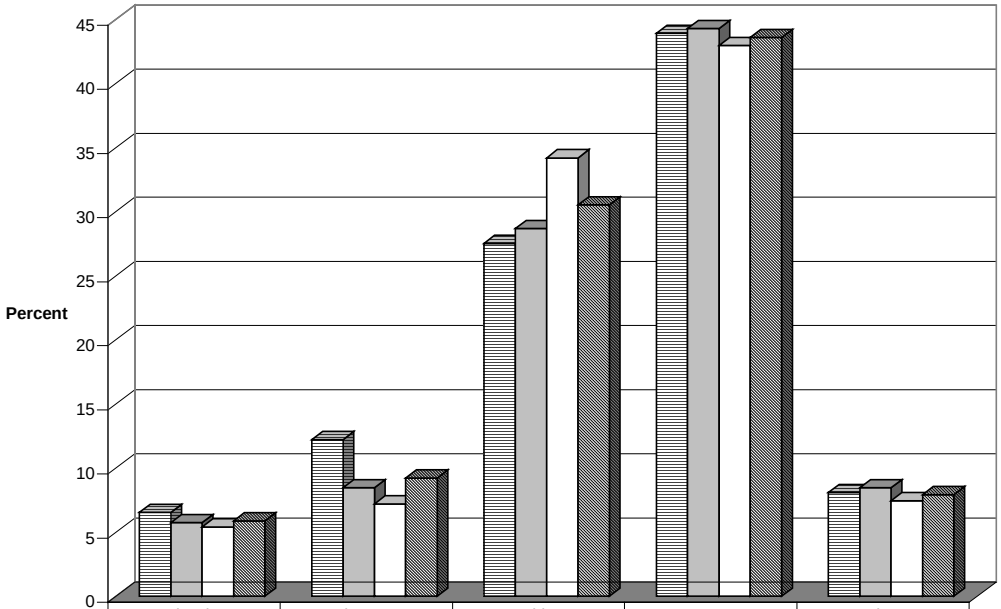
Oregon carriers currently participating in the Green Light Program are less than those from out-of-state. Carriers of the Pacific Northwest are highly participating in the Oregon's Green Light Program (over 6.0%).

7.2 Mainline Preclearance

In the evaluation, the researchers wanted to measure to what degree carriers saw Green Light as providing benefit for their operations. In addition, it would be useful to know what were the perceived stumbling blocks carriers had with participating in a program such as Green Light. This section presents some of the key findings about how carriers perceive the benefits and liabilities of transponder based mainline prescreening.

The survey asked carriers about how strongly they agreed with the pre-screening of vehicles based on compliance with the Federal Motor Carrier Safety Regulations (FMCSR). The distribution of the responses to this question is shown in Figure 7-4.

Figure 7-4 Pre-screening of Vehicles Based on Compliance With FMCSR

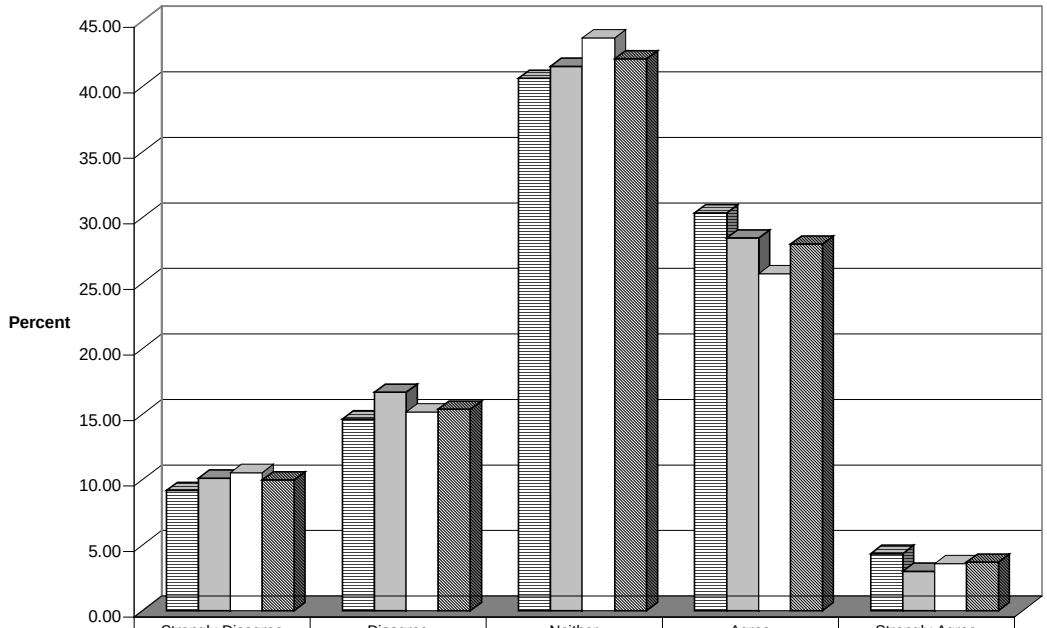


	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	6.55	12.23	27.51	43.89	8.08
Pacific Northwest Carriers	5.74	8.47	28.69	44.26	8.47
Other Carriers	5.4	7.2	34.19	42.93	7.46
All Carriers	5.87	9.22	30.53	43.59	7.93

Overall, the responses were evenly distributed across the three strata. The majority (nearly 44%) of the carriers of the responses agreed with the idea of mainline preclearnce based on previous inspection result. Approximately 15% of the responses were in disagreement and about 30% neither agreed nor disagreed.

Figures 7-5 through 7-7 highlights results of questions asking to what extent carriers agree with certain statements about mainline preclearance.

Figure 7-5 Will Mainline Preclearance Benefit My Company?

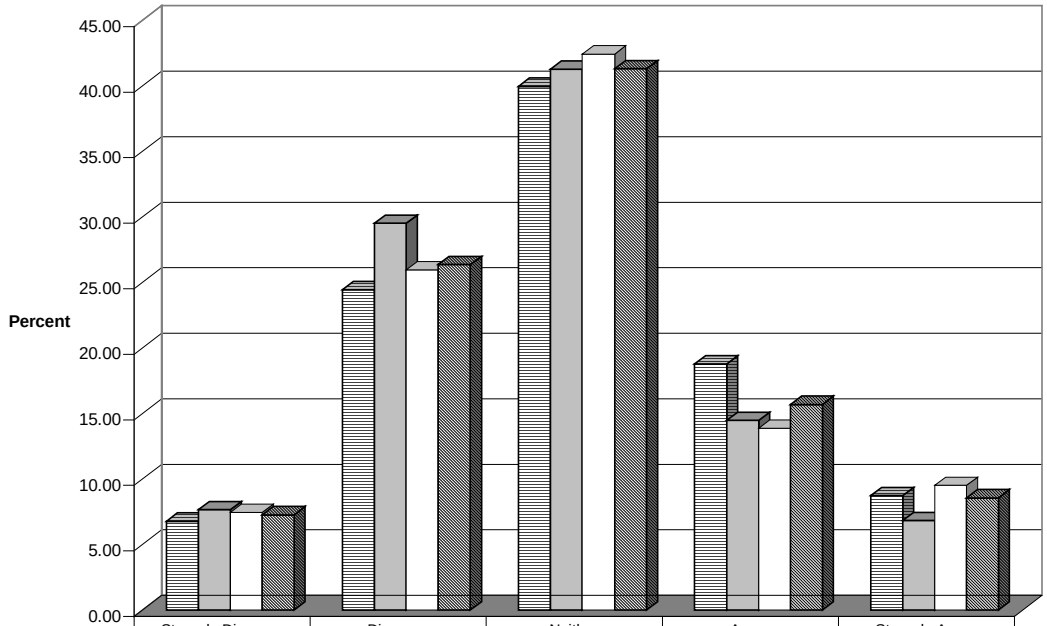


	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	9.17	14.63	40.61	30.35	4.37
Pacific Northwest Carriers	10.11	16.67	41.53	28.42	3.01
Other Carriers	10.54	15.17	43.70	25.71	3.60
All Carriers	9.97	15.37	42.10	27.97	3.71

Overall, carries perceive that mainline preclearance will provide a benefit to their commercial vehicle operations. Over 30% of the responses either agree or strong agree that mainline preclearance will benefit their company. Responses from Oregon carriers were higher than those from out-of-state in agreement or strong agreement with that statement. In addition, approximately 42% of the response fell in the “neither” category.

Figure 7-6 illustrates responses regarding to what degree carriers feel transponder based mainline preclearance invades upon their privacy by the state or federal government. Over 41% of the responses across strata selected neither, meaning that they had no opinion one-way or the other. Over a third (nearly 34%) of the carriers surveyed believed that mainline preclearance did not invade upon their privacy, while about 24% agreed with the statement.

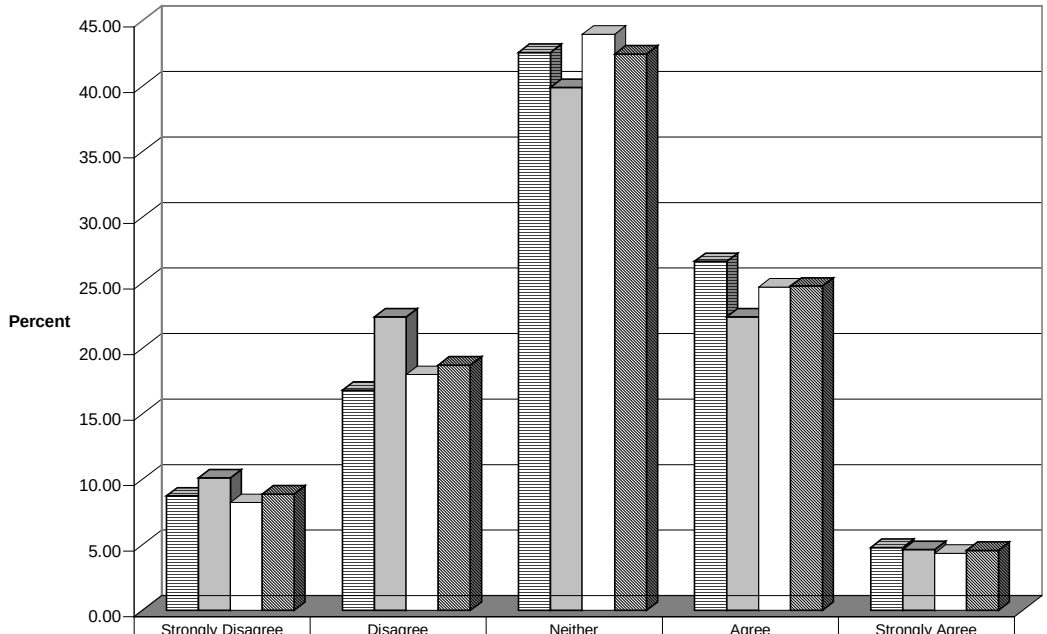
Figure 7-6 Is Mainline Preclearance An Invasion of Privacy?



	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	6.77	24.45	39.96	18.78	8.73
Pacific Northwest Carriers	7.65	29.51	41.26	14.48	6.83
Other Carriers	7.46	25.96	42.42	13.88	9.51
All Carriers	7.27	26.36	41.29	15.69	8.56

Figure 7-7 illustrates carriers agreement with the statement that mainline preclearance will improve the service carriers can provide to their customers. Again the responses were evenly distributed across strata. Nearly 25% of carriers on agreement with the statement while about 18% disagreed with the statement.

Figure 7-7 Will Mainline Preclearance Improve Services Provided By Carriers?



	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	8.73	16.81	42.58	26.64	4.80
Pacific Northwest Carriers	10.11	22.40	39.89	22.40	4.64
Other Carriers	8.23	17.99	43.96	24.68	4.37
All Carriers	8.88	18.72	42.45	24.76	4.59

8 SUMMARY – SECOND SURVEY

The survey described in this report was conducted from January to February 2000. It was the “after” or “Second Survey” designed as a way to monitor and assess motor carrier acceptance of new technology. The researchers sought to check user attitudes toward (1) electronic screening and its perceived impact on carriers, and (2) new services such as the RWIS and DSIS.

Questionnaires were mailed to a random sampling of 21,928 carriers registered to operate in Oregon, separating them into three strata so that they reached 1,200 Oregon-based carriers, 1,000 carriers based in Washington, California, Idaho, and Nevada (a "Pacific Northwest" carrier group), and 1,000 carriers based throughout other states and Canada.

Respondents to the second survey included more than 450 of the Oregon-based carriers, nearly 370 of the Pacific Northwest carriers, and nearly 400 of the other carriers. The respondents described themselves as follows:

80% said they had been working in the industry more than 10 years.

77% operate small fleets (1-10 trucks)

19% operate medium fleets (11-99 trucks)

4% operate large fleets (100 or more trucks)

The survey methodology included the mailing of (1) a "pre-letter" from ODOT announcing that a survey would be arriving soon, (2) a survey form and cover letter, (3) a postcard reminder, and (4) a second survey form and cover letter.
Approximately 400 returned responses from each stratum was required to be within 10% of the truth, with a 95% confidence level. A higher degree of confidence in the results from Oregon carriers, was achieved by the moderate over sampling of Oregon carriers.

A summary of findings for the second survey is listed below:

- 32% of carriers agree that Mainline Pre-clearance will benefit their company (25% disagree and 42% have no opinion about the potential for benefit).
- 52% of carriers agree that a Road Weather Information System (RWIS) will benefit their company (15% disagree and 32% have no opinion).
- 38% of carriers agree that a Downhill Speed Information System (DSIS) will benefit their company (20% disagree and 41% have no opinion).
- 52% of carriers agree with the policy of screening trucks for possible inspection based on recent compliance with federal safety regulations (15% disagree and 31% have no opinion).
- 60% of carriers rate the overall performance of ODOT's Motor Carrier Services as "Good" and 6% rate it "Excellent" (26% rate it "Fair" and 4% rate it "Poor").

PART THREE

Transponder Penetration

Oregon State University
Transportation Research Institute
May 2000

9 INTRODUCTION – TRANSPONDER PENETRATION

9.1 Background

The Transponder Penetration Measure 3.1.2 is one of the evaluation measures that used to assess the acceptance of Green Light by the motor carrier industry. The Measure 3.1.2 tracked the issuance of transponders to the motor carrier population over the evaluation period, ending in March of 2000. In order to monitor motor carrier acceptance, a database file recorded the number of transponders in use over the evaluation period. The data requested was a monthly report of transponders being issued or returned by carriers. In addition, certain characteristics of the carrier's operations will be required to track differences that might occur due to fleet size and location of the fleet. Data elements included:

- Carrier name or more other identifier
- Location of motor carrier by state
- Fleet size
- Number of transponders in service

10 RESULTS – TRANSPONDER PENETRATION

This section presents the data for transponder issuance during the period of the evaluation. Figure 10-1 shows the distribution by month. The substantial increase in march 2000 reflects the decision by ODOT to distribute transponders at no cost to the carrier. Figure 10-2 shows the cumulative penetration of transponders and indicates that the total distributed was nearly 11,000 by March 2000.

Figure 10-1 Monthly Transponder Penetration

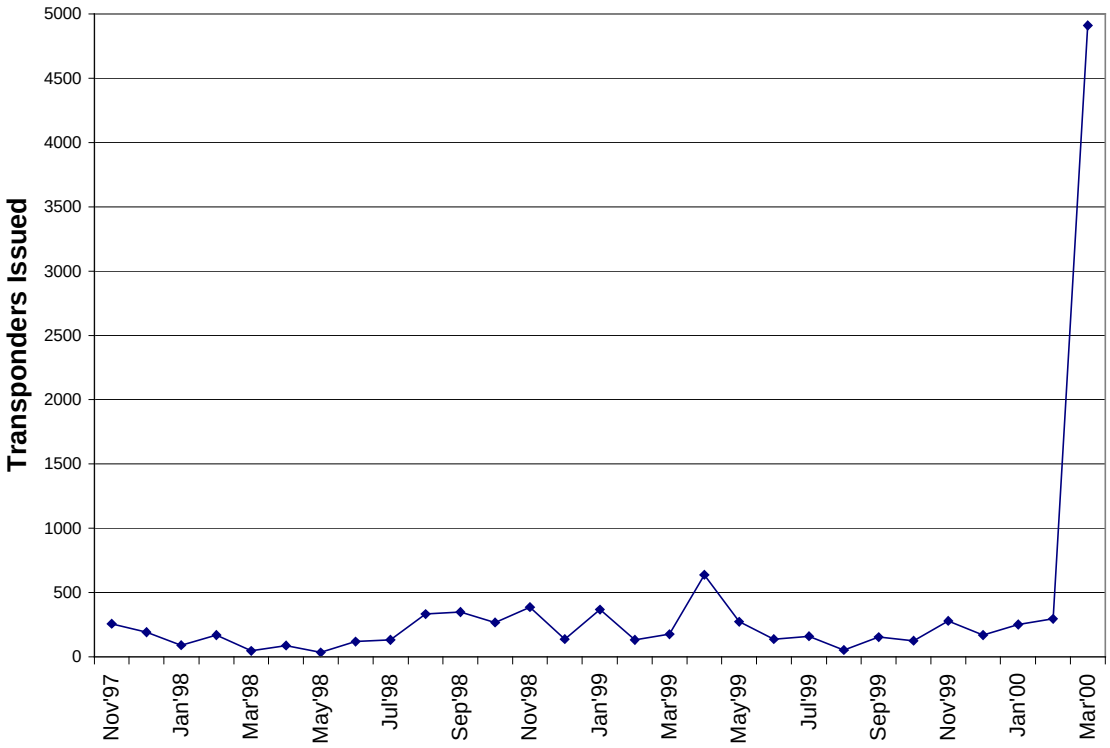
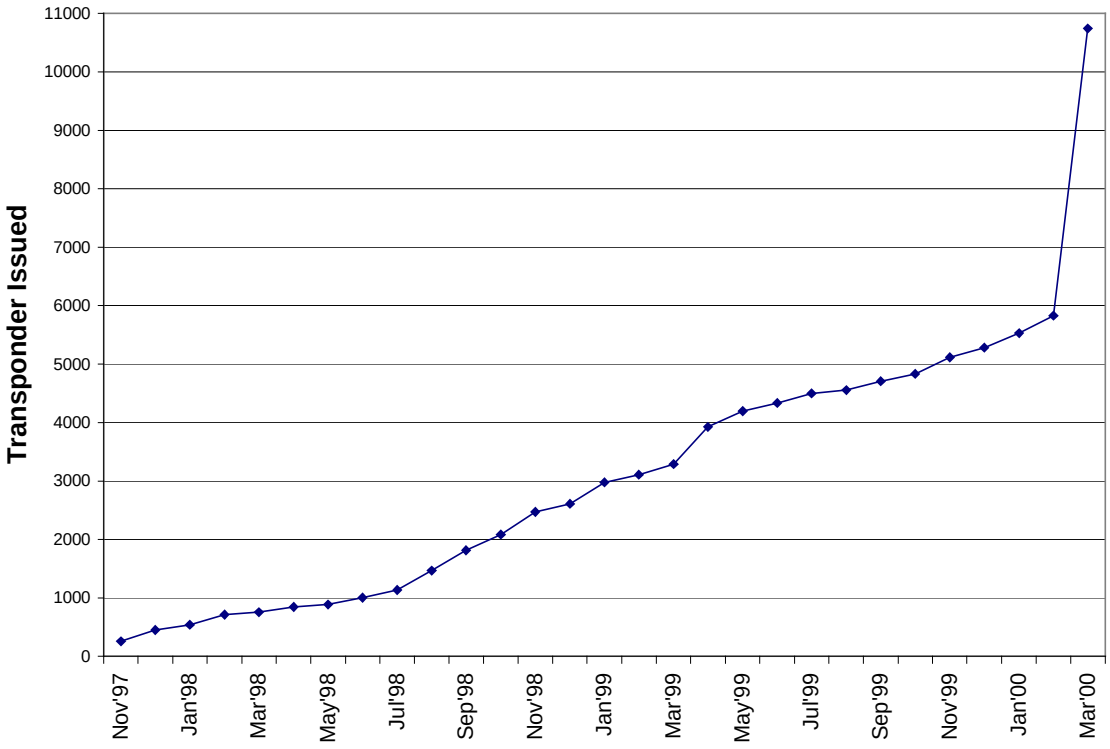


Figure 10-2 Accumulated Transponder Penetration



11 SUMMARY – TRANSPONDER PENETRATION

At the time this report was prepared specific data were not available for transponders issued in April through June 2000. However, ODOT issued approximately another 1500, and, would have issued many more if their stock had not run out. A new order for 12,500 more transponders was delayed; once delivered it is anticipated that they will be distributed quickly.

The following summarizes the findings:

- Nearly 12,500 transponders were in use by the motor carrier industry by June 2000.
- The number of transponders issued increased slowly until ODOT elected to distribute them free of charge.
- Transponder issuance increased dramatically (over 1,500 %) in March 2000 when the decision was made to distribute them at no cost to carriers.

APPENDICES

Appendix A – Sampling Methodology and Survey Design

Appendix B – Figures and Tables of Results

Appendix C – Data Tables: Oregon Carriers

Appendix D – Data Tables: Pacific Northwest Carriers

Appendix E – Data Tables: Other Carriers

Appendix F – Data Tables: All Carriers

Appendix G – Data Tables: Green Light Participants

Appendix H – Survey and Cover Letter

Appendix I – Statistical Findings of Green Light Participants

APPENDIX A

Sampling Methodology and Survey Design

The overall survey design was based, in part, on the design method outline in *Mail and Telephone Surveys-Total Design Method* by Don A. Dillman (Wiley and Sons, 1978). In his book, Don Dillman discusses that by using multiple mailings to the sample population, the response rates can increase nearly 50%. Mailings include an initial cover letter, the survey itself with accompanying a brief description of Green Light components, a follow-up postcard, and finally a second survey identical to the first, but with a slightly different cover letter.

Sampling

Over 60,000 motor carrier names and addresses are contained in ODOT's commercial motor vehicle database. A query of the database was conducted to collect carrier names and addresses from which to draw the sample. The population was limited to active carriers (those not currently suspended for one reason or another), diesel truck operators, and heavy trucks over 26,000 lbs. The initial query also eliminated certain operation classifications and body types (no taxis, bus services, small parcel carriers, passenger cars classified as commercial vehicles, etc.) The subset resulting from the query consisted of 21,928 commercial motor vehicle operators who were likely to be affected by the various Green Light components.

OSU used a stratified sampling approach as presented in *Sampling Techniques* by William Cochran (Wiley and Sons, 1953). The population of motor carriers was divided

into three strata (subgroups), based on the locations of the carriers listed in the ODOT database. The systematic random samples were drawn from each of these sub-strata.

The population of 21,928 addresses was broken down into three homogenous subgroups of Oregon carriers, Pacific Northwest carriers (carriers from states, such as Washington, California, Nevada, and Idaho, that have a common border with Oregon), and all other carriers that include all of the Canadian provinces.

Approximately 400 returned responses from each stratum are required to be within 10% of the truth, with a 95% confidence level. There will exist a higher degree of confidence in the results from Oregon carriers than from the entire population if a stratified sampling approach is used with a moderate oversample of the Oregon carriers.

To acquire 400 returned surveys, approximate 1000 – 1200 surveys have to mail out to carriers of each stratum. Choosing participants involves rolling a 10 sided dice to obtain the first element in sample and then selecting every population to sample proportion length, for instant every 7^{th} carrier in Oregon carriers stratum. After getting the proportion length from the three strata, a systematic random sampling list of subjects was formed.

In all, 3200 questionnaires were mailed as shown in Table A-1 below:

Figure 0-1 Sample Sizes

STRATA	CARRIER POPULATION		SAMPLE
	SURVEY ONE	SURVEY TWO	
OREGON	7602	7394	1200
WASHINGTON	2247	2628	
CALIFORNIA	1626	2026	
NEVADA	116	153	
IDAHO	857	1009	
ALL PACIFIC NORTHWEST	4846	5816	1000
ALL OTHERS	7238	8718	1000

Survey Mailing Process

The process for mailing was the same for both surveys. The steps were as follows:

1. **Send out a "pre-letter" announcing that a survey will be arriving** – this will originate from ODOT in order to give the survey credence, a week before the first survey mailing.

2. **Send out the first survey and cover letter** – the survey will contain a brief description of Green Light components, and a return envelope.

3. **Send out a postcard as a reminder** - mailed out to each carrier one week after the first survey is mailed.

4. **Send out second survey and cover letter**- mailed out two weeks after the initial mailing.

APPENDIX B

Figures and Tables of Results First and Second Surveys

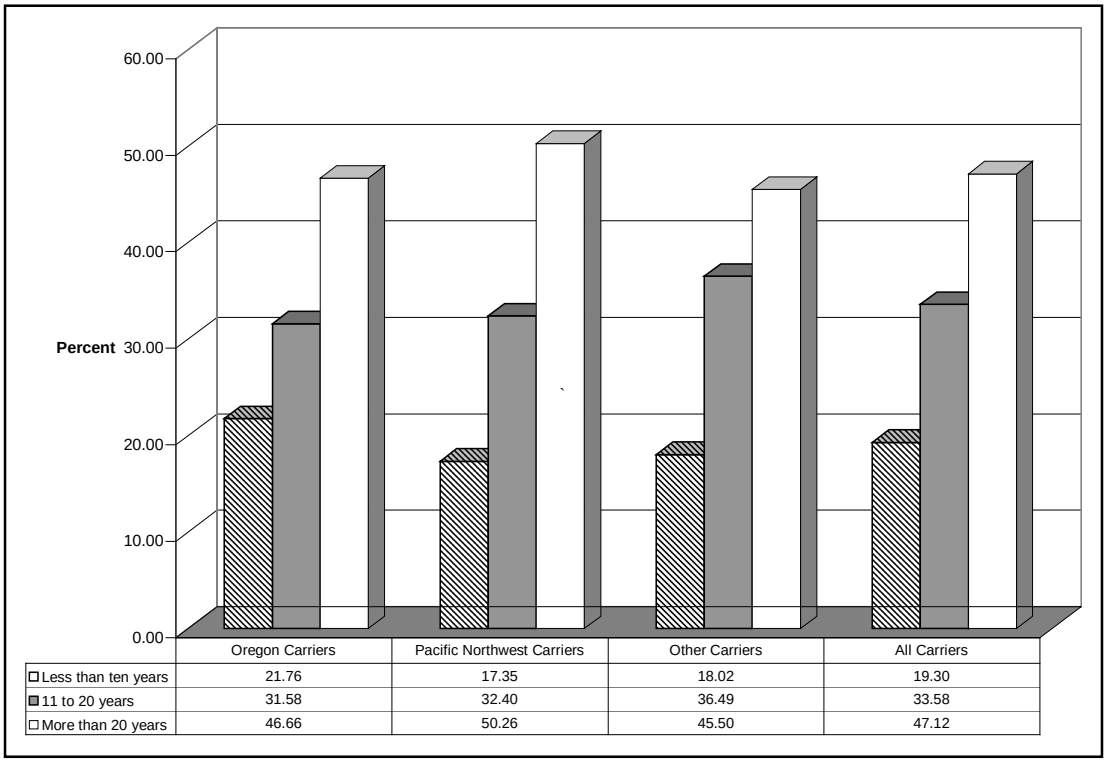
The following figures and tables show the percentages of the population who answered the particular question with the answer shown. The frequencies are representative of the population of carriers who conduct business in Oregon within a certain degree of error. Complete data sets in the form of tables, including standard errors are contained in Appendix C.

Example:

In question #1 on the following page, 21.76% of the carriers in Oregon have worked less than ten years in the industry. Standard errors (Appendix C, page 1) show the error as 1.48%. That is 21.76% of the carriers in Oregon have worked less than ten years in the industry ,+/- 1.48%.

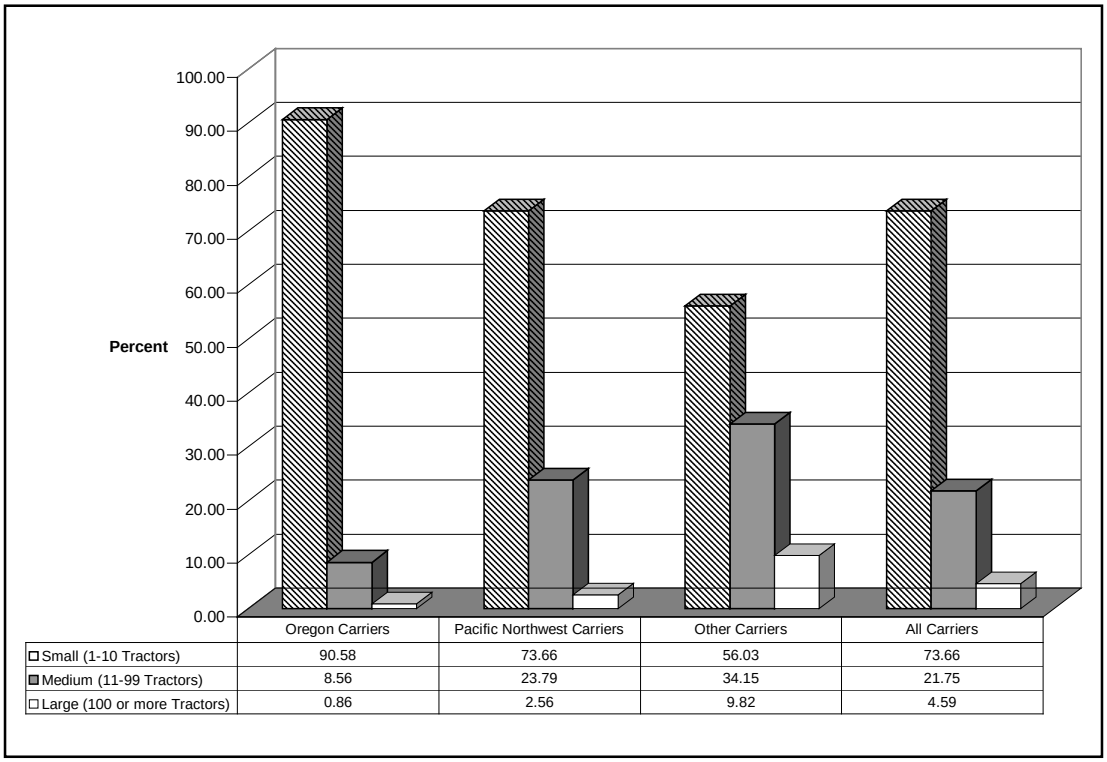
The results of the second survey begin on page B-20.

Q.1) How many years have you personally been working in the industry?



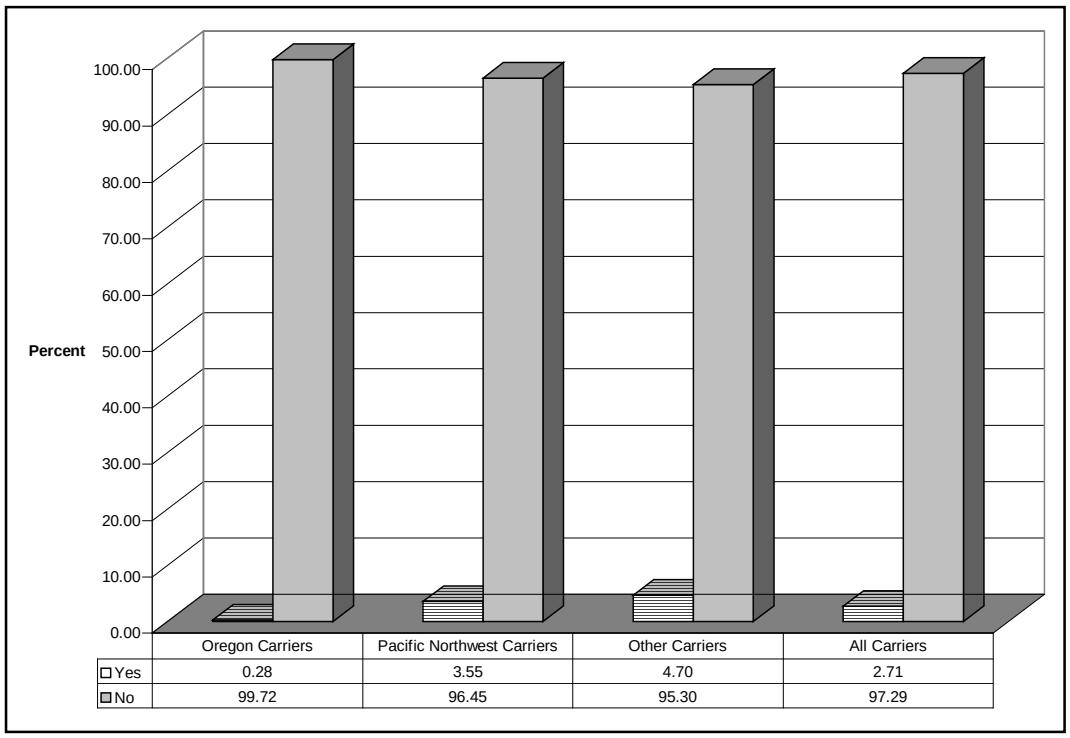
	Oregon Carriers	Pacific Northwest Carriers	Other Carriers	All Carriers
Less than ten years	21.76	17.35	18.02	19.30
11 to 20 years	31.58	32.40	36.49	33.58
More than 20 years	46.66	50.26	45.50	47.12

Q. 2) How large is your company in terms of fleet size?



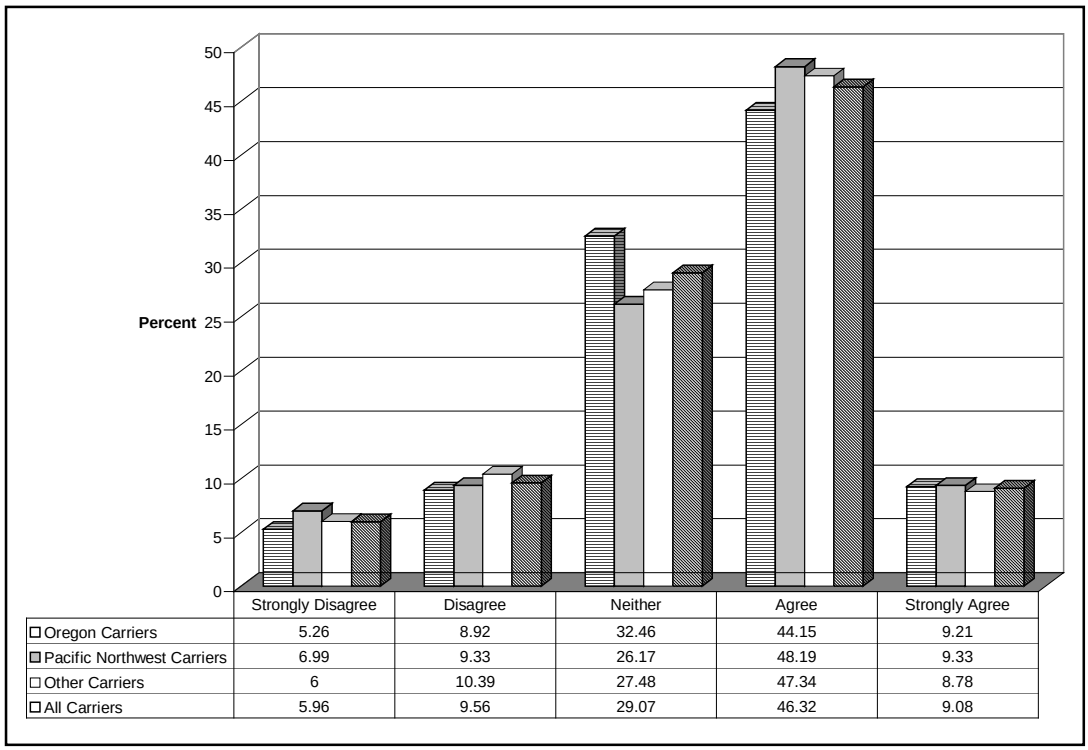
	Oregon Carriers	Pacific Northwest Carriers	Other Carriers	All Carriers
Small (1-10 Tractors)	90.58	73.66	56.03	73.66
Medium (11-99 Tractors)	8.56	23.79	34.15	21.75
Large (100 or more Tractors)	0.86	2.56	9.82	4.59

Q. 5) Have you ever participated in any other transponder-based mainstreaming project such as HELP or Advantage I-75?



	Oregon Carriers	Pacific Northwest Carriers	Other Carriers	All Carriers
Yes	0.28	3.55	4.70	2.71
No	99.72	96.45	95.30	97.29

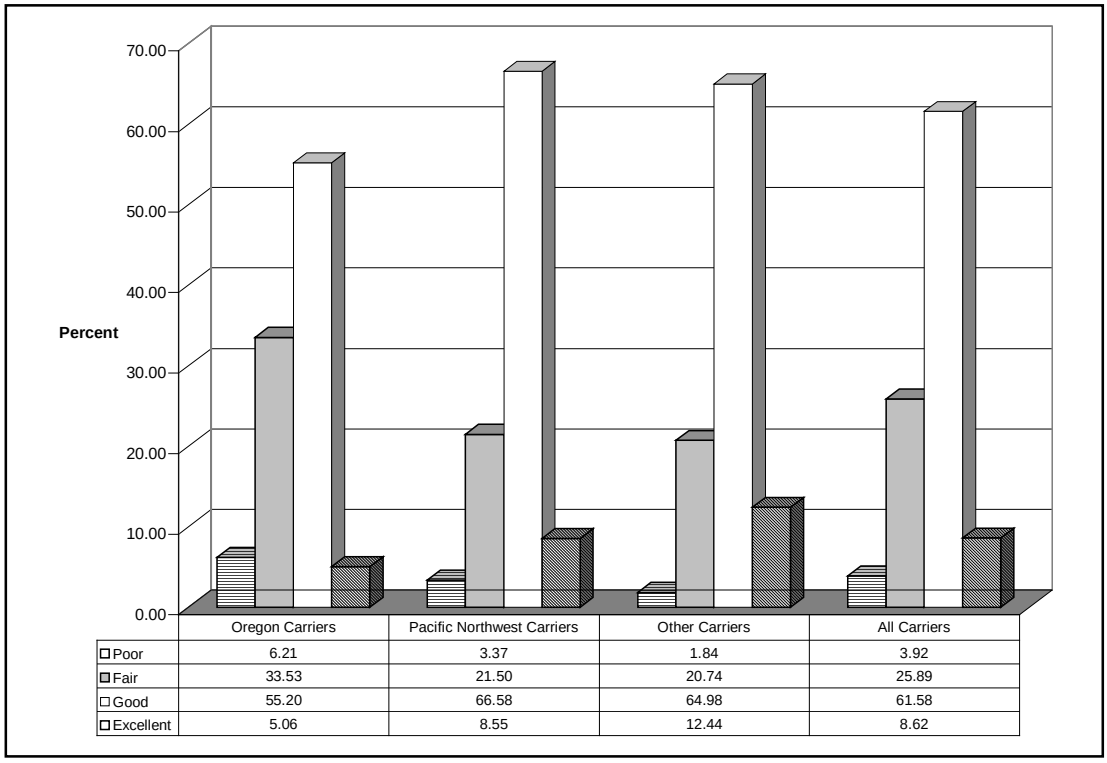
Q. 6) How strongly do you agree with the policy of screening vehicles for possible inspection based on recent compliance with the Federal Motor Vehicle Safety



	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	5.26	8.92	32.46	44.15	9.21
Pacific Northwest Carriers	6.99	9.33	26.17	48.19	9.33
Other Carriers	6	10.39	27.48	47.34	8.78
All Carriers	5.96	9.56	29.07	46.32	9.08

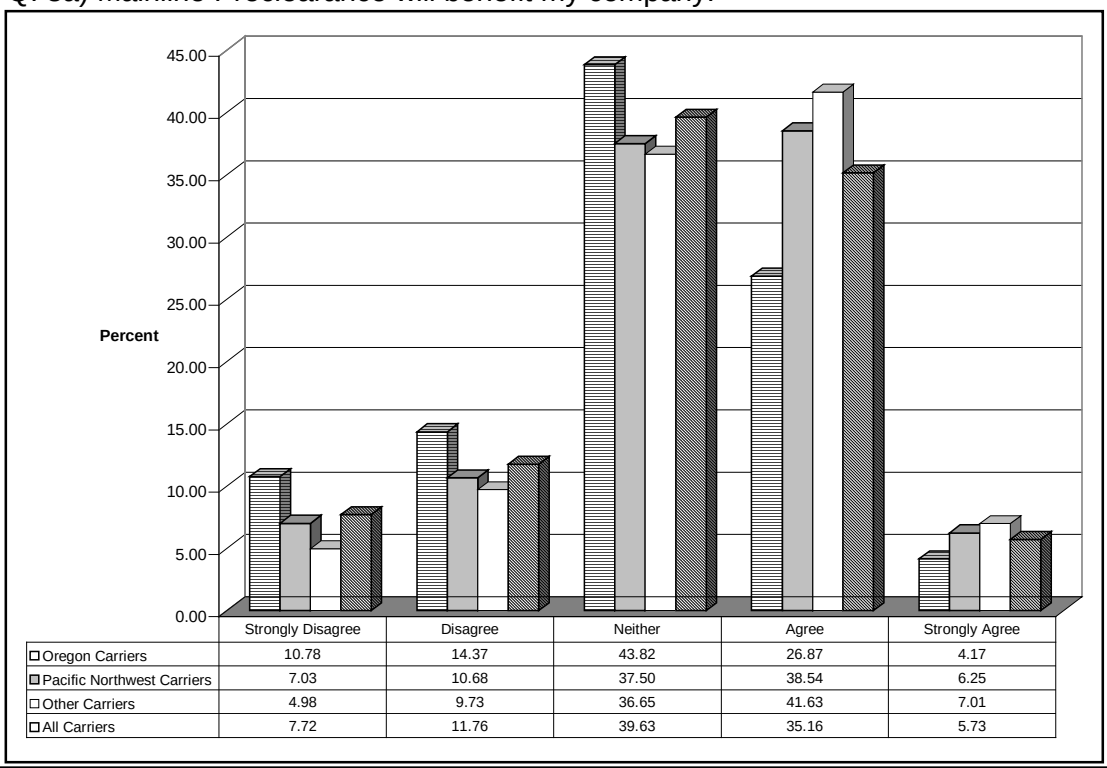
Regulations?

Q. 7) Would you rate the overall performance of ODOT's current Motor Carrier Services as poor, fair, good, or excellent?



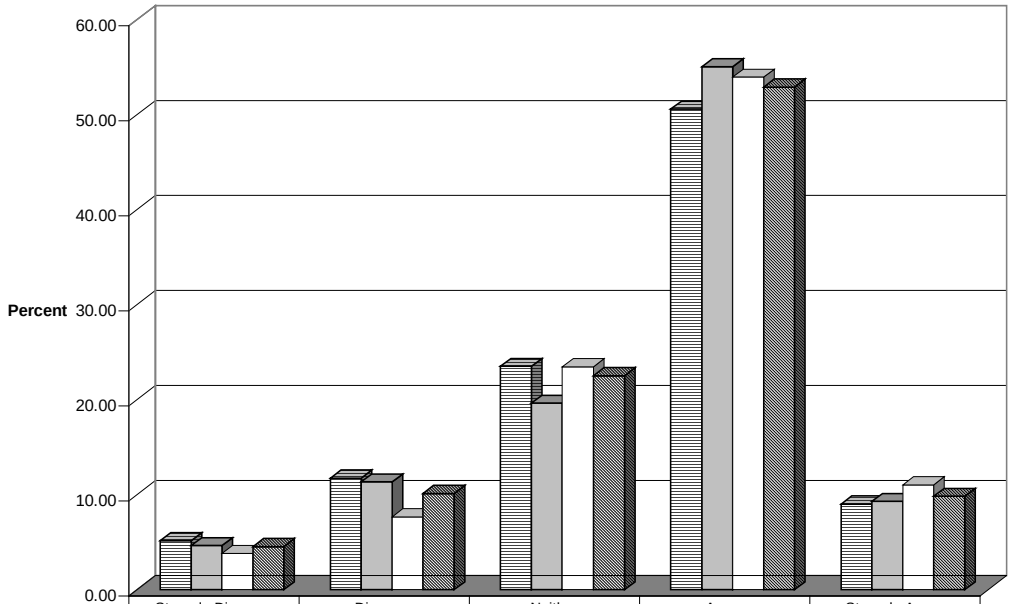
	Oregon Carriers	Pacific Northwest Carriers	Other Carriers	All Carriers
Poor	6.21	3.37	1.84	3.92
Fair	33.53	21.50	20.74	25.89
Good	55.20	66.58	64.98	61.58
Excellent	5.06	8.55	12.44	8.62

Q. 8a) Mainline Preclearance will benefit my company.



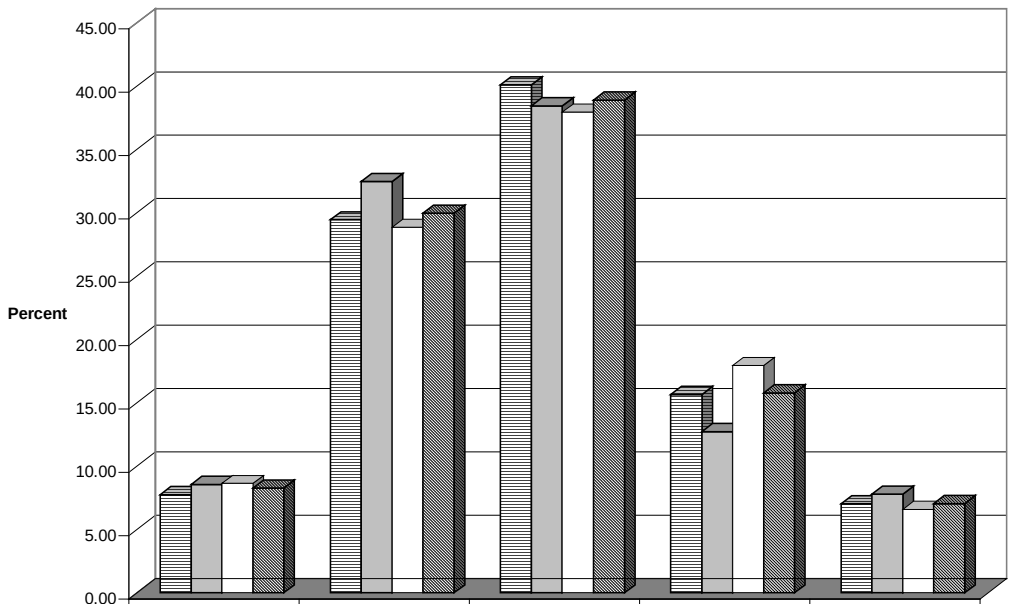
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	10.78	14.37	43.82	26.87	4.17
Pacific Northwest Carriers	7.03	10.68	37.50	38.54	6.25
Other Carriers	4.98	9.73	36.65	41.63	7.01
All Carriers	7.72	11.76	39.63	35.16	5.73

Q. 8b) Mainline preclearance will improve safety on the road.



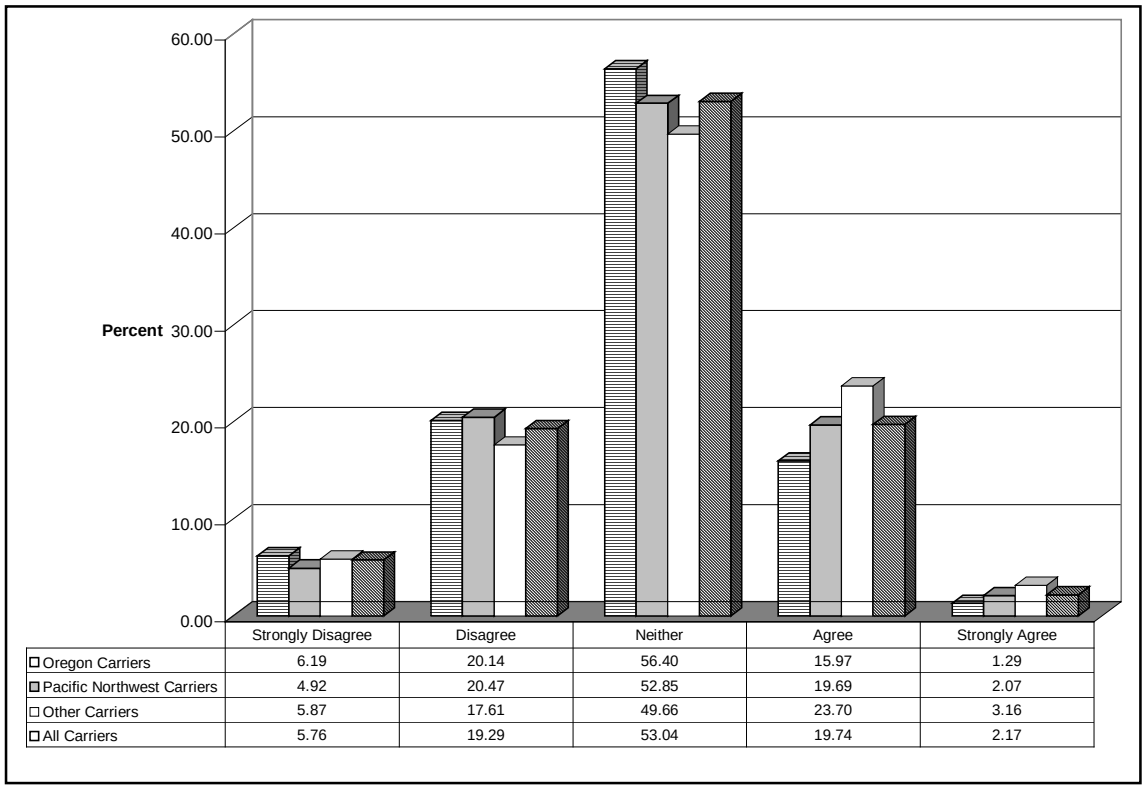
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	5.16	11.75	23.50	50.57	9.03
Pacific Northwest Carriers	4.65	11.37	19.64	55.04	9.30
Other Carriers	3.84	7.67	23.48	53.95	11.06
All Carriers	4.55	10.15	22.54	52.91	9.84

Q. 8c) Mainline preclearance will be an invasion of my driver's privacy.



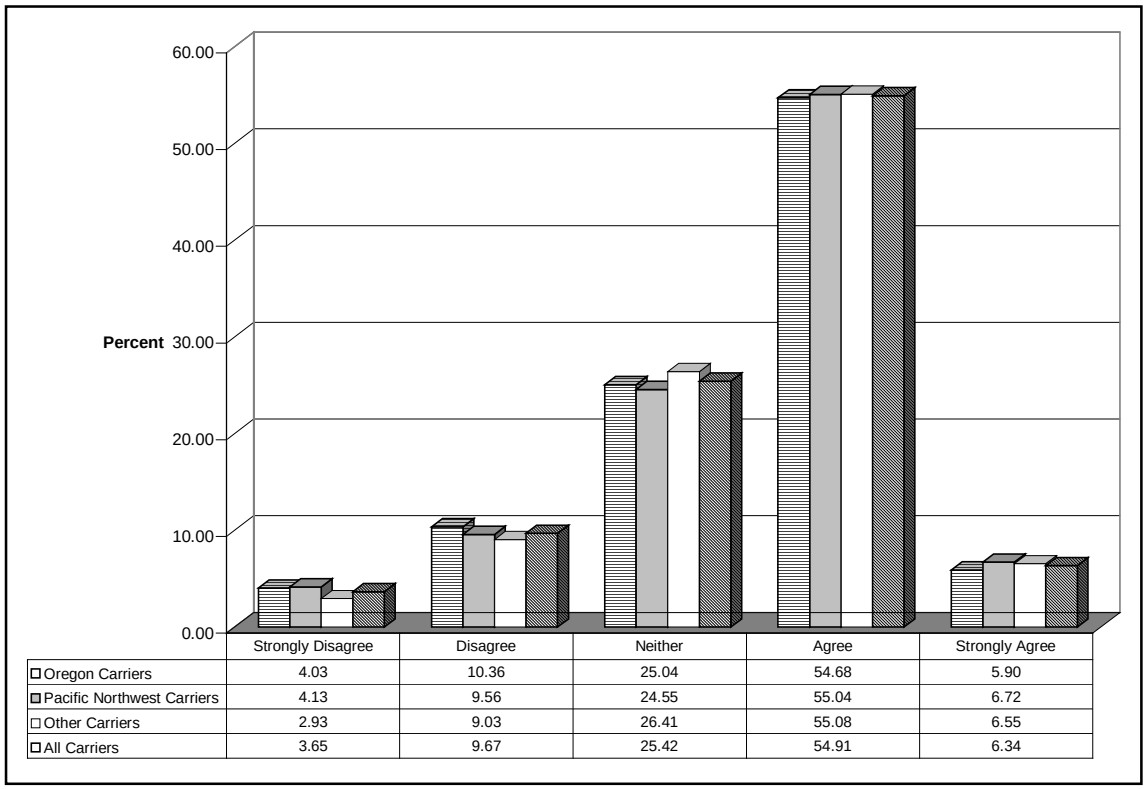
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	7.76	29.45	40.09	15.66	7.04
Pacific Northwest Carriers	8.57	32.47	38.44	12.73	7.79
Other Carriers	8.64	28.86	37.95	17.95	6.59
All Carriers	8.28	29.97	38.90	15.79	7.06

Q. 8d) Mainline preclearance will make my company and its drivers more independent.



	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	6.19	20.14	56.40	15.97	1.29
Pacific Northwest Carriers	4.92	20.47	52.85	19.69	2.07
Other Carriers	5.87	17.61	49.66	23.70	3.16
All Carriers	5.76	19.29	53.04	19.74	2.17

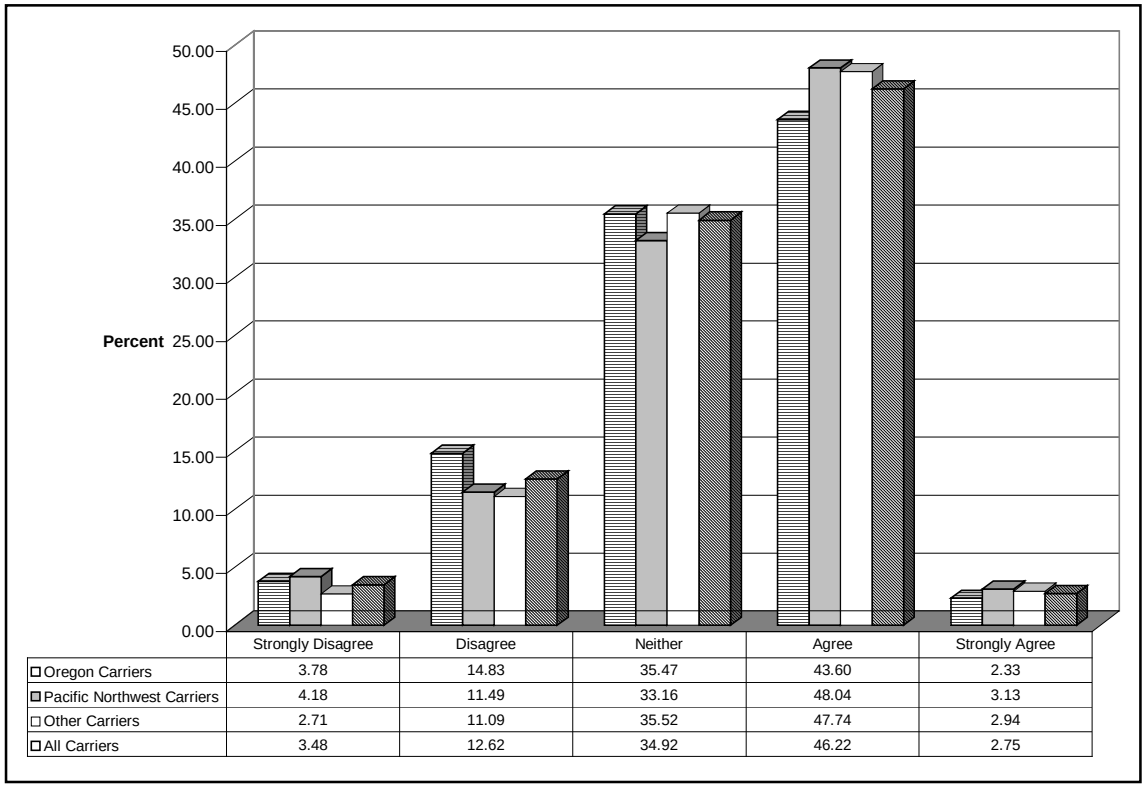
Q. 8e) Mainline preclearance will create more incentives for carriers to comply with



	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	4.03	10.36	25.04	54.68	5.90
Pacific Northwest Carriers	4.13	9.56	24.55	55.04	6.72
Other Carriers	2.93	9.03	26.41	55.08	6.55
All Carriers	3.65	9.67	25.42	54.91	6.34

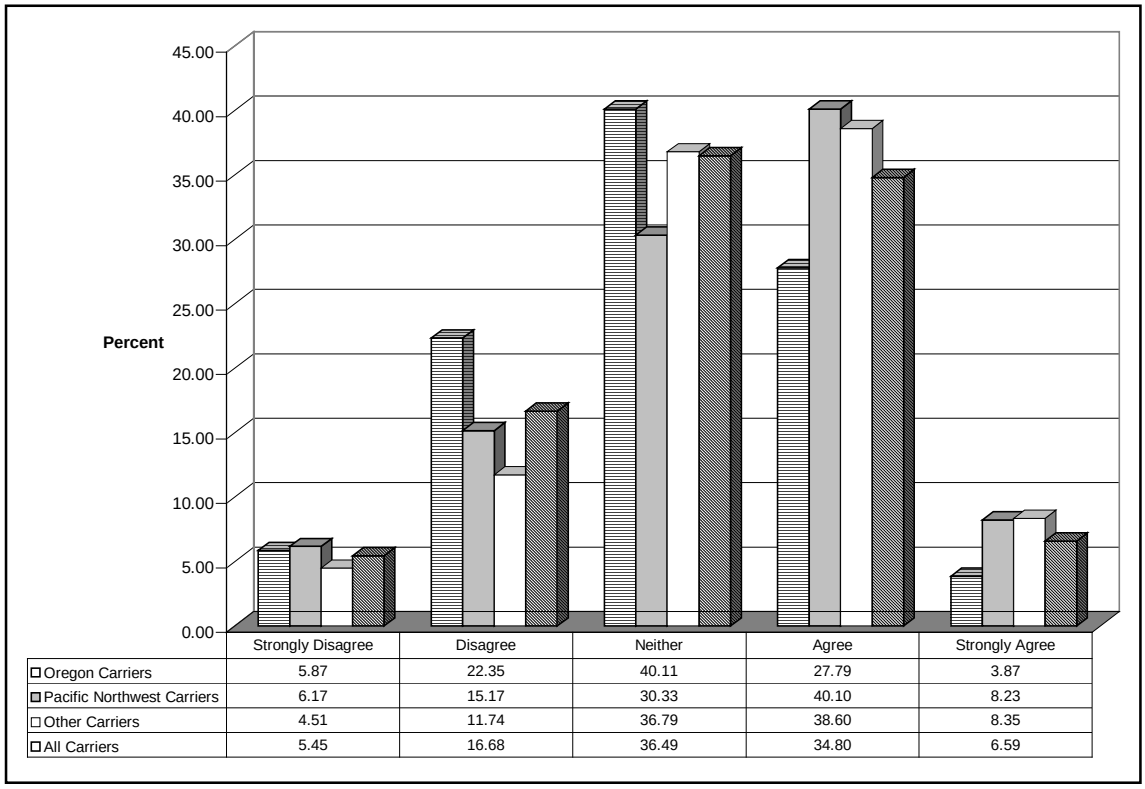
regulations.

Q. 8f) Mainline preclearance will accurately pre-screen vehicles.



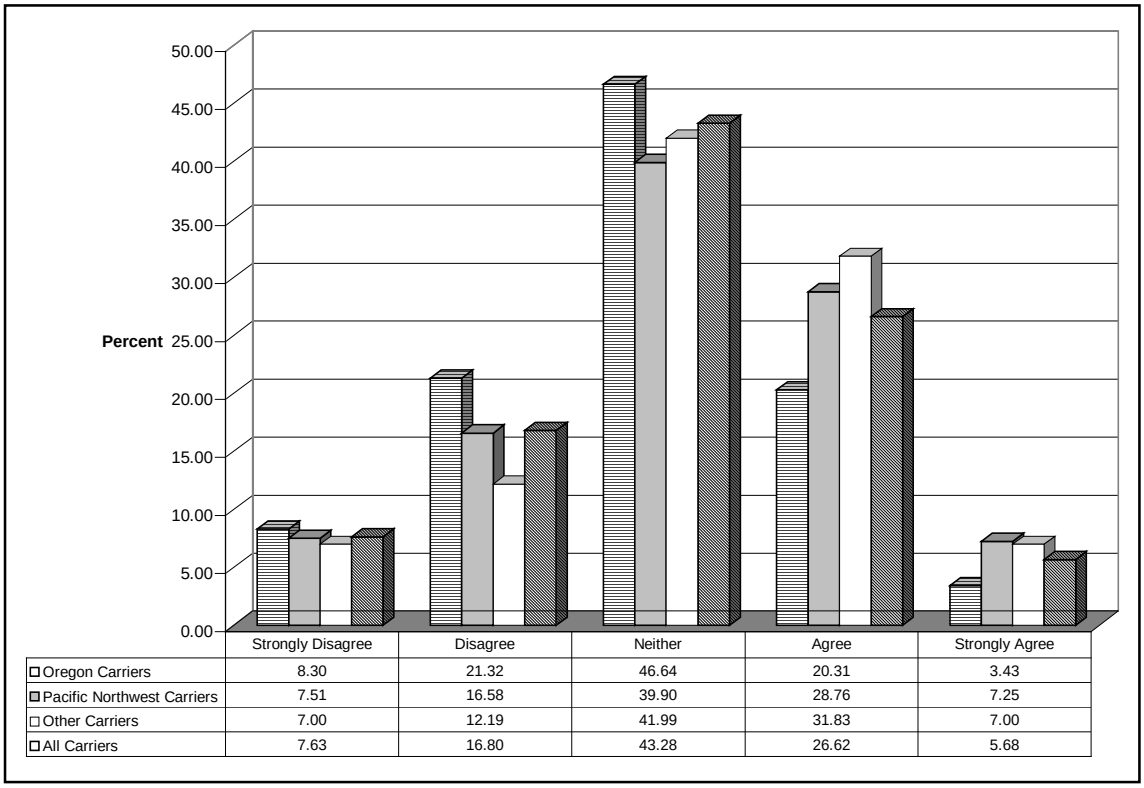
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	3.78	14.83	35.47	43.60	2.33
Pacific Northwest Carriers	4.18	11.49	33.16	48.04	3.13
Other Carriers	2.71	11.09	35.52	47.74	2.94
All Carriers	3.48	12.62	34.92	46.22	2.75

Q. 8g) Mainline preclearance will reduce the amount of wear and tear on my vehicle.



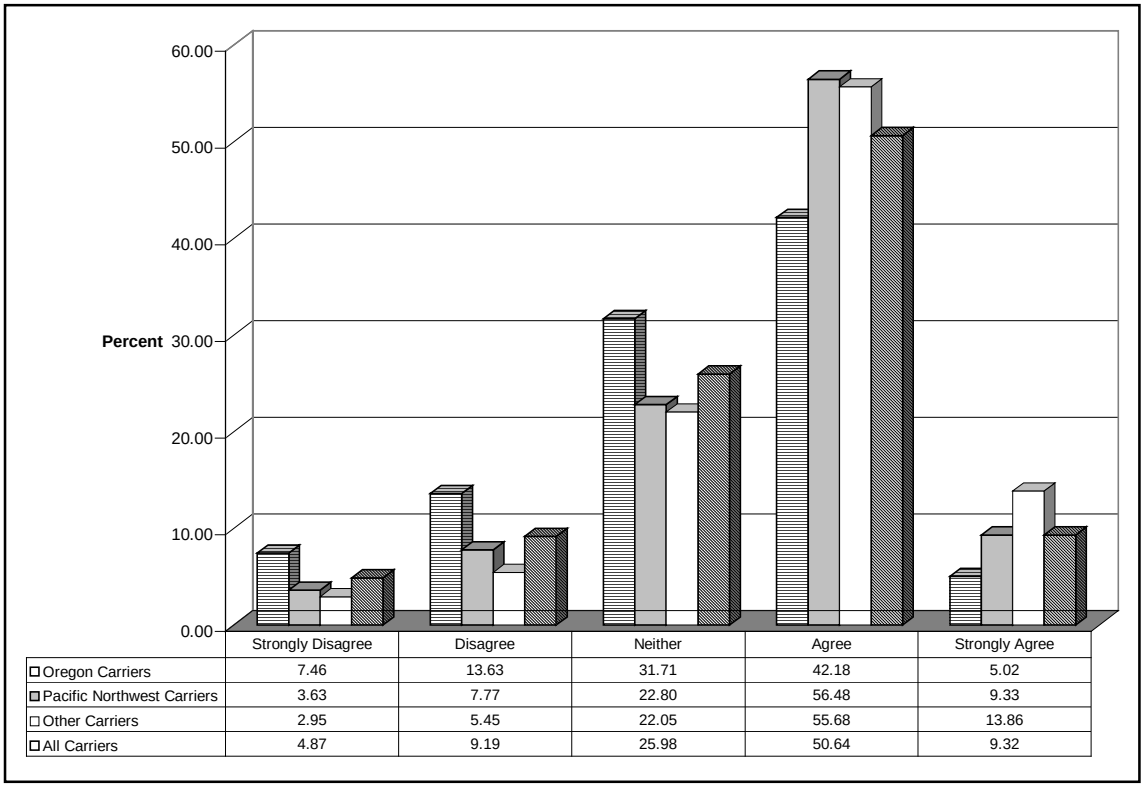
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	5.87	22.35	40.11	27.79	3.87
Pacific Northwest Carriers	6.17	15.17	30.33	40.10	8.23
Other Carriers	4.51	11.74	36.79	38.60	8.35
All Carriers	5.45	16.68	36.49	34.80	6.59

Q. 8h) Mainline preclearance will improve the service I provides to my customers.



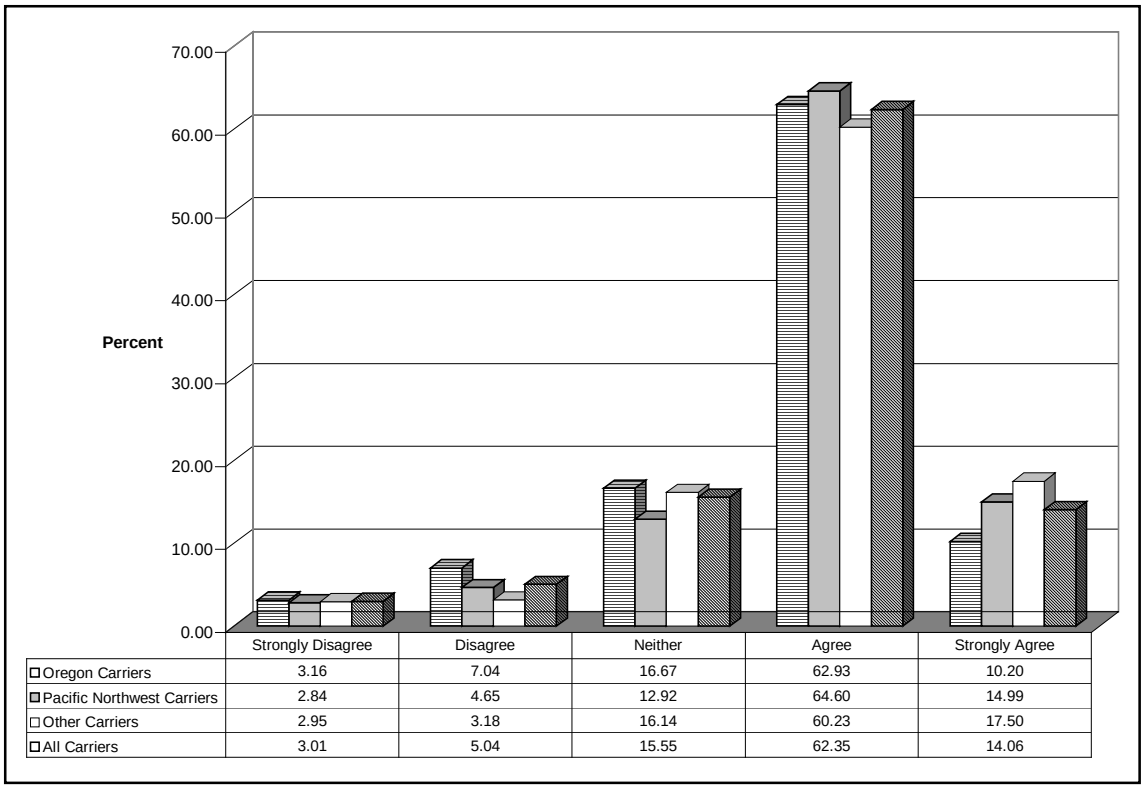
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	8.30	21.32	46.64	20.31	3.43
Pacific Northwest Carriers	7.51	16.58	39.90	28.76	7.25
Other Carriers	7.00	12.19	41.99	31.83	7.00
All Carriers	7.63	16.80	43.28	26.62	5.68

Q. 9a) RWIS will benefit my company



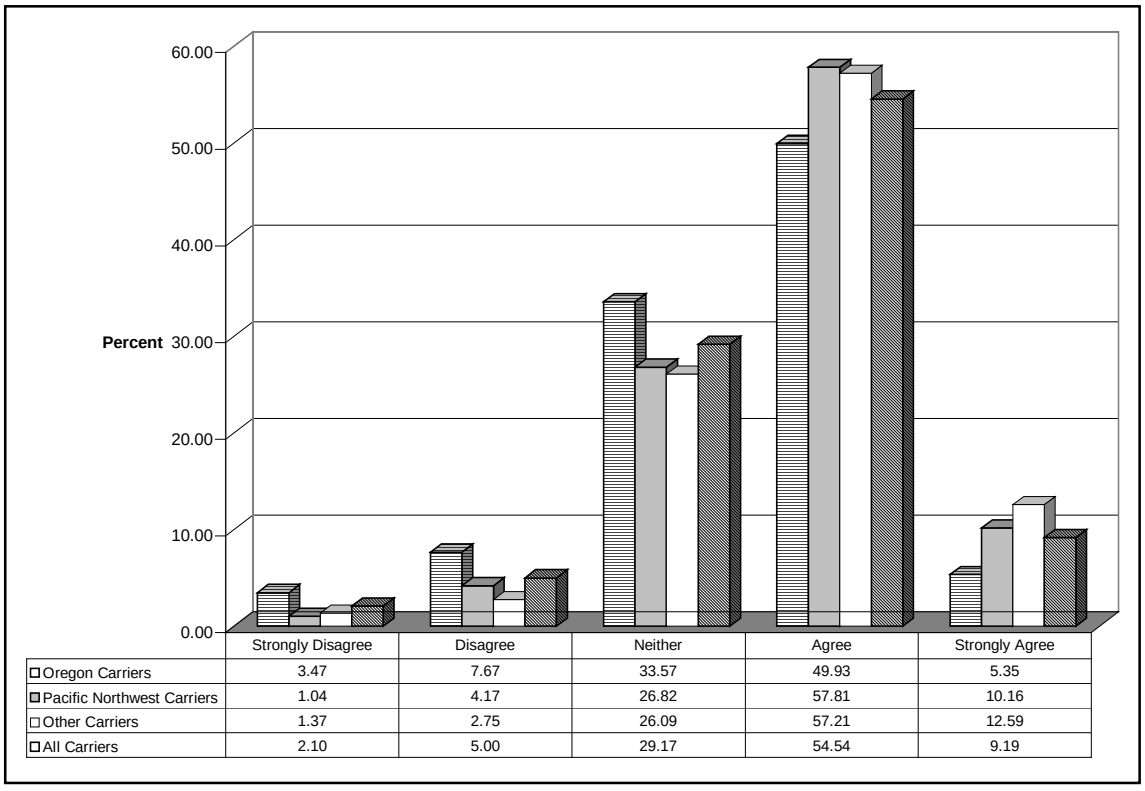
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	7.46	13.63	31.71	42.18	5.02
Pacific Northwest Carriers	3.63	7.77	22.80	56.48	9.33
Other Carriers	2.95	5.45	22.05	55.68	13.86
All Carriers	4.87	9.19	25.98	50.64	9.32

Q. 9b) RWIS will improve safety on the road.



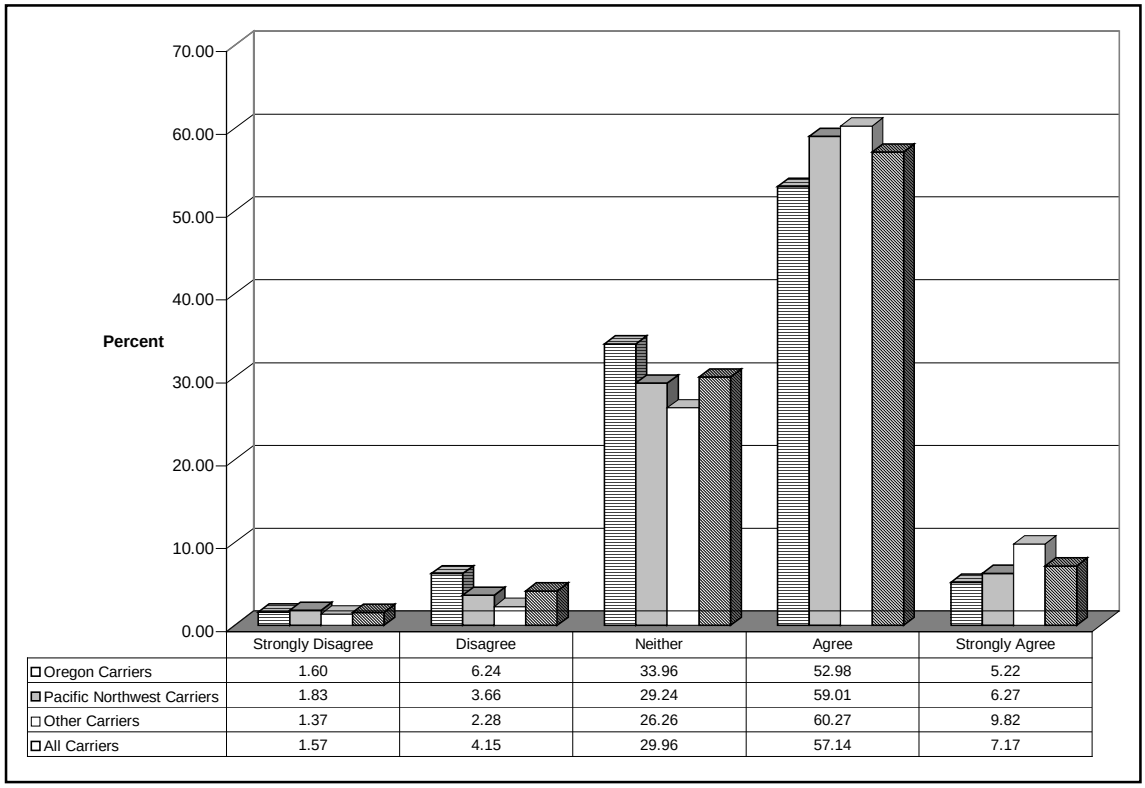
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	3.16	7.04	16.67	62.93	10.20
Pacific Northwest Carriers	2.84	4.65	12.92	64.60	14.99
Other Carriers	2.95	3.18	16.14	60.23	17.50
All Carriers	3.01	5.04	15.55	62.35	14.06

Q. 9c) RWIS will provide accurate weather information to my company and its drivers.



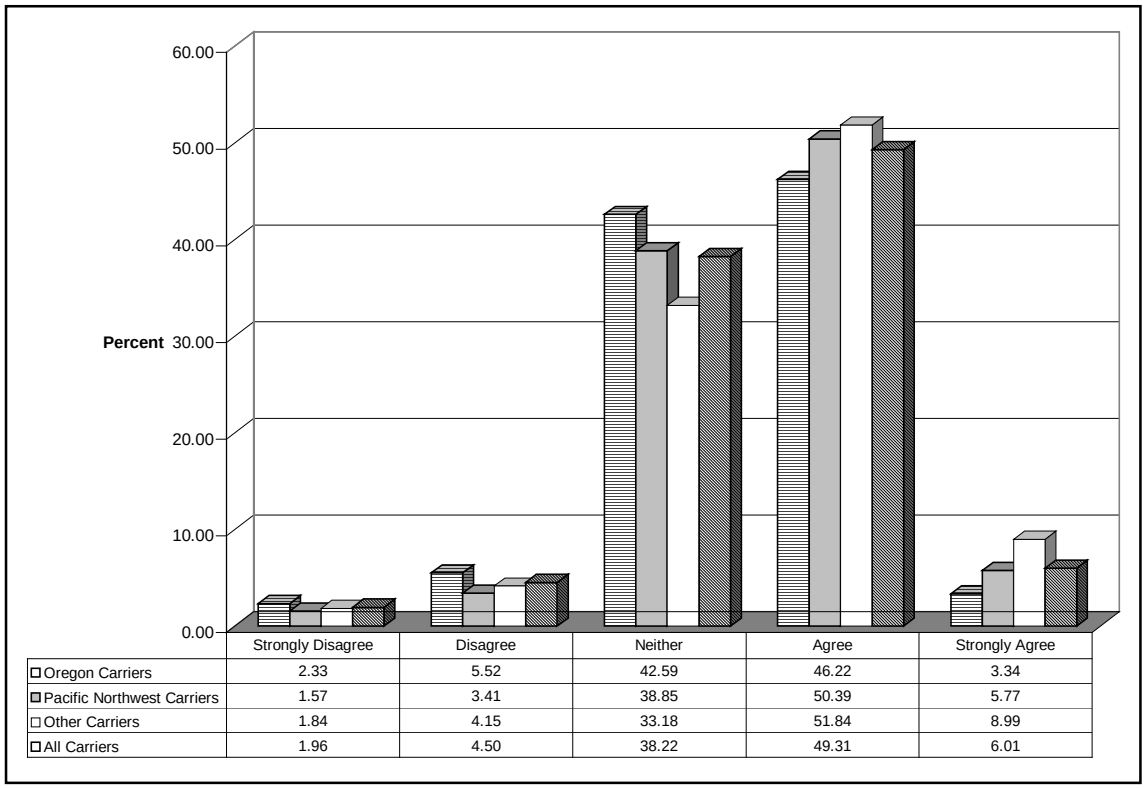
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	3.47	7.67	33.57	49.93	5.35
Pacific Northwest Carriers	1.04	4.17	26.82	57.81	10.16
Other Carriers	1.37	2.75	26.09	57.21	12.59
All Carriers	2.10	5.00	29.17	54.54	9.19

Q. 9d) RWIS will provide information in a timely fashion.



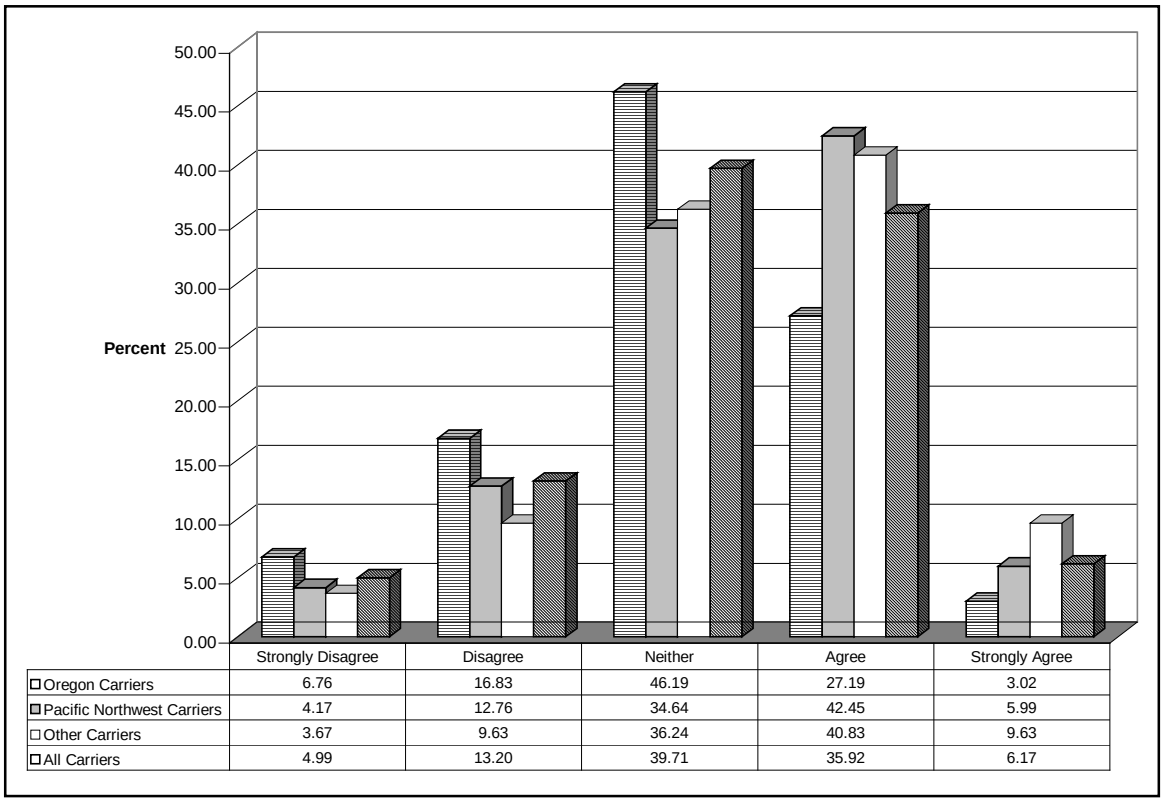
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	1.60	6.24	33.96	52.98	5.22
Pacific Northwest Carriers	1.83	3.66	29.24	59.01	6.27
Other Carriers	1.37	2.28	26.26	60.27	9.82
All Carriers	1.57	4.15	29.96	57.14	7.17

Q. 9e) RWIS information will be easy to use and understand



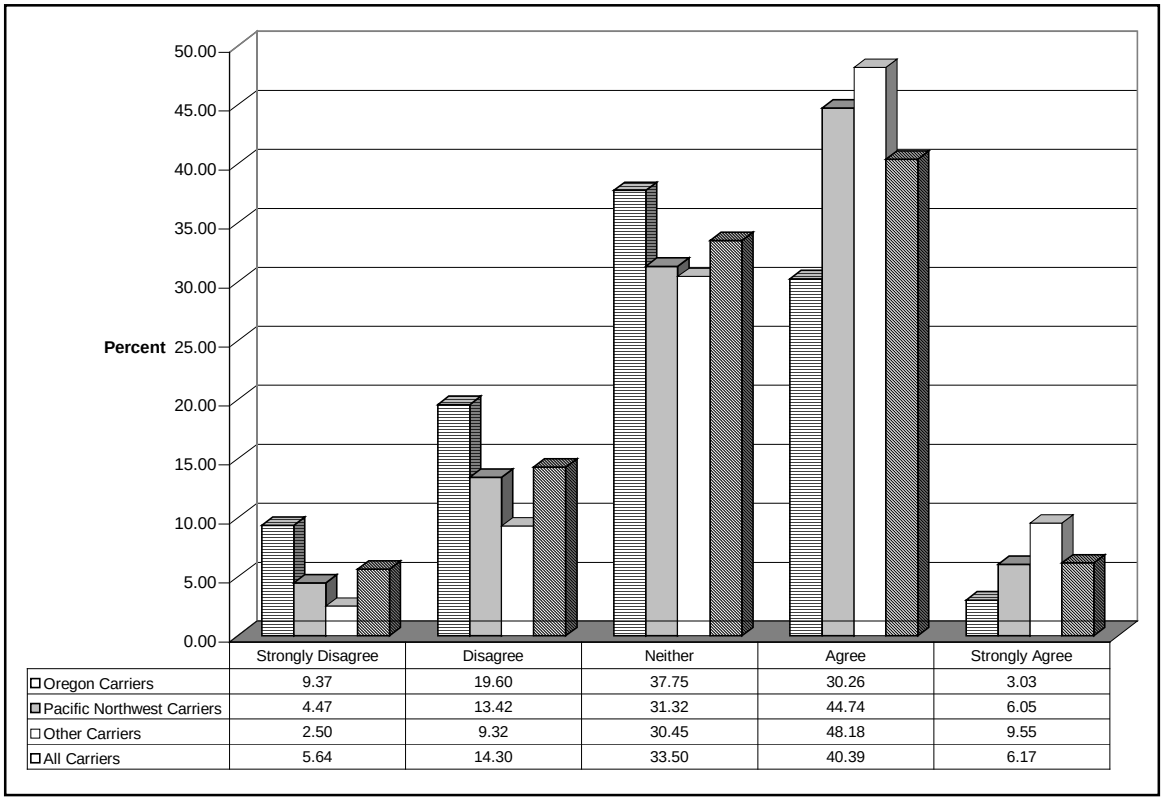
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	2.33	5.52	42.59	46.22	3.34
Pacific Northwest Carriers	1.57	3.41	38.85	50.39	5.77
Other Carriers	1.84	4.15	33.18	51.84	8.99
All Carriers	1.96	4.50	38.22	49.31	6.01

Q. 9f) RWIS will improve the service I provide to my customers



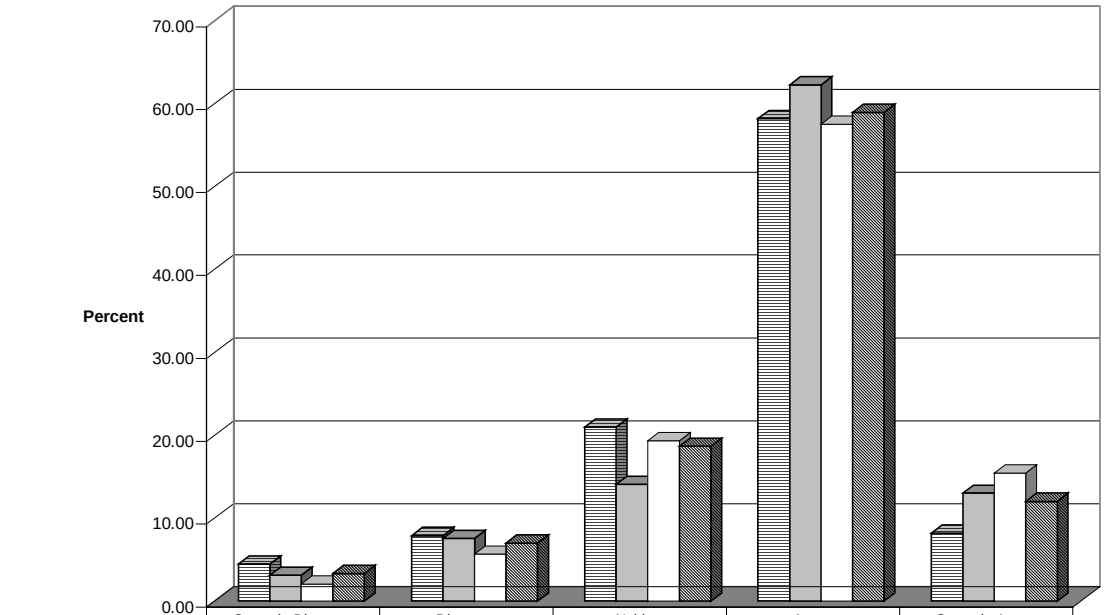
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	6.76	16.83	46.19	27.19	3.02
Pacific Northwest Carriers	4.17	12.76	34.64	42.45	5.99
Other Carriers	3.67	9.63	36.24	40.83	9.63
All Carriers	4.99	13.20	39.71	35.92	6.17

Q. 10 a) The Downhill Information System (DSIS) will benefit my company



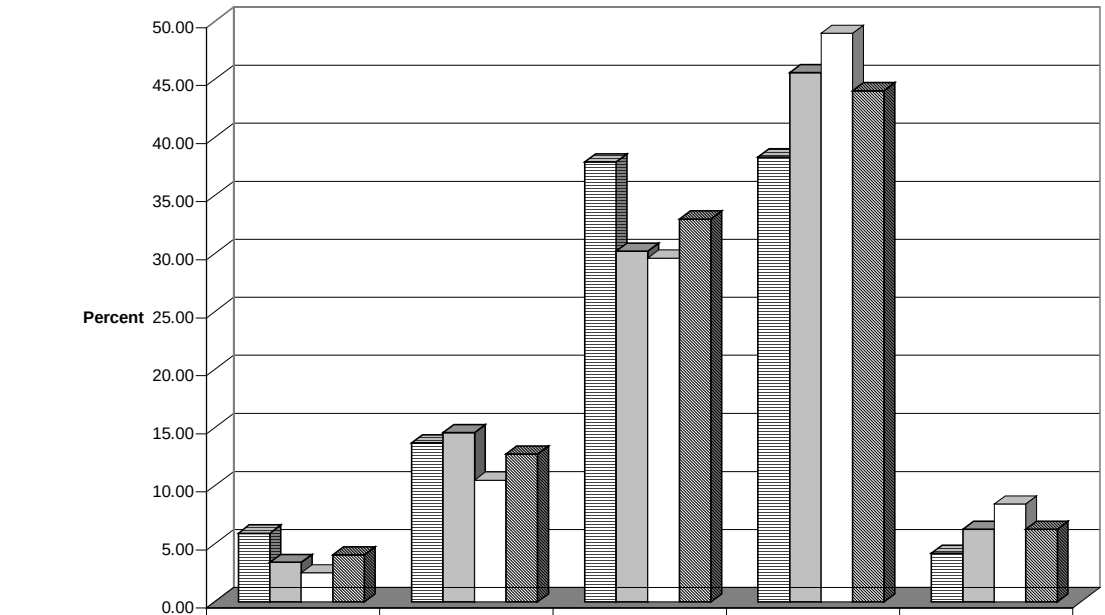
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	9.37	19.60	37.75	30.26	3.03
Pacific Northwest Carriers	4.47	13.42	31.32	44.74	6.05
Other Carriers	2.50	9.32	30.45	48.18	9.55
All Carriers	5.64	14.30	33.50	40.39	6.17

Q. 10b) DSIS will improve safety on the road



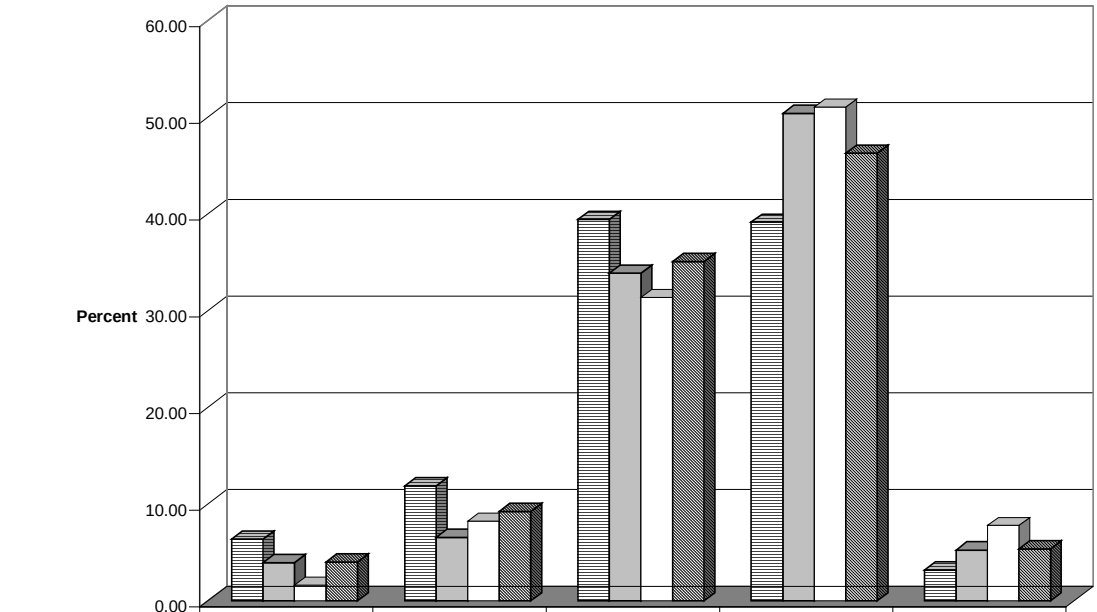
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	4.47	7.90	20.98	58.19	8.19
Pacific Northwest Carriers	3.12	7.55	14.06	62.24	13.02
Other Carriers	2.05	5.68	19.32	57.50	15.45
All Carriers	3.35	7.00	18.68	58.93	12.04

Q. 10c) DSIS will make it easier to comply with existing speed limits



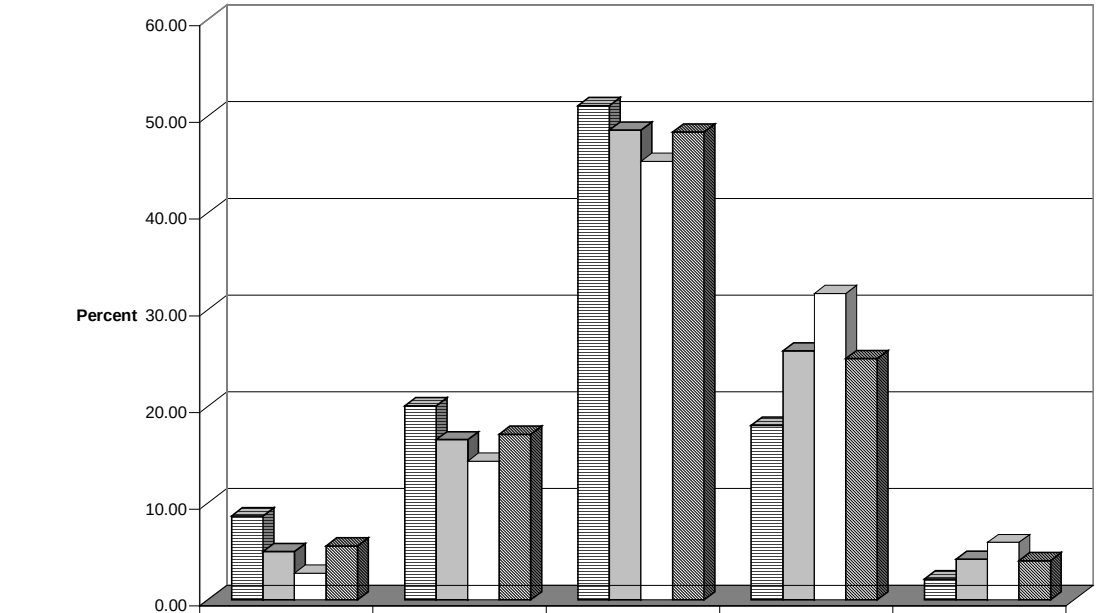
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	5.91	13.69	37.90	38.33	4.18
Pacific Northwest Carriers	3.39	14.58	30.21	45.57	6.25
Other Carriers	2.51	10.48	29.61	48.97	8.43
All Carriers	4.04	12.73	32.97	44.02	6.25

Q. 10d) DSIS will provide reliable and accurate information



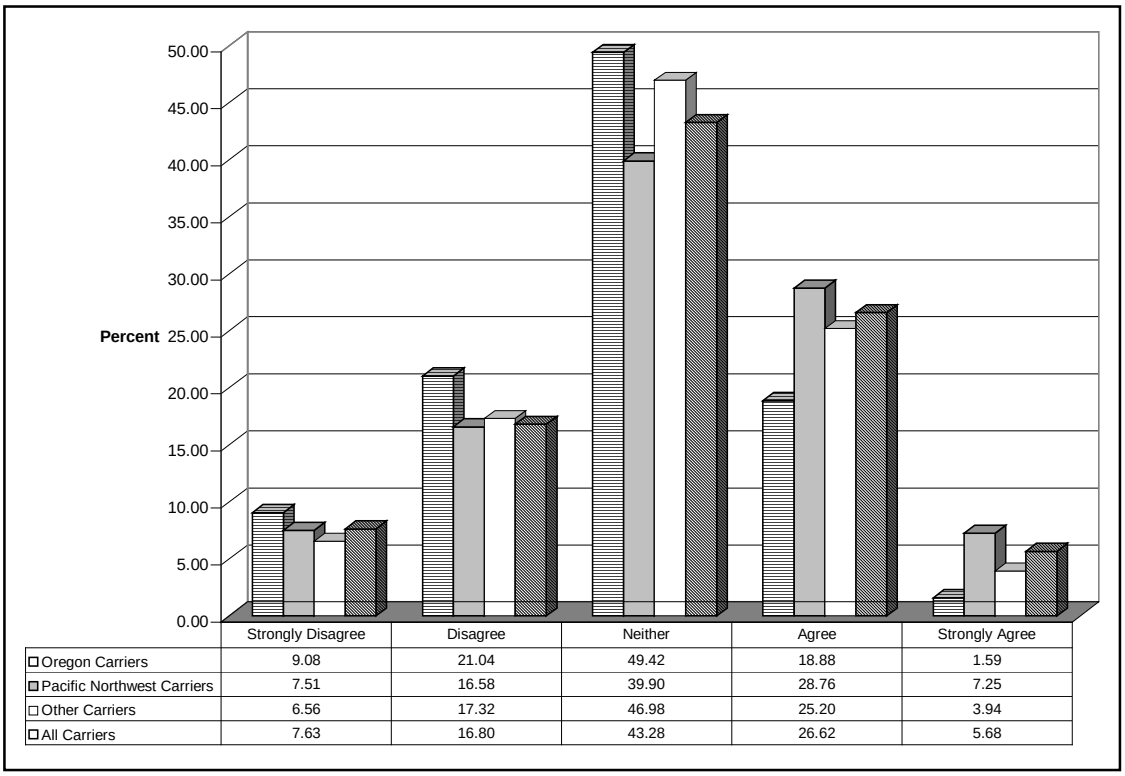
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	6.38	11.88	39.42	39.13	3.19
Pacific Northwest Carriers	3.94	6.56	33.86	50.39	5.25
Other Carriers	1.60	8.24	31.35	51.03	7.78
All Carriers	4.02	9.24	35.09	46.26	5.38

Q. 10 e) DSIS will improve the services I provide to my customers



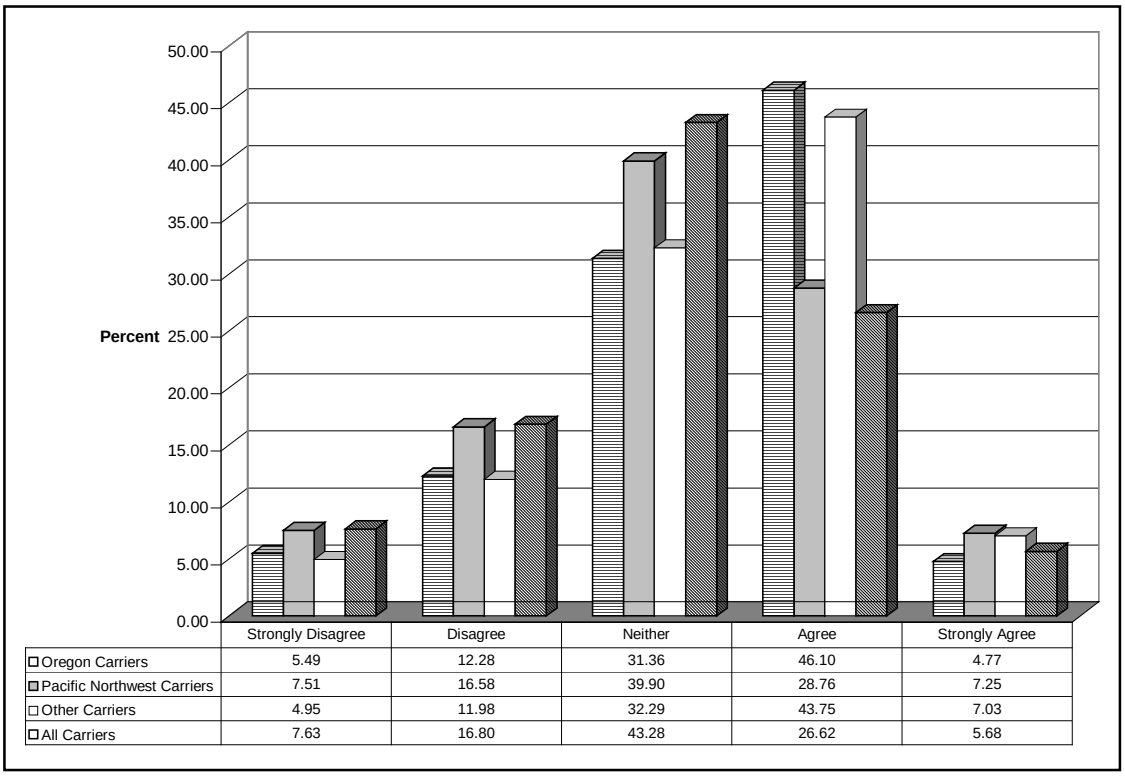
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	8.66	20.06	51.08	18.04	2.16
Pacific Northwest Carriers	4.99	16.54	48.56	25.72	4.20
Other Carriers	2.73	14.35	45.33	31.66	5.92
All Carriers	5.58	17.10	48.35	24.93	4.05

Q. 11a) The Integrated Tactical Enforcement Network (ITEN) will benefit my company



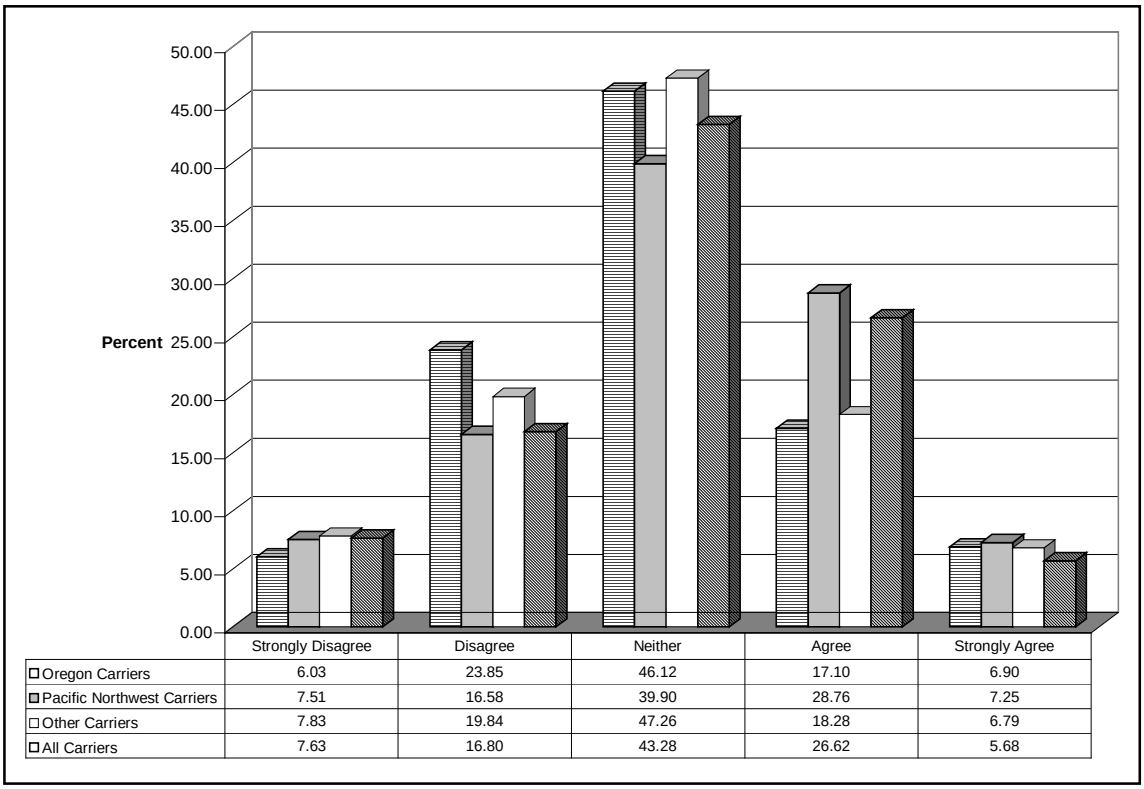
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	9.08	21.04	49.42	18.88	1.59
Pacific Northwest Carriers	7.51	16.58	39.90	28.76	7.25
Other Carriers	6.56	17.32	46.98	25.20	3.94
All Carriers	7.63	16.80	43.28	26.62	5.68

Q. 11b) ITEN will improve safety on the road



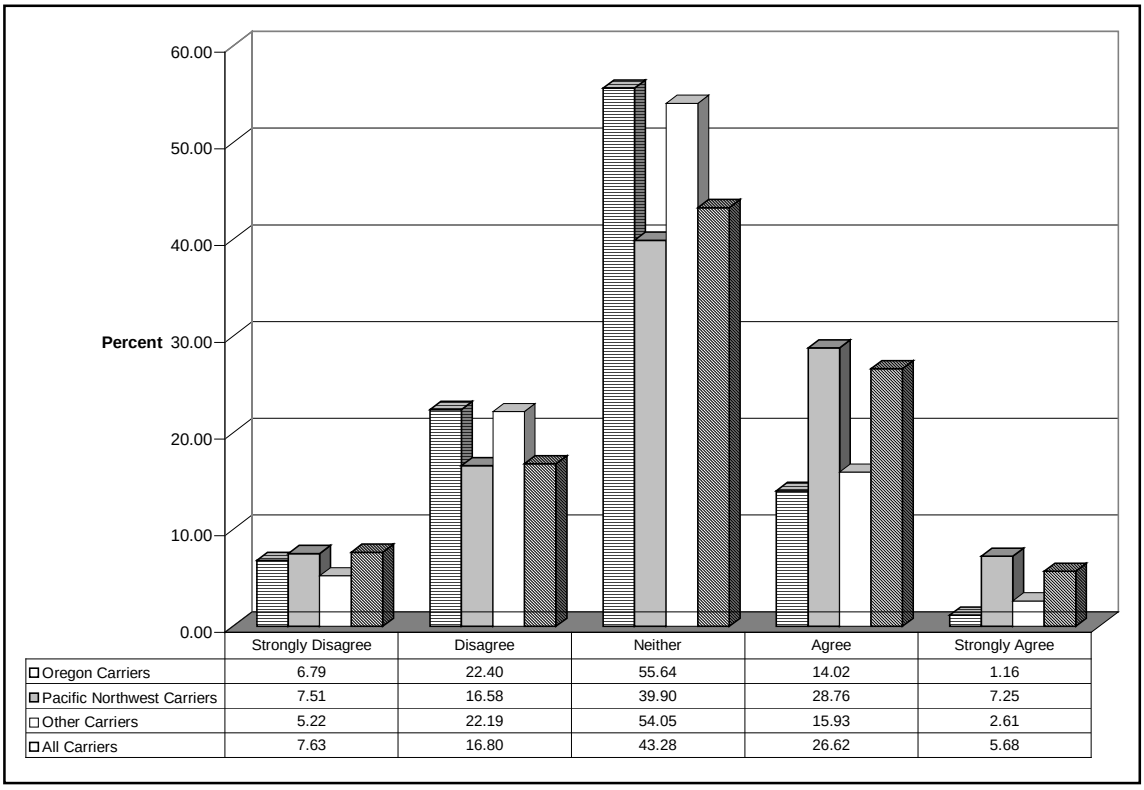
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	5.49	12.28	31.36	46.10	4.77
Pacific Northwest Carriers	7.51	16.58	39.90	28.76	7.25
Other Carriers	4.95	11.98	32.29	43.75	7.03
All Carriers	7.63	16.80	43.28	26.62	5.68

Q. 11c) ITEN will be an invasion of my drivers policy



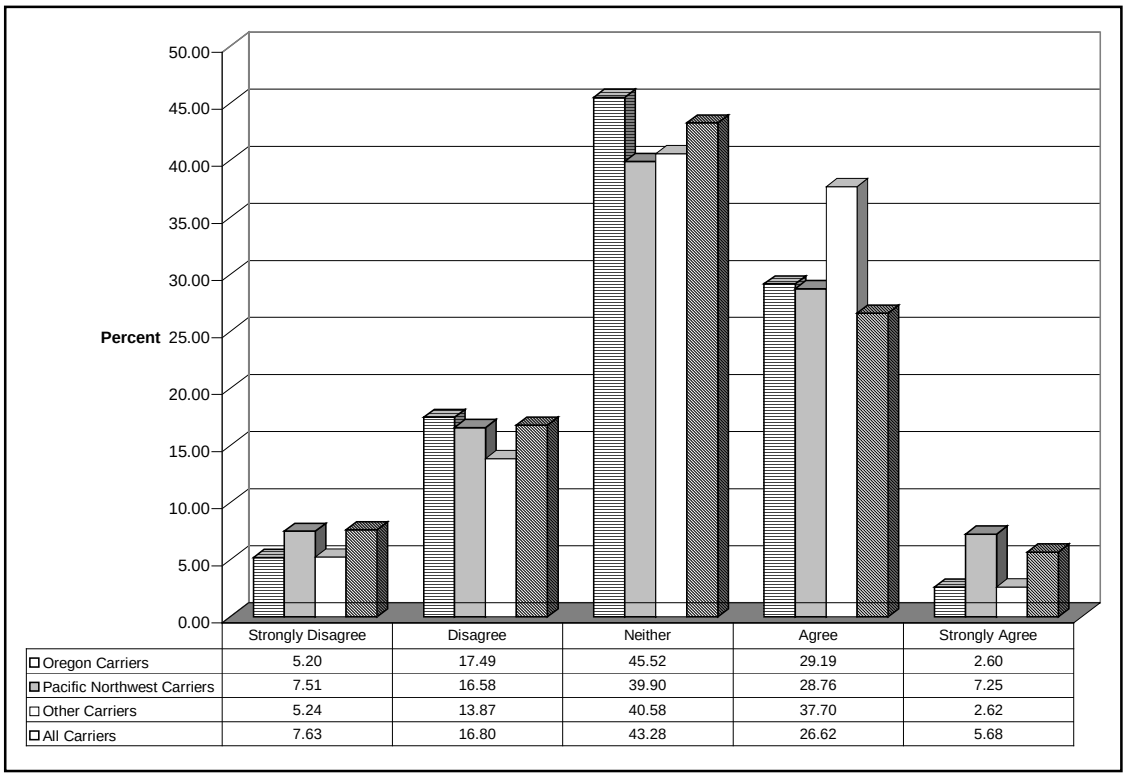
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	6.03	23.85	46.12	17.10	6.90
Pacific Northwest Carriers	7.51	16.58	39.90	28.76	7.25
Other Carriers	7.83	19.84	47.26	18.28	6.79
All Carriers	7.63	16.80	43.28	26.62	5.68

Q. 11d) ITEN will make my company and its drivers more dependent



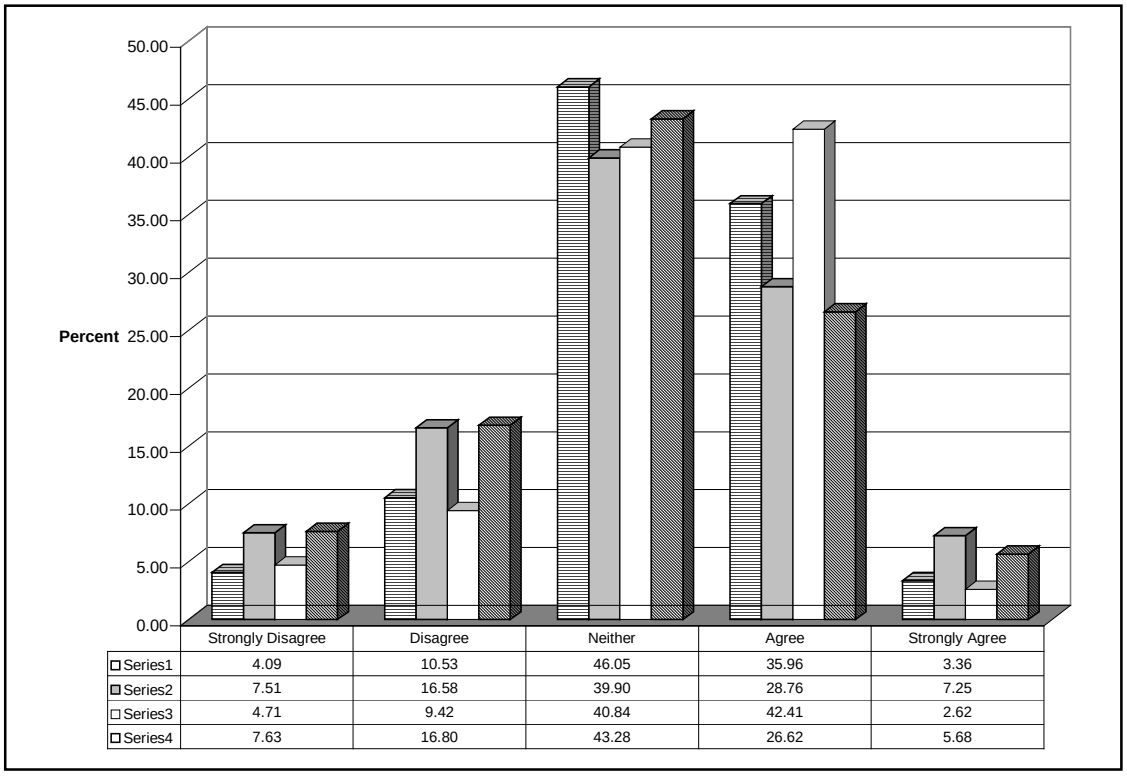
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	6.79	22.40	55.64	14.02	1.16
Pacific Northwest Carriers	7.51	16.58	39.90	28.76	7.25
Other Carriers	5.22	22.19	54.05	15.93	2.61
All Carriers	7.63	16.80	43.28	26.62	5.68

Q 11e) ITEN will make it easier to comply with existing regulations



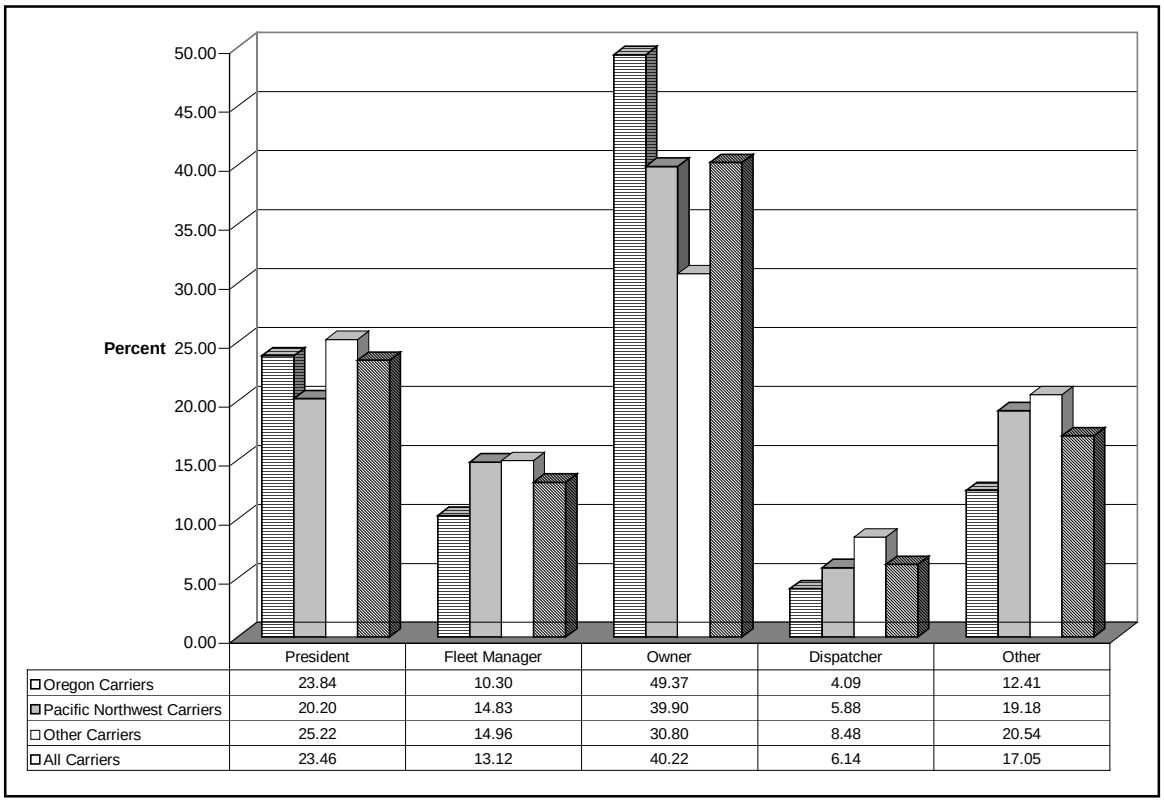
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	5.20	17.49	45.52	29.19	2.60
Pacific Northwest Carriers	7.51	16.58	39.90	28.76	7.25
Other Carriers	5.24	13.87	40.58	37.70	2.62
All Carriers	7.63	16.80	43.28	26.62	5.68

Q. 11f) ITEN will provide reliable and accurate data



	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Series1	4.09	10.53	46.05	35.96	3.36
Series2	7.51	16.58	39.90	28.76	7.25
Series3	4.71	9.42	40.84	42.41	2.62
Series4	7.63	16.80	43.28	26.62	5.68

Q 13) Please indicate your position within your company



	President	Fleet Manager	Owner	Dispatcher	Other
Oregon Carriers	23.84	10.30	49.37	4.09	12.41
Pacific Northwest Carriers	20.20	14.83	39.90	5.88	19.18
Other Carriers	25.22	14.96	30.80	8.48	20.54
All Carriers	23.46	13.12	40.22	6.14	17.05

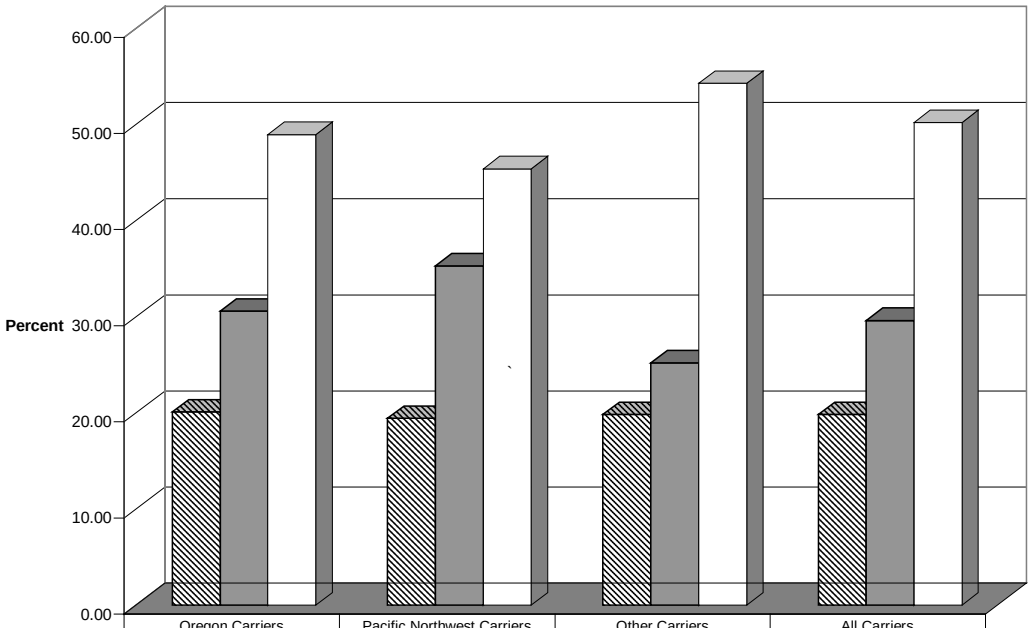
Figures and Tables of Results
Second Survey

The following figures and tables show the percentages of the population who answered the particular question with the answer shown. The frequencies are representative of the population of carriers who conduct business in Oregon within a certain degree of error. Complete data sets in the form of tables, including standard errors are contained in Appendix C.

Example:

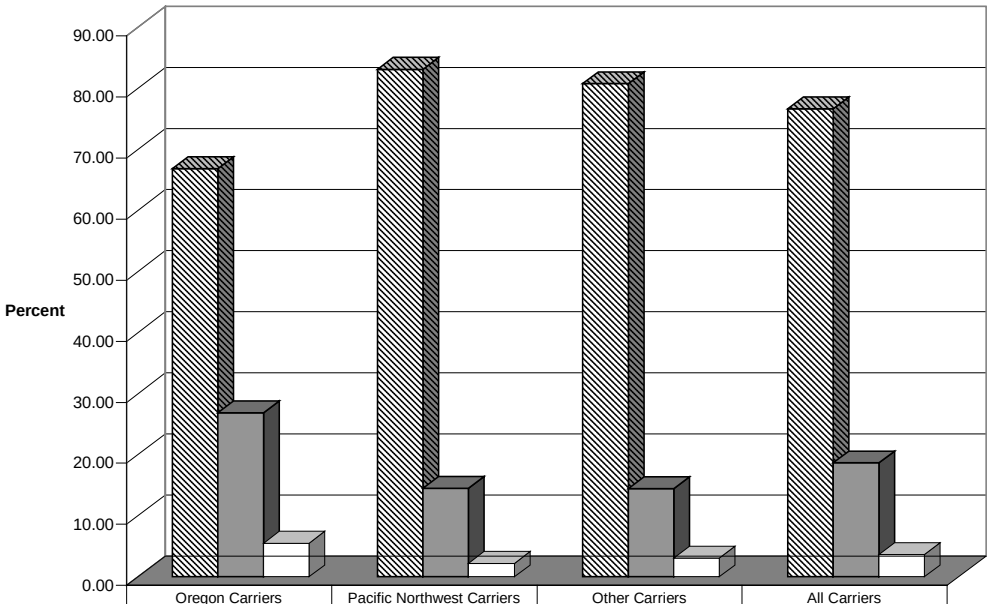
In question #1 on the following page, 20.09% of the carriers in Oregon have worked less than ten years in the industry. Standard errors (Appendix C, page 1) show the error as 2.09%. That is 20.09% of the carriers in Oregon have worked less than ten years in the industry, +/- 2.09%.

Q.1) How many years have you personally been working in the industry?



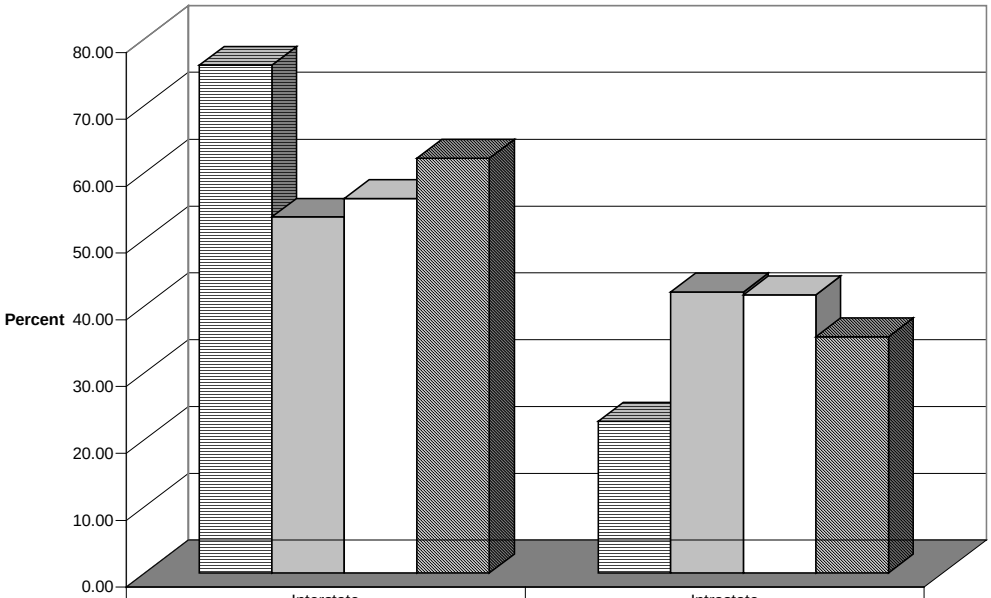
	Oregon Carriers	Pacific Northwest Carriers	Other Carriers	All Carriers
Less than ten years	20.09	19.40	19.79	19.79
11 to 20 years	30.57	35.25	25.19	29.58
More than 20 years	48.91	45.36	54.24	50.17

Q. 2) How large is your company in terms of fleet size?



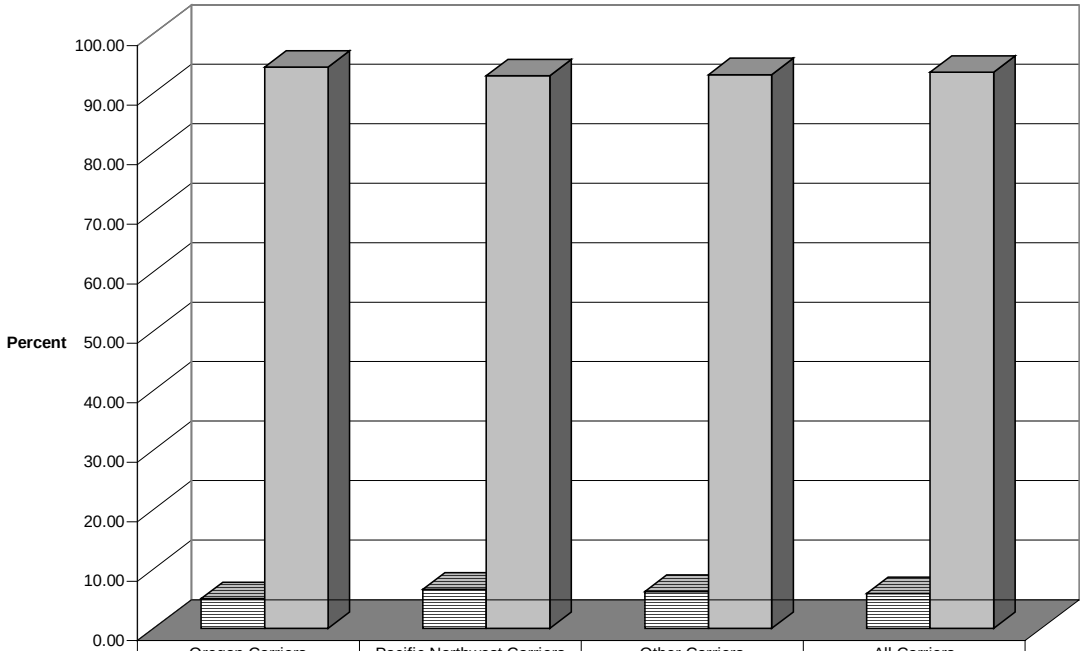
	Oregon Carriers	Pacific Northwest Carriers	Other Carriers	All Carriers
Small (1-10 Tractors)	66.81	83.06	80.72	76.61
Medium (11-99 Tractors)	26.86	14.48	14.40	18.63
Large (100 or more Tractors)	5.46	2.19	3.08	3.66

Q. 4) Are your operations predominantly INTERSTATE or INTRASTATE?



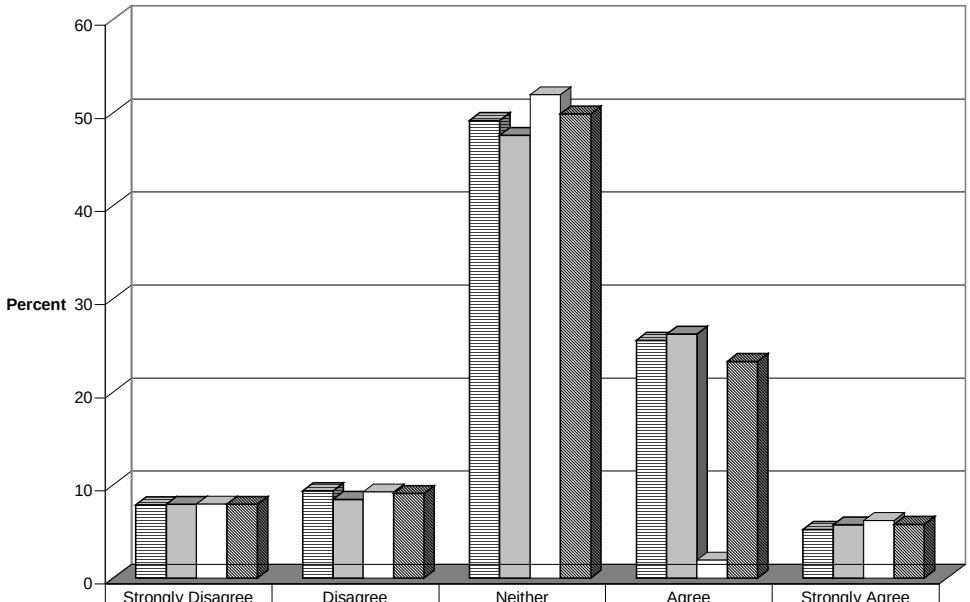
	Interstate	Intrastate
Oregon Carriers	75.98	22.71
Pacific Northwest Carriers	53.28	42.08
Other Carriers	56.04	41.65
All Carriers	62.08	35.35

Q. 6) Are you currently participating in Oregon's Green Light program?



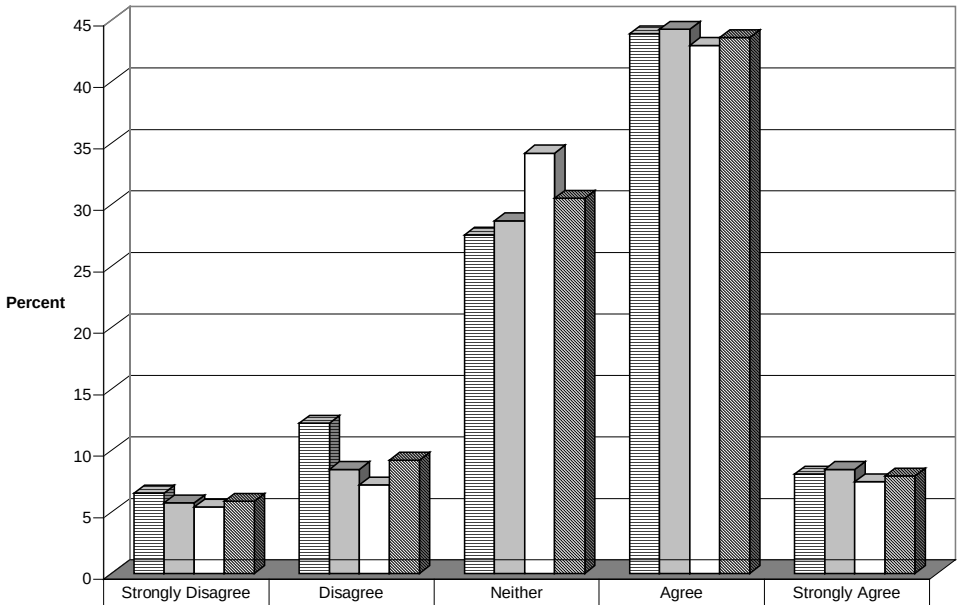
	Oregon Carriers	Pacific Northwest Carriers	Other Carriers	All Carriers
Yes	5.02	6.56	6.17	5.88
No	94.32	92.90	93.06	93.46

Q. 7) How strongly do you agree with the interoperability of the transponder-based mainline preclearances systems?



	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	7.86	9.39	49.13	25.55	5.24
Pacific Northwest Carriers	7.92	8.47	47.54	26.23	5.74
Other Carriers	7.97	9.25	51.93	1.95	6.17
All Carriers	7.92	9.10	49.86	23.28	5.75

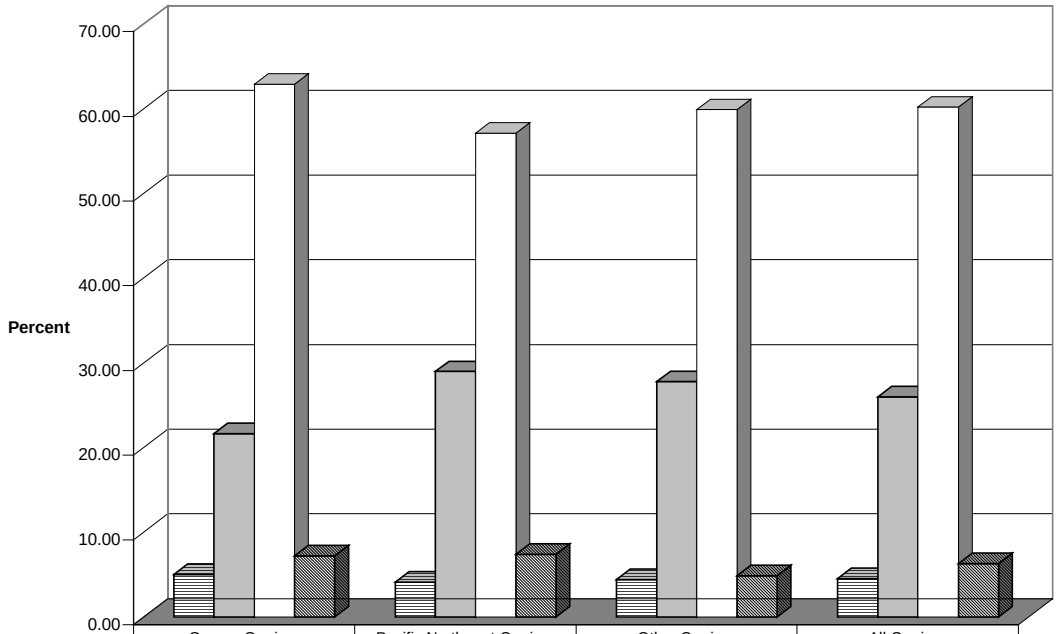
Q. 8) How strongly do you agree with the policy of screening vehicles for possible inspection based on recent compliance with the Federal Motor Vehicle Safety



	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	6.55	12.23	27.51	43.89	8.08
Pacific Northwest Carriers	5.74	8.47	28.69	44.26	8.47
Other Carriers	5.4	7.2	34.19	42.93	7.46
All Carriers	5.87	9.22	30.53	43.59	7.93

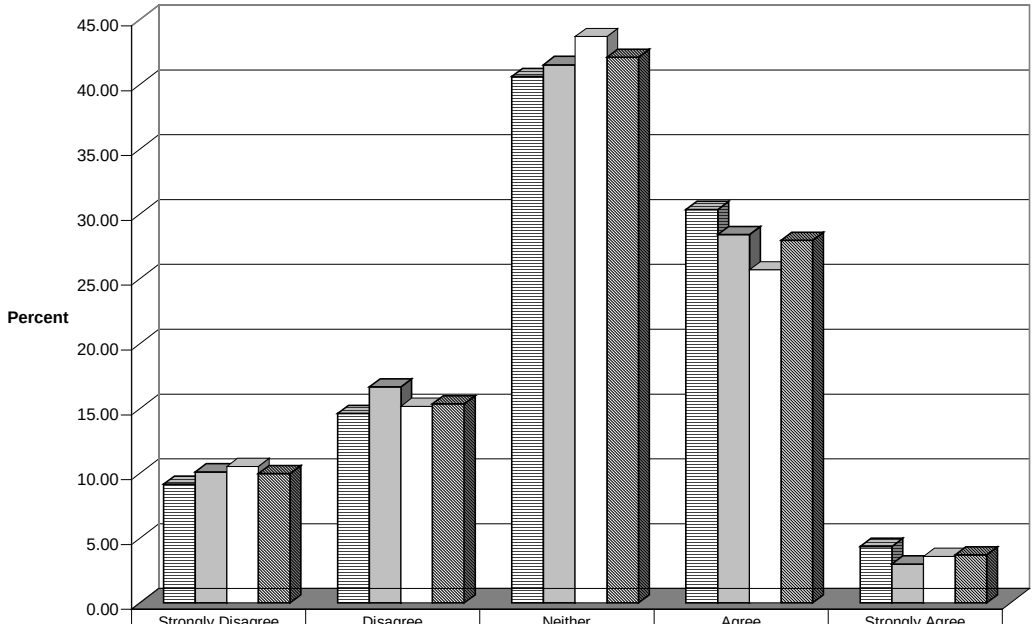
Regulations?

Q. 9) Would you rate the overall performance of ODOT's current Motor Carrier Services as poor, fair, good or excellent?



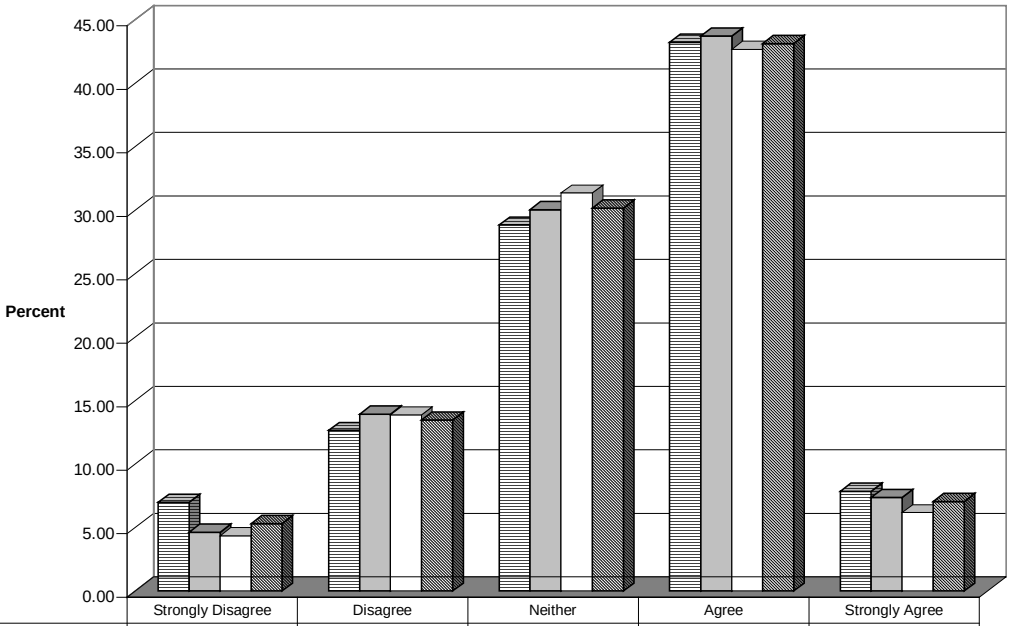
	Oregon Carriers	Pacific Northwest Carriers	Other Carriers	All Carriers
Poor	5.02	4.10	4.37	4.52
Fair	21.62	28.96	27.76	25.99
Good	62.88	57.10	59.90	60.19
Excellent	7.21	7.38	4.88	6.31

Q. 10a) Mainline preclearance will benefit my company.



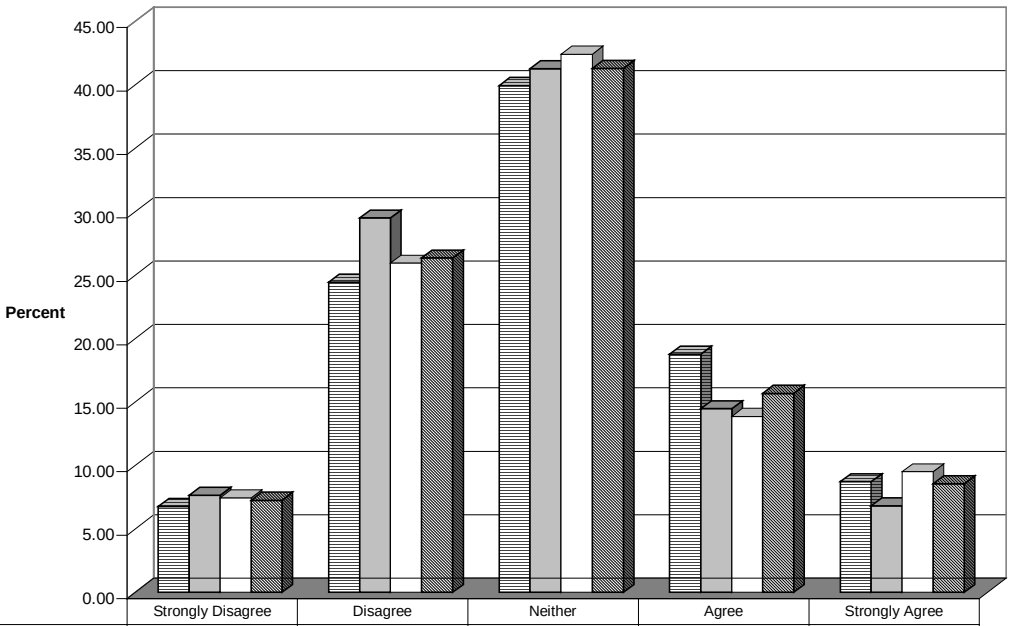
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	9.17	14.63	40.61	30.35	4.37
Pacific Northwest Carriers	10.11	16.67	41.53	28.42	3.01
Other Carriers	10.54	15.17	43.70	25.71	3.60
All Carriers	9.97	15.37	42.10	27.97	3.71

Q. 10b) Mainline preclearance will improve safety on the road.



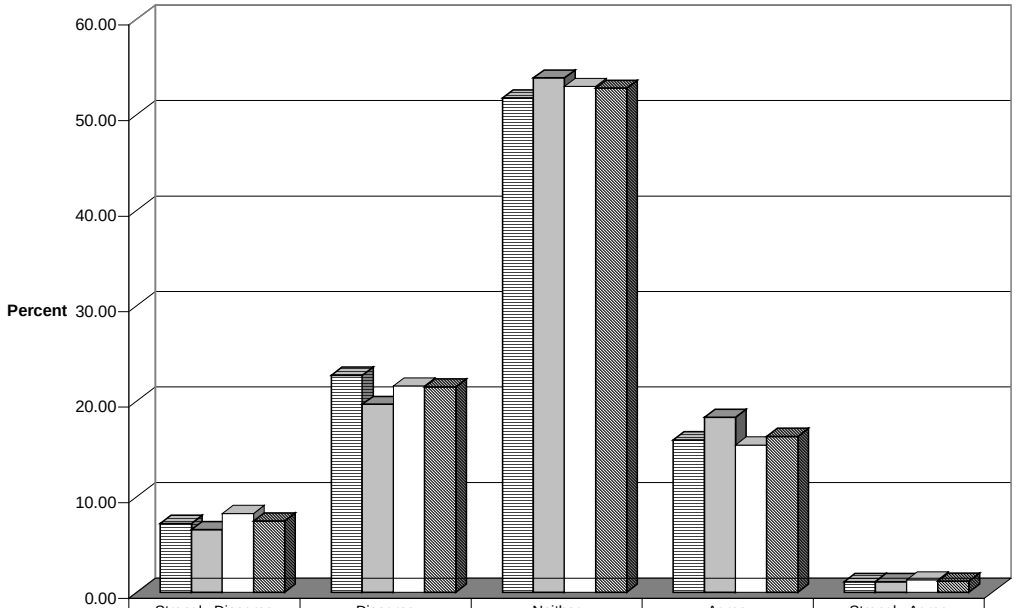
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	6.99	12.66	28.82	43.23	7.86
Pacific Northwest Carriers	4.64	13.93	30.05	43.72	7.38
Other Carriers	4.37	13.88	31.36	42.67	6.17
All Carriers	5.33	13.48	30.17	43.13	7.05

Q. 10c) Mainline preclearance will be an invasion of my driver's privacy.



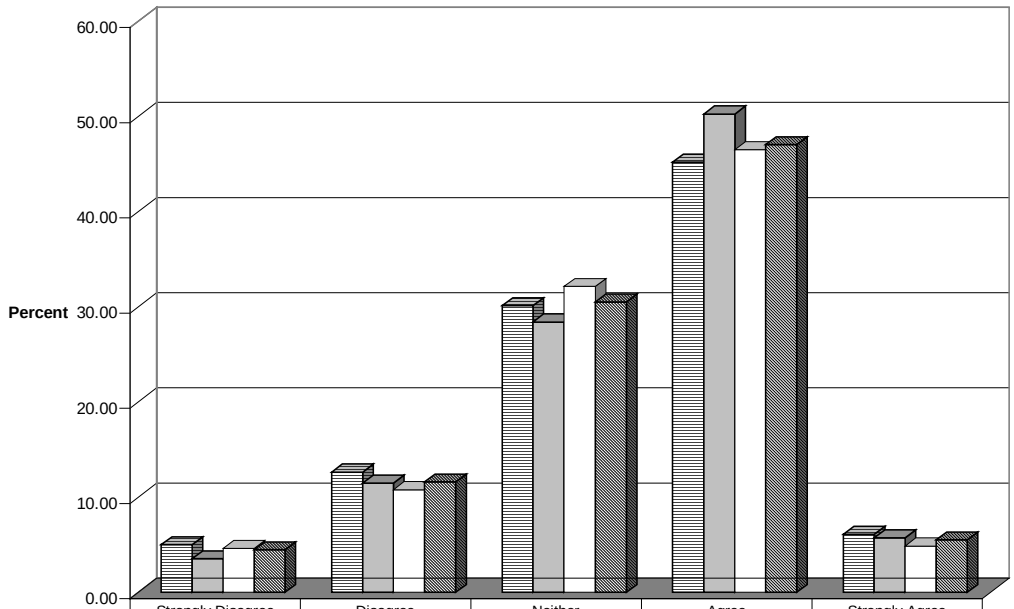
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	6.77	24.45	39.96	18.78	8.73
Pacific Northwest Carriers	7.65	29.51	41.26	14.48	6.83
Other Carriers	7.46	25.96	42.42	13.88	9.51
All Carriers	7.27	26.36	41.29	15.69	8.56

Q. 10d) Mainline preclearance will make my company and its drivers more independent.



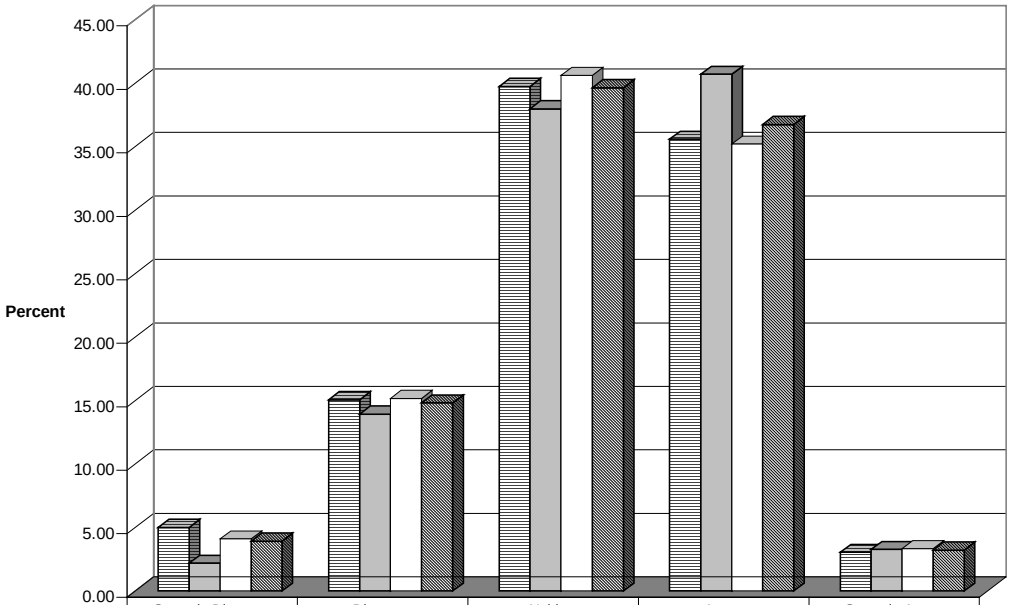
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	7.21	22.71	51.75	15.94	1.09
Pacific Northwest Carriers	6.56	19.67	53.83	18.31	1.09
Other Carriers	8.23	21.59	52.96	15.42	1.29
All Carriers	7.46	21.48	52.77	16.33	1.17

Q. 10e) Mainline preclearance will create more incentives for carriers to comply with regulations.



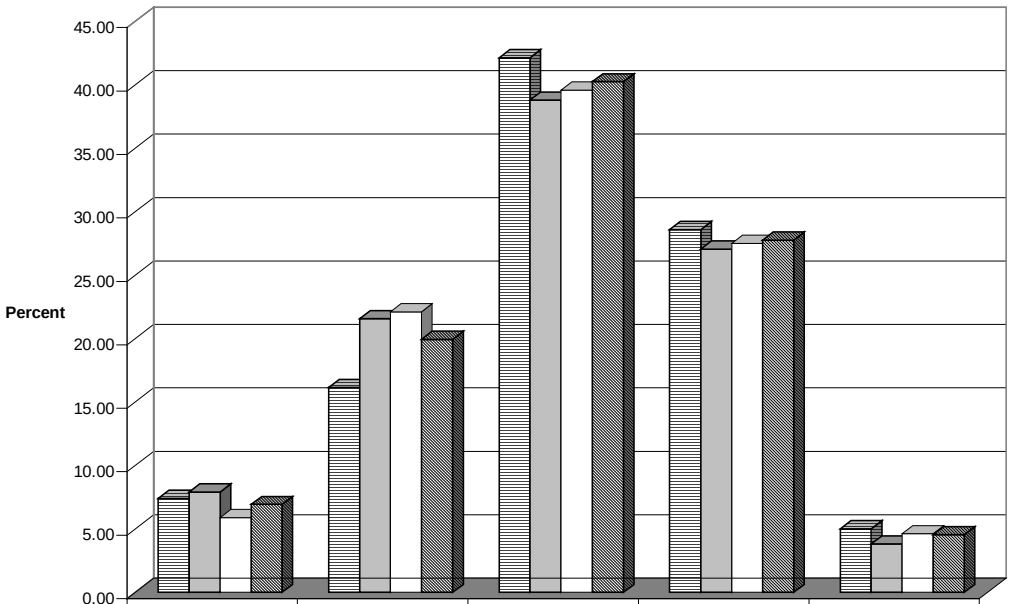
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	5.02	12.66	30.13	45.20	6.11
Pacific Northwest Carriers	3.55	11.48	28.42	50.27	5.74
Other Carriers	4.63	10.80	32.13	46.53	4.88
All Carriers	4.49	11.60	30.51	47.03	5.52

Q. 10f) Mainline preclearance will accurately pre-screen vehicles.



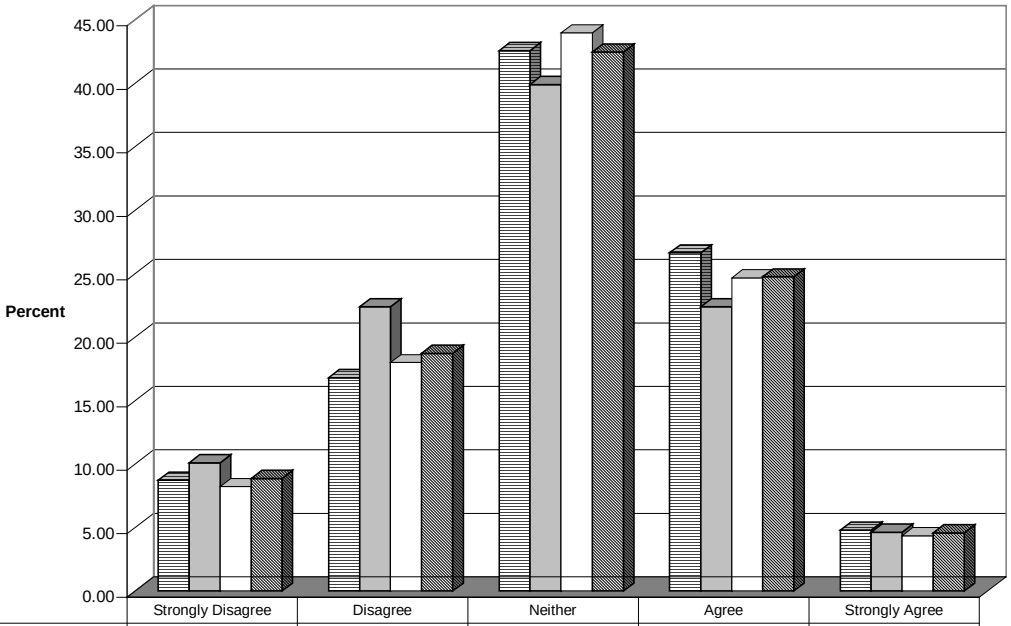
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	5.02	15.07	39.74	35.59	3.06
Pacific Northwest Carriers	2.19	13.93	37.98	40.71	3.28
Other Carriers	4.11	15.17	40.62	35.22	3.34
All Carriers	3.93	14.82	39.65	36.75	3.23

Q. 10g) Mainline preclearance will reduce the amount of wear and tear on my vehicle.



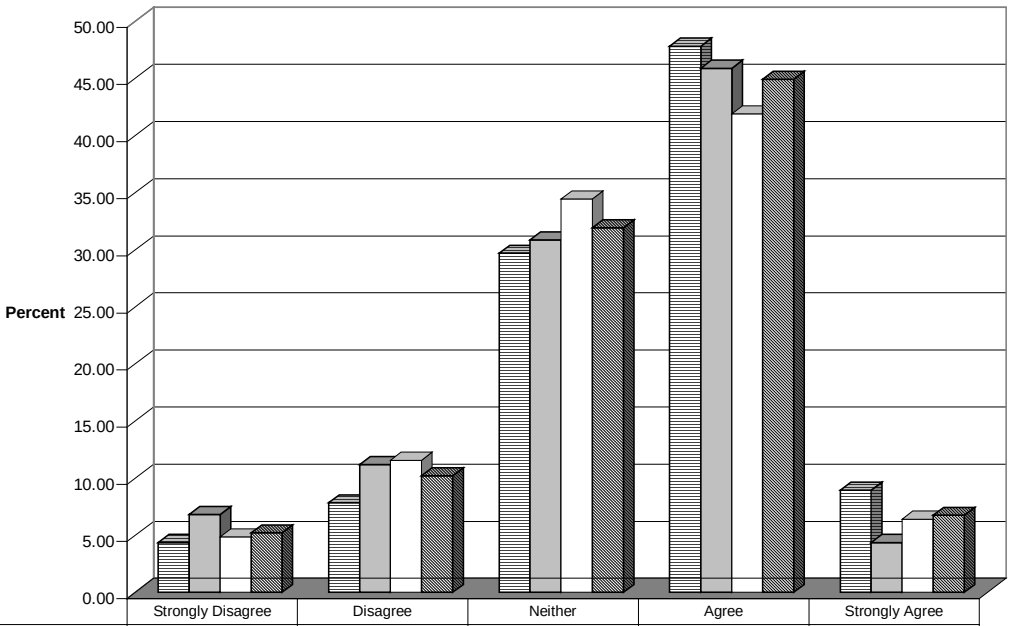
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	7.42	16.16	42.14	28.60	5.02
Pacific Northwest Carriers	7.92	21.58	38.80	27.05	3.83
Other Carriers	5.91	22.11	39.59	27.51	4.63
All Carriers	6.94	19.96	40.25	27.76	4.56

Q. 10h) Mainline preclearance will improve the service I provide to my customers.



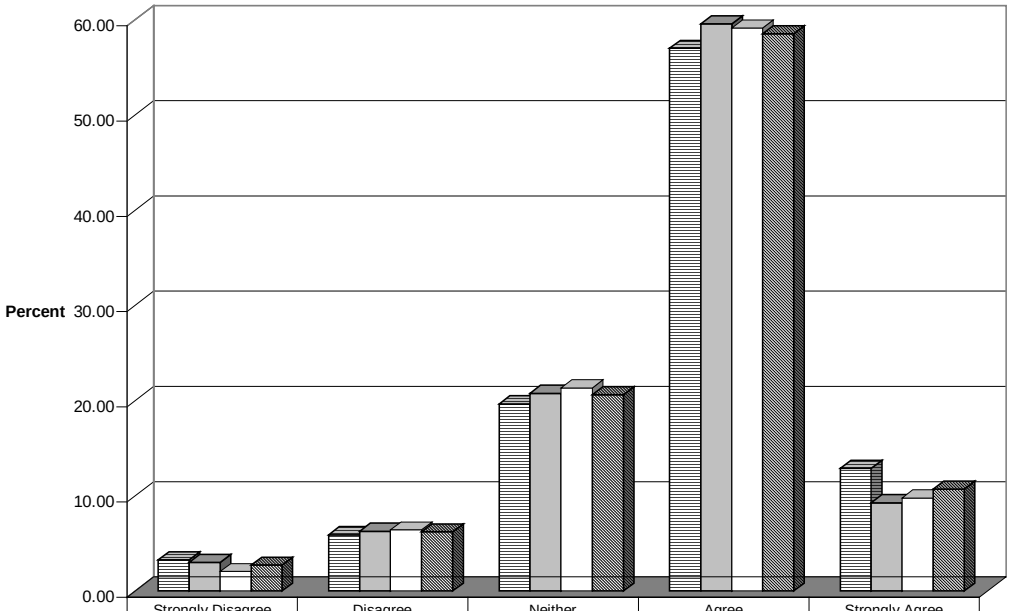
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	8.73	16.81	42.58	26.64	4.80
Pacific Northwest Carriers	10.11	22.40	39.89	22.40	4.64
Other Carriers	8.23	17.99	43.96	24.68	4.37
All Carriers	8.88	18.72	42.45	24.76	4.59

Q. 11a) The Road Weather Information System (RWIS) will benefit my company.



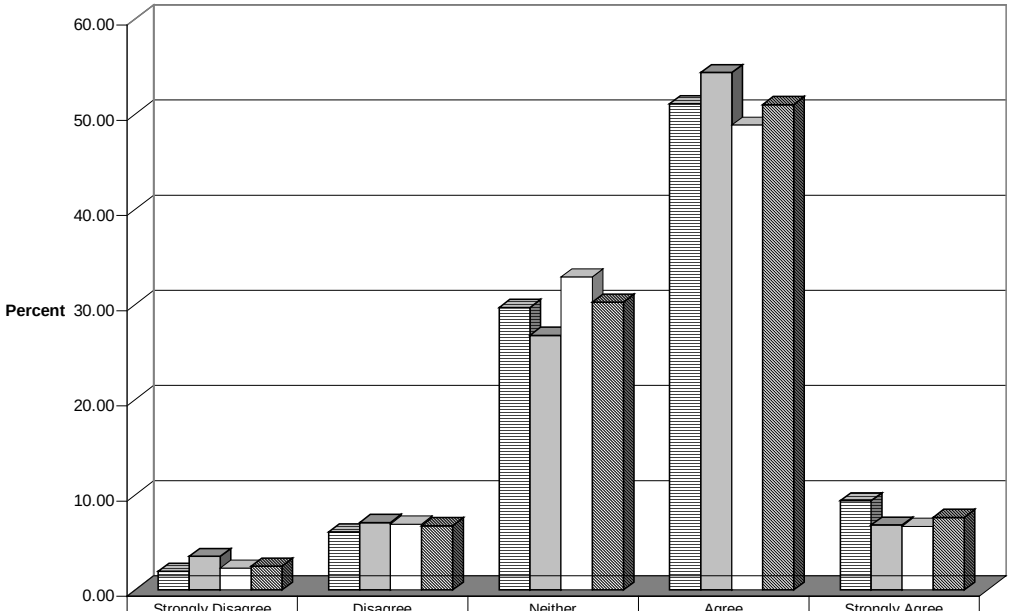
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	4.37	7.86	29.69	47.82	8.95
Pacific Northwest Carriers	6.83	11.20	30.87	45.90	4.37
Other Carriers	4.88	11.57	34.45	41.90	6.43
All Carriers	5.21	10.22	31.93	44.92	6.76

Q. 11b) RWIS will provide safety on the road.



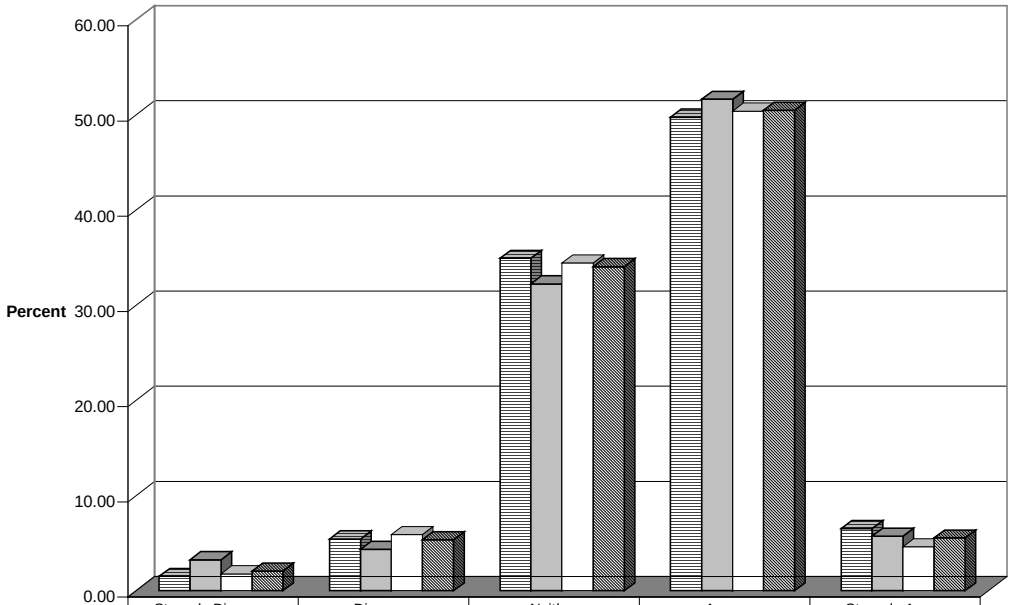
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	3.28	5.90	19.65	56.99	12.88
Pacific Northwest Carriers	3.01	6.28	20.77	59.56	9.29
Other Carriers	2.06	6.43	21.34	59.13	9.77
All Carriers	2.71	6.21	20.62	58.51	10.70

Q. 11c) RWIS will make provide accurate weather information to my company an d its drivers.



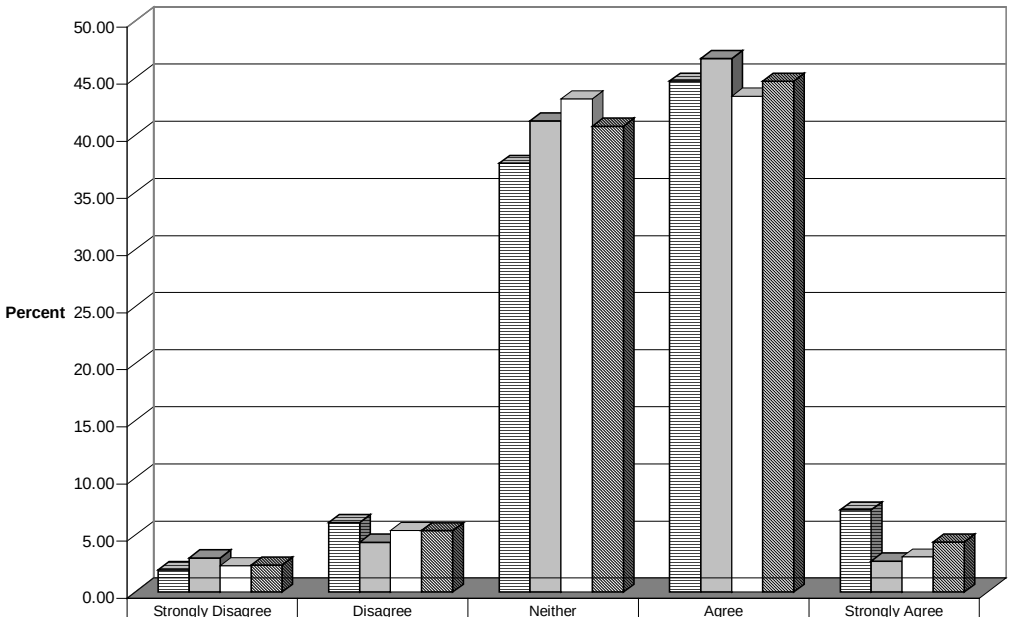
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	1.97	6.11	29.69	51.09	9.39
Pacific Northwest Carriers	3.55	7.10	26.78	54.37	6.83
Other Carriers	2.31	6.94	32.90	48.84	6.68
All Carriers	2.51	6.77	30.25	51.01	7.64

Q. 11d) RWIS will provide information in a timely fashion.



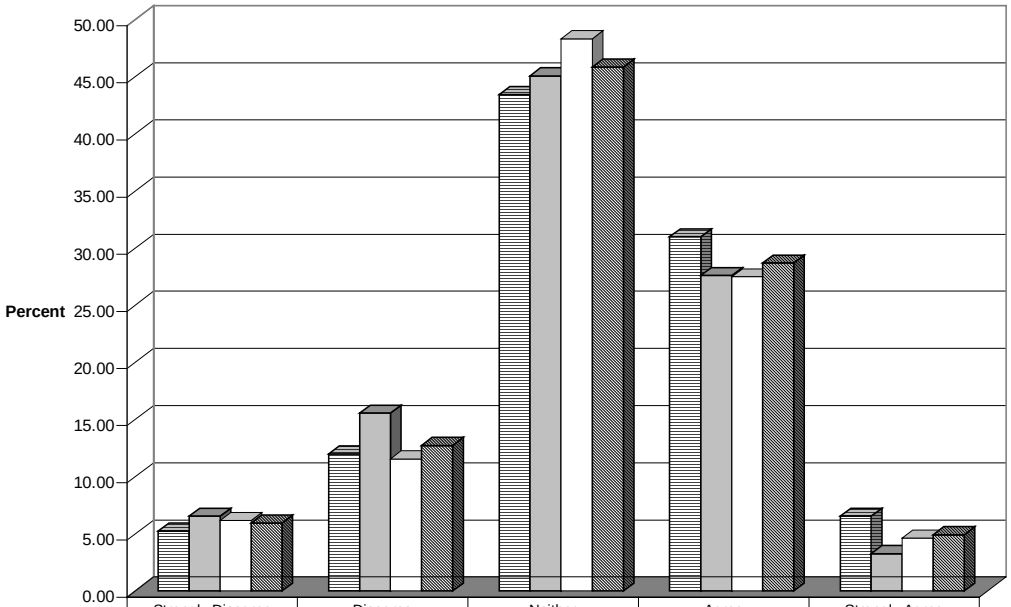
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	1.53	5.46	34.93	49.78	6.55
Pacific Northwest Carriers	3.28	4.37	32.24	51.64	5.74
Other Carriers	1.80	5.91	34.45	50.39	4.63
All Carriers	2.09	5.37	34.05	50.50	5.56

Q. 11e) RWIS information will be easy to use and understand.



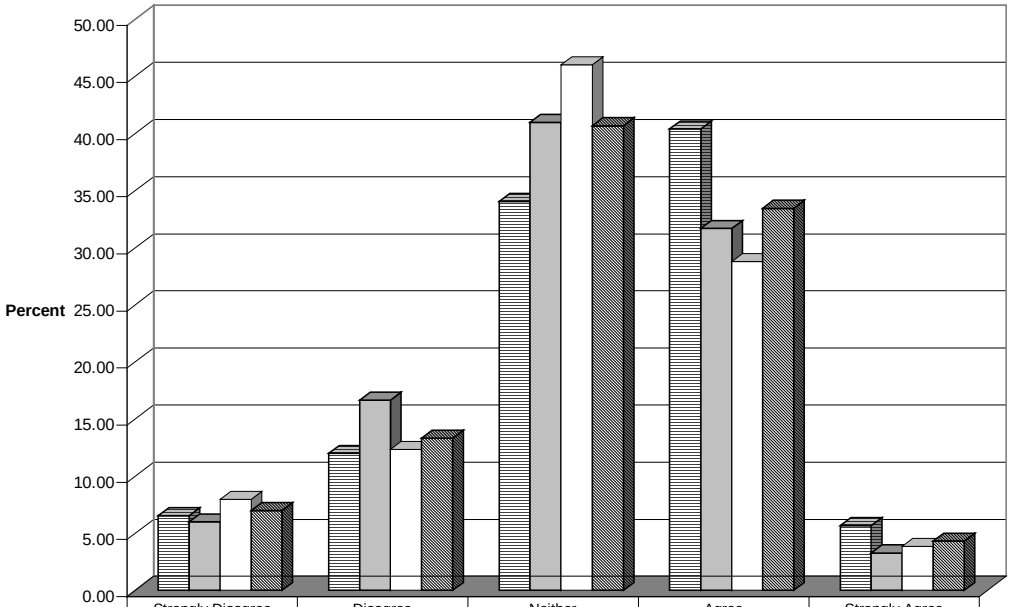
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	1.97	6.11	37.55	44.76	7.21
Pacific Northwest Carriers	3.01	4.37	41.26	46.72	2.73
Other Carriers	2.31	5.40	43.19	43.44	3.08
All Carriers	2.37	5.38	40.79	44.73	4.39

Q. 11f) RWIS will improve the service I provide to my customers.



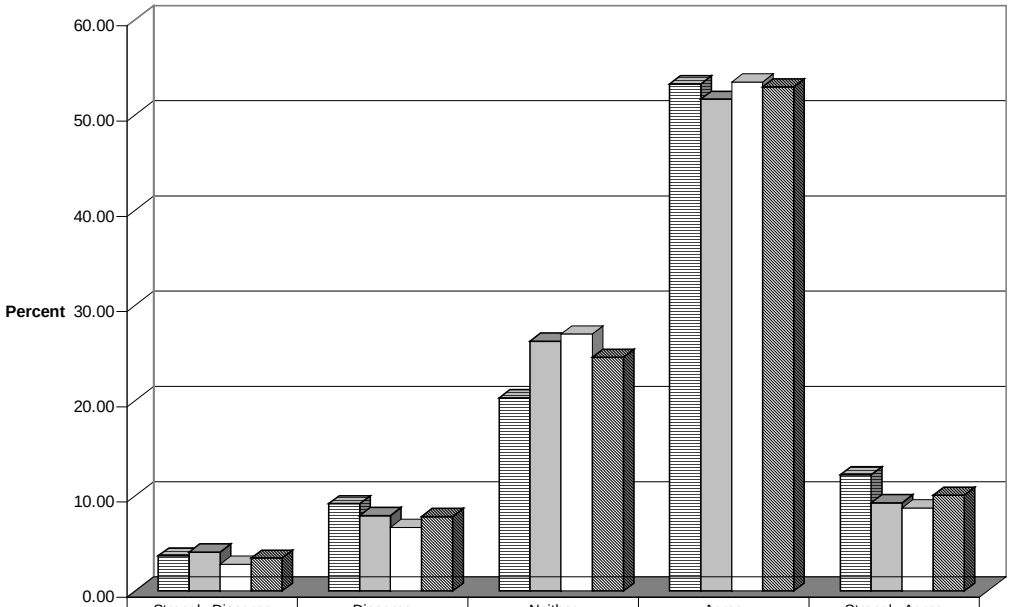
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	5.24	12.01	43.45	31.00	6.55
Pacific Northwest Carriers	6.56	15.57	45.08	27.60	3.28
Other Carriers	6.17	11.57	48.33	27.51	4.63
All Carriers	5.95	12.74	45.85	28.71	4.93

Q. 12a) The Downhill Speed Information System (DSIS) will benefit my company.



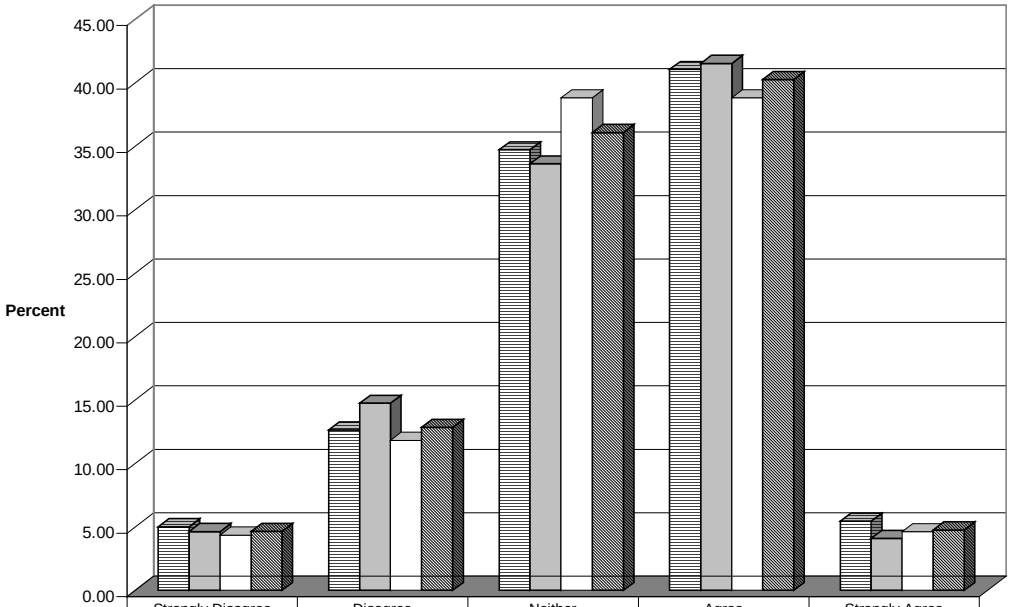
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	6.55	12.01	34.06	40.39	5.68
Pacific Northwest Carriers	6.01	16.67	40.98	31.69	3.28
Other Carriers	7.97	12.34	46.02	28.79	3.86
All Carriers	6.99	13.33	40.69	33.46	4.32

Q. 12b) DSIS will improve safety on the road.



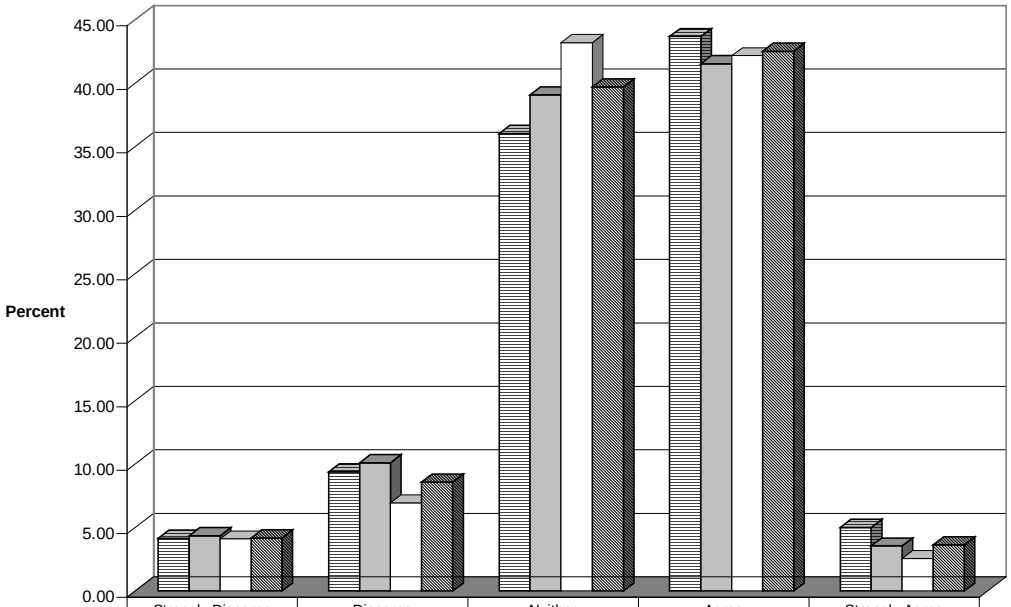
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	3.71	9.17	20.31	53.28	12.23
Pacific Northwest Carriers	4.10	7.92	26.23	51.64	9.29
Other Carriers	2.83	6.68	26.99	53.47	8.74
All Carriers	3.45	7.84	24.54	52.94	10.06

Q. 12c) DSIS will make it easier to comply with existing speed limits.



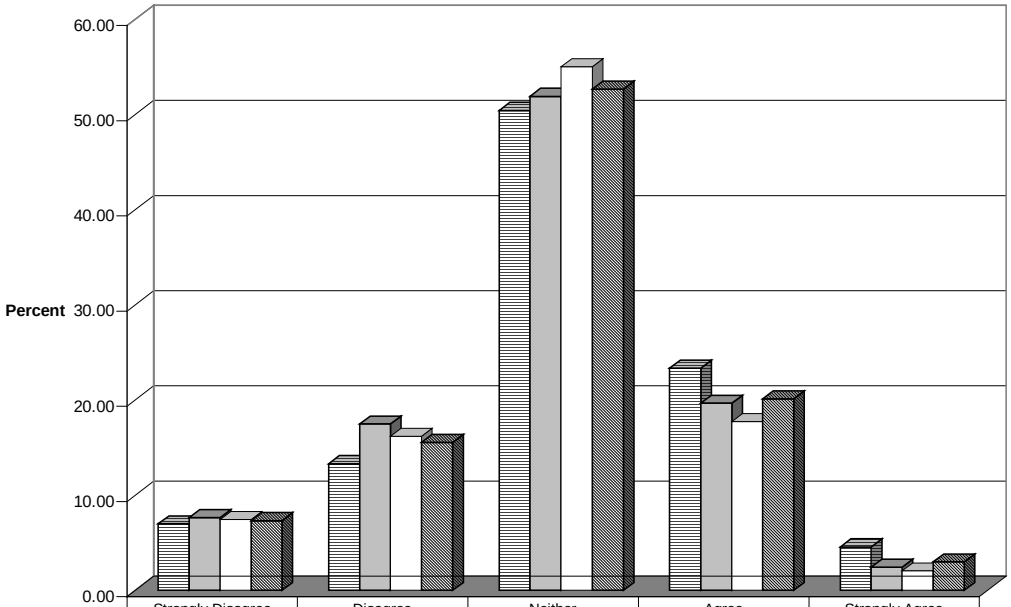
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	5.02	12.66	34.72	41.05	5.46
Pacific Northwest Carriers	4.64	14.75	33.61	41.53	4.10
Other Carriers	4.37	11.83	38.82	38.82	4.63
All Carriers	4.66	12.86	36.10	40.26	4.77

Q. 12d) DSIS will provide reliable and accurate data to my company and its drivers.



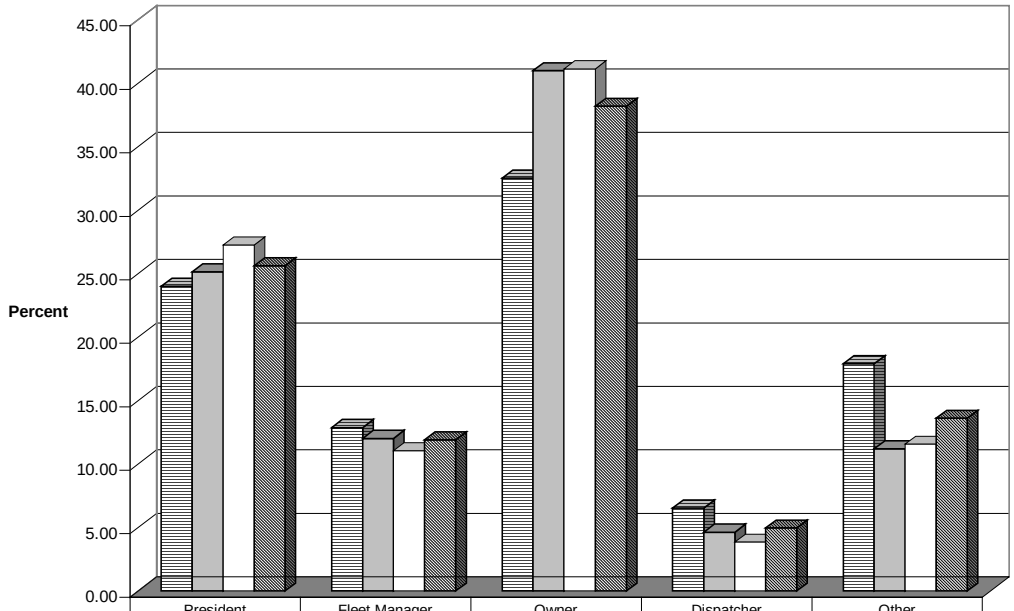
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	4.15	9.39	36.03	43.67	5.02
Pacific Northwest Carriers	4.37	10.11	39.07	41.53	3.55
Other Carriers	4.11	6.94	43.19	42.16	2.57
All Carriers	4.19	8.58	39.71	42.51	3.65

Q. 12e) DSIS will improve the service I provide to my customers.



	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Oregon Carriers	6.99	13.32	50.44	23.36	4.59
Pacific Northwest Carriers	7.65	17.49	51.91	19.67	2.46
Other Carriers	7.46	16.20	55.01	17.74	2.06
All Carriers	7.35	15.55	52.67	20.13	3.01

Q. 14) Please indicate your position within your company.



	President	Fleet Manager	Owner	Dispatcher	Other
Oregon Carriers	24.02	12.88	32.53	6.55	17.90
Pacific Northwest Carriers	25.14	12.02	40.98	4.64	11.20
Other Carriers	27.25	11.05	41.13	3.86	11.57
All Carriers	25.62	11.92	38.18	4.97	13.62

APPENDIX C - 1

Oregon Strata Sudaan Frequency Analysis and Standard Errors – FIRST SURVEY

APPENDIX C - 2

Oregon Strata Sudaan Frequency Analysis and Standard Errors – SECOND SURVEY

APPENDIX D-1

Pacific Northwest Strata Sudaan Frequency Analysis and Standard Errors – SURVEY ONE

APPENDIX D-2

Pacific Northwest Strata Sudaan Frequency Analysis and Standard Errors – SURVEY TWO

APPENDIX E-1

All Others Sudaan Frequency Analysis and Standard Errors - SURVEY ONE

APPENDIX E-2
All Others Sudaan Frequency Analysis and Standard Errors - SURVEY TWO

APPENDIX F-1

Cumulative (All) Strata Sudaan Frequency Analysis and Standard Errors – SURVEY ONE

APPENDIX F-2

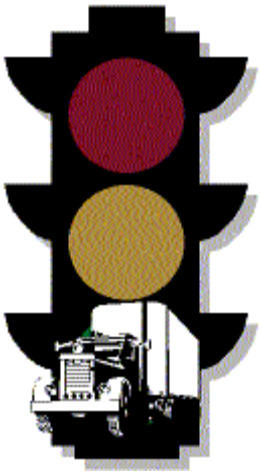
Cumulative (All) Strata Sudaan Frequency Analysis and Standard Errors – SURVEY TWO

APPENDIX G-1

SURVEY and COVER LETTER
FIRST SURVEY

APPENDIX G-2

SURVEY and COVER LETTER
SECOND SURVEY



Oregon Green Light CVO Evaluation

FINAL REPORT

DETAILED TEST PLAN 12

Agency Acceptance of Green Light Technology

Paul E. Montagne

Chris A. Bell

Transportation Research Report No. 00-19

Transportation Research Institute

Oregon State University

Corvallis, OR 97331

June 2000

ACKNOWLEDGEMENTS

This project was funded by the Oregon Department of Transportation (ODOT) as a requirement for an Independent Evaluation through their ITS Partnership Agreement with the Federal Highway Administration to deploy a mainline preclearance system in the state of Oregon. The project was of five years duration, and, was administered by ODOT's Motor Carrier Transportation Division. Oregon State University (OSU) Transportation Research Institute was the prime contractor for the independent evaluation, with Chris Bell as the principal investigator. The Center for Transportation Research and Education (CTRE) at Iowa State University was a sub-contractor to OSU, with Bill McCall as the principal investigator. Michael C. Walton of WHM Transportation Engineering served as a consultant for several aspects of the evaluation.

The authors are indebted to the personnel of ODOT's Motor Carrier Transportation Division, who have provided information and data to the evaluation team throughout the project. We are particularly indebted to Ken Evert, Gregg Dal Ponte, Randal Thomas and David Fifer. Ken's untimely death in 1998 meant that he did not see his vision completed. The evaluation team is forever indebted to him for his support and for the opportunity to participate in the deployment.

DISCLAIMER

TABLE OF CONTENTS

1 INTRODUCTION

1.1 BACKGROUND

This Detailed Test Report is the tenth of 12 reports submitted as part of the independent technical evaluation of the Oregon Green Light CVO project. The Oregon Department of Transportation (ODOT) is near completion of the implementation of their Intelligent Vehicle Highway System Strategic Plan for Commercial Vehicle Operations (now referred to as ITS/CVO). Through Green Light, Oregon is installing twenty-one mainline preclearance systems featuring weigh-in-motion (WIM) devices and automatic vehicle identification (AVI) at the major weigh stations and ports-of-entry throughout the state. In addition, certain sites have been equipped with safety enhancements that regulate road conditions and speed. Examples are the Downhill Speed Information System at Emigrant Hill, and the installation of weather stations at three location across the state.

This report presents the results of Detailed Test Plan (DTP) #12. There will be similar reports for all other Detailed Test Plans developed for the Green Light Evaluation. The Detailed Test Plans were published in 1997, Oregon “Green Light” CVO Evaluation-Detailed Test Plans [1]. Earlier documents providing essential background to the Evaluation are the Evaluation Plan [2], and , Individual Test Plans (ITP) [3].

Each of the tests conducted by the research team for the evaluation of Green Light addressed one of five goals of the evaluation as documented in the Evaluation Plan. These are:

Assessment of Safety

Assessment of Productivity

Assessment of User Acceptance

Assessment of Mainstreaming Issues

Assessment of Non-Technical Interoperability Issues

The objectives associated with each goal are given in detail in the Individual Test Plans [3]. In addition, condensed one-page tables are contained in the appendices of the ITP, outlining the measures to be conducted for each of the stated objectives. The detailed test plan documents expand on the information provided in the ITP and provide in detail the activities planned for each *evaluation measure* during the course of the evaluation in regards to the stated objectives.

1.2 PURPOSE AND SCOPE

This report presents the results of the test measures used to obtain the objective of assessing agency acceptance of Green Light, one of two objectives in support of the goal of assessing user acceptance.

The evaluation measures used to determine change in safety compliance for the Oregon Green Light are stated below:

Measure 3.2.1 Determine attitude of agency personnel towards electronic screening, including perceived impacts

Measure 3.2.2 Determine attitude of agency personnel towards new services

The purpose of Detailed Test Plan #12 is to gain insight about how Green Light met its initial objectives in the eyes of the staff that work with the system as well as those that developed and deployed it. The interviews will provide an opportunity to document the lessons learned during Green Light's deployment. The interview process will be tailored to focus on both Green Light's

benefits, and the obstacles that may have hindered the development of the system's integration into the MCTD's business and operations.

It is hoped that the successes and failures of Green Light, as documented through interviews with selected ODOT staff, will serve to provide a valuable resource to similar federally-funded mainstreaming projects as they are deployed.

2 TEST METHODOLOGY

2.1 PHYSICAL DESCRIPTION

Questions will be developed to gain insight on the following:

- How well Green Light has met its initial objectives according to those who use the system. Some of Green Light initial objectives are stated below:
    - decreasing traffic at GL weigh sites
    - altering the profile of the vehicle stream to one that is likely to have compliance issues
    - enhancing the ability of inspectors to target problem carriers
- How Green Light has enhanced the operations of the MCTD in terms of day to day operations.
    - Weighing
    - Credentialing
    - Safety Inspections
    - Data Collection
- What are the success stories that can be taken from the Green Light project?
    - Trusted Carrier Partner Program
    - Enhanced Data Collection
    - Decreased Traffic at Woodburn
    - NORPASS
    - DSIS and RWIS
- What are the carriers that have deterred Green Light from reaching its objectives (if any)?
    - System Integration

- Marketing Efforts
- HELP/PrePass interoperability
- DSIS and RWIS

Questions will be tailored to each interviewee. Obviously, management will have more insight into the problems and successes in the deployment, and interoperability issues. Roadside issues will be the main focus for those interviews conducted with the folks who use the system in the field.

2.2 TEST ACTIVITIES

Questions will be asked in phone interviews and recorded into a handheld recorder and transcribed. Transcriptions will be in the form of appendices in the final document .

3 RESULTS

The interviews consisted of questions regarding the success of the Green Light program in meeting its original objectives and regarding the actual operation of the system. Only those interviewees that had first-hand knowledge were asked the questions regarding operations.

Each of the following sections describes a question asked in the interviews and summarizes the responses to it. The full text of the interviews is included in Appendices A - E.

3.1 Question One: Weigh-Station Traffic Decrease

"One of the objectives of Green Light was to decrease traffic at sites. Do you believe this objective is being met? To what extent?"

All the interviewees agreed that the Green Light program was successful in reducing the traffic entering and exiting the weigh-stations. One stipulated that this effect was dependent on the length of time that a system had been up and running. Some locations have only just been installed, and those locations have not seen as much of a decrease in traffic. This is because the carriers that typically pass those points often haven't had had as much exposure to the program and so haven't yet signed up in the numbers necessary to significantly reduce traffic. New installation points generally see steady growth in participation and should soon be more effective.

3.2 Question Two: Altered Profile of Vehicle Stream

"Another of the objectives of Green Light was to alter the profile of the vehicle steam entering the weigh station to one more likely to have compliance issues. Do you believe this objective is being met? To what extent?"

Four of the five interviewees thought that Green Light was meeting the objective of changing the profile of the vehicle steam. The exception stated that the answer to that question would be best answered by comparing the number and proportions of inspections, violations, warnings, and citations. The interviewee believed that those numbers would not reflect a change in the traffic profile. That comment was amended with the statement that the conditions are far from scientific, in that over the course of the Green Light installation, other factors have changed that may cloud its effects. "We don't have a laboratory to work in; we've got the real world."

3.3 Question Three: Enhanced Inspection Targeting

"In terms of the final objective of Green Light, enhancing the ability of inspectors to target problem carriers, do you believe this objective is being met? To what extent?"

Again, four of the five interviewees agreed that the Green Light system helps inspectors target those trucks more likely to have safety problems. The exception stated that there have been changes since the inception of Green Light, specifically the use of the federally provided Inspection Selection System (ISS) and the Previous Inspection Query (PIQ) system. The Green Light plan assumed that inspections would be done randomly among the vehicles that pulled into the weigh station, and that the change in vehicle steam profile would increase the number of "hits" on problem carriers. The new systems provide non-random recommendations for inspectors, based on past behaviors, accident, citations, and the date and location of previous inspections. In short, it was stated that the Green Light system is sound in theory, but has been overshadowed in inspection-selection by these other systems. The other systems are designed to focus inspections on those carriers that are more likely to have problems, so the Green Light system doesn't have much of an independent effect.

3.4 Question Four: Enhanced Scale Operations

"In terms of weighing at the scales, how has Green Light enhanced the operations of the MCTD?"

Only three of the five interviewees were asked this question because of its dependence on direct knowledge or experience of field operations. Two responded that operations have been enhanced mostly because of the decrease in traffic: in the past, there had been occasions were weigh stations had to essentially close and let many trucks pass un-weighed and un-inspected until the station cleared out, because traffic had backed up and was blocking the freeway. Weighing operations were enhanced simply because of less congestion. The third explained that some facilities were helped and others harmed by the system. It was stated that the system takes a certain amount of training, skill, and experience. While those sites that had training provided felt empowered by the new technology , those that did not were frustrated and less effective. This is a function of how long the Green Light system has been installed and operational at a given facility, so training should improve effectiveness at those sites that are currently not rolled out completely.

3.5 Question Five: Enhanced Credentialing

"In terms of credentialing, how has Green Light enhanced the operations of the MCTD?"

Only two of the interviewee's were asked this question. They both said that the Green Light system wasn't especially effective in enhancing operations in terms of credentialing. Trucks without proper credentials are ineligible for the Green Light program, so would pull into the station anyway. No real change in credentialing happens because of Green Light.

3.6 Question Six: Impact on Safety Inspections

"In terms of safety inspections, what impact has Green Light had on the day-to-day operations of the MCTD?"

The two people that were asked this question responded similarly. They commented that the Green Light system increased the efficiency of the inspection process. This occurs mostly by altering the stream of traffic into the weigh station. Those carriers that have consistently earned high safety ratings typically receive green lights and stay out of the weigh stations. The remaining trucks that pull in are more likely to have safety problems an as a result, are more likely to be inspected. Also, one interviewee commented that the system helps inspectors anticipate what details to focus on during an inspection. For example, a truck may pull in and the inspectors will already know from the weigh-In-motion scale that the truck has weight problems, so that can be focused on quickly instead of starting from scratch every time.

3.7 Question Seven: Enhanced Collection of Weight and Configuration Data

"In terms of data collection, in what ways has Green Light enhanced MCTD's ability to collect data on weight, configurations, etc?"

The interviewees stated that because a significant portion of trucks get green lights and so bypass the weigh stations, more of the remaining trucks are being properly documented. Before Green Light, during high traffic times and with limited personnel, too many trucks would come to the sites to all be weighed. Trucks would pass through the station without anyone reading the scale, or in some cases bypass the station entirely. This happens much less frequently with the Green Light system in place, and because Green Light still weighs and measures trucks that are bypassed, a higher percentage of trucks are being documented.

3.8 Question Eight: Successes of Green Light

"In your opinion, what have been the successful aspects of Green Light?"

All five interviewees gave answers to this question. Several commented on the increased ability to focus on problem trucks, the possibility of easily redistributing staff to cover problem spots, and the ability to handle more traffic without expanding facilities because of decreasing traffic. Another indicated the advantages of having a new advance tool, where a weigh master will know ahead of time what to expect coming into the scale. Also mentioned were the time and money saved by compliant carriers that get to bypass the stations, and that those carriers rightly deserved those savings.

3.9 Question Nine: Lessons Learned

"What have been some lessons learned in the inception of Green Light, and what have been deterrents to its complete and successful operation?"

Interoperability was commented on as a problem, specifically regarding the differing business models between different systems and the competitive politics surrounding the issue. It was stated that only the federal government has the power to enforce cooperation, but they have not. The technology is not a real problem, but the political resistance is. The program also has had installation and assimilation problems because of the lack of a central coherent training or marketing plan. Training was done piecemeal all over the state, so the same battles were fought over and over again. A comprehensive and organized introduction and training program would have increased early acceptance and eased the transition. The trucking industry as a whole is not an early adopter of technology, and a solid, timely marketing program should have been implemented. Some of the marketing that was done was done prematurely, which let carrier interest fade before the system was up and running. An important lesson is that by

giving out free transponders to new members, the startup risk of new technology was shifted away from the truckers, so they became much more agreeable to the program. While this method may not be appropriate everywhere, it is important to note that carriers want to save time and money, but an untried system that fails will cost them more than it saves, so they are wary about investing in it. Reducing transponder costs as much as possible will diminish this reluctance. Ultimately, the system should be nationwide. This will reduce the costs to truckers the most, and so will be the most accepted, used, and useful. The Oregon system is up and running, but at present multiple transponders must be purchased to use systems in multiple states. Overcoming the barriers between systems is necessary for the system in any state to fully mature and achieve its potential.

4 CONCLUSIONS AND RECOMMENDATIONS

This study intended to document how Green Light met its initial objectives in the eyes of the personnel that work with the system as well as those that developed and deployed it. Conducting interviews with key ODOT personnel, provided an opportunity to document the lessons learned during Green Light's deployment. It was intended that the results of this part of the evaluation would provide a valuable resource to those deploying similar projects. The summary of responses shows a high level of agency acceptance as well as an understanding of the benefits gained and recognition of lessons learned.

There was a uniform agreement among the interviewees that the Green Light program was successful in reducing the traffic entering and exiting the weigh-stations. All agreed that this effect would only increase as more Green Light sites were deployed, and consequently more carriers enrolled in the program. Interviewees were in agreement that the vehicle stream entering the weigh stations was one more likely to have compliance issues. With the screening of Green Light participants compliance history during the enrollment process, carriers with a clean bill of health were bypassing the weigh stations. The result being that carriers more likely to have compliance issues were populating the weigh station queue. Furthermore, interviewees agreed that this altering of the profile of carriers entering the weigh station served to enable enforcement personnel to better target problem carriers.

In terms of changing the way business is conducted at the weigh stations in terms of credentialing, weighing and inspecting of trucks, the effects of Green Light had mixed reviews. Most felt that that the Green Light system increased the efficiency of the inspection and weighing process because the decrease in traffic entering the facility. Trucks that were compliant, or did not have size and weight issues, remained on the mainline. In terms of

credentialing, there is no real effect. Trucks without proper credentials are ineligible for the Green Light program, so would pull into the station anyway.

The interviews helped to illustrate the success stories of Green Light such as the progression of weigh station pre-clearance and application of ITS technology to CVO nationwide. As one interviewee stated: "To Green Light's credit, a direct spin-off from Green Light was the IOU project that involved initially Utah and Idaho, and Oregon, which grew into the MAPS project, the Multijurisdictional Automated Pre-clearance System, which involved Washington, Idaho, and Utah, which absolutely then grew to include the ATVO states and grew into NorPass, the North American Pre-clearance and Safety System." These systems, beginning Green Light's initial vision, have helped mainline preclearance move to a nationwide audience.

Other success stories were the way carriers have reacted to the system. There has been a profound effect on many Oregon carriers who bypass the facilities daily in terms of the dollars saved due to fuel and time savings. All of the interviewees were in agreement on this.

Interviewees described the deterrents to making Green Light more effective. Key points were the disparaging business models, and the fights over political issues such as the weight mile tax, that kept carriers from using the system effectively. There was consensus that the marketing to carriers was carried out to early, and that the efforts would have been more successful early in Green Lights deployment had more of the sites been operational.

5 APPENDIX

INTERVIEWS

5.1 INTERVIEW ONE

Q: Our first topic has to do with some of the initial objectives that were set forth early on in the formulation of Green Light. Kind of an idea of what ODOT wanted to see Green Light achieve with the technology.

A: Ok.

Q: One of the objectives of Green Light was to see a decrease in traffic at the sites. Do you believe this objective is being met and to what extent?

A: We can't affect the traffic on the interstate but I guess you mean the traffic going into the weigh stations. I think it's clear that the program has been successful in meeting its objective of decreasing the amount of traffic that enter and exit weigh stations. And we are seeing that in the monthly transit reports that shows the number of green lights that we give, the number of trucks that we pre-clear at weigh stations, and those numbers, as you know, are climbing dramatically now that we've got transponder placement and more trucks, and it's clearly showing that fewer trucks are going through the weigh stations. In fact, if you look at the ratio of green lights to red lights, at most stations its practically 9 out of 10 trucks are getting a green light and about 1 in 10 are getting a red light. So the program is highly successful at pre-clearing trucks, sending them on their way if they don't need to come by the station.

Q: Another of the objectives of Green Light was to alter the profile of the typical vehicle entering the stream of traffic into the weigh station to one that was more likely to have compliance issues. Now, these may be more difficult for you to answer since you don't deal with the system quite the same way that maybe some of the people out in field do, but from your perspective, do you believe this objective is being met?

A: It must be, based again on the green light-red light report. We are seeing 1 in 10 trucks having to pull in and so there must be something amiss. They couldn't all be having trouble aligning themselves on the weigh-in-motion scales or improperly crossing the pre-clearing system. They must have some compliance issue. And so it is sorting even the transponder-equipped trucks and finding the 10% that need to pull in. And so then I

imagine they are joining the other traffic stream that deservedly, and probably a higher percentage, need to be going through the station, either for a safety inspection or for static scale weighing that might catch some kind of overweight or other size problem. So, I would imagine the system's doing its job, complementing that traffic stream and directing the correct profile vehicle into the weigh station.

Q: Right. Which leads to, and you've partially answered, this third objective. The third objective of Green Light was enhancing the ability of the inspectors to target the problem carriers.

A: Yeah, they should be doing that. It should be much easier for them. Using the inspection selection system, surely they are getting more "hits." When they see a carrier go in the weigh station, they look him up in the ISS. Surely they must be seeing a greater occurrence of "hits" because we've cleared all the others, certainly the trusted carriers that wouldn't show up in the ISS. So we've left them with a traffic stream that is more likely to need inspection. I would imagine the program is again meeting an objective there.

Q: Can you tell us a little bit more about how your feel the Trusted Carrier Partner program that you brought up earlier that was not initially in the works when Green Light was developed. Can you comment on how that has enhanced the Green Light system and how that has helped the division carry out their goals of making it safer to operate out there?

A: I think what the TCP program has done is identify that percentage of the trucking industry that has always been there, that is highly compliant with regulations. And so, this group didn't come along, and it's not new, but there's always been a percentage that is in compliance. They are safe carriers and they meet all other regulatory requirements and the Trusted Carrier Program gives an opportunity to identify them, give them a mark of distinction. And then the Green Light program, incorporating the TCP into that Green Light screening process, gives us a chance to much more efficiently screen out that entire percentage of the trucking industry. As long as they are transponder equipped and in the program, then we can screen them out and give them a much higher assurance of the weigh station pre-clearance event happening for them. They are a

group that we need to spend as little as we can of our time watching or checking. We know they are compliant. And then we monitor their records to make sure they stay compliant. So I think, it's just giving us a chance to screen, more efficiently screen, the truck traffic and sort them out.

Q: Ok. Has Green Light made it easier for you, being an outreach person? Has it had some kind of an effect on the kind work that you do, the public relations that you have to do? Has it made it easier for you to reach your carriers? I know that there has been a lot of going back and forth between the various trucking agencies and the State of Oregon because of Green Light, just trying to get it off the ground, and not all of that has been positive, but maybe in the end it's beginning to pull us closer together, meaning ODOT and your clientele. Can you expound on that in any way? Is that a success, would you say?

A: There's a whole lot of lessons learned, is what's happened. It's been really messy in the terms of the way that politics has come into play, and the program has been used to leverage certain other issues. And so, so that has been the messy part. What I have enjoyed is selling intelligent transportation systems. I mean, this topic is so sexy and fun to talk about. It's such a positive thing, introducing intelligent transportation systems. You know theoretically it should do nothing but good for the entire motoring public. And so, it's been a kind of win-win story that I love to tell. Now, people have been slow to catch on to the story and warm up to it, but surely in time they will. And certainly these carriers are beginning to warm up to it. I mean, especially now that we've removed cost as a factor in whether they join Green Light, they've warmed up to it, taken transponders, and now I think surely they must just love weigh station pre-clearance. I can't wait to do a customer satisfaction survey because there must be a lot of positive responses that we could get from the industry. Surely, if 9 out of 10 transponder equipped trucks are getting green lights, then they must be enjoying the system. It's been a rough road but telling the story of intelligent transportation systems has been what I've enjoyed most.

Q: What are the issues that you believe have deterred Green Light from reaching its objectives and what are the lessons that you have learned? Perhaps in the area of system integration, is there anything that comes to mind in that area?

A: The differing business models between the pre-clearance systems, the two major ones in the country, has been an impediment from the start, so there is huge institutional barriers there and they've done nothing but block the success of Oregon's program. Actually, there's even been officials who have "poisoned the water" around these pre-clearance systems. The competition between the two business models has just done nothing but hurt both systems. I would think that surely that's impeded the progress made. You can't have officials for an organization as huge as PrePass criticizing Oregon and you can't have that kind of activity going on without it hurting our program. And so that's played a big part, the fact that they won't accept our transponder and won't let us accept theirs. We haven't enjoyed interoperability, although it was described to us four years ago when C Vision was introduced and pushed on us. In the vision of C Vision, we weren't supposed to have those kinds of problems and officials were supposed to actually work together and not criticize each other's program and find fault with it. And so, nothing like the federal vision has come to pass yet.

Q: What might be some of the lessons learned from the marketing of Green Light ?

A: I'd say that the trucking industry is not an early adopter of technology. Transponders aren't really invasive, but they are in the fact that you have got to put it in the truck cab. And the industry as a group is not an early adopter of technology. So, I think that in terms of marketing we found that putting even a modest price tag on transponders actually slowed the effort to put a transponder in every truck and discouraged some truckers from even entertaining the idea of using the transponder. So, price was an obstacle and we didn't have the sales force that, say PrePass has, to go out and sell the program in the same aggressive way they do and so we couldn't overcome the barriers that even that modest price had put on transponder usage. So I think we did the right thing in the past few months when we took cost away as a factor and got these truckers to become adopters of the technology. And then the next big test will be when the batteries die and we'll see what percentage buy the transponder, replace theirs, and continue to use the system. I bet a large percentage will replace theirs, but not all.

Q: How much do those cost?

A: We think that, by the time the battery dies, there will be a transponder for about $45.00, and should be good for another five years. And there is, of course, just a lithium battery inside. We've opened them up and that battery looks very replaceable. I don't know what the battery itself costs, but it's possible someone will see how easy it is to just replace the battery and that could be lower than $45.00.

Q: Back to some of the success stories that can be taken from Green Light, in terms of some of the other safety enhancements that were part of the initial Green Light package, is there anything that you can think of that you think is successful lesson to be learned?

A: I think Green Light introduced a very valuable concept in its road and weather information system ideas. And it is in the idea of deploying these sensors that would record key information, climate information, and then pass it on to travelers. That concept has been hugely successful. As soon as Green Light introduced the idea of doing it in a very small way, many others around the Oregon Department of Transportation grabbed that idea and ran with it and developed a plan to deploy a wide network of these sensors statewide. Maintenance yards are using the information to help them trigger certain maintenance activities. Travelers are seeing some of this information on ODOT's Trip Check site. We just got an e-mail the other day from a trucker who had seen Trip Check and told us he thought it could be a valuable service. So, I think Green Light should get some credit for introducing that concept although it was probably inevitable, but we got it started and the program got others excited about it and they took and ran with it.

5.2 Interview Two

Q: One of the objectives of Green Light was to decrease traffic at sites. That was initially what they had hoped to achieve. Do you believe this objective is being met or would be met, and to what extent?

A: At Farewell Bend, at first, when the system first went into effect, we weren't seeing a lot of trucks equipped with the transponders for our Green Light system. So, it initially started out very slowly. I mean to a point to where when the system went in we … 8 to 12 trucks a day being Green Lighted past the point of entry was the norm. We did get a lot of comments from folks that were within other systems, like the PrePass system down south. We got a lot of inquiries as to why the system wasn't working on their transponders. But for the Green Light transponders it was a slow beginning. That steadily increased. We were bypassing 8 to 12 a day, and the next month we were bypassing 300 a day. But it was a steady growth to a point, over about an 18 month period to where we were bypassing probably 45 to 65 trucks a day. And at that point, prior to my transfer, it was having an impact. As more transponders are put out into the system, it will increase. You can see the trend. The trucks that we never had problems with were being allowed to go on by us which had the effect of my officers that see the trucks coming in were able to spend more time looking for problems with the trucks being called to the scale. I firmly believe it's going to reach its goal. And my understanding is now the State changed the way it is issuing transponders. The number of transponders, I believe, jumped from 7000 being issued a year ago to where they've put 12-14,000 out there right now. So, Farewell Bend, at this time, is probably seeing 100 trucks a day jumping by that scale, being allowed to bypass the scale, and that will have a significant impact.

Q: Ok. Another one of the Green Light objectives was safety related and its impact on safety. One of those was the altered profile of the vehicle stream that enters the weigh station, so that the typical truck in the scale is more likely to have compliance issues. Do you believe that this objective is being met or will be met?

A: Yes, it is. I can recall, just right offhand, two companies who's safety ratings had reached a level to where we were supposed to be inspecting their vehicles as they came into the scale. They initially were being Green Lighted past the scale and all of a sudden were being called in with a safety code as the reason why they were being called in. When my folks were

doing Level 1 truck safety inspections, these were prime targets, these trucks that were being called in due to their safety histories. Yeah, it definitely met that objective. And it definitely helped the officer when he's standing there watching the trucks cross the scales as to which ones he might elect to pull out of line and do a full Level 1 safety check on.

Q: When we initially set up Green Light, we thought that one of the objectives that we should mark its success on would be its ability to enhance the inspector's ability to target problem carriers.

A: The report reason code is a great tool. You know when the vehicle that is crossing your scale was told to report because of a safety reason. You don't know by the message if it's a driver's log book problem history or if it's a vehicle mechanical type safety issues, but you do know that the gentleman did not get a Green Light due to a poor safety record. And it's a tool the officer uses that, "Hey, I want to look at him."

Q: How has Green Light enhanced the operations of the weigh station?

A: At this point in time it's not having a great impact on the number of trucks that have to be static weighed. What it does do, it decreases the percentage of trucks that are called into the scale and don't get weighed. It lets carriers that we have been weighing for months and years and they are running very legit, it lets them stay on the interstate system and a higher percentage of the trucks that are being called into the scale itself are being weighed. I had a goal of trying to hit 70% of the trucks. That was just kind of a ball park percentage that I came up with as the manager: 70% of the trucks that get called into the scale we should be static-weighing. And the reason I was satisfied with 70% is because you have two scales, two individuals sitting there weighing the trucks, but the minute you have to issue a citation or answer a telephone or they get called away from those seats and there are going to be some trucks that are going across the scale that are not being weighed. That percentage, that 70%, will increase with time.

Q: In terms of the credentialing that you do at your ports of entry, what impact has Green Light had on the day-to-day operations in that regard?

A: Well, when I was there, it didn't have a large impact. Farewell Bend Port of Entry is probably the busiest port of entry in the state of Oregon as far as folks coming in and not having credentials for the state of Oregon having to stop at that facility to get their credentials. One thing that is checked is the fact that they have had their insurance bonds submitted. You know they are recognized with their highway tax reports being submitted in a timely fashion, etc. It will assist with that because, like I said, the report reason code will tell the officer that's sitting there weighing that "Hey, here comes ABC Trucking and the reason he is being called in is because the carrier has been suspended by the State of Oregon due to lack of insurance or insurance has expired." So it will give the officer the tools to know the questions to ask when he's interviewing the driver. It gives advanced warning as to why that truck is coming in to see us instead of the officer having to say "Ok, I need to see your registration. Let me see this and let me see that." He will know if it is going to be a registration issue or if it is going to be an enforcement issue due to size or weight. And that helps the officer.

Q: One of the other things that you do out there at the port of entry is conduct these inspections. What impact has Green Light had on the day-to-day operations in terms of safety inspections?

A: I think you are going to see a higher violation rate as far as safety violations due to the system because it is going to pre-identify carriers that have a poor safety history. A lot of these carriers are notorious. They are running on a shoe-string budget and they don't take care of their mechanical problems. That's why their safety rating is so low. Instead of an officer doing 12 inspections on a shift and maybe finding 2 out of service violations, I think more realistically you will see an officer doing 12 safety inspections on a shift and maybe finding 8 out of service violations of those 12 vehicles he's inspected. I think you'll see an increase in the out of service violations. I think you'll end up pulling more of the unsafe drivers or vehicles off the interstate, off the roadway.

Q: In terms of the data collection that can be done out at your port of entry, in ways does Green Light enhance your ability to collect data? … on size, weight, that kind of thing?

A: In a perfect world with a perfect system, every truck that runs down that interstate will be weighed and recorded within our system. Oregon makes a commitment to Federal Highway with our annual certification report as to what our projections are and what our numbers will be

in the up-coming fiscal year. This will definitely help us meet those goals. Like I said, I, as a manager, as a local field manager, wanted to see 70% of the trucks on the interstate that were called into the port of entry static weighed and put into the system. Even if I maintain that level, the 100, 200, 300 trucks and in some cases, 4, 5, 6, 700 trucks a day going past Farewell Bend Port of Entry that are getting Green Lights and they are put into the system by the computer. It will assist my folks at Farewell Bend get higher numbers on a daily basis, as far as units put into the system. So it's going to help us in a couple of ways. More folks are going to be into the system, which will assist our auditors and our authority compliance type folks, etc. It assists the other people within the departments with crossing times to ensure, you know, that they are not violating or falsifying log books, etc. It will help us meet our goals that we set with Federal Highway each year in our certification.

Q: In general, if you had to describe a success story from your experiences with Green Light and how it's been installed and how it's been operating, what would you say is the most successful aspect of it?

A: It provides tools in advance that we did not have before. As a field manager sitting at that terminal weighing trucks coming across the scale, I know in advance that I've got an 8-axle set of doubles coming towards me. One thing the system does, it will indicate to me that there may be an overload problem. But, a big bonus the system gives me is the fact that I know what that 5-axle group bridge or that 6-axle group bridge is, what it measures prior to that truck even getting up to and starting to cross my scale. I can sit there and I've done this at Umatilla and Farewell Bend. I know that 5-axle group is 44 feet and it is allowed 74,000 pounds and I'm showing with the weigh-in-motion that he is actually weighing 78,000 pounds. So it raises a red flag and when that fellow crosses my scale I'm pre-warned that I am going to want to go out there and measure that group to find that overload. Another thing it has helped us do in the past is well, a set of triples is limited to 105 feet overall length in the state of Oregon, and it has identified for me certain companies that are running triples where the combination exceeds that length. It provides the enforcement officer tools in advance to catch more violators where without the weigh-in-motion you will see a set of triples limited to 105 feet and it looks ok to you so he might roll across your scale without you getting up and putting a tape measure on him to make sure that he is compliant. It provides tools that will raise the red flag for the enforcement officer to go out there and double check certain things. And that is the biggest success story:

the additional tools it gives the officer because he doesn't walk out and stop every single truck and throw a tape measure on every single truck.

Q: What are some of the things that we could pass on to other people who take on this endeavor in other states?

A: It hasn't impacted the flow of traffic during the installation process coming into the facility. We see a lot of trucks being weighed with the system, rolling across the screen. I mean, if you are in a weighing mode and you've got a weigh screen up and you've got the weigh-in-motion screen up, you have to be extremely alert and conscious and be watching both screens. Some things you don't see are like over-height problems. It would help if there was a better audible system, with the program so if a truck is detected as over height there is a bell or a buzz or a ding or something that brings it to your attention, built into the system. That would help. As far as the actual installation of the roll-out time, when they first put it in it's like any new technology. There's going to be some wrinkles in it. They need to be patient because those will come around. We had to submit a trouble report immediately after the initial installation because the calibration, for example, might run a little wild. Every day it's like it's allowing heavier, and heavier, and heavier weights to roll across it, so you would need to bring the techs back to recalibrate the program. And this happens really frequently right at first. It would seem to float on us there a little bit at Farewell Bend, but that's under control now. Initially it's just a whole learning experience. The folks will realize it's a change and, for some reason, people don't like change. At Farewell Bend you put in a multi-million dollar system. The officers disliked it at first, because of, say, the calibration problems or maybe the over height detector wasn't working properly and the tech had to come back out and tweak it here and tweak it there. You get a lot of negative comments from the folks using the system right at first until these problems are ironed out. But with time, you get a good operating system. What is amazing is being the manager. You watch and as time evolves and as these wrinkles get smoothed out and the system is functioning as it is designed to function, they would probably cut your head off if you took those additional tools away from them at this time. It is a slow change and acceptance. And each officer will find different areas that they really enjoy. The officers that are really into the safety aspect of it really pick up on, you know, the safety reasons why the vehicles are being brought in. Some people are really in to weight problems and they really enjoy the groups of axles, being able to know in advance what the distance is on those groups of axles, and that there may be a potential weight problem. Everybody has different

personalities and they may pick out different tools. And I'll tell you, if the system needs tweaking in one area, there is still other areas, tools available, that the system provides. It's a slow acceptance process. You put it in. Initially people that were using it were hesitant and critical of the system. But you get six months into it and you find that more and more of them are accepting it. You get 12 months into the system and just about everybody on the crew is going to cut your head off if you try to take it away from them.

Q: In terms of interoperability with other weigh-in-motion bypass programs in the United States, what is one of the lessons that we can learn about the installation of Green Light?

A: The transponders are the same. The problem comes in is that, and you are seeing it right now with the PrePass system, the NorPass system, and then the Oregon Green Light system, within a radius of the neighboring borders to the state of Oregon there are three independent, separate systems up and running. They need to be interoperable if this is going to be a benefit for industry. We need to be able to read the PrePass transponders. But it is a political thing. Now, they want their money. They want their 89¢ or 99¢ every time one of their truck's transponders bypasses their system. NorPass has an administrative cost that industry has to meet. Hopefully, hopefully, some day Federal Highway will step in, and I don't know how they will do it, but make sure that these programs are interchangeable. If we could read the transponders that are registered in the PrePass system, you would see a doubling of the number of green lights given in the state of Oregon on any given day. Once NorPass gets more trucks enrolled into their system, Oregon should be able read those. You'll see an additional increase. There are enough trucks with transponders out there. The problem is they are registered in one system but not with one of the other two and they need to be interoperable so that a truck can go from the west coast to the east coast and back and their transponders will work in any type of system. And we need that. That's something that has to come about down the road.

Q: How about lessons learned in terms of marketing?

A: I tried to market the transponders when the system was fresh and new and I was successful to an extent. The problem being is… well, for example, one of the companies hauled liquids. Liquids are not a real good, compatible, commodity with a weigh-in-motion system due to the fact that it takes some skill on the part of the driver to make sure he is maintaining a steady speed and he isn't sloshing the liquid load when he goes over the weigh-in-motion.

There is a training aspect there. If they are going to be hauling liquids, the drivers need to know how to cross the system. They need to slow down, maintain a steady speed well in advance of going over the weigh-in-motion. Another commodity is hanging meat. Hanging meat can cause weights to shift within those semi-trailers and if they are coming around a corner or all of a sudden they come upon a weigh-in-motion and tap their brakes, that meat, the weight will shift forward and they are not going to be getting the green lights, they are going to be getting red lights. It is real hard to explain to a driver or a company owner who calls you up madder than heck wanting to know “Hey, we bought into this system and all of a sudden 4 out of 6 of my trucks are being called in, getting red lighted, with no real problems.” Well, there is an education process with certain commodities that has to be provided also and when we are trying to sell this system we need to be aware of the types of commodities the individuals are going to be hauling. Because, like I said, there are a couple that are not real compatible with the system and the drivers need to be aware of that.

5.3 Interview Three

Q: One of the objectives of Green Light was to, when it was first started, was to decrease traffic at the sites. Do you believe, in your experience with Ashland, that this objective is being met and to what extent?

A: I believe that the objective is being met to the degree of the number of carriers that have signed up for Green Light. At this location we have approximately 3-4 hundred trucks per day going by the scales, which decreases our traffic somewhere around one-fourth to one-fifth coming through the port. So, to a certain degree, I think it is. To increase that they need additional carriers signed up.

Q: Right. Another one of the objectives of Green Light was to be altering the vehicle stream to one that was more likely to have compliance issues. Do you believe this objective is being met and to what extent?

A: Can you go into a little bit more of an explanation on that?

Q: Sure. What I mean by that is that, initially, the way Green Light was designed was that it would be checking vehicles for their safety rating and trucks were unable to participate if they didn't meet a certain basic level. And then, furthermore, their credentials and their safety records would be checked real time on the freeway against a database that would say "this truck is more likely to have problems, pull them in." That kind of thing. And in doing so, it would alter the types of trucks that are pulling off the freeway into the Ashland port of entry to be those trucks that are more likely to have compliance issues. That was an objective. Now, they have had to change things as time has gone on and it has been developed. But that was still an initial objective and so I want to ask whether or not you think that objective is being met. If not, then you just can say "no, it isn't."

A: I think it's being met with the carriers. The screening method and the criteria they've established for carriers for the Green Light program and the Trusted Carrier Program. The carriers that they do have signed up, they are meeting that objective in that area. Again, there are a lot of carriers that we could sign up. Yeah, and I am sure they are

out there and they're publicizing Green Light, but I believe they are meeting that objective with the carriers that they have due to the screening and the criteria that they do with the carriers.

Q: In terms of the final objective, which is closely related to the one that you just spoke of, they had hoped that it would enhance the ability of the inspectors to target problem carriers, either by reducing traffic or by, in relation to question 2, being able to alter the vehicle stream a little bit to more problem carriers are passing by the static scales. So do you believe as far as the objective of enhancing your inspectors and safety specialists, their abilities to target carriers for inspection, is Green Light having an impact on that?

A: Yeah, I believe that Green Light is having an impact on it because we are reducing the amount of traffic coming into the scale and because Green Light only allows carriers with good safety ratings to participate. We would have picked up those carriers and inspected them because of no decals or something like that. Now they are staying out on the freeway so that we are looking at carriers that either are not part of Green Light or do have safety problems. So, I think that it's meeting the objective, just again because of the criteria they are going under. It's having carriers that have poorer safety ratings, that have applied for Green Light and being denied membership to Green Light because of safety ratings. We're getting to look at those carriers more.

Q: Has Green Light in some way enhanced the operations down there, changed the way you're doing business in terms of weighing the trucks?

A: I think Green Light has enhanced our weighing of vehicles. In the past we've had to shut the light off and allow trucks to use by-pass lanes, or in some cases, have to shut the light off on the freeway because traffic got backed up. Now, with about one-fifth of the vehicles bypassing on a daily basis, we are able to continue our weighing operations instead of either bypassing the trucks or closing the scale completely to eliminate the traffic coming into the scale just to clear it out.

Q: The credentialing that you do, which is another part of the operations there at the scale, has Green Light enhanced the operation of your scale in terms of credentialing of motor carriers?

A: Well, I think, on the enforcement side, where we are dealing with the trucks for size/weight safety violations, we don't get so much into credentialing. The only credentialing that we really see is the no ODOT permits, and so on. Due to the fact that they are not in Green Light and they don't have the permit and they would come in anyway. So that would be more of a registration question.

Q: You bet. OK. In terms of the safety inspectors and their jobs and what they are doing, again this might be redundant to what we've said before, but that's ok. What impact has Green Light had on the day-to-day operations at the port of entry, in terms of conducting safety inspections?

A: As far as Green Light, the carriers, again, who participate in Green Light have good safety records and are going to stay on the highway. Thus, we are not going to have to, I wouldn't say waste time, but take the time to look at those trucks with the good safety ratings and that are members of Green Light. So it's reduced the amount of trucks that we actually have to look at. And, in some cases, if they have no safety sticker we would take a vehicle to inspect it just because that's part of our criteria of selecting a vehicle. It's helped us get the good carriers who are participating in Green Light out on the road rather than coming in and taking up their time and our time in inspecting a vehicle that already has a good rating.

Q: In terms of the data collection that goes on at Ashland, in what ways does Green Light enhance the ability to collect data on weight, or size and weight, that type of thing?

A: I think it has increased our ability. Basically, in going back to the previous question … Due to the traffic staying on the freeway under the Green Light program, it's reduced the amount of flow into the scale approximately one-fifth to one-fourth, depending on which day you are looking at. And, with the decrease in traffic, traffic is not backing up as much. We still have to bypass some trucks when we have one person working. However, with one-fifth of the traffic going by, the amount of time that we have to

bypass trucks has decreased so we are actually increasing the number of static weighs at the scale.

Q: Ok. In your opinion, what have been the most successful aspects of Green Light, some of the success stories?

A: In my opinion, the success stories behind Green Light is the fact that we are able to focus our attention more on the carriers with the poorer safety ratings. We are able to help industry by keeping them on the freeway and reduce their costs as well as reduce the cost to the State. And, as Green Light increases and motor carriers participating in Green Light increases, we will be able to better cope with traffic coming into the ports without spending the money to expand the facilities, and so on. We are hopefully to some point … with Green Light growing on a daily basis to reduce the amount of staffing at the port where we could focus that staffing in other areas that we have a larger violation rate. So, those are, I think, some of the success stories involved with Green Light. We just wish we had a lot more.

Q: People are very interested in that. Federal Highway is very interested in that because they paid for the system here. In your opinion, what are some of the lessons that could be learned in terms of the installation process and how Green Light was rolled out at your site? Is there any advice that you could give?

A: Well, I don't know if I could give any advice. I think when they rolled out Green Light at this program, they did a real good job with it. I think they could improve on training in Green Light. By training I mean they could come in and inform the crews and get together with them a little bit more than what did happen … I think probably letting them know the strengths of Green Light and the weaknesses and/or limitations of Green Light. And, I think, in some areas, Green Light was not as positively accepted as it was here because we were involved in a previous program and we kind of went through the ups and downs of the program and we knew that it wasn't a perfect program and there isn't a perfect program but you just work with the limitations within Green Light or other programs that they rolled out prior to Green Light. And so we knew there were situations or things within Green Light that would work and we knew there were limitations. So, the people here were open to it and accepted it and they

didn't expect more from the program than what it could do, I guess you might say, where other areas I think did and they didn't understand the limitations that Green Light has.

Q: How about some of the lessons learned in terms of marketing the program. Could you comment on that?

A: I think the lessons learned, just in my personal opinion, on marketing the program … The managers, I think, in the local area, who knew their carriers and the program reps in the local area could have participated more in recruiting companies for the Green Light program. We had an administrator come in and, you know, they did what I would consider a fair job … But, you know, the people in people in the district that knew the carriers and could have a personal contact pretty much on a daily basis weren't really given an opportunity to participate until later when there was a problem with the administrator. So … I think, in marketing, if you take advantage of the people that know the carriers in the local districts, we could have marketed it much better than what we did.

Q: Right. Lastly, some of the lessons learned in terms of interoperability. Can you comment on some of the lessons that can be learned of … of being able to have the carriers involved in multiple programs and things like that?

A: Well, I think there should be some type of an overall control over all the programs. It's like little stores having sales saying "yeah, we've got the best deal" and so on and then they're not sharing information. In order for the interoperability of the Green Light program, and PrePass and NorPass, all of these programs have to be able to work together and they have to have some standard set so that carriers have the ability to register their transponders with other programs. Otherwise, the C Vision highway of the future, of the carrier loading in Philadelphia and then unloading in Portland, Oregon, without stopping at a scale is not going to happen. The inability of Green Light and NorPass to get the cooperation of PrePass is difficult to understand. I know that we have done a lot to try and get the cooperation from PrePass and there is resistance there. And I feel that, in some way, because a lot of this is federally funded, that the government should step in and say, "you know, let's all play together; we all want the

same thing," and get these programs to cooperate with each other. I think it's kind of one-sided at the time where Green Light and NorPass are trying to work with carriers to get them to the point where they will not have to stop at any weigh stations. And, from the information that we've received, PrePass is saying "Well we are not going to share our information. Period." I think something needs to be done with the PrePass program in order to have either pressure from the carriers themselves that are involved and saying "Hey, we can't use PrePass in the other areas because you won't allow us to register with them," or the government needs to come in and force that information out in some way so that the carriers will benefit, or the companies will benefit from all of these weigh-in-motion systems.

5.4 Interview Four

Q: One of the objectives of Green Light was to decrease the traffic at the sites. In your opinion, do you believe this objective is being met and to what extent.

A: I would venture to say there is probably not a singular response to that question. It would vary from site to site. Using the Woodburn port of entry, southbound on I5 as an example, I would say that it is indisputable that we have made a dent in the amount of truck traffic that is coming through that facility on a day-to-day basis. Other sites which have been less well established because they have been operational for significantly less time probably mirror the fact that we are not as far along the marketing curve and we haven't saturated the local market simply because there hasn't been an opportunity. So, I think what the evidence suggests to me is that where the Green Light facility is completed, as time goes by and the immediately surrounding motor carriers become increasingly aware of the availability of the service, our experience shows us that yes, we have been successful in diverting traffic. And in those locations where we have not yet witnessed that diversion, it's simply because we are not as far along the life cycle of the site.

Q: A second objective of Green Light was to alter the profile of the vehicle stream entering the weigh stations to one that was more likely to have compliance issues. How do you believe this objective has been achieved or is it being met?

A: The only objective indicator we would have to address whether or not the truck traffic being diverted to a weigh station was more or less compliant would be to look at the statistics of size and weight citation issuance, or warnings given, or legalizations

required. And if you simply were to use those as the objective diagnostics, I would have to say that we have not witnessed an increase in the amount of noncompliant truck traffic because citations have not increased, warnings have not increased, legalizations have not increased. Now, it could be the case that there are other constraining variables here which are impacting this analysis. While we have in fact implemented Green Light, we have changed other variables so that the analysis has not been maintained constant. We do not have a scientific… We don't have a laboratory to work in; we've got the real world. During the same period of time that we've implemented Green Light, we've had to, for work related reasons, we've had to engage our staff in various training activities which we had not anticipated. We've taken them away from the ports of entry and we have weighed fewer trucks because they have had to take, for instance, high speed pursuit training; because, for instance, they have had to go and receive training around violence in the work place and how to deal with a member of the public that is becoming aggressive, how to deal with them in a nonviolent manner, how to de-escalate, how to disengage, how to deal with them on a verbal level. That is just illustrative of some of the things we've had to do that have taken staff away from the business of interdicting the truck traffic as it comes across the scales. We've also made a conscious decision to increase the amount of time that the motor carrier enforcement officer staff is spending on other aspects of their day-to-day job and we have included, for instance, 15% of their current position description is devoted to doing truck safety inspections. As a result, we actually have seen a decrease in the number of trucks that are receiving static weighings across the state and we have seen a decrease in the enforcement activity as measured by citations, warnings, and legalizations. I don't think, therefore, that you can conclude that Green Light has or has not had that intended effect.

Q: Another objective of Green Light was to enhance personnel's ability to target their carriers.

A: Once again I'm going to go back to telling you that we're not working in a static laboratory and another circumstance and another couple of variables have changed. Initially, Green Light was intended to affect that performance factor. However, we have migrated to other tools provided to us from the Federal Highway Administration to influence our selection of trucks for on-highway truck or driver safety inspections. For instance, we use the federal supplied Inspection Selection System which is a software-based selection algorithm which is looking at past carrier behaviors, accidents, citations, and inspection records, and generating a probability or a likelihood of selection for inspection that is guiding our selection choices. We also use another software tool that has been provided to us by the federal government call PIQ. It's a past inspection query and while the ISS system tells us whether or not a particular motor carrier warrants attention, the PIQ system then, once we've decided yeah, we're going to probably look at this carrier, the PIQ system then tells us of all the vehicles in that carrier's fleet when was the last time this particular vehicle has been inspected and if it was inspected recently by someone else, somewhere else, we would make a "no inspect" decision. If it hadn't been inspected any time recently, we'd probably make an "inspect" decision since the ISS selection parameter said this carrier is worthy of attention. Since we got those pieces in place, in the land of inspections that Green Light anticipated occurring happened to a lesser extent. It's probably the case that Green Light has not significantly impacted our targeting choices. Green Light didn't anticipate the advent of the Inspection Selection System or of the Past Inspection Query system. Green Light assumed we would be taking motor carriers that are not worthy of a bypass, perhaps because of an adverse safety rating, and diverting them into the queue for a static weigh and subjecting them to the random safety inspection. But, what I am saying is that the world changed and there is not so much of a random selection transpiring so that Green Light is not effectively sorting on that basis.

Q: How has Green Light enhanced the operations of the Transportation Division?

A: I'm going to give you a bifurcated response. I'm going to tell you what it has that may eventually accrue to us when the system is operating and being operated by all parties in the manner in which it was intended. But I am going to start by telling you that it my observation that many of our motor carrier enforcement officers in the field do not know how to maximize the effective use of the new tools they have been given and, as a result, they are experiencing some degree of frustration. Not so much at our ports of entry, but at weigh stations like Booth Ranch, Roseburg, and Wilbur. There are continuing reports of the inadequacy of the system. By and large, from what I have been able to garner, it seems to be that those results from employees that are not sufficiently familiar with the operation, or the strategic operation, of the new tools they have been given. As staff has the equipment and gain experience in using it, they become more and more familiar, and I believe it is the case that we are winning converts to the philosophy that Green Light has enhanced the operation of the weigh station. And there is a certain skill set to it, to know how to balance the various equipment settings that determine what the threshold is for obtaining a mainline bypass as opposed to… Woodburn southbound, again, has the additional dimension of in-ramp sorting and there's an in-station kind of a slow-speed bypass lane as well as the two static lanes and there's a skill set in knowing how to direct the traffic. And I think it comes with experience and absence that experience, staff are somewhat frustrated if they are confronted with something that's new and different and difficult to manage at the outset. There are a lot of different things going on and there's a lot of information presented to the employee. And if they haven't opened all the appropriate windows and sized them appropriately so they can have them all concurrently available to them, there is the

opportunity to be somewhat at a loss as to what is transpiring. So there is an educational piece and there is a training piece. And once everything is in place and staff has become accustomed to it, I think it is significantly impacting the operation of the station in a favorable kind of way. Where, though, we haven't had the time for the staff to mature and become seasoned in the use of the system, the inverse would probably be the case. I think there is some staff in the field that would take both positions today and that's just a reflection of how long Green Light has been installed and active in their particular domicile location.

Q: About the success stories that can be taken from the Green Light project. One might be the Trusted Carrier Partner program. Would you consider that one of the success stories that have come out of this program?

A: Actually not. The Trusted Carrier Partner plate is nothing more than the equivalent of what the Inspection Selection System, or the ISS system I spoke of earlier. It would conclude the same about a given motor carrier. It uses the same selection parameters. And the original intent here was for motor carriers that either are not Green Light participants or for facilities that are not equipped with Green Light or not equipped with the availability of Inspection Selection System connectivity We would give them a visual indicator to the truck inspector that would be the same conclusion that would have been reached had they had access to ISS. And as we sat down and we were thinking about how can we market this to motor carriers and how can we make Green Light more attractive to motor carriers, we purposely decided to use the Trusted Carrier Partner plate as something that only a Green Light enrolled motor carrier could have. And so, I don't think it's something that Green Light evolved, quite frankly. I think it's a marketing function or a marketing offering that we sat down and conceived to make Green Light

attractive to motor carriers that were not participating. And, frankly, we stole the idea from the Partners in Compliance program that's operating in Canada. In that particular scenario they offer a license plate that is a PIC, or Partner in Compliance… a vanity plate. And so we kind of built on that and looked for a 3 letter acronym and settled upon TCP, a Trusted Carrier Partner. So, I actually think that might have evolved even without Green Light. In fact, I'm sure it would have as we were trying to provide the equivalent of an ISS selection when we don't have ISS connectivity. And we simply then saw that as something that was available and in our tool bag that we could use to market Green Light.

Q: How about other success stories?

A: Perhaps, arguably, the biggest success story is decreased traffic at Woodburn. We set out to achieve that and we did in a big way and we can demonstrate that we did with clear objective evidence. And its growing at a phenomenal rate. The other goal of focusing scarce inspection resources on less compliant trucks, we actually achieved that goal through other avenues and I'd say that is a much, much lesser achieved Green Light goal.

Q: About lessons learned, one might hope to use Green Light with other systems, for instance, NorPass, and to get other states involved which was a clear objective from the get-go.

A: I would say this in response to that. There is no question in my mind that the Oregon Green Light program, in all of the ancillary dialogue around the various issues, around the operation of Green Light, have progressed the business of weigh station pre-clearance and application of ITS technology to CVO at a much faster rate than would

have occurred absent Green Light. To Green Light's credit, a direct spin-off from Green Light was the IOU project that involved initially Utah and Idaho, and Oregon, which grew into the MAPS project, the Multijurisdictional Automated Pre-clearance System, which involved Washington, Idaho, and Utah, which absolutely then grew to include the ATVO states and grew into NorPass, the North American Pre-clearance and Safety System. Green Light was the seminal thought in thinking beyond… behind all of that. It is actually ironic that, as of this date, Oregon now stands apart from all of those things because the students have moved away from their teacher. That may sound self-serving, but it is the case that we guided and nurtured all of that development and then there came a point in time where the judgment of others was substituted for our judgment and we have now pursued separate paths. And so it will remain for the national audience to judge who has the clearer vision down the road as we see which system garners the greater usage. But today the Green Light system dwarfs the total participation in all the other states that comprise NorPass. Oregon alone dwarfs the combined participation of all motor carriers and trucks in all that is NorPass. We'll see how that stands the test of time.

Q: Right. Lessons learned and potential issues that have deterred Green Light from reaching its objectives. I have three main bullets here that I'd like you to try to focus on. One of them is system integration which can also include the role out of the sites. What lessons can be learned from Green Light in terms of that? Is there anything you would like to comment on from just that standpoint?

A: Well… The only thing that really comes to mind in terms of the actual site construction… ODOT is a significantly complex organization and I do not believe that there was a generalized understanding of what was being built and why at the outset. And we have

had to reinvent the wheel and have that discussion repeatedly in the various regions and districts that make up ODOT. I think, had we known at the outset, the kind of struggle that would amount to and the kinds of discussions we would have to have, we would have been well served to have insured that we had a greater clarity around the mission and the project that ODOT was undertaking. Because it almost became the case … I think Randall would support this that … He almost felt as if he was combating with others within the department to conclude the construction of a given site. As if he was a nuisance to the otherwise transpiring construction activities that were going on within a region. And I think we might have done a better job up front had we done a better job of instilling the vision and communicating what we were setting out to do as opposed to doing that kind of instructional work piecemeal.

Q: What about the marketing efforts? Are there any lessons one could learn about how you reached out to your carriers?

A: Yep. I would tell you there, first and foremost, and it's not an original thought, in fact it's been expressed probably best by others before me who said "We will sell no wine before its time." And the mistake we made, and it was a crucial mistake, was we went out and we hyped the program and we sensationalized a little bit, and we tried to stir up significant motor carrier interest when we only had one or two sites operating. And it is of little to no value to a motor carrier unless it is robust in the number of sites in which pre-clearance can be obtained.

A: We should have concentrated more on construction and deferred marketing until we had more of an operable system.

Q: What about interoperability with the other systems. What are some of the lessons that you see Oregon can pass on to others in that area?

A: That probably is the most frustrating aspect of this entire saga for me personally. I would say that those folks in a position to provide national leadership have dodged this issue. Our partners in the Federal Highway Administration have stuck their heads in the sand. And, while they talk about interoperability, they have limited the discussion to simple, technological interoperability. And that is only half the problem. If, in fact, the business models are not interoperable, that is as much of a stumbling block as technological interoperability shortcomings. And what we have today is anything short of interoperability. Motor carriers today in Oregon that are getting Oregon transponders are not permitted to enroll that transponder in California and they can only enroll those transponders in Washington if they pay an additional fee per truck. The motor carriers are in a position of having to have multiple transponders per truck to operate on the simple length of freeway, I5, from San Diego to Washington to the Canadian border. It is an imponderable situation in my mind, something that the federal government easily could have intervened in. But we see the effective lobbying effort of other private sector firms that are attempting to influence ITS deployment in this country for their individual financial concerns and, in my view, that is the single most prevalent reason that ITS infrastructure is not more fully deployed in this country. It is all a question of leadership. Oregon cannot affect policy outside of Oregon effectively. The federal government clearly is positioned to do so but they have foregone any reasonable attempt, or meaningful attempt, to do so. We do not have interoperability today. It is not on the horizon.

5.5 Interview Five

Q: One of the objectives that Green Light when it was first developed several years ago was that it was to decrease the traffic at the various sites that it would be installed at, the traffic of trucks actually entering weigh stations, which at the time was a considerable problem. Do you believe that this objective is being met from your perspective?

A: Yes, at this point. With the volume of transponders that are out there, I think the truck volumes we are able to handle sets us up well now but will set us up even better in the future. So I think we have handled the customer base fairly well.

Q: Another one of the objectives of Green Light was to alter the profile of the stream of vehicles that leaves the highway to one that was more likely to have compliance issues. That was because vehicles were pre-screened in order to participate in Green Light. Their credentials and their safety ratings were checked. Do you believe that this objective is being met, from your perspective?

A: Yes. We've been able to target our enforcement staff on the folks that don't have a good record. And what we've shown also is that we've had a decrease in truck-related accidents as a result of the screening that has gone on, I think, and the targeting and putting up our staff to go after to the folks that are the scoff-laws or at least taking out the folks that don't cause problems so we get a better bang for the buck, from the public's point of view. Our safety officers are sent where there are safety problems, or more likely to be safety problems. So it has been very effective in that way. Probably more effective in that way than it has been in taking traffic off the road at this point.

Q: Ok. My experience has been that that element has been lost along the way. That was one of the defined objectives when the project was started. I think that the champion of Green Light has been more the decreasing in traffic and the fact that Oregon won't have to expand their facilities and that sort of thing and that the safety is like an added benefit.

A: Well, we've had a 23% reduction in fatalities in the state. We have been emphasizing safety and I think the truck is part of that. Because you've taken the bad guys off, the unsafe trucks off, off the road, then the mix of fleets that's out there is in much better

shape. In '99 the decrease in fatalities was in the vehicle category, you know, motorcycles, bikes, all categories, but I think truckers … it was an absolute reduction in fatalities when in fact the traffic has gone up and so, I think, that the mix of trucks is safer. That has been a contributing factor in a major way.

Q: The last of the three initial objectives of Green Light was the enhancing of the inspectors to target problem carriers at the scales for the inspection process. Another safety related objective.

A: Yeah, the manager of people. That is probably the most key in terms of the productivity gain. You've let technology process normally the folks that are following all the rules and regulations and you've given the manual, bad apples if you will, to the staff to deal with. It's just an efficient use to let the folks that know what they are doing keep moving. And they've agreed and they've agreed to set some standards, so we are bound to get a better return on our dollar that way. I just think it is a key part to the whole safety piece in what we are trying to deliver to Oregonians.

Q: In your opinion, what have been the most successful aspects of the Green Light project from the perspective of the motor carriers?

A: I'm not a motor carrier, so from the perspective of the motor carriers I can only guess. We have participated with OGA off and on this program. They've changed their position. It has been a little hard to follow sometimes, but I think they too, when you talk to the organization, they appreciate that the good guys are allowed to do their job more efficiently. The industry can move quicker, faster, and better. With a freer flow, and then the dollar value, we thought it was $1.10 per minute per truck stuck in traffic. That same number would apply to trucks stuck in a weigh station, so if you lose 5 minutes, you lose $5 and you lose time at the other end, and so that's very important. So, I think from their point of view, letting the good guys move efficiently is probably the biggest gain. And then, they also are quite good at monitoring our staff, monitoring meaning they appreciate what our staff does and so I think the industry knows our staff is going after the bad guys. And that helps their image by having fewer truck wrecks on the road and by taking care of the bad guys in their industry. Which helps from the competitive point of view to make sure that the good guys are left, good guys meaning those that follow

the rules. The insurance, keep their rates up, in shape, and that sort of thing. I think that's the key thing, the speed issue. It took us a while to get the things set up. It took us longer to get things set up and it took us longer to get the transponders out, due to some political issues really. And, so, in terms of absolute efficiencies, we could have saved some capital investments earlier, I think, on Woodburn had we been able to distribute these earlier, but you know, politics. It could be other states won't have to handle these same politics. You know, those might get a hand out. As for the technology itself, it's there to be used. You just have to work through the politics of it.

Q: In terms of the roll out of Green Light and how it was brought into the Motor Carrier Division and their day-to-day operations, what are the lessons that can be learned from that process?

A: It takes guts to implement this thing. And guts and bureaucracy don't often go hand in hand. And guts and multiple bureaucracies assuredly don't go together too well. It's a multi-bureaucracy thing to implement this, Federal Highway Administration, a state Department of Transportation, and it may be two or more aspects of that state that have to be engaged. It may be a PUC function, it may be a Department of Transportation function. We're lucky that they're together. I'm not sure Motor Carrier appreciates how lucky we are. What we ran into time and time again was not a technical issue. It's not the technical stuff that's the problem. It's really the political stuff that's the problem. And, I think, in the future, if you can get rid of the political stuff, I don't think the technical stuff is going to be that hard once you master it. And the third leg of that is the trucking industry. There are new industries coming in, the Lock Heed and Help Inc, and all that stuff, all good companies and good organizations, but they are sort of fighting for their survival through political means. It's caused unnecessary black eyes but it's good technology. I think the lesson I learned is just because it makes sense from a technological point of view doesn't mean that the political wherewithal is going to be there to see it through. You've got to fight like heck to make it work because "it's always something," as Gilda Radner would say.

Q: The marketing effort that you had to use to get the trucking industry to buy into this idea. What are some of the lessons that can be learned by other states that implement this type of technology?

A: I think that the marketing efforts are too hard to judge in Oregon because they were hampered by other political battles going on. We had the weight/mile battle, and so the Oregon Trucking Association used the weight/mile battle as a reason to not engage constructively in their original agreement to help support this thing. They knew this thing was to their advantage and they didn't pursue it … because … and they actually tried to support it. They did try and … they did support it… Because of their own political interest in the weight/mile battle. So, I'm not sure if what happened in Oregon is translatable, other than the lesson learned would be politics can enter into it. You know, I suppose those in favor of it won't vote against it is what we've seen. I don't know in another state if they want to go after the same battle that it might not be much easier to do. The other obstacle that we found wasn't political at all, but there were a lot of people who, with the system not up and running, or only up and running in one or two places, you couldn't get them to get it. The savings were such that they didn't want to put out of pocket $45 on every truck, not knowing what the savings were, so they need to go through a test period. And this idea of giving the transponders away needs to be pursued to get the technology going. It's not uncommon. Telecommunications has done that before, given phones away, given computers away, and such, to get the people accustomed to the use of the technology and take the risk out of the customer's hands. Once they are used to what's going on they go out and buy the next piece of piece of equipment and we're off and running. The fact that we ended up giving these things away to get things going, I think once people experience the benefit and then if they have to pay the $45, I bet very few of them go back to being stuck in traffic, as it were. Cause this is really, you know, congestion pricing. As long as you are a safe trucker, why would you want to get stuck in that thing, is it worth it to you to pay $45? There may be some that choose not to, but I would suspect that a bunch of them do it that way. Transponder numbers have really taken off, but we gave them away for free, and free turned out to be a very good price. But, I'm not sure everyone can afford to do that. And so if you do charge them, I mean it may behoove you to work your finances in such a way that the whole thing is set up to give them away and that gets people in the mix. An electronic license plate, so I think whatever we pay for the license plate generally, we might want to think about just including in that electronic identification so that we have the ability to identify them electronically if we need to.

Q: Lastly would be the lessons learned about the interoperability issues. That means the interoperability of the technological side of things and also in the business plan side of things.

A: The technology is there. The problem wasn't a technology question. The problem was a political question and the difference between the profits, who was looking for on-going profits. It's a question of the relationship between the various carriers and people finally getting their footprint on a bigger part of the market So, I think, the lessons learned are you need to identify the political battle, the lay of the land, in terms of who's looking for what market and just understand your state in trying to implement this. Understand what both sides offer. You have to look at your own ability to put infrastructure in place. And, if you are going to go the private sector route, understand what that means in terms of what they will and won't accept if you go with the brand that's out there right now. There may be other providers in the future and so you just have to scope out what is being offered by that particular carrier and then understand that interoperability is something you either need to exist or understand that it won't and what that's going to do to your system if you choose to go that route. That's entirely not a technology problem. It's entirely a political problem. The technology pieces you have to wade through but it's doable, very doable.