

# Operational and Economic Impacts of the New Hours-of-Service

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# Operational and Economic Impacts of the New Hours-of-Service

November 2013

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## TABLE OF CONTENTS

<b>TABLE OF CONTENTS</b> .....	<b>i</b>
<b>LIST OF ACRONYMS</b> .....	<b>iv</b>
<b>ES.1 EXECUTIVE SUMMARY</b> .....	<b>v</b>
<b>1.0 HOURS-OF-SERVICE BACKGROUND</b> .....	<b>1</b>
1.1 July 1 <sup>st</sup> Hours-of-Service Rule.....	1
1.2 Legal Challenges.....	1
1.3 Revisions to the 2013 Hours-of-Service Rule.....	2
1.4 Industry Productivity Impacts .....	3
<b>2.0 RESEARCH APPROACH</b> .....	<b>5</b>
2.1 Literature Review.....	5
2.2 Driver and Carrier Survey Analysis .....	5
3.3 Electronic Logbook Analysis .....	6
<b>3.0 DRIVER SURVEY FINDINGS</b> .....	<b>7</b>
3.1 Respondent Demographics.....	7
3.2 Driver Use of the 34-Hour Restart.....	9
3.3 Impacts of the Changes to the Hours-of-Service Rules .....	10
3.3.1 <i>Impacts of the 1 a.m. to 5 a.m. Provision</i> .....	10
3.3.2 <i>Impacts of the 1 Restart per Week Provision</i> .....	11
3.3.3 <i>Analysis of Qualitative Restart Data</i> .....	12
3.3.4 <i>Impacts of the Rest Break Requirement</i> .....	13
3.3.5 <i>Analysis of Qualitative Rest Break Data</i> .....	13
3.4 Enforcement of New Rules.....	14
3.4.1 <i>Restart Enforcement</i> .....	14
3.4.2 <i>Rest Break Enforcement</i> .....	15
3.5 Impacts on Driver Quality of Life and Operations.....	15
3.6 Changes in Work Hours and Compensation.....	17
3.6.1 <i>Analysis of Weekly Mileage Changes</i> .....	17
3.6.2 <i>Analysis of On-Duty Time Changes</i> .....	18
3.6.3 <i>Analysis of Changes in Driver Pay</i> .....	18
3.7 Changes in Fatigue .....	20
3.8 Summary of Driver Survey Analysis.....	20
<b>4.0 MOTOR CARRIER SURVEY FINDINGS</b> .....	<b>22</b>
4.1 Respondent Demographics.....	22
4.2 Carrier Use of the 34-Hour Restart .....	23
4.3 Impacts of the Changes to the 34-Hour Restart .....	24
4.3.1 <i>Impacts of the 1 a.m. to 5 a.m. Provision</i> .....	24
4.3.2 <i>Impacts of the 1 Restart per Week Provision</i> .....	25
4.3.3 <i>Impacts of the Rest Break</i> .....	28
4.4 Impacts to Motor Carriers .....	29
4.5 Enforcement Perceptions .....	31
4.6 Summary of Motor Carrier Survey Findings.....	32
<b>5.0 LOGBOOK ANALYSIS</b> .....	<b>34</b>
5.1 Step 1: Analysis of Restart Use Patterns.....	34
5.2 Step 2: Analysis of Industry-Wide Driver Operating Patterns.....	35

5.2.1	Results of Driver Assignment Process.....	36
5.3	Analysis of Individual Driver Operating Patterns .....	38
<b>6.0</b>	<b>SUMMARY OF FINDINGS AND CONCLUSIONS.....</b>	<b>41</b>
6.1	Impacts to Driver Compensation.....	41
6.1.2	Carrier Loss of Productivity.....	44
6.1.3	Safety Impacts .....	45
6.2	Conclusion .....	45

**LIST OF TABLES**

Table ES.1.	– 3.2% Driver Pay Impacts .....	viii
Table ES.2.	– 7.7% Driver Pay Impacts .....	viii
Table 2.1.	Number of Driver Open-Ended Responses .....	5
Table 2.2.	Number of Carrier Open-Ended Responses .....	6
Table 3.1.	Driver Survey Respondent Demographics - Sector Distributions .....	7
Table 3.2.	Driver Survey Respondent Demographics - Employment Type .....	7
Table 3.3.	Driver Survey Respondent Demographics - Years Driving .....	8
Table 3.4.	Driver Survey Respondent Demographics - Primary Route Type .....	8
Table 3.5.	Driver Survey Respondent Demographics – Average Trip Length.....	8
Table 3.6.	1 a.m. to 5 a.m. Adjustments .....	12
Table 3.7.	One Restart Per Week Adjustments .....	12
Table 3.8.	Rest Break Adjustments .....	13
Table 3.9.	Driver Work Changes .....	19
Table 4.1.	Carrier Survey Respondent Demographics - Sector Distributions .....	22
Table 4.2.	Carrier Survey Respondent Demographics - Carrier Size by Power Units.....	22
Table 4.3.	Carrier Survey Respondent Demographics – Average Trip Length .....	23
Table 4.4.	1 a.m. to 5 a.m. Adjustments .....	27
Table 4.5.	One Restart per Week Provision Adjustments.....	27
Table 4.6.	Rest Break Adjustments .....	28
Table 5.1.	Distribution of Restarts < 73 Hours .....	35
Table 5.2.	FMCSA Driver Groups by Intensity of Schedule.....	36
Table 5.3.	7-day Rolling Week Driver Averages – Maximum Driver Groups .....	37
Table 5.4.	7-day Rolling Week Driver Averages – Medium Driver Groups .....	37
Table 5.5.	7-day Rolling Week Driver Averages – Minimum Driver Groups .....	37
Table 5.6.	Overall Standard Deviation Distributions .....	39
Table 6.1	– Driver Pay Impacts at 3.2% .....	43
Table 6.2	– Driver Pay Impacts at 7.7% .....	44

**LIST OF FIGURES**

Figure ES.1.	– Driver Pay Impacts .....	vii
Figure 3.1.	Driver Reasons for 34-Hour Restart Use .....	9
Figure 3.2.	Driver Reasons for 34-Hour Restart Use .....	10
Figure 3.3.	Driver Impacts – 1 a.m. to 5 a.m. Provision.....	11



Figure 3.4. Driver Impacts – 1 Restart per Week Provision .....	11
Figure 3.5. Driver Impacts – Rest Break Requirement .....	13
Figure 3.6. Are Restart Changes Enforceable? .....	14
Figure 3.7. Are Mandatory Rest Breaks Enforceable? .....	15
Figure 3.8. Driver Quality of Life Impacts – Driver Responses .....	16
Figure 3.9. More Time in Congestion Due to 1 a.m. to 5 a.m. Provision .....	16
Figure 3.10. Driver Mileage Impacts .....	17
Figure 3.11. Driver On-Duty Time Impacts.....	18
Figure 3.12. Driver Pay Impacts .....	19
Figure 3.13. Perceived Changes in Fatigue .....	20
Figure 4.1. Motor Carrier Reasons for 34-Hour Restart Use .....	23
Figure 4.2. Motor Carrier Reasons for 34-Hour Restart Use .....	24
Figure 4.3. Carrier Impacts – 1 a.m. to 5 a.m. Provision .....	25
Figure 4.4. Carrier Impacts – 1 Restart per Week Provision .....	26
Figure 4.5. Carrier Impacts – Rest Break Requirement.....	28
Figure 4.6. Motor Carrier Impacts by Impact Type .....	30
Figure 4.7. Motor Carrier Impact Types – Before and After .....	30
Figure 4.8. Can Restart Changes Be Enforced? .....	31
Figure 4.9. Can Rest Break Requirement Be Enforced? .....	32
Figure 5.1. Standard Deviation Measures for Logical Average Weekly Work Time Groups – Old HOS Rules .....	39
Figure 5.2. Standard Deviation Measures for Logical Average Weekly Work Time Groups – New HOS Rules .....	39
Figure 5.3. Standard Deviation Measures using “7-day Maximum” Assignments – Old HOS.....	40
Figure 5.4. Standard Deviation Measures using “7-day Maximum” Assignments – New HOS.....	40
Figure 6.1 – Driver Pay Impacts .....	41
Figure 6.2 – Truck Tonnage Index – October 2012 through September 2013.....	42
Figure 6.3. Driver Impacts across Industry Sources .....	43

## **LIST OF ACRONYMS**

ATA	American Trucking Associations
ATRI	American Transportation Research Institute
CDL	Commercial Driver's License
CSCMP	Council of Supply Chain Management Professionals
FMCSA	Federal Motor Carrier Safety Administration
HOS	Hours-of-Service
LTL	Less-than-Truckload
NITL	National Industrial Transportation League
NPTC	National Private Truck Council
NTI	National Transportation Institute
O-O/IC	Owner-Operator/Independent Contractor
OODA	Owner-Operator Independent Drivers Association
OTR	Over-the-Road
RIA	Regulatory Impact Analysis
TCP	Transport Capital Partners
TL	Truckload



## ES.1 EXECUTIVE SUMMARY

In late 2010, the Federal Motor Carrier Safety Administration (FMCSA) commenced a multi-year process to significantly change the Hours-of-Service (HOS) rules. One year later, and after several legal proceedings, a final rule was issued by the agency. That rule, which was implemented July 1, 2013, added the following changes and provisions to the existing HOS rules:

- 1) **1 a.m. to 5 a.m. Restart Provision:** a valid 34-hour off-duty restart period must include two periods from 1 a.m. to 5 a.m.
- 2) **One Restart per Week Restart Provision:** use of the restart is limited to one time per week (once every 168 hours from the beginning of the prior restart).
- 3) **Rest Break Requirement:** a driver may drive only if 8 hours or less has passed since the end of the driver's last off-duty or sleeper-berth period of at least 30 minutes.

This report assesses the impacts of these changes on commercial truck drivers and motor carriers. It closely follows the American Transportation Research Institute (ATRI) June 2013 publication, *Assessing the Impacts of the 34-Hour Restart Provisions*<sup>1</sup>, and quantifies operational and economic impacts since the July 1<sup>st</sup> HOS rules went into effect.

As background, prior to implementation of the rules FMCSA completed a Regulatory Impact Analysis (RIA) which assessed the expected costs and benefits associated with the new regulations.<sup>2</sup> In the RIA, FMCSA estimated a net benefit of \$133 million for the restart provisions. In a separate pre-implementation analysis ATRI, using log book data representing normal trucking operations, projected an estimated cost to the industry of \$95 million to \$376 million annually.

Since the new HOS rules were implemented, a number of carriers have now quantified the actual impact to their operations and the findings are consistent with the pre-July 1<sup>st</sup> estimates. Werner Enterprises reported decreased productivity of 2 to 3 percent company-wide and 6 percent among team drivers;<sup>3</sup> Schneider National has realized a 3.1 percent decrease in productivity on single-driver shipments and a 4.3 percent decline on team shipments;<sup>4</sup> and the National Transportation Institute's (NTI) survey of 412 carriers found that driver wages have decreased by 3.2 to 5.6 percent.<sup>5</sup>

For its analysis of industry impacts post-rules implementation, the ATRI Research Team conducted two surveys; a driver survey which yielded 2,370 responses and a motor carrier

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<sup>1</sup> Short, J. (2013). *Assessing the Impacts of the 34-Hour Restart Provisions*. American Transportation Research Institute. Arlington, VA.

<sup>2</sup> Federal Motor Carrier Safety Administration (FMCSA). *2010-2011 Hours of Service Rule Regulatory Impact Analysis (RIA)*. DOT 2012-01-006. FMCSA. Washington, DC: 2011. 2011.

<sup>3</sup> Watson, R. Truck Drivers Losing Money from Recent HOS Changes, Fleet Leaders Say. *Transport Topics*. October 22, 2013. Available Online: <http://www.ttnews.com/articles/basetemplate.aspx?storyid=33272&t=Truck-Drivers-Losing-Money-from-Recent-HOS-Changes-Fleet-Leaders-Say>

<sup>4</sup> Schneider National Shares Impact, Challenges of Hours of Services Changes. Schneider National Press Release. October 24, 2013. Available online: [http://www.schneider.com/KnowledgeHub/News/PRD\\_006190](http://www.schneider.com/KnowledgeHub/News/PRD_006190)

<sup>5</sup> Solomon, M.B. (2013). HOS Compliance Cutting Driver Wages By As Much As 5.6 Percent, Survey Finds. *DC Velocity*. Available Online: <http://www.dcelocity.com/articles/20131014-hos-compliance-cutting-driver-wages-by-as-much-as-56-percent-survey-finds/>

survey which yielded 446 responses. Additionally, ATRI conducted an analysis of logbook data representing more than 40,000 drivers.

Results from the driver survey indicated that 12.4 percent of drivers with prior experience using the restart had discontinued use once the new rules went into effect. Respondents indicated that the benefits of the restart, particularly those related to productivity, have diminished. The majority of respondents indicated that the two new restart provisions have had a moderate or significant negative impact on their operations. The survey also found that many drivers are adjusting to the new restart rules by changing schedules, incorporating a rolling schedule into their operations, changing start/end times and turning down loads.

A majority of the drivers (67.7%) have experienced a moderate or significant negative impact from the rest break requirement, and are adjusting through planning, schedule changes and making use of the rest break time to accomplish other tasks.

The drivers were evenly split in opinions on the enforceability of the new HOS requirements, with many indicating the rules are difficult to enforce without more widespread use of electronic logs. Most drivers, 82.5 percent, indicated that the new HOS rules have had a somewhat negative or very negative impact on their quality of life. More than half have spent more time in congestion as a result of the changes and 66.3 percent perceived an increase in their own level of fatigue. Additionally, more than 66 percent have experienced a decrease in weekly miles and weekly pay. Finally, nearly 20 percent of drivers reported an increase in on-duty hours, which may indicate more time spent on non-revenue generating activities such as searching for available truck parking.

Among responses to the motor carrier survey, 11.7 percent indicated that their company has discontinued use of the restart due to the July 1<sup>st</sup> HOS change. Among those carriers with a history of restart use, there is evidence that the utility of the restart has diminished. The majority of motor carrier survey respondents indicate that a moderate or significant negative impact to operations has resulted from the restart changes and the rest break requirement.

To adjust to the 1 a.m. to 5 a.m. rules carriers indicated that start times and driver schedules were changed, often including reduced driver work weeks. Some have had to add more drivers and others have adjusted customer service expectations. To adjust for the one restart per week rule, carriers report a return to the use of a rolling schedule, making schedule adjustments, hiring more drivers and turning down loads. Carriers have adjusted to the rest break requirement by reducing customer service expectations and monitoring/training drivers, in addition to changing driver and delivery schedules. More than 80 percent of carriers have indicated a productivity loss, with nearly half stating that they require more drivers to haul the same amount of freight under the new HOS rules. This is consistent with a similar survey conducted by the National Private Truck Council which found among its membership that 80 percent of private carriers were experiencing negative productivity impacts from the HOS rules changes.<sup>6</sup>

The logbook data analysis indicated a significant increase in restart period length from pre- to post-HOS implementation, with 63 percent fewer restarts that were 34 hours in duration. This increase may have been caused by the 1 a.m. to 5 a.m. rule which has resulted in a “window” that drivers must be off-duty within to achieve a legal restart period of 34 hours. Additionally

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<sup>6</sup> National Private Truck Council Hours-of-Service Survey. NPTC. August 2013.

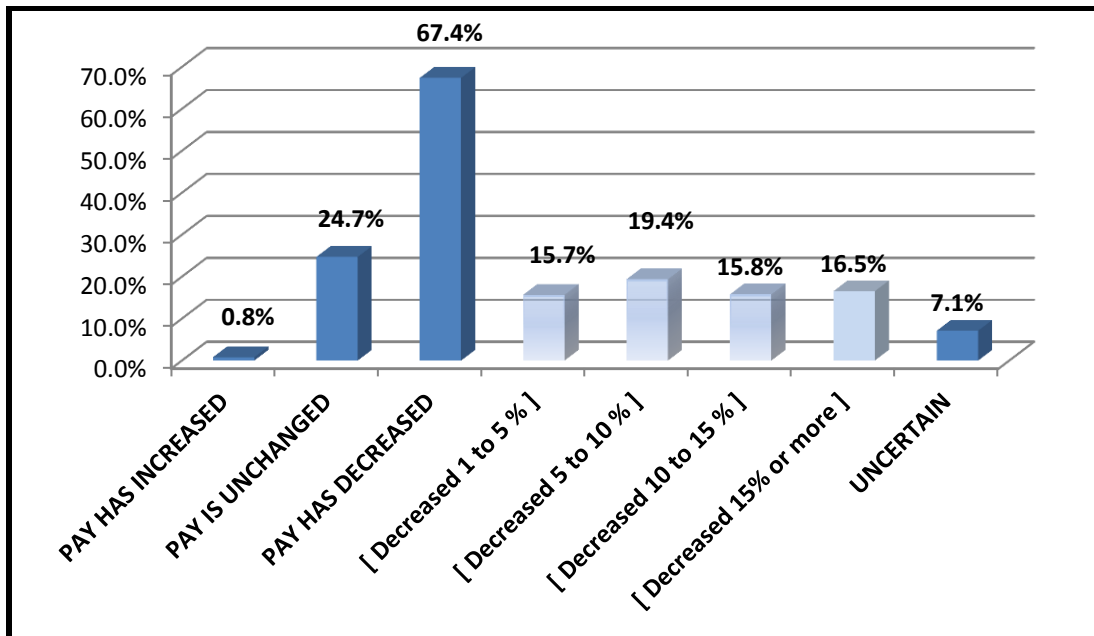
carriers may have modified schedules by increasing restart length in order to meet all requirements of the new restart rules.

Finally, the logbook analysis showed that while drivers experience variability in their work schedules, a decrease in variability is observed in the new HOS operating patterns suggesting that the new regulations contribute to reduced flexibility in driver work schedules.

To summarize the results, the findings can be applied to three key areas: driver pay impacts, carrier productivity impacts and safety impacts.

For drivers, a total of 67.4 percent reported experiencing a decrease in pay since the July 1<sup>st</sup> HOS changes (see Figure ES.1).

**Figure ES.1. – Driver Pay Impacts**



This loss in pay could be attributed to myriad factors related to the July 1<sup>st</sup> HOS rules, including:

- Schedule changes to meet requirements of the restart provisions
- Increased restart times
- Reverting back to use of a rolling schedule
- Lost loads due to decreased flexibility
- Rest break requirement increasing unproductive on-duty time (e.g. finding truck parking)

This loss also comes at a time when demand for drivers and freight capacity is at a peak. Conservative estimates for pay decreases across 1.6 million over-the-road (OTR) drivers were developed and are described in detail in the report. A driver pay decrease of 3.2% – 7.7% was identified, which is consistent with industry impacts found through the literature review.

Tables ES.1 and ES.2 apply the range of driver pay impacts to a population of 1.6 million OTR drivers, weighting the calculations based on the survey results. A conservative \$1.6 billion to \$3.9 billion annualized loss was identified.

**Table ES.1. – 3.2% Driver Pay Impacts**

Category	Assigned Decrease/ Increase	Percent of Respondents	Number of Drivers	Average Annual 2011 Salary (\$48,121) * Number of Drivers	Annual Loss = Total Compensation by Category * Decrease/Increase
Pay has Increased	3.2%	0.8%	12,752	\$613,657,811	\$19,637,050
Pay is Unchanged	0.0%	24.7%	395,324	\$19,023,392,136	
Pay has Decreased	-3.2%	67.4%	1,078,002	\$51,874,540,276	(\$1,659,985,289)
Uncertain	0.0%	7.1%	113,921	\$5,482,009,777	
		100.0%	1,600,000	\$76,993,600,000	(\$1,640,348,239)

**Table ES.2. – 7.7% Driver Pay Impacts**

Category	Assigned Decrease/ Increase	Percent of Respondents	Number of Drivers	Average Annual 2011 Salary (\$48,121) * Number of Drivers	Annual Loss = Total Compensation by Category * Decrease/Increase
Pay has Increased	7.7%	0.8%	12,752	\$613,657,811	\$47,251,651
Pay is Unchanged	0.0%	24.7%	395,324	\$19,023,392,136	
Pay has Decreased	-7.7%	67.4%	1,078,002	\$51,874,540,276	(\$3,994,339,601)
Uncertain	0.0%	7.1%	113,921	\$5,482,009,777	
		100.0%	1,600,000	\$76,993,600,000	(\$3,947,087,950)

Carriers face several productivity-related challenges as a result of the HOS changes, and 80 percent of carrier respondents indicated that they have experienced a loss in productivity. The key carrier outcomes that result from the HOS changes, including those related to productivity loss, are as follows:

- More Drivers are now Required to Move the Same Amount of Freight:** To comply with the HOS rules carriers have shifted driver schedules. Many of these new schedules have resulted in a decrease in the number of weekly miles a driver can log. Due to the decrease in miles, carriers have a choice of turning down freight or making up the miles by incorporating additional drivers and/or equipment into their operations. These options

are less efficient than operations prior to the new HOS rules, and are a central component of the productivity loss.

- **Driver Shortage and Turnover:** Prior to the July 1<sup>st</sup> HOS rules, qualified drivers were scarce with an estimated shortage of 20,000 to 25,000 for-hire truckload drivers.<sup>7</sup> As a result of the changes more drivers are required and the level of scarcity has increased. To attract drivers after the HOS change, some carriers have opted to increase pay<sup>8</sup> and some may increase rates for shippers. Rate hikes are challenging, however, due to strong competition among industry participants. If rate increases do not fully compensate for driver pay increases then carriers raising pay will assume an additional financial burden.
- **Decreased Flexibility to Meet Customer Requirements:** Meeting customer requirements is more difficult under the new HOS rules. In particular, drivers are limited to one restart per week and must take those restarts across two nighttime periods. Shippers, however, may require delivery at any point on a given day, and with little notice. The data show, particularly those data describing the variability in driver weekly work time, that flexibility has decreased. As a result, drivers are less able to accumulate hours for unanticipated shipper requests via the 34-hour restart. In many instances carriers must either turn down business or increase driver capacity.

The central goal of the HOS rules is to create a safe operating environment. The goals of the new July 1<sup>st</sup> HOS changes were to make the existing HOS rules even safer. Drivers, however, have indicated increases in fatigue since the rules were implemented. Additionally, drivers and carriers remain uncertain about the enforceability of the new rules. Finally, there is evidence that the rules have increased time working and time away from home for many drivers. Some drivers have indicated that due to the rest break requirement, for instance, typical work day lengths have actually increased. Nearly 20 percent indicated an increase in on-duty time, though miles and pay have decreased or remained constant. Still others indicated that due to the changes, off-duty time has been required away from home more often, thus decreasing the restorative benefits of the rest period.

Trucking is not a “one-size-fits-all” industry, and individual trucking operations vary greatly. Even so, there has been a clear, measurable and generally negative impact to a significant portion of the industry resulting from the July 1<sup>st</sup> HOS rules implementation. This report has demonstrated clear evidence that the rules have created a significant financial consequence for individual drivers as well as motor carriers, the majority of whom are small businesses. The financial impacts are realized through decreased earnings for drivers, decreased efficiency and productivity for carriers and, as trucking capacity tightens due to an increasing driver shortage, increased rates for businesses that ship goods.

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<sup>7</sup> Costello, Bob. *Truck Driver Shortage Update*. American Trucking Associations, November 2012.

<sup>8</sup> As an example, in October 2013 motor carriers CRST Expedited “announced plans to spend more than \$10 million over the next year for pay increases to attract new drivers, compensate drivers for recent productivity losses and provide performance-based bonuses for top drivers.” *Transport Topics*, October 3, 2013.

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## **1.0 HOURS-OF-SERVICE BACKGROUND**

In late 2010, the Federal Motor Carrier Safety Administration (FMCSA) commenced a multi-year process to significantly change the Hours-of-Service (HOS) rules. One year later, and after several legal proceedings, a final rule was issued by the agency which included two changes to the 34-hour restart rule and the addition of a rest break requirement.

The following report assesses the impacts of these new HOS rules on the U.S. trucking industry. It closely follows a previous American Transportation Research Institute (ATRI) June 2013 publication, *Assessing the Impacts of the 34-Hour Restart Provisions*.<sup>9</sup> The previous report focused on potential impacts that could result from the changes. This report quantifies actual impacts from the changes through a data collection and analysis effort that included an analysis of logbook data, as well as a driver and carrier survey.

### **1.1 July 1<sup>st</sup> Hours-of-Service Rule**

Carriers and drivers who operate in interstate commerce with a commercial motor vehicle (CMV) are required to be in compliance with the federal HOS rules.<sup>10</sup> Several changes to the rules were implemented on July 1, 2013 (herein referred to as the July 1<sup>st</sup> HOS rules), including:

- 1) **1 a.m. to 5 a.m. Restart Provision:** a valid 34-hour off-duty restart period must include two periods from 1 a.m. to 5 a.m.
- 2) **One Restart per Week Restart Provision:** use of the restart is limited to one time per week (once every 168 hours from the beginning of the prior restart).
- 3) **Rest Break Requirement:** a driver may drive only if 8 hours or less has passed since the end of the driver's last off-duty or sleeper-berth period of at least 30 minutes.

### **1.2 Legal Challenges**

The first significant changes to the HOS rules were introduced in 2003, with subsequent changes being initiated by FMCSA in 2005 and 2010. Since the 2003 HOS ruling, several parties have pursued legal action against the regulations. The most recent petitions were filed shortly after the 2010 publication of the *Hours-of-Service of Drivers - Notice of Proposed Rulemaking*.

The American Trucking Associations (ATA), joined by the Owner-Operator Independent Drivers Association (OOIDA) and the National Industrial Transportation League (NITL), along with several other groups, challenged the new limits on the 34-hour restart as well as the new 30-minute off-duty break requirement.<sup>11</sup>

The rules were challenged by other groups, including Public Citizen, Advocates for Highway and Auto Safety and the Truck Safety Coalition, who claimed that the rules did not sufficiently

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<sup>9</sup> Short, J. (2013). *Assessing the Impacts of the 34-Hour Restart Provisions*. American Transportation Research Institute. Arlington, VA.

<sup>10</sup> Summary of Hours-of-Service (HOS) Regulations. (2013). Federal Motor Carrier Safety Administration. Available Online: <http://www.fmcsa.dot.gov/rules-regulations/topics/hos/index.htm>

<sup>11</sup> United States Court of Appeals for the District of Columbia Circuit. Case No. 12-1092. Available online: <http://www.dot.gov/sites/dot.dev/files/docs/ATA%20v.%20FMCSA.pdf>



protect public safety and argued that both the 34-hour restart and 11-hour daily driving limit should be eliminated.<sup>12</sup>

The petitions, heard by the United States Court of Appeals for the District of Columbia Circuit, were consolidated into one case and oral arguments were heard on March 15, 2013. The Court issued its decision on August 2, 2013 which affirmed all components of FMCSA's HOS rules except for the provision requiring a 30-minute break for local drivers.<sup>13</sup>

### 1.3 Revisions to the 2013 Hours-of-Service Rule

Since the final HOS rule took effect on July 1, 2013, a number of changes to the regulations have already been implemented, several prior to the August 2<sup>nd</sup> Court ruling. On July 11, 2013, FMCSA granted a limited 90-day waiver to the 30-minute break provision for drivers hauling livestock.<sup>14,15</sup> FMCSA and livestock industry members reached agreement that the costs to livestock well-being outweighed the safety benefits of drivers taking the 30-minute rest breaks during the high temperature months of July, August and September.<sup>16</sup>

As noted, on August 2, 2013, the Court struck down the 30-minute break provision for all short-haul drivers.<sup>17</sup> Although FMCSA has not definitively defined a short-haul driver, the administration issued guidance that the 30-minute break exemption applies to "all commercial driver's licensed (CDL) and non-CDL drivers who operate within 100 air-miles of their home terminal or to non-CDL drivers who operate within 150 air-miles of their home terminal."<sup>18</sup> On October 28, 2013, FMCSA made the short-haul break exemption official by publishing it in the Federal Register.<sup>19</sup>

On October 22, 2013, FMCSA granted an exemption to the 30-minute break provision to the U.S. Department of Defense Military Surface Deployment and Distribution Command.<sup>20</sup> This exemption is extended to October 21, 2015 and applies to drivers transporting weapons, munitions and sensitive or classified cargo.<sup>21</sup>

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<sup>12</sup> United States Court of Appeals for the District of Columbia Circuit. Case No. No. 12-1113. Initial Brief for Petitioners. Available online: <http://www.ooida.com/CourtActions/HOS/InitialBriefPetitioners.pdf>

<sup>13</sup> United States Court of Appeals for the District of Columbia Circuit. Case No. 12-1092. Decision on Petitions for Review of a Final Rule Issued by the Federal Motor Carrier Safety Administration. Available online: <http://www.dot.gov/sites/dot.dev/files/docs/ATA%20v.%20FMCSA.pdf>

<sup>14</sup> Livestock are defined as "cattle, elk, reindeer, bison, horses, deer, sheep, goats, swine, poultry (including egg-producing poultry), fish used for food, and animals part of foundation herd (including dairy producing cattle)." 78 FR 48930. (2013). Federal Motor Carrier Safety Administration. Available Online: <http://www.fmcsa.dot.gov/rules-regulations/administration/rulemakings/notices/HOS-National-Pork-Producers.pdf>

<sup>15</sup> General Notice: Hours of Service; Limited 90-Day Waiver from the 30-Minute Rest Break Requirement for the Transportation of Livestock. (2013). Federal Motor Carrier Safety Administration. Available Online: [http://www.fmcsa.dot.gov/rules-regulations/administration/rulemakings/rule-programs/rule\\_making\\_details.aspx?ruleid=431](http://www.fmcsa.dot.gov/rules-regulations/administration/rulemakings/rule-programs/rule_making_details.aspx?ruleid=431)

<sup>16</sup> Ibid.

<sup>17</sup> Cama, T. (2013). Court Upholds HOS Rules: Decision Exempts Shorthauls from Rest Break. *Transport Topics*. Available Online: <http://www.ttnews.com/articles/petemplate.aspx?storyid=32675&t=Court-Upholds-HOS-Rule>

<sup>18</sup> Enforcement Policy—Court Decision on the 30-Minute Rest Break Provision. (2013). Federal Motor Carrier Safety Administration. Available Online: <http://www.fmcsa.dot.gov/documents/hos/30-Minute-Guidance.pdf>

<sup>19</sup> Jaillet, J. (2013). Agency Makes Hour Rule Exemption For Short Haulers Final. *Commercial Carrier Journal*. Available Online: <http://www.ccjdigital.com/agency-makes-hours-rule-exemption-for-short-haulers-final/>

<sup>20</sup> 78 FR 64265. (2013). Federal Register. Federal Motor Carrier Safety Administration. Available Online: <http://www.gpo.gov/fdsys/pkg/FR-2013-10-28/pdf/2013-25375.pdf>

<sup>21</sup> 78 FR 64265. (2013). Federal Register. Federal Motor Carrier Safety Administration. Available Online: <http://www.gpo.gov/fdsys/pkg/FR-2013-10-28/pdf/2013-25375.pdf>



## 1.4 Industry Productivity Impacts

Prior to finalizing the 2013 HOS rules, FMCSA completed a Regulatory Impact Analysis (RIA) which assessed the expected costs and benefits associated with the new regulations.<sup>22</sup> The RIA, which relied on driver log data from a 2007 FMCSA Field Survey,<sup>23</sup> estimated a \$205 million net annual benefit of the new HOS rule, with \$133 million of that net benefit attributed to the restart provisions. However, several concerns were raised over these findings. First, the driver log data was sourced from a very small driver sample derived from carrier compliance reviews and safety audits, resulting in a highly skewed sample of drivers operating at the higher limits of available hours. Second, the RIA ignored the costs associated with driver productivity losses, thereby overestimating the benefits of the rule.

With the goal of developing a more accurate analysis of the costs and benefits of the changes to the 34-hour restart, ATRI first conducted a survey of more than 500 motor carriers and more than 2,300 drivers. A majority of both drivers and carriers expected a loss of flexibility during peak travel periods, increased exposure to congestion, increased driver stress and decreased driver income as a result of the restart provisions.

ATRI also obtained and analyzed logbook data to understand normal operating patterns within the trucking industry. The resulting new driver groupings were incorporated into FMCSA's cost/benefit analysis as well as a series of productivity costs not previously captured. While FMCSA estimated a net benefit of \$133 million for the restart provisions, ATRI projected an estimated cost to the industry of \$95 million to \$376 million annually.

Several other research organizations also estimated the potential productivity impacts of the new rule prior to the July 1<sup>st</sup> effective date. Transport Capital Partners (TCP), for example, surveyed truckload (TL) carriers and found that 40 percent of the respondents expected a reduction in truck utilization of at least 5 percent from the changes.<sup>24</sup> In their annual State of Logistics report, the Council of Supply Chain Management Professionals (CSCMP) estimated a 2 to 10 percent reduction in industry productivity.<sup>25</sup> Furthermore, TranzAct Technologies projected that the trucking industry as a whole would experience a 5 to 7 percent capacity reduction as the result of the HOS changes.<sup>26</sup>

Since the new HOS rules became effective, a number of carriers have now quantified the actual impact to their operations and the findings are consistent with the pre-July 1<sup>st</sup> estimates. Werner Enterprises, for example, recently reported that the July 1<sup>st</sup> HOS rules change has decreased productivity by 2 to 3 percent company-wide and 6 percent among Werner's team drivers.<sup>27</sup> Schneider National has realized a 3.1 percent decrease in productivity on single-

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<sup>22</sup> Federal Motor Carrier Safety Administration (FMCSA). *2010-2011 Hours of Service Rule Regulatory Impact Analysis (RIA)*. RIN 2126-AB26, FMCSA Analysis Division. December 2011.

<sup>23</sup> FMCSA-2004-19608-2538. See <http://www.regulations.gov/#!documentDetail;D=FMCSA-2004-19608-2538>.

<sup>24</sup> Kilcarr, S. (2013). HOS Rules Kick In, Driving Up Fears of Capacity Crunch. *FleetOwner*. Available Online: <http://fleetowner.com/regulations/hos-rules-kick-driving-fears-capacity-crunch>

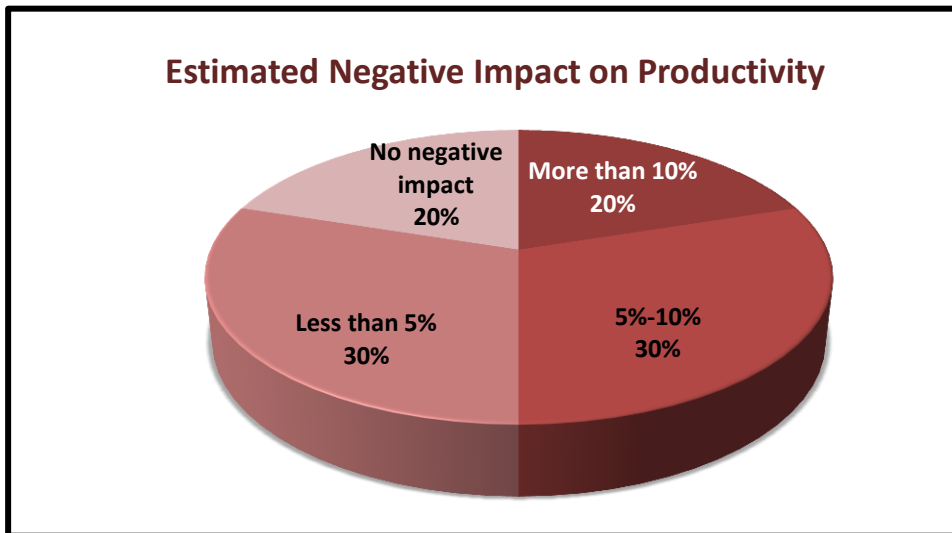
<sup>25</sup> Ibid.

<sup>26</sup> Logistics News: New Hours of Service Rules Started Monday, What Will the Impact on Productivity Really Be? (2013). *Supply Chain Digest*. Available Online: <http://www.scdigest.com/ontarget/13-07-01-1.php?cid=7199>

<sup>27</sup> Watson, R. Truck Drivers Losing Money from Recent HOS Changes, Fleet Leaders Say. *Transport Topics*. October 22, 2013. Available Online: <http://www.ttnews.com/articles/basetemplate.aspx?storyid=33272&t=Truck-Drivers-Losing-Money-from-Recent-HOS-Changes-Fleet-Leaders-Say>

driver shipments and a 4.3 percent decline on team shipments.<sup>28</sup> These findings are supported by the National Transportation Institute's (NTI) survey of 412 carriers which found that driver wages have decreased by 3.2 to 5.6 percent since July 1, 2013 as a result of the HOS changes decreasing the number of hours in a driver's workweek.<sup>29</sup>

Similar impacts are being experienced by private fleets as well. In an August 2013 survey of its membership, the National Private Truck Council (NPTC) found that 80 percent were experiencing negative productivity impacts since the rules changes.<sup>30</sup>



*Source: National Private Truck Council*

<sup>28</sup> Schneider National Shares Impact, Challenges of Hours of Services Changes. Schneider National Press Release. October 24, 2013. Available online: [http://www.schneider.com/KnowledgeHub/News/PRD\\_006190](http://www.schneider.com/KnowledgeHub/News/PRD_006190)

<sup>29</sup> Solomon, M.B. (2013). HOS Compliance Cutting Driver Wages By As Much As 5.6 Percent, Survey Finds. *DC Velocity*. Available Online: <http://www.dcvelocity.com/articles/20131014-hos-compliance-cutting-driver-wages-by-as-much-as-56-percent-survey-finds/>

<sup>30</sup> National Private Truck Council Hours-of-Service Survey. NPTC. August 2013.

## **2.0 RESEARCH APPROACH**

### **2.1 Literature Review**

First, ATRI conducted a review of the HOS literature between the time of the June 2013 ATRI report and this current report. Publicly available court documents as well as industry trade publications were the focus of this review.

### **2.2 Driver and Carrier Survey Analysis**

ATRI next conducted two separate qualitative surveys. The first survey collected data from truck drivers while the second was directed toward motor carriers. The survey instruments were based in large part on those utilized in ATRI's June 2013 HOS impacts study. Additions to the surveys, however, included questions related to the rest break requirement, driver pay, fatigue and the enforceability of the new HOS rules. A number of open-ended questions were included as well, allowing respondents to provide additional detail on their answers. The surveys were made available in an electronic format and a media press release was created for each. A link to the surveys was distributed by numerous industry trade publications and industry associations at the state and national levels.

To effectively examine the open-ended survey responses, the Research Team reviewed the answers and created response categories. For instance, drivers responded with numerous adjustments they had made in response to the restart requirements. Responses were linked with categories (e.g. "changed schedule"), and each category was given a score based on how many times an open-ended answer matched the category.

Responses to the ten driver-oriented and six carrier-oriented optional open-ended questions were extensive. Tables 2.1 and 2.2 display the number of written responses received for each question. These numbers convey the level of importance the HOS changes have to both drivers and carriers.

**Table 2.1. Number of Driver Open-Ended Responses**

<b>Question</b>	<b>Number of Responses</b>
How have you adjusted to the 1 a.m. to 5 a.m. provision?	1,644
How have you adjusted to the 1 restart per week provision?	1,546
How have you adjusted to the rest break requirement?	1,738
Can restart provisions be enforced?	1,094
Can rest break requirement be enforced?	1,059
Have you spent more time in congestion? (explain)	1,018
Have your weekly miles changed? (comment)	619
Have your weekly on-duty hours changed? (comment)	411
Has your weekly pay changed? (comment)	518
Additional comments.	1,338

**Table 2.2. Number of Carrier Open-Ended Responses**

Question	Number of Responses
How have you adjusted to the 1 a.m. to 5 a.m. provision?	288
How have you adjusted to the 1 restart per week provision?	265
How have you adjusted to the rest break requirement?	295
Can restart provisions be enforced?	195
Can rest break requirement be enforced?	177
Additional comments.	221

### 2.3 Electronic Logbook Analysis

For a second time, ATRI acquired and analyzed a large driver logbook dataset. The data covered the on-duty time and restart time of more than 40,000 drivers over a 93-day period after the July 1<sup>st</sup> HOS rules were implemented. This task allowed the Research Team to quantify changes in driver operating patterns, particularly changes in rest break lengths and variability in weekly on-duty time. Additional details on the driver logbook dataset are provided in Chapter 5.

### **3.0 DRIVER SURVEY FINDINGS**

A survey was developed and distributed by ATRI to collect commercial motor vehicle driver impacts from the July 1<sup>st</sup> HOS rules changes. The online survey was posted on ATRI’s website and was publicized by ATRI through an industry-wide press release which was covered by numerous trucking-related media outlets. The survey yielded 2,370 responses over a 55-day period during September and October of 2013.

#### **3.1 Respondent Demographics**

The demographics of the respondent population were first identified. Drivers were asked to indicate in which segment of the trucking industry they primarily operate. As shown in Table 3.1, nearly half (47%) of the respondents operate in the truckload (TL) sector, with another 18 percent operating in the less-than-truckload (LTL) sector.

**Table 3.1. Driver Survey Respondent Demographics - Sector Distributions**

<b>Sector</b>	<b>Percent</b>
Truckload	47%
LTL	18%
Tank Truck	13%
Flatbed	8%
Private	7%
Other	8%

Driver respondents were next asked if they are an employee driver or an owner-operator/independent contractor (O-O/IC). As shown in Table 3.2, 70 percent are employee drivers and the remaining 30 percent indicated O-O/IC.

**Table 3.2. Driver Survey Respondent Demographics - Employment Type**

<b>Driver Employment Type</b>	<b>Percent</b>
Employee	70%
Owner-Operator/ Independent Contractor	30%

The number of years driving was then queried, with more than two-thirds of survey respondents exceeding 10 years’ experience. These veteran drivers were therefore in the industry when the 34-hour restart was first implemented in early 2004.

**Table 3.3. Driver Survey Respondent Demographics - Years Driving**

Years Driving	Percent
Less than 1 year	3%
1 - 3 years	9%
4 - 6 years	8%
6 - 10 years	12%
More than 10 years	68%

Slightly more than 90 percent of drivers indicated that they operate under the 70-hour/8-day schedule; the remainder operate under the 60-hour/7-day schedule.

A plurality of drivers surveyed, 48 percent, indicated that they exclusively operate as an irregular route driver.<sup>31</sup> The remaining drivers were evenly split with 26 percent operating both regular and irregular routes, and 26 percent operating exclusively on regular/dedicated routes as indicated in Table 3.4.

**Table 3.4. Driver Survey Respondent Demographics - Primary Route Type**

Primary Route Type	Percent
Regular/Dedicated	26%
Irregular Route	48%
Both	26%

Finally, respondent trip length characteristics were collected. The drivers were asked to distribute 100 percent of their trips into the four categories shown in Table 3.5. The majority of responses, 66 percent, were associated with trips of 300 miles or more.

**Table 3.5. Driver Survey Respondent Demographics – Average Trip Length**

Trip Length	Percent of Trips
Short Haul (<150 Miles)	15.8%
LH Short Regional (150-300 Miles)	18.1%
LH Long Regional (300-700 Miles)	34.5%
Long Haul (>700 Miles)	31.5%

<sup>31</sup> An irregular route driver operates between new origins and/or destinations for each trip or set of trips. Regular or dedicated route drivers typically operate the same routes between the same origins and destinations. It should be noted that an irregular route driver will often have a greater number of unknown variables on a given trip and will benefit more from flexibility within the HOS rules.

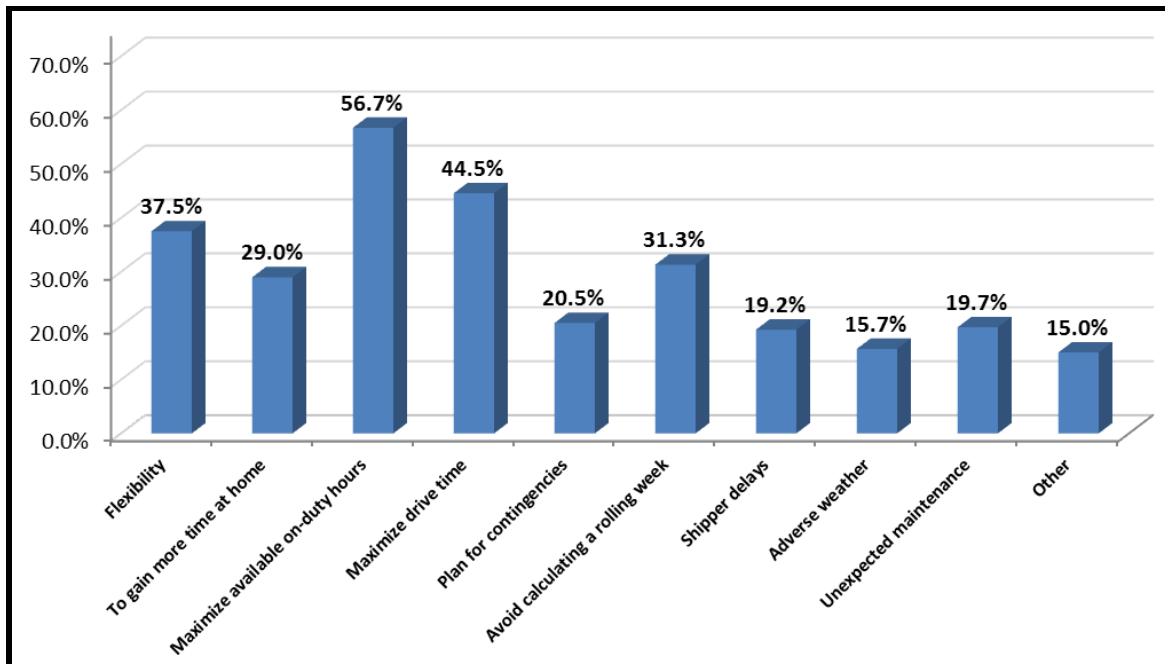
### 3.2 Driver Use of the 34-Hour Restart

The sample driver population was next asked about the use of the restart component of the HOS rules.

Respondents were first asked if they used the 34-hour restart prior to the July 1, 2013 HOS rules changes. Of those who responded, 94.7 percent indicated use of the restart prior to July 1<sup>st</sup>, while 5.3 percent of respondents did not use the restart. Among restart users, 87.6 percent indicated continued use of the restart post-July 1<sup>st</sup>. The remaining 12.4 percent discontinued use of the restart presumably as a result of the HOS changes. In its past Regulatory Impact Analyses, FMCSA attributed industry productivity gains to use of the 34-hour restart. It could be assumed therefore that the 12.4 percent that have discontinued use of the restart have lost productivity.<sup>32</sup>

Respondents were next asked, “Why do you use the 34-hour restart provision?” The drivers were given ten options for using the restart and could select as many of the options as were applicable. Answers from the drivers that had experience using the restart are displayed in Figure 3.1.

**Figure 3.1. Driver Reasons for 34-Hour Restart Use**

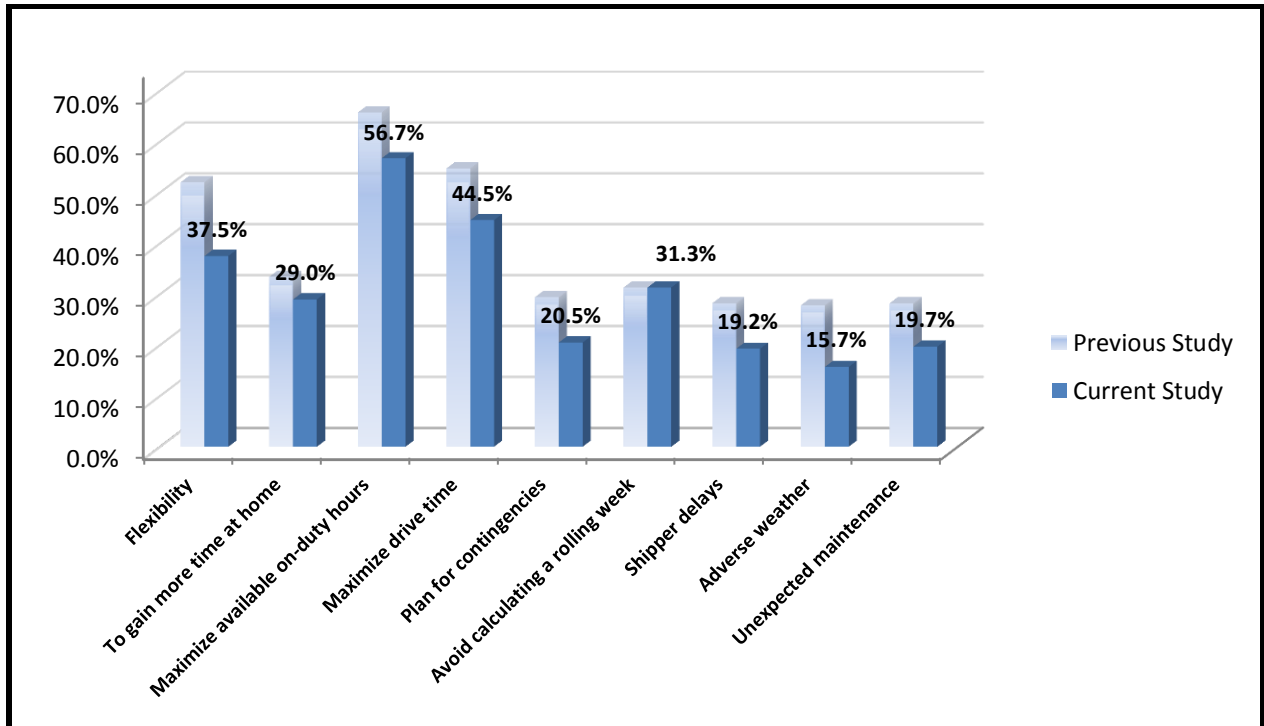


The Figure 3.1 results are compared with the results of ATRI’s earlier pre-implementation restart study in Figure 3.2. Though the two sample populations are not identical this is an indication that the restart may provide less utility to drivers now than it did prior to the July 1<sup>st</sup> changes as indicated by drivers in ATRI’s June 2013 report. This is evidenced by the decline in “reasons for use” in nearly all categories.

<sup>32</sup> Federal Motor Carrier Safety Administration (FMCSA). *2010-2011 Hours of Service Rule Regulatory Impact Analysis (RIA)*. RIN 2126-AB26, FMCSA Analysis Division. December 2011.”



**Figure 3.2. Driver Reasons for 34-Hour Restart Use – Current Study vs. Previous Study**

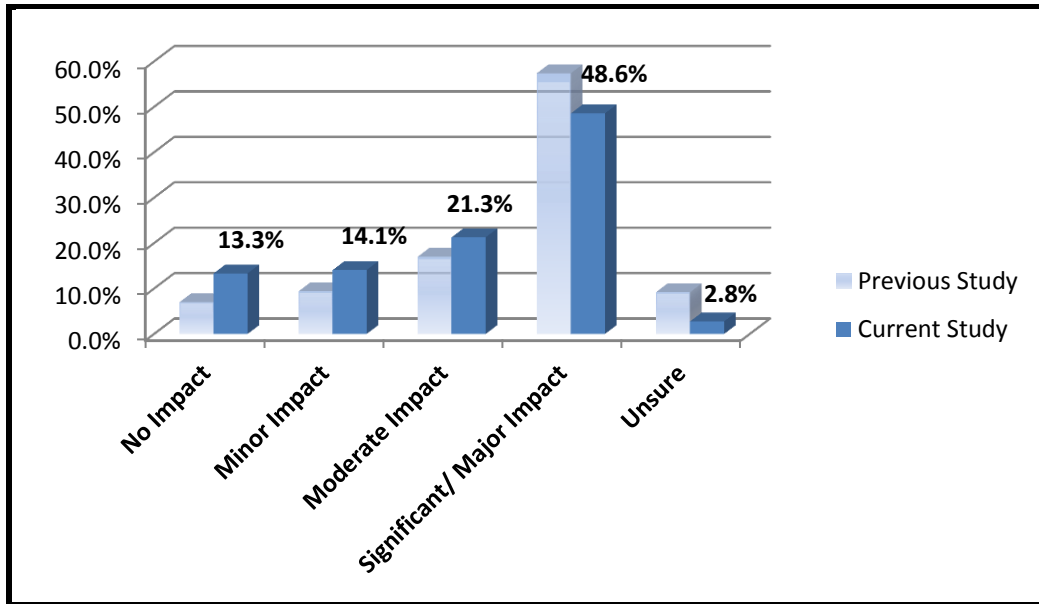


### 3.3 Impacts of the Changes to the Hours-of-Service Rules

#### 3.3.1 Impacts of the 1 a.m. to 5 a.m. Provision

The next series of survey questions asked how specific aspects of the July 1<sup>st</sup> HOS rules changes have impacted each respondent. In the first question of this series, drivers were asked, “How significantly has the 1 a.m. to 5 a.m. rule impacted you?” Among those indicating past and/or present use of the restart, the most prevalent answer was “significant impact” (48.6%). In total, nearly 70 percent indicated that the new provision has had a moderate or significant impact. Slightly more than a quarter of respondents saw minor impacts or no impacts at all. Figure 3.3 displays these findings alongside the findings of the previous study.

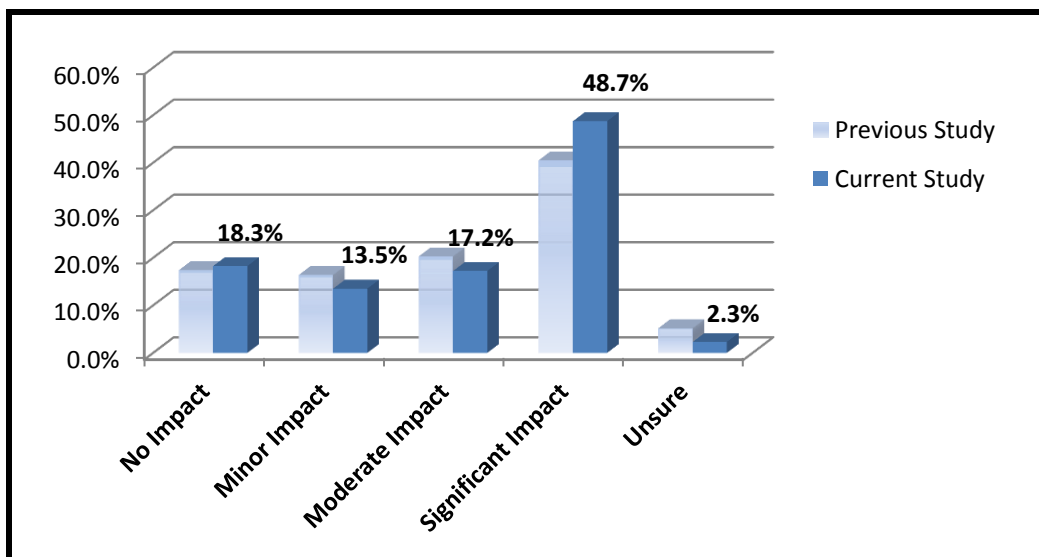
**Figure 3.3. Driver Impacts – 1 a.m. to 5 a.m. Provision**



*3.3.2 Impacts of the 1 Restart per Week Provision*

Drivers were next asked, “How significantly has the 1 restart per week rule impacted you?” Similar to the 1 a.m. to 5 a.m. rule, nearly half (48.7%) of respondents have found a significant impact from the 1 restart per week limitation. Nearly 66 percent indicated a moderate or significant impact, while 31.8 percent saw only minor impact or no impact at all. Figure 3.4 displays these findings as well as the findings of the previous study.

**Figure 3.4. Driver Impacts – 1 Restart per Week Provision**



### 3.3.3 Analysis of Qualitative Restart Data

Respondents were next given an opportunity to discuss, in an open-ended format, how they have adjusted to each of the restart changes.

Per the open-ended question methodology detailed in Chapter 2, Table 3.6 quantifies the ways in which drivers have adapted to the 1 a.m. to 5 a.m. rule. Of the drivers that described their adjustments to the rule, 20.1 percent indicated that they have changed start times. This is not surprising since the requirement compels a restart user to begin driving after 5 a.m. once 34 hours have passed, instead of earlier.

**Table 3.6. 1 a.m. to 5 a.m. Adjustments**

Rank	Adjustment to 1 a.m. to 5 a.m.	Percent
1	Adjusted Start Time	20.1%
2	Adjust Overall Driving Schedule	18.9%
3	Adjusted End Time	15.6%
3	Improve Planning	15.6%
5	Turn Down Loads	9.9%

The following responses represent samples of what drivers submitted:

- *“I had to go to [a] 5 day work week instead of 6 which has cost me about \$1,000 a month, which hurts a lot being the only one working in my household.”*
- *“[I] have to make sure I’m home the same time every Friday so I can restart Monday a.m. There is no flexibility and significant loss in revenue.”*
- *“I have been forced to adopt a daytime driving schedule, which affects my ability to serve my customers.”*
- *“I have had to forfeit loads, once even though I only missed the [restart] ‘window’ by 15 minutes.”*

Drivers were next asked to briefly describe how they have adjusted to the one restart per week rule. As shown in table 3.7, a large percentage of the responses to this question (39.1%) indicate use of a rolling schedule instead of a restart. As background, this was the only method used to accumulate available on-duty hours prior to the 2003 HOS rules. Drivers have also adjusted to the new rule by changing schedules and planning better, while some have had to turn down loads and decrease customer service.

**Table 3.7. One Restart Per Week Adjustments**

Rank	Adjustment to 1 Restart per Week	Percent
1	Incorporate Rolling Schedule	39.1%
2	Adjust Overall Driving Schedule	25.2%
3	Improve Planning	19.6%
4	Turn Down Loads	13.9%
5	Decrease Customer Service	8.7%

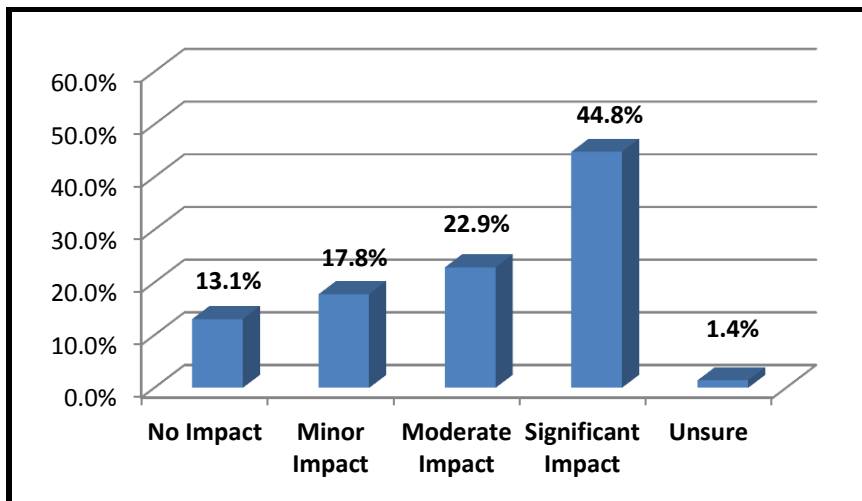
The following are comments submitted by drivers regarding the 1 restart per week.

- “[The rule is] too confusing for anyone to interpret on a consistent basis.”
- “I turned down loads, there’s no flexibility under the new regulations.”

### 3.3.4 Impacts of the Rest Break Requirement

Drivers were asked how significantly the rest break requirement has impacted their operations. The number of respondents experiencing a significant impact is slightly lower than with the restart rules at 44.8 percent, though a majority (67.7%) has seen a moderate or significant impact.

**Figure 3.5. Driver Impacts – Rest Break Requirement**



### 3.3.5 Analysis of Qualitative Rest Break Data

Respondents were given the opportunity to describe how they have adjusted to each of the rules changes. As shown in Table 3.8, a common theme continues to be that drivers are accounting for and incorporating the rest break requirement into routes. Some indicated that they have focused on scheduling necessary activities such as eating meals and use of truck stop facilities, while others indicated that the rest break can be used while a customer is loading or unloading.

**Table 3.8. Rest Break Adjustments**

Rank	Adjustment to Rest Break	Percent
1	Planning	26.9%
2	Adjusted Overall Driving Schedule	22.0%
3	Eating During Break	16.2%
4	Use Facilities (Bathroom, Shower, Laundry)	10.6%
5	Use At Customer/Loading/Unloading	9.0%

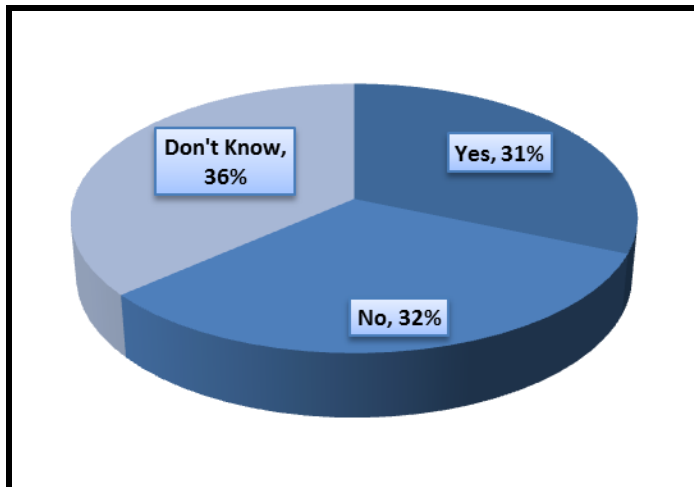
### 3.4 Enforcement of New Rules

“Enforceability” is a critical component of the effectiveness and fairness of laws. It has been said anecdotally that the HOS rules are difficult to enforce in an environment where logbooks can be falsified. In such situations there exists an advantage for those who break the law over those who follow the law. The survey respondents were asked if the new HOS rules can be effectively enforced by law enforcement personnel.

#### 3.4.1 Restart Enforcement

Drivers were first asked, “Do you feel that law enforcement can effectively enforce the new 34-hour restart rules?” The results were closely split between Yes, No and Don’t Know, with only 31 percent stating that the rules could be enforced.

**Figure 3.6. Are Restart Changes Enforceable?**



Respondents were given the option to explain why they selected an answer.

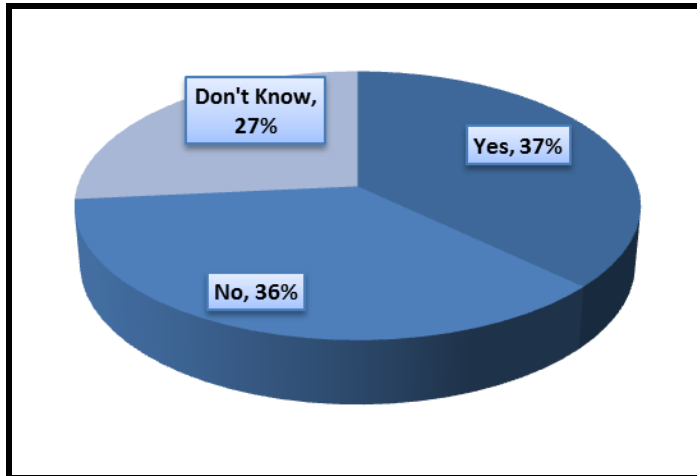
Among those selecting “yes,” the most common reason was that the new restart rules are enforceable if electronic logs are used. A second popular reason within this group was that the new restart provisions are enforceable if proper checks of logbooks are conducted.

Among respondents stating “no,” the rules are not enforceable, the most common reason was that enforcement is often confused by the rules and/or unable to read logbooks. Others felt that paper logbook manipulation can undermine enforcement of the rule. One respondent even indicated that the restart rules only apply to those who follow the rules, and that “*people with paper logs are not affected.*” Finally, some respondents indicated that the ratio of enforcement personnel to drivers does not enable sufficient enforcement of the rules.

### 3.4.2 Rest Break Enforcement

Drivers were next asked “Do you feel that law enforcement can effectively enforce the rest break requirement?” A response of “yes” was given by 37 percent. “No” answers were as prevalent, with 36 percent selecting that option. The remaining 27 percent were not sure whether or not the rest break could be enforced.

**Figure 3.7. Are Mandatory Rest Breaks Enforceable?**



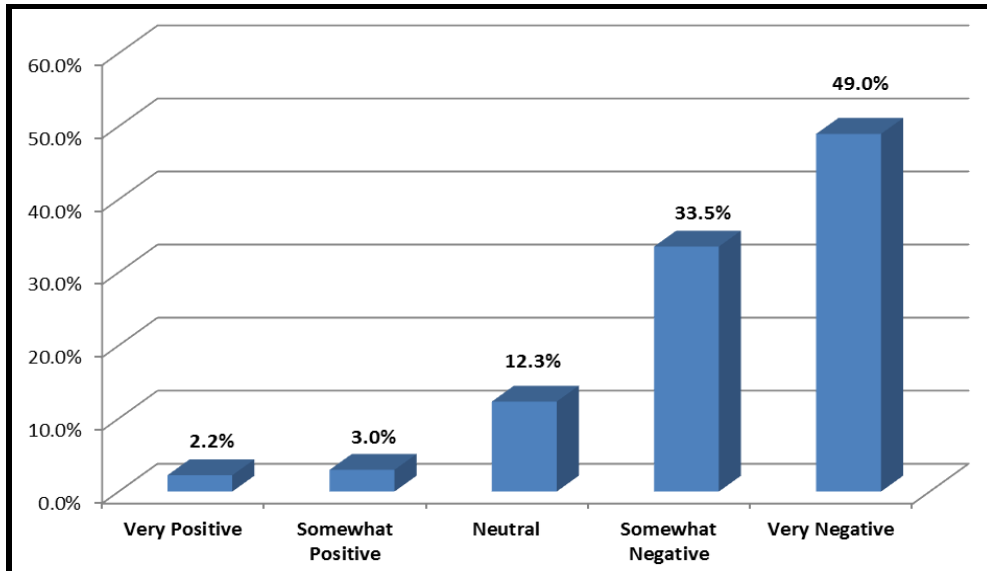
Respondents were also given the option to explain why they selected an answer to this enforcement question. Among those selecting “yes,” the most common reasons again centered on use of electronic logs and proper logbook checks.

Among respondents stating “no,” the rules are not enforceable, the overwhelming reason was that paper logbooks will hinder enforcement. As one driver put it regarding paper logs, “*it’s too easy to log [the rest break] and keep riding.*” One team driver skeptic of the effectiveness of electronic logs, however, stated that “*we have electronic logs so our truck has to be stopped [during a rest break], but law enforcement cannot tell what [a driver is] doing during that half hour (on-duty vs. off-duty activities).*”

### 3.5 Impacts on Driver Quality of Life and Operations

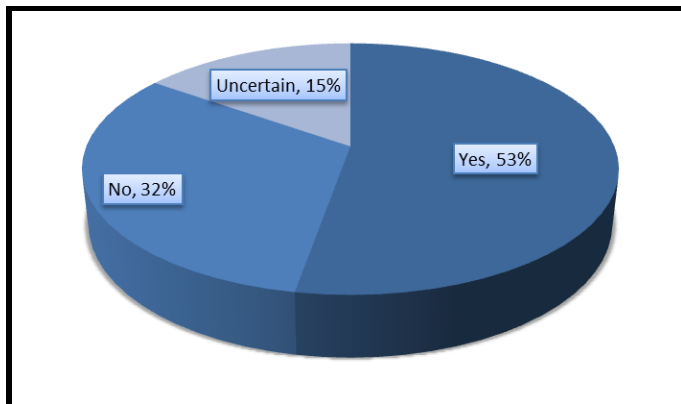
Drivers were asked, “Overall, how would you characterize the impact of the rule changes on your quality of life?” Nearly half (49%) indicated that the July 1<sup>st</sup> changes have had a “very negative” impact on their quality of life. A combined 82.5 percent indicated a somewhat negative or very negative impact. Slightly more than five percent found that there was a very positive or somewhat positive impact on quality of life.

**Figure 3.8. Driver Quality of Life Impacts – Driver Responses**



Drivers were also asked, “Have you spent more time in congestion due to the 1 a.m. – 5 a.m. rule? The majority, 53 percent, indicated that they had. An obvious safety concern of this finding is that increased interaction between vehicles increases crash risk.

**Figure 3.9. More Time in Congestion Due to 1 a.m. to 5 a.m. Provision**



Drivers were given the opportunity to explain their answers. Of those providing a response to the open-ended question related to congestion increases, more than half (58.6%) indicated that morning rush hour has been the time most impacted by congestion. A much smaller 15.5 percent indicated that congestion impacts have increased near major cities and particularly in the northeastern U.S.

One driver indicated that the congestion problem, in part, stems from drivers operating in the same places at the same time. The driver stated that “*when running local/regional, all drivers*



leave at [the] same time instead of being spaced out on Monday, so everyone stays bunched up all week.”

Though not directly related to congestion, 11.2 percent of drivers indicated that finding parking is more difficult because the 1 a.m. to 5 a.m. puts all restart users on similar schedules. As one driver stated, “truck stops are more congested at certain times and more trucks [are] coming on and off duty at same time.”

Finally, one driver summarized the congestion impacts by stating, “this law has taken away our flexibility to choose when we start [and therefore the ability] to avoid congestion.”

### 3.6 Changes in Work Hours and Compensation

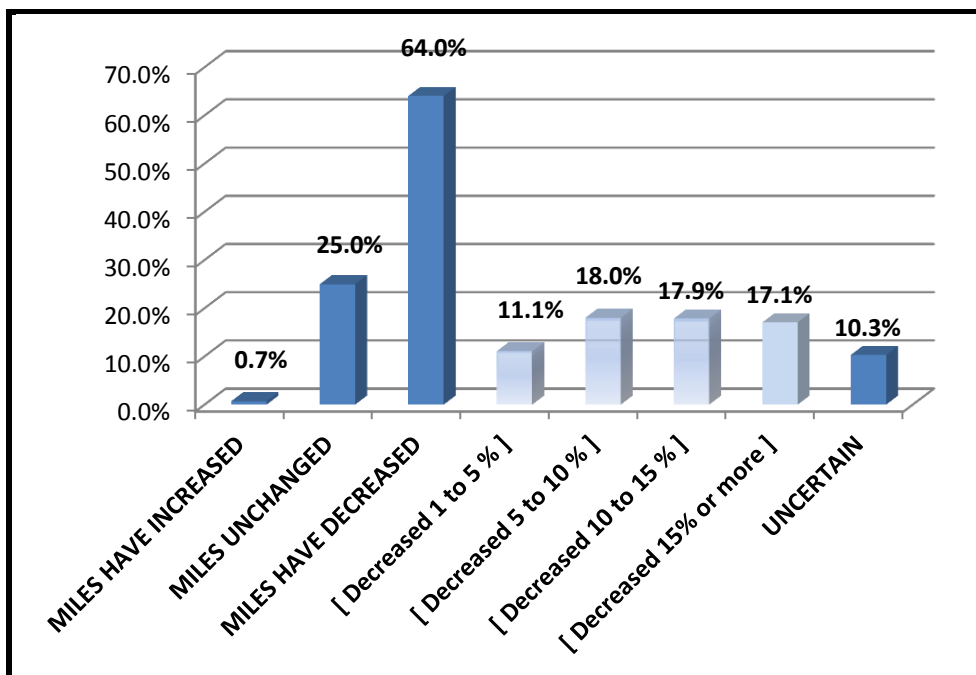
Drivers were asked about changes in weekly miles, on-duty hours and weekly pay since the restart changes. They were given a series of choices and also an opportunity to comment on the changes.

#### 3.6.1 Analysis of Weekly Mileage Changes

Drivers were asked, “How have your weekly miles changed since the rules changes?” As background, the majority of over-the-road drivers are paid by the mile; thus, a decrease in average miles per week is the equivalent of a pay-cut for those drivers.

As Figure 3.10 indicates, 10 percent of drivers were uncertain about mileage changes and 25 percent could say that miles were unchanged. A majority 64 percent, however, saw a decrease in weekly miles of 1 percent or more, with more than 17 percent having a mileage decrease of 15 percent or more.

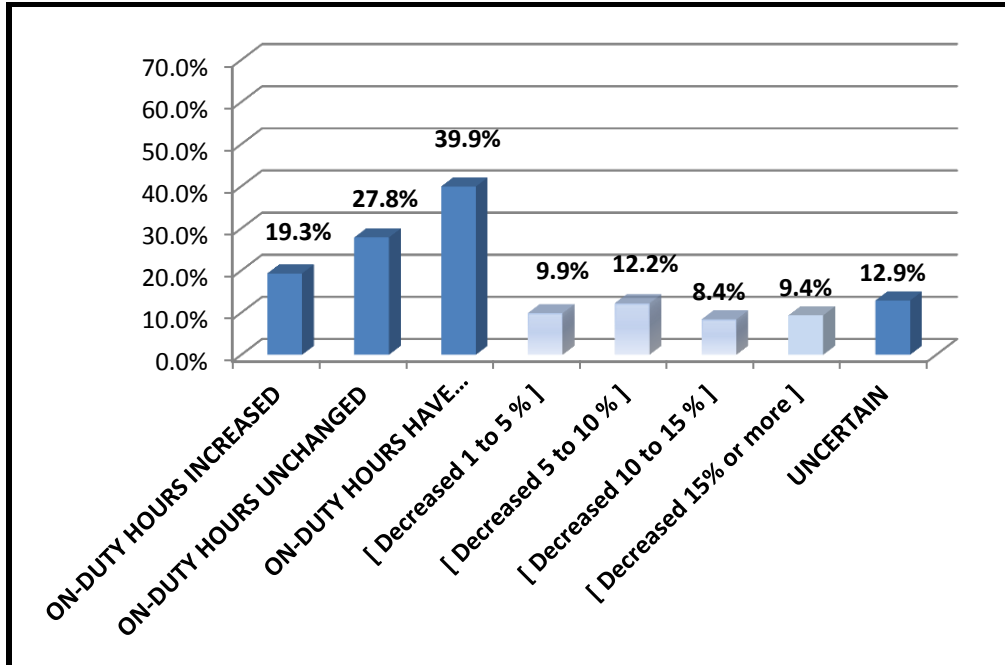
**Figure 3.10. Driver Mileage Impacts**



### 3.6.2 Analysis of On-Duty Time Changes

Respondents were next asked how on-duty hours have changed since the rules changes. More than 39.9 percent of drivers saw a decrease in on-duty times, possibly due to schedule shifts or the restart restrictions. About one-quarter experienced no change in on-duty hours, while 19.3 percent indicated an increase.

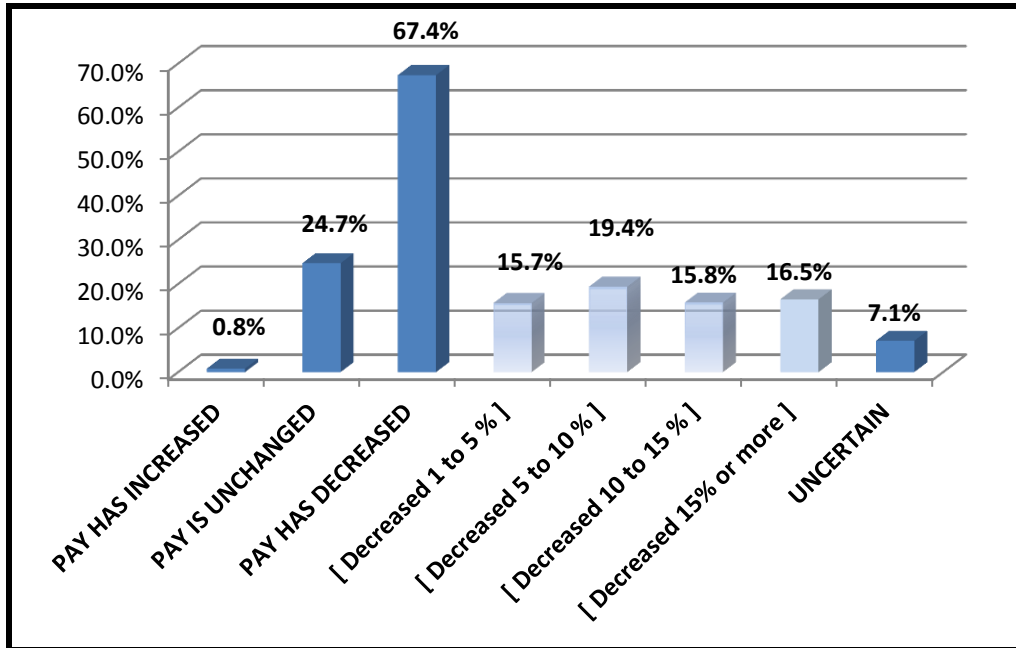
**Figure 3.11. Driver On-Duty Time Impacts**



### 3.6.3 Analysis of Changes in Driver Pay

Finally, drivers were asked how weekly pay has changed since the restart changes. The vast majority indicated some decrease in pay (67.4%) while one-quarter saw no change.

**Figure 3.12. Driver Pay Impacts**



Drivers offered the following details related to pay decreases:

- *“Due to the new restart, 1 day a week loss of pay over \$13,000 year.”*
- *“I have gone from keeping up with my debt to trying to consolidate and asking for assistance.”*
- *“I have really struggled to pay my bills since the new rules went into effect.”*
- *“My employer has tried to change our compensation package to offset the hours-of-service changes.”*

As shown in Table 3.9, drivers are consistent in their estimations of changes to pay and miles since the rules changes. However, the data differs for on-duty hours, with 19.3 percent of respondents indicating an increase since the rules changes. Increased on-duty hours (which do not always generate revenue for drivers) may be an overall indicator of drivers spending more time exiting highways to locate a parking space for the rest break.

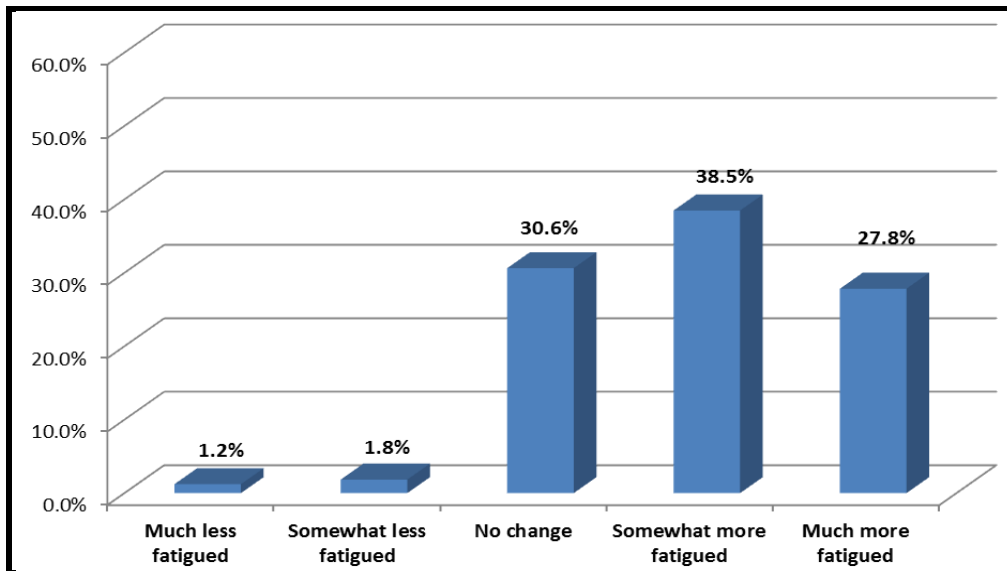
**Table 3.9. Driver Work Changes**

	Weekly Pay	Weekly Miles	On-Duty Hours
Increased	0.8%	0.7%	19.3%
Unchanged	24.7%	25.0%	27.8%
Decreased	67.4%	64.0%	39.9%
Uncertain	7.1%	10.3%	12.9%

### 3.7 Changes in Fatigue

The central purpose of the July 1<sup>st</sup> HOS changes was to decrease commercial driver fatigue. To measure perceived changes in fatigue, drivers were asked to self-select their relative fatigue levels since the new HOS rules went into effect and were given the choices presented in Figure 3.13. Roughly 3 percent indicated a decrease in fatigue while 30.6 percent perceived no change. A majority, 66.3 percent, perceived increases in fatigue.

**Figure 3.13. Perceived Changes in Fatigue**



In the open-ended responses some drivers indicated that the rest break requirement extended the length of each working day. For instance, a driver not only has to spend time taking a rest break, but also has to spend time finding a place to take that rest break.

### 3.8 Summary of Driver Survey Analysis

Among driver respondents using the restart rule prior to the HOS changes, 12.4 percent had discontinued use once the new rules went into effect. Among those respondents that use or had used the restart, the benefits of restart use appear to have diminished. The majority of respondents indicated that the two new restart provisions have had a moderate or significant negative impact on their operations.

Many respondents are adjusting by changing schedules, incorporating a rolling schedule into their operations, changing start/end times and turning down loads. A majority of those same respondents (67.7%) have experienced a moderate or significant impact from the rest break requirement, and are adjusting through planning, schedule changes and making use of the rest break time to accomplish other tasks (and therefore not resting).

Respondents were evenly split in opinions on the enforceability of the new HOS requirements, with many indicating the rules are difficult to enforce without more widespread use of electronic

logs. Most drivers, 82.5 percent, indicated that the new HOS rules had had a somewhat negative or very negative impact on their quality of life. More than half have spent more time in congestion as a result of the changes and 66.3 percent perceived an increase in fatigue. Additionally, more than 66 percent have experienced a decrease in weekly miles and weekly pay. Additionally, nearly 20 percent of drivers reported an increase in on-duty hours, which may indicate more time spent on non-revenue generating activities such as searching for available truck parking.

## 4.0 MOTOR CARRIER SURVEY FINDINGS

A motor carrier survey was also conducted to assess the impacts of the July 1<sup>st</sup> HOS changes. The online survey was distributed via similar industry outlets as the driver survey, and was conducted for 42 days beginning in late September 2013 and ending in early November 2013. The survey effort yielded more than 400 responses.

### 4.1 Respondent Demographics

Similar to the driver survey, the motor carrier respondents were first asked a series of demographic questions. Truckload carriers represented 57 percent of the survey respondents, with the remaining sectors falling between six to 12 percent as shown in Table 4.1.

**Table 4.1. Carrier Survey Respondent Demographics - Sector Distributions**

Sector	Percent
TL	57%
LTL	7%
Tank Truck	11%
Flatbed	7%
Private	12%
Other	6%

Small carriers operating fewer than 100 power units made up the majority of respondents at 69 percent. This distribution is consistent with national industry proportions as described in *American Trucking Trends*.<sup>33</sup>

**Table 4.2. Carrier Survey Respondent Demographics - Carrier Size by Power Units**

Number of Power Units	Respondent Distribution by Number of Power Units
500+	13%
250 – 499	6%
100 – 249	12%
50 – 99	17%
25 – 49	16%
2 – 24	25%
Owner-Operator	11%

Additionally, a large majority of carriers (92.6%) indicated that they operate on a 70-hour/8-day schedule. Regarding route type, three-quarters (75.3%) indicated irregular route operations some or all of the time. The remaining 24.7 percent indicated having only regular/dedicated route operations.

<sup>33</sup> American Trucking Associations. *American Trucking Trends, 2012*. Arlington, VA. 2012.

Respondents were next asked what percent of trips fell into different “length of haul” categories (Table 4.3). Carrier responses leaned slightly toward longer haul operations, with 56 percent of trip lengths being 300 miles or greater.

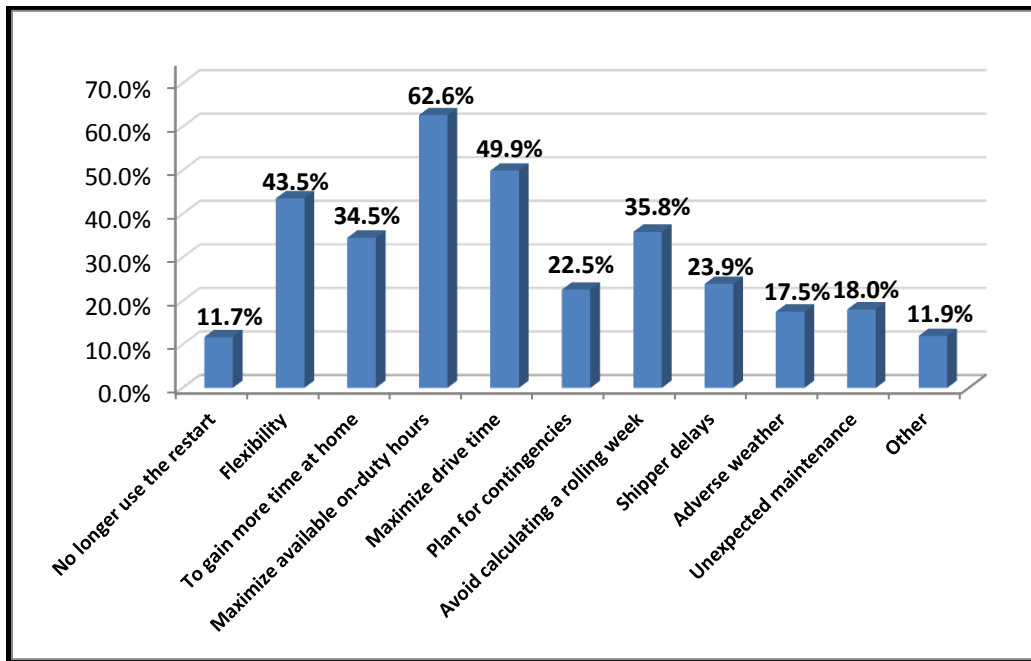
**Table 4.3. Carrier Survey Respondent Demographics – Average Trip Length**

Trip Length	Percent of Trips
Short-Haul (<150 Miles)	23%
LH Short Regional (150-300 Miles)	21%
LH Long Regional (300-700 Miles)	28%
Long-Haul (>700 Miles)	28%

#### 4.2 Carrier Use of the 34-Hour Restart

Motor carriers were then asked why their drivers use the 34-hour restart and given several options; all applicable answers could be selected by the respondent. Figure 4.1 displays the responses to this question.

**Figure 4.1. Motor Carrier Reasons for 34-Hour Restart Use**



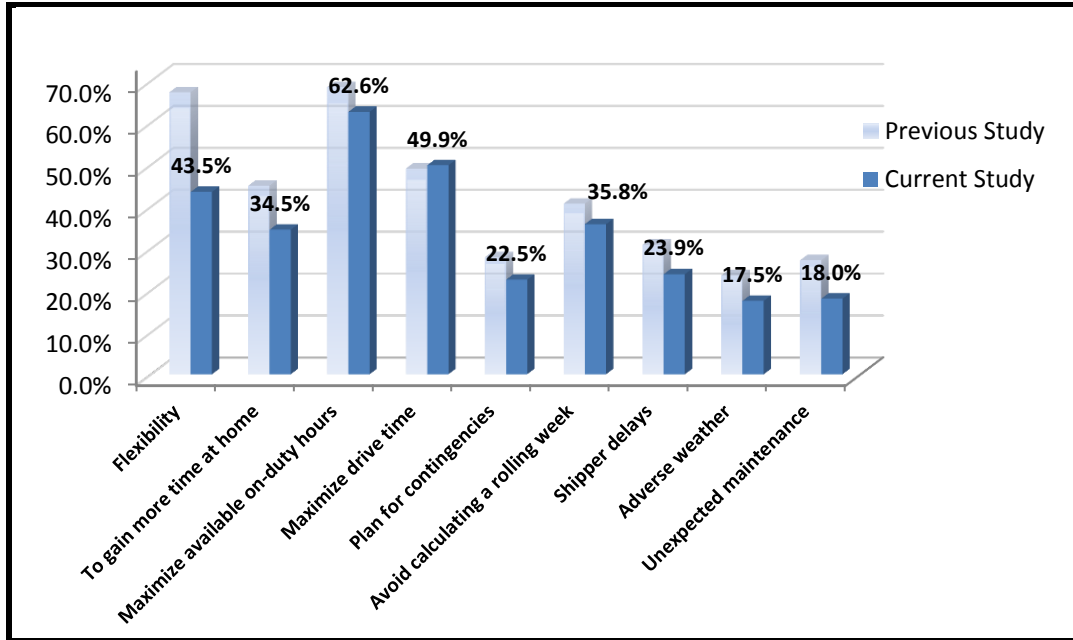
Of the carrier respondent population whose drivers used of the restart, the most common use category at 62.6 percent selected was “to maximize available on-duty hours.”

Nearly 12 percent of carriers reported that their drivers no longer use the restart as a result of the changes, similar to the finding in the driver survey results.



Figure 4.2 compares the answers to the current survey with the nine identical options listed in ATRI’s previous survey. The most dramatic change is seen in the category of flexibility, with a reduction from 67.3 percent to 43.5 percent. This may be indicative of the loss of flexibility that has resulted from the new rules. Similar to the finding in the driver survey, carriers also report less utility from use of the 34-hour restart than before the July 1<sup>st</sup> changes.

**Figure 4.2. Motor Carrier Reasons for 34-Hour Restart Use**

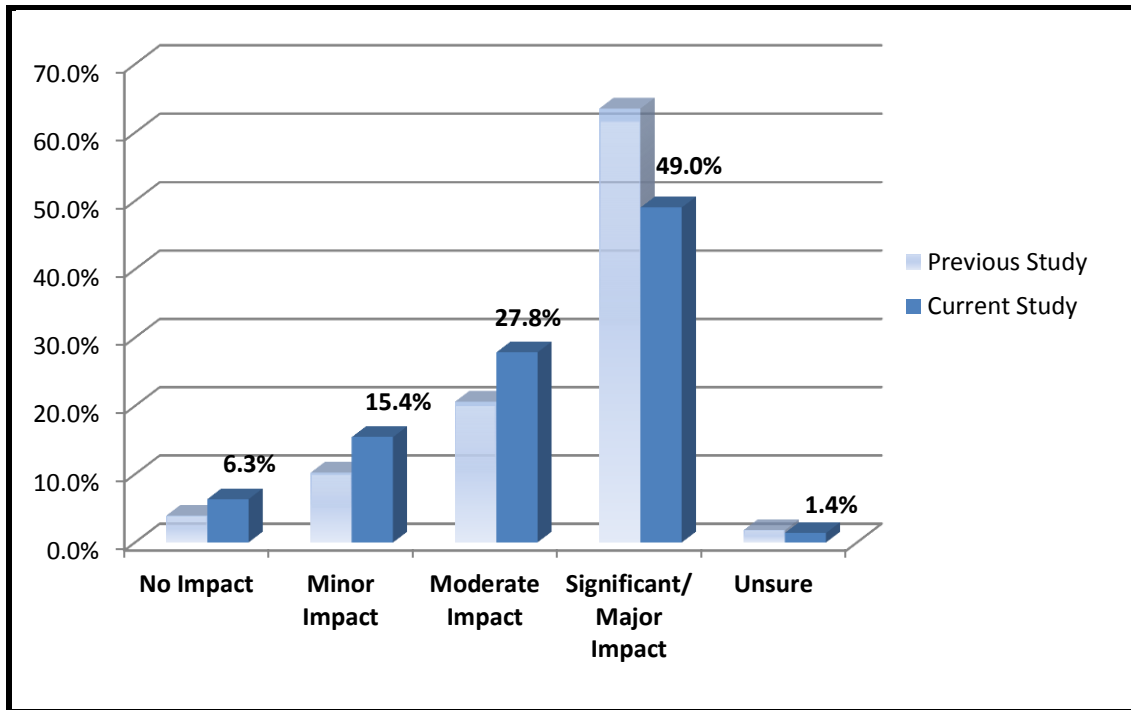


### 4.3 Impacts of the Changes to the 34-Hour Restart

#### 4.3.1 Impacts of the 1 a.m. to 5 a.m. Provision

Carriers were next asked, “How significantly has the 1 a.m. to 5 a.m. rule impacted your operations?” The most prevalent response was “significant impact” (49.0%), and combined, nearly 77 percent indicated a moderate or significant impact from this change in rules.

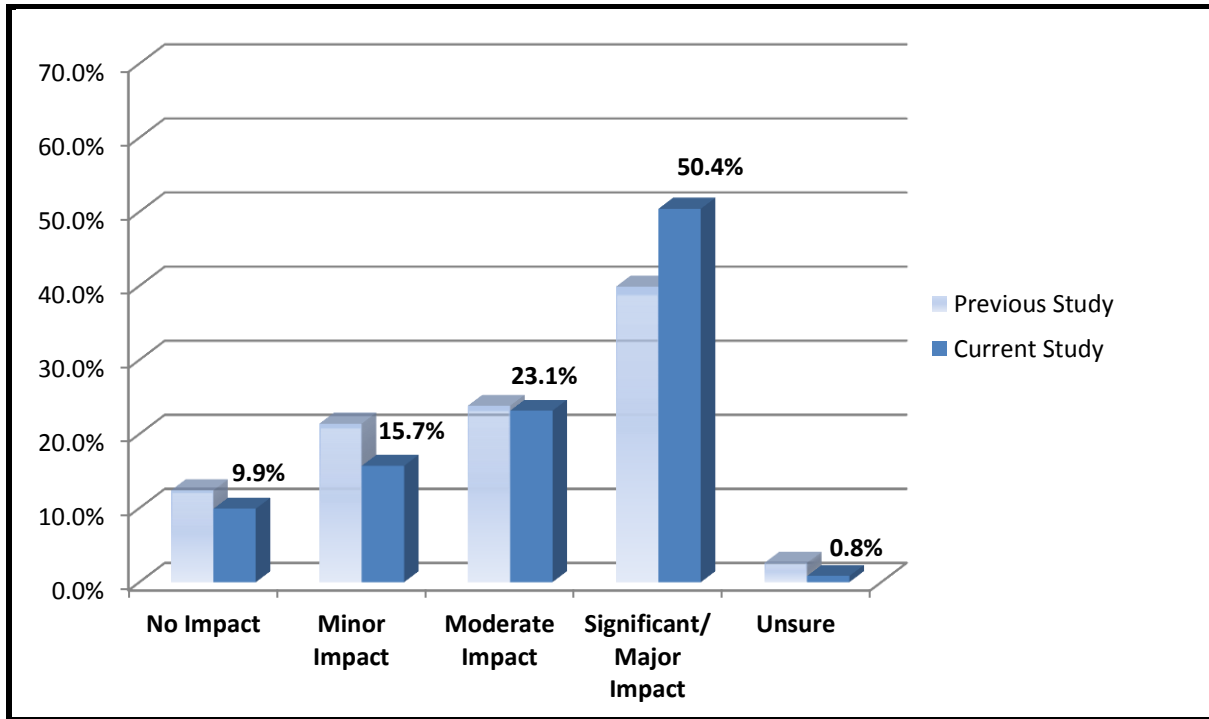
**Figure 4.3. Carrier Impacts – 1 a.m. to 5 a.m. Provision**



*4.3.2 Impacts of the 1 Restart per Week Provision*

Carriers were next asked about the impacts of the 1 restart per week provision. Of the restart users that answered this question, a majority (50.4%) experienced a significant impact from this aspect of the new HOS rules. Nearly three-quarters of respondents (73.5%) indicated that this change has had a moderate or significant negative impact on their operations.

**Figure 4.4. Carrier Impacts – 1 Restart per Week Provision**



While both restart changes have had a large impact on carrier respondents, it is noteworthy that the percentage of carriers indicating a significant/major negative impact from the 1 restart per week rule has increased from 39.9 percent to more than 50 percent. A similar trend was seen in the driver results found in Chapter 3. An explanation for this is that some in the industry did not anticipate the potential impacts of the 1 restart per week rule prior to implementation. Many carriers may have not fully recognized the complexities of working within the constraints of this provision to actual use/compliance with the rule.

Carriers were given an opportunity to describe the adjustments they have made in response to the two restart provisions. Answers were analyzed using the same methodology used in Chapter 3, where the submitted open-ended comments were categorized and quantified.

The most common adjustments to the 1 a.m. to 5 a.m. provision discussed by respondents are shown in Table 4.4. Similar to drivers, adjustments to schedule appear to be critical to working within this new provision. Carriers also have reduced driver work weeks and hours, hired more drivers and reduced customer service expectations.

**Table 4.4. 1 a.m. to 5 a.m. Adjustments**

Rank	Adjustment to 1 a.m. to 5 a.m.	Percent
1	Adjust Start Time	19.8%
2	Adjust Overall Driver Schedules	16.8%
3	Reduce Driver Work Week/hours	15.8%
4	Hire/Add More Drivers	13.9%
5	Reduced Customer Service	11.9%

Examples of carrier responses are as follows:

- *"PM" shift drivers have to have their shifts cut short [on the] night prior to a restart [resulting in] less productivity."*
- *"[We] cut drivers to [a] 4 day week ... to get [the] reset"*
- *"[We adjusted by] hiring more drivers [and] adjusting more window times"*
- *"We have less loads per week per driver [and have had to] lengthen the supply chain"*
- *"We can no longer service our customers' early Monday load requirements"*
- *"Have had to turn loads away or accept shorter hauls to ensure driver is always home at the same time and day every week to be able to come on duty Monday morning at 0500 [AM]."*
- *"[it is] just a mess trying to coordinate weekend deliveries and Monday deliveries."*

Carriers also were given an opportunity to describe, in an open-ended format, the adjustments they have made in response to the 1 restart per week rule. Similar to the driver results, use of a rolling schedule to accumulate available on-duty hours was the most frequently mentioned comment. Carriers also described hiring more drivers as an adjustment to this rule as well. Additionally, changes to schedules, planning and turning down loads were common themes.

**Table 4.5. One Restart per Week Provision Adjustments**

Rank	Adjustment to 1 Restart per Week	Percent
1	Incorporate Rolling Schedule	23.2%
2	Hire/Add More Drivers	18.8%
3	Adjust Overall Driver Schedules	18.8%
4	Turn Down Loads	14.5%
5	Better Planning	13.0%

Examples of carrier responses are as follows:

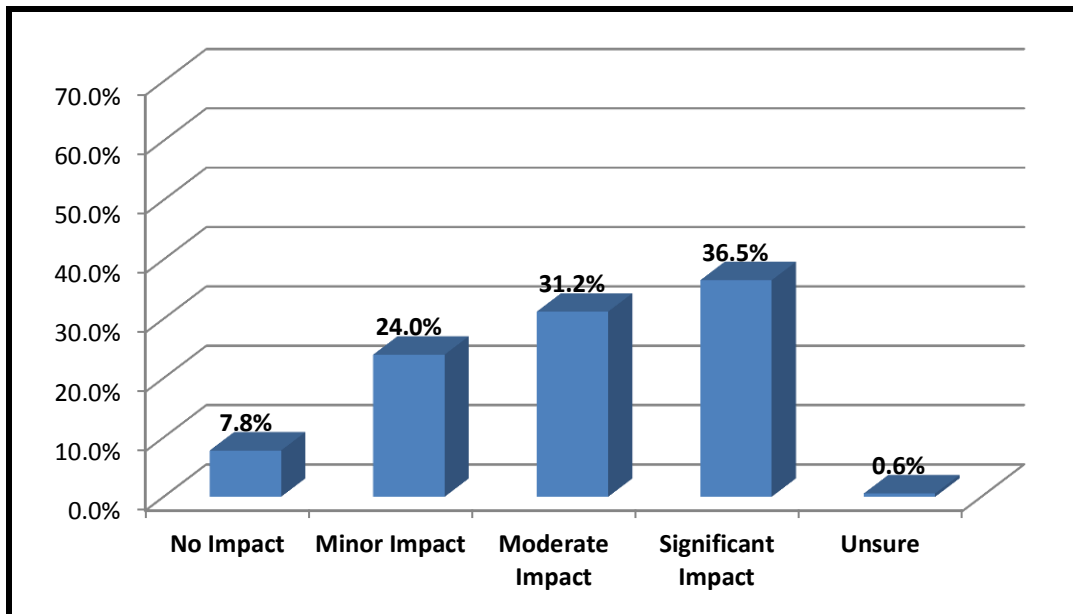
- *"We steer away from weekend regional moves so drivers can reset – [a] loss of revenue to all."*
- *"Requires a great level of oversight to meet compliance."*
- *"We now have to decide when to use the restart provision because of the effect on future weeks"*

- “This has significantly complicated our operation. We have adjusted by reducing our productivity expectations.”
- “We had to change from drivers having weekends off to scheduling drivers to start their week on Saturday or Sunday.”
- “We are having to hire additional drivers and those costs are now on our customers.”

#### 4.3.3 Impacts of the Rest Break

The impacts of the rest break requirement were the next focus of the survey. The most prevalent answer was that the rest break has had a significant impact (36.5%) with a combined 67.7 percent experiencing a moderate or significant impact.

**Figure 4.5. Carrier Impacts – Rest Break Requirement**



Carriers were given the opportunity to describe adjustments to the requirement. The most common answers were reducing customer service (by extending or missing delivery windows) and dedicating resources to ensuring that drivers are properly following the rule.

**Table 4.6. Rest Break Adjustments**

Rank	Adjustment to Rest Break	Percent
1	Reduced Customer Service	21.1%
2	Monitoring/Enforcing Driver Compliance	20.0%
3	Adjust Driver Schedules	15.8%
4	Adjust Delivery Schedules	11.6%
5	Training Drivers on Rules	10.5%

The following are sample comments submitted related to rest break adjustments:

- *“We plan an extra 30 minutes for each shift when putting together a dispatch.”*
- *“The rest period takes 3 1/2 hrs. of available time a driver has in a week to earn wages as well as less productivity for, equipment increasing overhead expenses on our business.”*
- *“We now have to stretch routes over an additional day. [The extra day] is only partially used for driving and results in more time off that day hurting time off on later days or over the weekend.”*
- *“We have noticed that most of our drivers keep getting confused and do not understand that on-duty time counts as the 8-hour. Also to start they were taking their breaks on-duty instead of off-duty or in the sleeper. It is an on-going process for some of the drivers.”*
- *“We had to add 2 hours on a 30 hour trip just to calculate delivery times. This was in addition to delays due to traffic, construction, toll road lines and weather conditions.”*

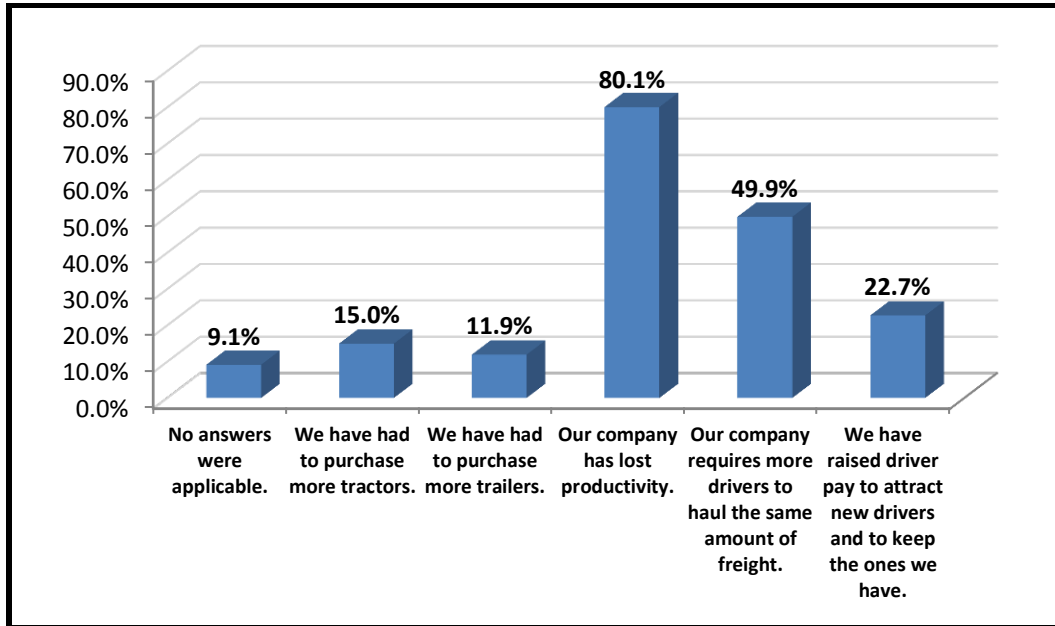
#### **4.4 Impacts to Motor Carriers**

Respondents were asked, “Do any of the following conditions apply to your company as a result of the HOS changes?” Respondents had the option of selecting none of the answers if none were applicable, and could check as many answers as were applicable. The following were provided as options for respondents:

- We have had to purchase more tractors.
- We have had to purchase more trailers.
- Our company has lost productivity.
- Our company requires more drivers to haul the same amount of freight.
- We have raised driver pay to attract new drivers and keep the ones we have.

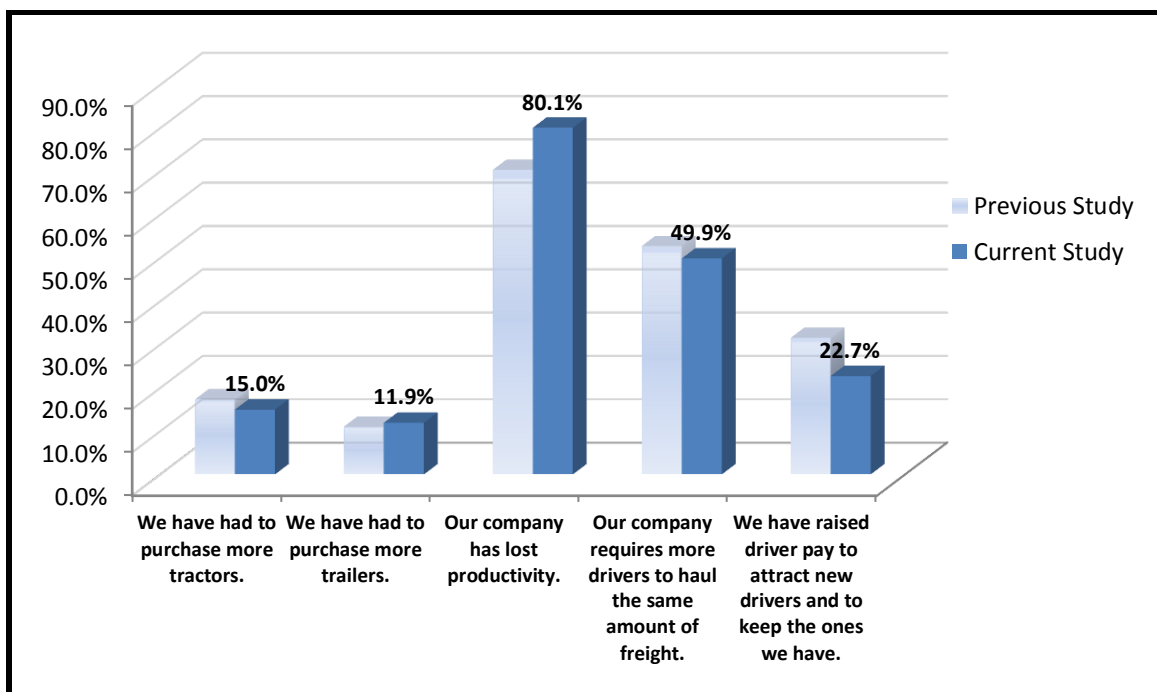
Respondents were able to check all applicable options. The results are shown in Figure 4.6 below.

**Figure 4.6. Motor Carrier Impacts by Impact Type**



More than 80 percent of carrier respondents indicated a loss of productivity. Nearly half reported that more drivers were required to haul the same amount of freight. When compared to the results of the previous study (as shown in Figure 4.7), carriers appear to have underestimated productivity loss in ATRI's previous survey.

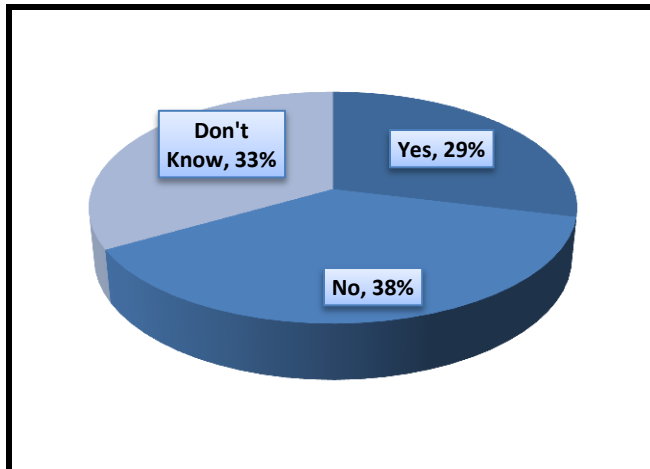
**Figure 4.7. Motor Carrier Impact Types – Before and After**



#### 4.5 Enforcement Perceptions

Carriers were next asked, “Do you feel that law enforcement can effectively enforce the new 34-hour restart rules?” While no single answer drew a majority of responses (which is similar to the driver results), respondents were more likely to indicate that law enforcement could not effectively enforce the restart rules (38%).

**Figure 4.8. Can Restart Changes Be Enforced?**



The respondents were asked to explain their answers. Among those indicating that the rules could be enforced, the most common answer was that electronic logs enable enforcement. As an example, one carrier stated, *“Electronic logs make enforcing the rule simple.”*

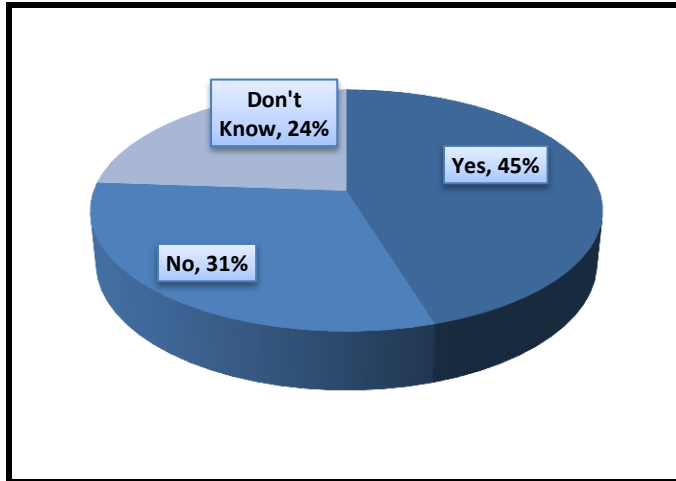
For those stating “no,” the restart rules cannot be enforced, the key complaint was that enforcement does not understand the rules well enough. Others complained of logbook manipulation, inconsistent enforcement and an insufficient number of officers. Comments related to the “no” answer include the following:

- *“Most law enforcement officers aren't clear on what the rule is and they all interpret the meaning differently.”*
- *“The ratio of drivers to enforcement is way off.”*
- *“They would need to stop and check everyone's logbook.”*

Carriers were also asked whether they felt the rest break requirements can be effectively enforced. While responses were again mixed, the highest frequency response was “yes” at 45 percent, suggesting that carriers feel more confident that regulators can enforce the rest break than they can enforce the new restart requirements. This pattern is similar to that found in the driver survey.



**Figure 4.9. Can Rest Break Requirement Be Enforced?**



Carrier respondents were provided the opportunity to explain their answers. Among those indicating the rest break requirement can be enforced, the most common sentiment was that proper checking of logs by enforcement would enable compliance. Others indicated that electronic logs were critical to being able to enforce this rule. For those carriers that did not believe the rest break rules are enforceable, the most frequently cited response was that logbook manipulation will hinder enforcement. One carrier summarized rest break enforcement with the following statement:

*“This is a paper requirement in that there is no way the officer can know if the driver actually took the 30 minutes or not. But in real life, the drivers all take at least 30 minutes a day for themselves between their eating and taking restroom breaks. Hopefully the physical needs coincide with the written rules.”*

#### **4.6 Summary of Motor Carrier Survey Findings**

Among motor carrier respondents, 11.7 percent indicated that their company has discontinued use of the restart due to the July 1<sup>st</sup> HOS change. Among that group, there is evidence that the utility of the restart has diminished. The majority of motor carrier survey respondents indicate that a moderate or significant negative impact to operations has resulted from the restart changes and the rest break requirement.

To adjust to the 1 a.m. to 5 a.m. rules carriers indicated that start times and driver schedules were changed, often including reduced driver work weeks. Some have had to add more drivers and others have adjusted customer service expectations. To adjust for the one restart per week rule, carriers report a return to the use of a rolling schedule, making schedule adjustments, hiring more drivers and turning down loads. Carriers have adjusted to the rest break requirement by reducing customer service and monitoring/training drivers, in addition to changing driver and delivery schedules.

More than 80 percent of carriers have indicated a productivity loss, with nearly half stating that they require more drivers to haul the same amount of freight under the new HOS rules. This

closely mirrors the survey findings from the membership of the National Private Truck Council, where 80 percent of the surveyed NPTC members indicated a negative productivity impact.<sup>34</sup>

Among carrier respondents, more believe that the rest break is enforceable (45%) than the restart provisions (29%).

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<sup>34</sup> National Private Truck Council Hours-of-Service Survey. NPTC. August 2013.

## **5.0 LOGBOOK ANALYSIS**

FMCSA's 2011 RIA found a net benefit to implementing the July 1, 2013 HOS rules. This benefit was in large part based on FMCSA's assertion that 15 percent of OTR drivers have an average weekly work time of 70 or 80 hours. In June 2013 ATRI released a report that found such average weekly work time distributions dramatically differed from industry operating patterns.<sup>35</sup> The ATRI findings were based on an analysis of logbooks from normal carrier operations between January 1, 2013 and April 11, 2013,<sup>36</sup> while those used by FMCSA were derived from carriers involved in compliance review audits.

As a follow-up to the previous logbook analysis, ATRI acquired a second large logbook dataset that represents normal trucking operations from a closely comparable driver population. This second "post-implementation" dataset represents operations from a three-month period after the restart implementation date. The period included July 1, 2013 through September 30, 2013 and is referred to herein as 3<sup>rd</sup> Quarter 2013.

Similar to the June 2013 ATRI report, the logbook analysis effort was conducted in three steps following the same methodology. In Step 1, an assessment of basic restart use was conducted across the post-implementation logbook dataset. The dataset analyzed represented the on-duty and off-duty records of thousands of drivers during the 3<sup>rd</sup> Quarter 2013.

A second set of analyses was conducted to identify driver operating patterns across a subset of drivers (21,400) during the same time period.<sup>37</sup> The purpose of this Step 2 analysis was to compare the driver group assignments before and after implementation with the FMCSA RIA estimates.<sup>38</sup>

Finally the Research Team assessed variability in individual driver operating patterns both before and after the implementation date as part of Step 3. This analysis was undertaken in the previous report to test FMCSA's assumption that drivers fall neatly within four categories of average weekly work time. ATRI found that there was variability in weekly on-duty patterns. This new analysis was designed to test whether or not driver variability/flexibility had changed as a result of the new HOS rules.

### **5.1 Step 1: Analysis of Restart Use Patterns**

Logbook data for more than 49,000 drivers from twelve for-hire motor carrier fleets were analyzed by ATRI to assess industry use of the 34-hour restart. All available driver logs from the carriers were compiled into a database that covered a 92-day study period from July 1, 2013 through September, 30, 2013.

Data quality filters were applied to the raw data. The filter criteria required that a driver have at least eight days of logbook activity containing more than one hour of on-duty time, and that each

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<sup>35</sup> ATRI, *Assessing the Impacts of the 34-Hour Restart Provisions*, 2013.

<sup>36</sup> ATRI has found that the logbook data used in its analysis better represents industry behavior. As noted in the previous ATRI study, "FMCSA operating patterns were developed based on a logbook dataset of carriers and drivers that were undergoing safety audits (SAs) and compliance reviews (CRs), and may therefore have a bias for high average weekly work times", *Ibid*.

<sup>37</sup> These drivers were sourced from within the 42,000+ driver database.

<sup>38</sup> As noted in ATRI 2013, "the driver assignments are particularly critical 'since the costs and benefits calculated in FMCSA's RIA are predicated upon driver operating patterns.'"

driver have more than 20 hours of total on-duty time logged during the study period of 92 days. The filtered dataset contained data for a population of 42,152 drivers. Within that population, 40,776 drivers (96.7%) had at least one valid restart.

The restart user dataset, which contained 327,004 validated restarts during the 92-day study period, was next analyzed. Table 5.1 displays in bold the distribution of the 79.4 percent of validated restarts that were less than 73 hours in length from the 3<sup>rd</sup> Quarter dataset. The “Old HOS Distribution” is based on ATRI’s previous logbook analysis, primarily covering the 1<sup>st</sup> Quarter 2013. It should be noted that this distribution follows criteria similar to that utilized by FMCSA in a past analysis.<sup>39</sup>

**Table 5.1. Distribution of Restarts < 73 Hours**

Consecutive Off-Duty Hours	Number of Restarts	New HOS Distribution	Old HOS Distribution	Percent Change
34 - 34.99	3,053	<b>1.2%</b>	3.2%	-63.2%
35 - 36.00	10,476	<b>4.0%</b>	7.5%	-46.2%
37 - 44.99	56,710	<b>21.9%</b>	26.9%	-18.8%
45 - 58.99	66,914	<b>25.8%</b>	22.7%	13.6%
59 - 72.99	122,345	<b>47.1%</b>	39.8%	18.5%

The results shown in Table 5.1 demonstrate a clear increase in restart length from pre- to post-HOS implementation. This increase may have been caused by the 1 a.m. to 5 a.m. rule which has resulted in a “window” that drivers must be off-duty within to achieve a legal restart period of 34 hours. Additionally carriers may have modified schedules by increasing restart length in order to meet all requirements of the new restart rules. The increases in restart times offer further evidence of the mileage and pay loss described by drivers in Chapter 3.

## 5.2 Step 2: Analysis of Industry-Wide Driver Operating Patterns

As discussed previously, FMCSA assigned drivers to the average weekly work time categories displayed in Table 5.2 as part of its justification for the July 1<sup>st</sup> HOS changes. These driver group assignments are the foundation of FMCSA’s cost-benefit analysis. In its previous research, ATRI noted that the Very High and Extreme groups had larger populations than would be expected; to test this theory the Research Team assigned more than 14,000 drivers to the categories in Table 5.2 based on logbook activity. Through this analysis it was found that FMCSA’s average weekly on-duty time categories and subsequent driver assignments did not reflect typical trucking industry operating patterns.

<sup>39</sup> FMCSA’s *2007 Hours of Service Study* (FMCSA-2004-19608-2538) described a similar analysis of their 2007 CR and SA field study data. In this analysis FMCSA stated that “This analysis excluded any restart period in excess of 72 hours. It was felt that any off-duty period in excess of 72 hours does not represent a normal or operational restart period by a CMV driver.” ATRI followed the same logic with the analysis in Table 6.1.

**Table 5.2. FMCSA Driver Groups by Intensity of Schedule<sup>40</sup>**

Driver Group	Average Weekly Work Time	Number of Drivers	Percent of Workforce
Moderate	45 Hours	1,056,000	66%
High	60 Hours	304,000	19%
Very High	70 Hours	160,000	10%
Extreme	80 Hours	80,000	5%
		1,600,000	100%

As a next step, ATRI compared a subset of the 3<sup>rd</sup> Quarter dataset to the 1<sup>st</sup> Quarter dataset and the FMCSA distributions. The intent of this analysis was to first confirm that the ATRI distributions are consistently far below the FMCSA distributions, and second, to identify changes to the distributions that may have been caused by the July 1<sup>st</sup> HOS changes.

To accomplish this, drivers from the 92-day 3<sup>rd</sup> Quarter study database that entered a log for each day were first selected. This filter was applied to ensure that full weekly on-duty and off-duty patterns could be assessed over more than 13 consecutive weeks.

The subset of the 3<sup>rd</sup> Quarter database containing full driving records included more than 21,000 drivers (herein referred to as the “21k+ dataset”). Of those drivers, 99.9 percent used the restart at least one time over the 92-day period, and an average of 8.9 restarts were logged per driver during that time. More than 78 percent of restarts were in the 34- to 73-hour range.

Following the previous methodology, ATRI’s process for assigning individual drivers to the four FMCSA driver intensity groups was as follows:<sup>41</sup>

- 1) A 7-day average weekly work time was used;
- 2) A maximum, medium and minimum assignment threshold was incorporated, with a focus on the medium method; and
- 3) Ninety-two weekly values per driver were averaged into a 7-day average weekly work time value for each driver. (In this instance, figures less than 20 hours were not used in the calculation of the driver average.)

### 5.2.1 Results of Driver Assignment Process

The new 3<sup>rd</sup> Quarter driver weekly work averages were next assigned to maximum, medium and minimum thresholds.

For the maximum threshold table, the higher intensity groups contained the highest population that is logically possible.<sup>42</sup> Within this grouping the 80-hour assignment

<sup>40</sup> FMCSA 2011 RIA.

<sup>41</sup> See ATRI June 2013, Chapter 6.2 for a full description.

<sup>42</sup> To explain this further, it might be logical to include a 71-hour driver in the “Extreme/80-hour” bin, but it is not logical to include a 70-hour driver in that bin because there is a bin that is specific to “Very High/70- hour” drivers.

includes all drivers with average weekly on-duty time of 71 hours or greater, as shown in Table 5.3.

**Table 5.3. 7-day Rolling Week Driver Averages – Maximum Driver Groups**

Driver Group	Avg Weekly Work Hours & Driver Group Thresholds	Driver Count	ATRI Current Study	Change from Previous Study	ATRI Previous study	FMCSA RIA
Moderate	45 (<46)	9599	<b>45%</b>	-1%	46%	66%
High	60 (46 to <61)	11,638	<b>54%</b>	2%	52%	19%
Very High	70 (61 to <71)	163	<b>1%</b>	-1%	2%	10%
Extreme	80 (71 or more)	0	<b>0%</b>	0%	0%	5%

Table 5.3 illustrates that zero drivers fall within the Extreme group in both ATRI analyses. Additionally, only 163 drivers (or 0.76 percent) fall into the Very High group under the new rules. This is a significant decrease (>50%), though it must be taken in context -- the population falling within the Very High group is very small in both cases.

In the medium group the results show no drivers in the Extreme group and 0.075 percent, or 16 of 21,400 drivers, in the Very High group as shown in Table 5.4.

**Table 5.4. 7-day Rolling Week Driver Averages – Medium Driver Groups**

Driver Group	Avg Weekly Work Hours & Driver Group Thresholds	Driver Count	ATRI Current Study	Change from Previous Study	ATRI Previous study	FMCSA RIA
Moderate	45 (<52.6)	18,596	<b>87%</b>	3%	84%	66%
High	60 (52.6 to <65)	2788	<b>13%</b>	-2%	15%	19%
Very High	70 (65 to <75)	16	<b>0%</b>	0%	0%	10%
Extreme	80 (75 or more)	0	<b>0%</b>	0%	0%	5%

Finally, in the minimum group, the results show zero drivers in the Very High and Extreme groups. Nearly all of the drivers were assigned to the moderate group using this method, as illustrated in Table 5.5.

**Table 5.5. 7-day Rolling Week Driver Averages – Minimum Driver Groups**

Driver Group	Avg Weekly Work Hours & Driver Group Thresholds	Driver Count	ATRI Current Study	Change from Previous Study	ATRI Previous study	FMCSA RIA
Moderate	45 (<60)	21,153	<b>99%</b>	2%	97%	66%
High	60 (60 to <70)	247	<b>1%</b>	-2%	3%	19%
Very High	70 (70 to <80)	0	<b>0%</b>	0%	0%	10%
Extreme	80 (80 or more)	0	<b>0%</b>	0%	0%	5%

In conclusion, drivers' average weekly work hour assignments remained nearly constant when comparing the pre- and post-implementation datasets. When considering the minimum and medium scenarios, a small number of drivers appear to have moved from the High group to the Moderate group.

When considering the Maximum group assignments, the opposite occurred, with the Moderate group actually decreasing in size, and more drivers entering the High group (and thus working in a higher category). A potential explanation for this can be found in the driver survey where drivers had indicated an increase in on-duty hours as a result of the HOS changes. The shift of drivers from the moderate to high category within the Maximum group could be due to a schedule shift for the least-utilized drivers. These drivers may now be scheduled to work more in order to fill in the gaps left by the most productive drivers.

There was no significant change to the Very High or Extreme groups since neither group is populated.

### 5.3 Analysis of Individual Driver Operating Patterns

Next, the Research Team repeated a standard deviation analysis of individual driver operating patterns from the earlier report.<sup>43</sup> The original intent of this analysis was to assess the consistency of week-to-week operating behavior of individual drivers. As background, evidence of significant variability in average weekly work time decreases the likelihood that drivers would operate neatly within any one of the four FMCSA intensity categories. The past 1<sup>st</sup> Quarter 2013 analyses showed that individual drivers do not tend to stay within one weekly average work time category as they operate throughout the year.

Figures 5.1 and 5.2 demonstrate that drivers within the two logbook datasets did not exhibit consistent work patterns before or after the July 1<sup>st</sup> HOS implementation. These findings further demonstrate that drivers have variability in their operating patterns.

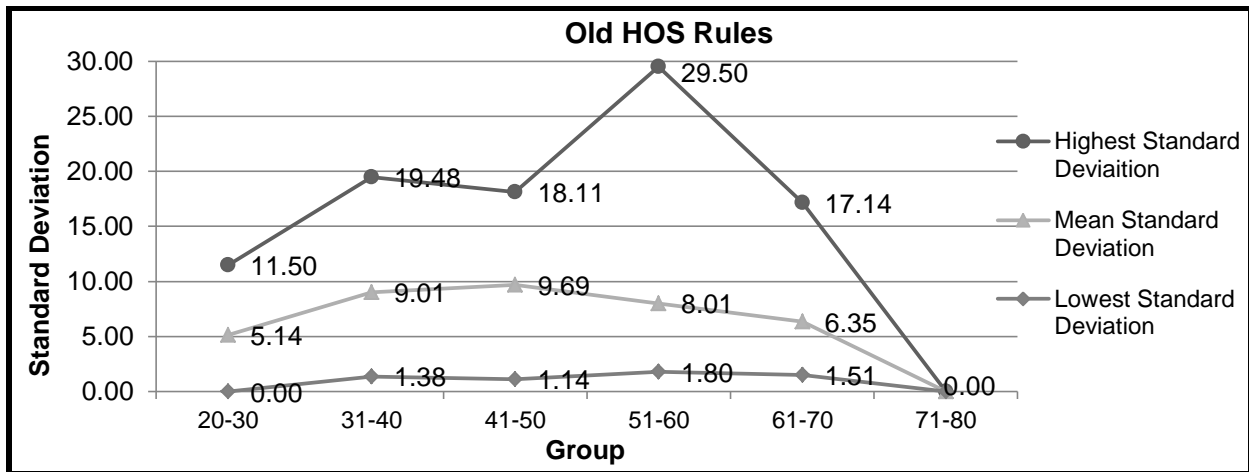
While acknowledging differences between the old HOS sample (e.g., 14,202 drivers; 95 weeks) and new HOS sample (e.g., 21,400 drivers; 86 weeks), the driver logs from the new HOS sample illustrate decreased variability in operating patterns (as shown in Table 5.6). This decreased variability or flexibility in weekly operations may be directly related to the more restrictive restart rules.

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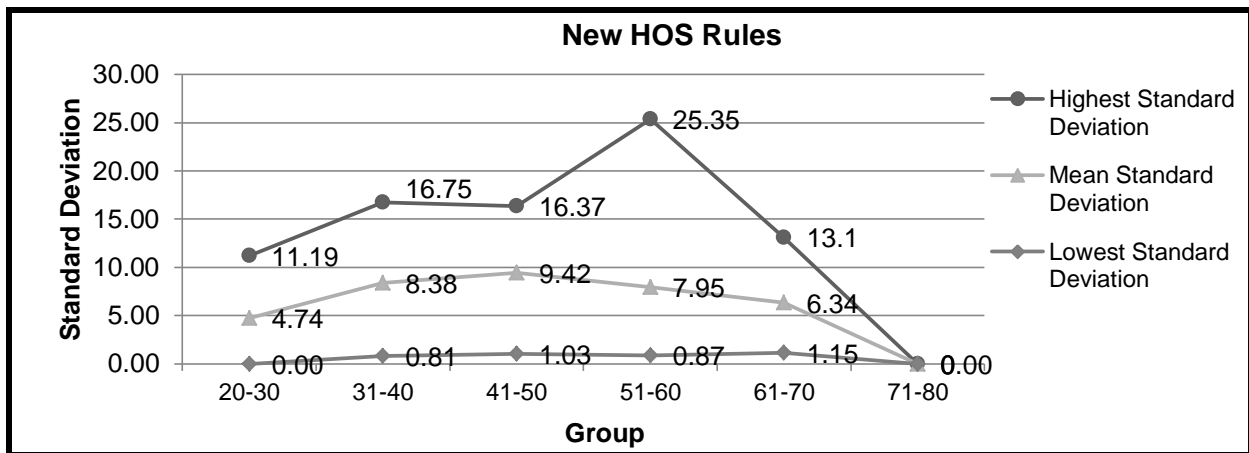
<sup>43</sup> As noted in ATRI, 2013, "Standard deviation calculations [are] used to identify the level of variation in each driver's average weekly work time ... Standard deviation values that are closer to zero indicate that little variation exists in an individual driver's weekly work time across the study period. Likewise, the farther a driver's standard deviation value is from zero the greater the variation in weekly work time across the study period."



**Figure 5.1. Standard Deviation Measures for Logical Average Weekly Work Time Groups – Old HOS Rules**



**Figure 5.2. Standard Deviation Measures for Logical Average Weekly Work Time Groups – New HOS Rules<sup>44</sup>**



**Table 5.6. Overall Standard Deviation Distributions**

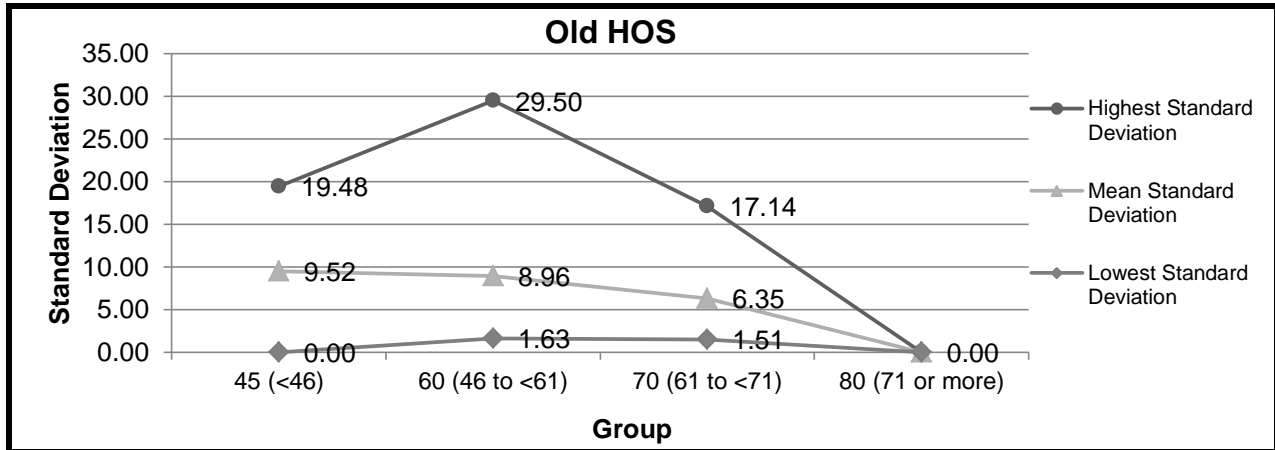
	Lowest Standard Deviation	Mean Standard Deviation	Highest Standard Deviation
<b>Old HOS</b>	0.00	9.17	29.50
<b>New HOS</b>	0.00	8.93	25.35

<sup>44</sup> Note. ( $n = 21,400$ ). Groups are derived from an average HOS across 86 seven-day rolling weeks. Standard deviations are derived from the average of standard deviations in each HOS group. Across the entire sample, the HOS standard deviations ranged from 0.00 to 25.35 ( $m = 8.93$ ).

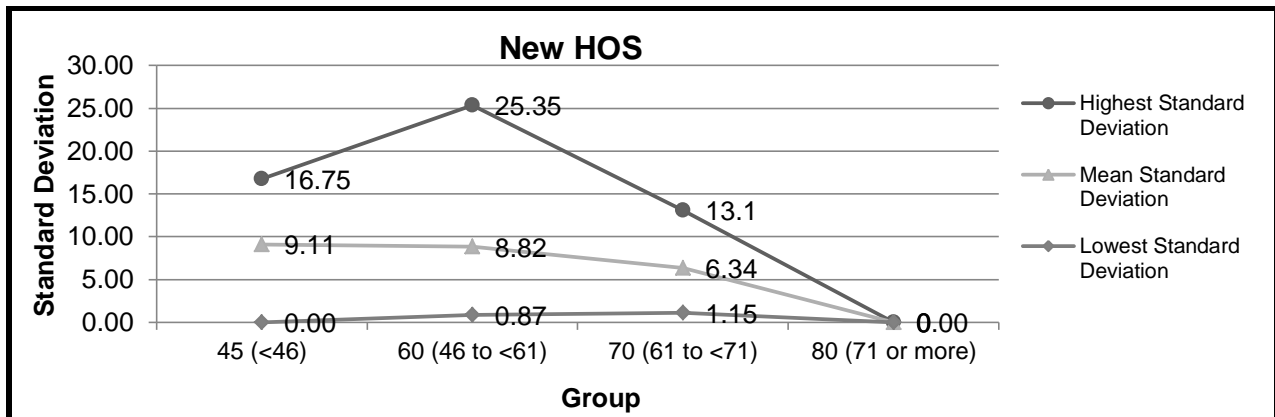


The standard deviation analysis for drivers assigned using the “7-day maximum” method was conducted as well. The results further illustrate that drivers operating under the July 1<sup>st</sup> HOS rules experienced less variability in their work schedules. It can again be reasonably concluded that this variability decrease is an effect of the decrease in operational flexibility that results from the restart changes.

**Figure 5.3. Standard Deviation Measures using “7-day Maximum” Assignments – Old HOS**



**Figure 5.4. Standard Deviation Measures using “7-day Maximum” Assignments – New HOS**



As illustrated in the figures above, drivers experience variability in their work schedules. However, the fact that a decrease in variability is observed in the New HOS operating patterns suggests that the new regulations contribute to reduced flexibility in driver work schedules.

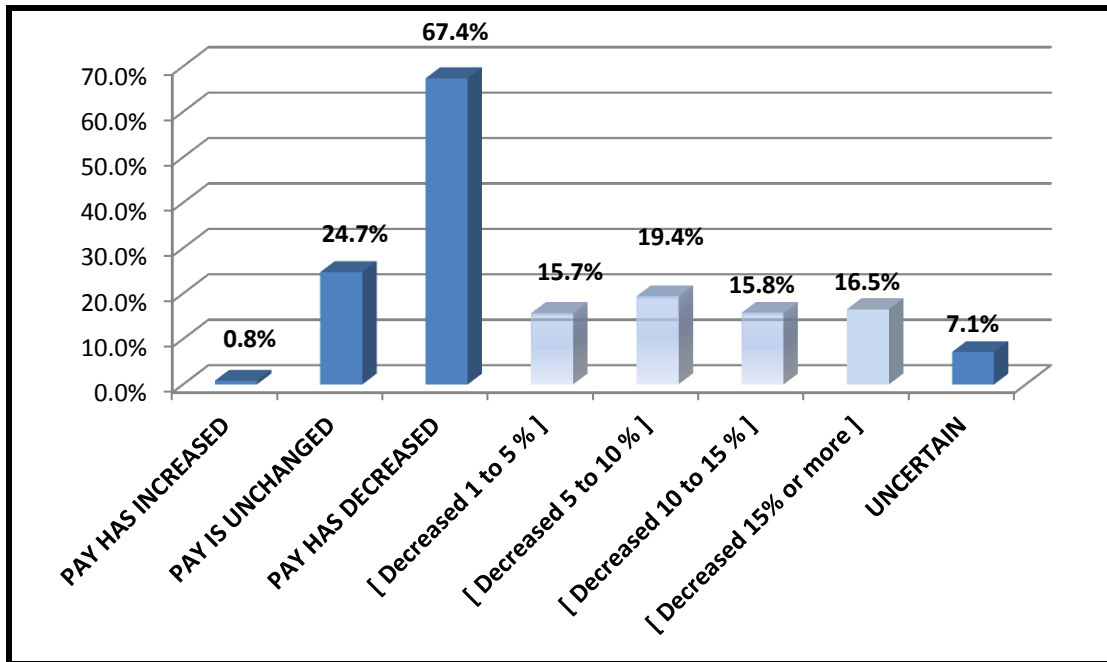
Though differences exist between the 1<sup>st</sup> Quarter and 3<sup>rd</sup> Quarter 2013 data samples, comparisons between driver distributions across intensity groups are similar (e.g., Tables 5.3, 5.4 & 5.5), suggesting that differences between the samples may be minor and thus supporting these cross-sectional comparisons.

## 6.0 SUMMARY OF FINDINGS AND CONCLUSIONS

### 6.1 Impacts to Driver Compensation

A total of 67.4 percent of the driver survey respondents reported experiencing a decrease in their income since the July 1<sup>st</sup> HOS changes (see Figure 6.1).

**Figure 6.1 – Driver Pay Impacts**

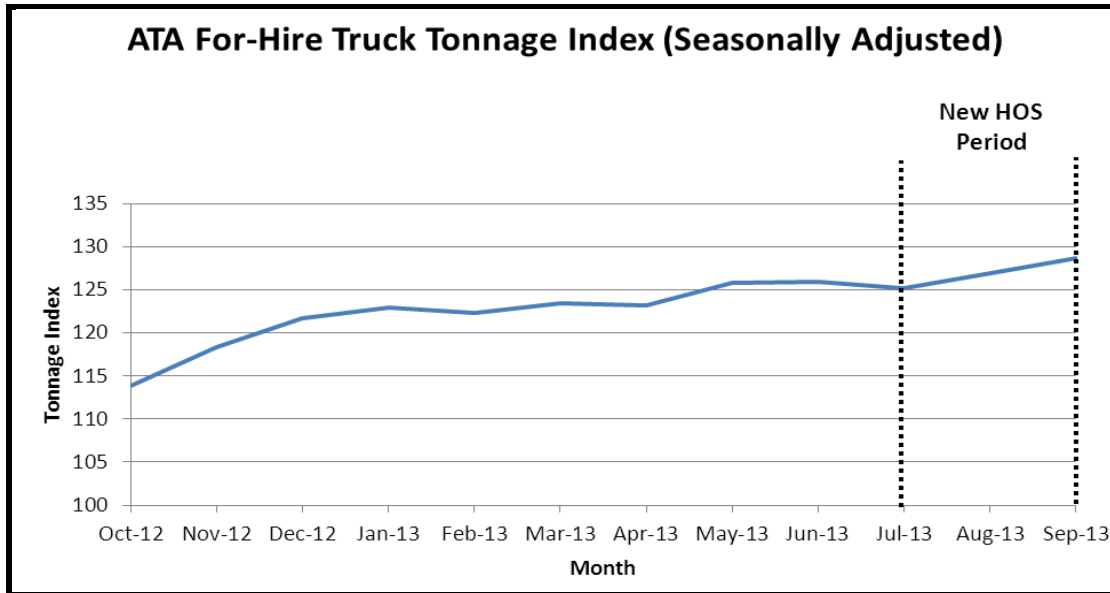


This loss in pay could be attributed to the following HOS-related factors identified in the survey and logbook analysis:

- Schedule changes to meet requirements of the restart provisions
- Increased restart times
- Reverting back to use of a rolling schedule
- Lost loads due to decreased flexibility
- Rest break requirement increasing unproductive on-duty time (looking for available truck parking)

This loss also comes at a time when demand for drivers and freight capacity is at a peak. As shown in Figure 6.2, truck tonnage is currently at a two-year high.

**Figure 6.2 – Truck Tonnage Index – October 2012 through September 2013**



Source: American Trucking Associations

To understand the full cost to drivers of the HOS changes the following steps were taken:

1. The distributions in Figure 6.1 were applied to the 1.6 million over the road drivers used to measure costs and benefits in the FMCSA RIA.<sup>45</sup>
2. An average annual driver salary figure of \$48,121 was identified. This figure was derived from data in the 2011 ATA Driver Compensation Study.<sup>46</sup>
3. The Research Team next calculated driver pay impacts using a very conservative range of 3.2 – 7.7 percent. The range is based on two averages that were identified as follows:
  - a. An average percent pay decrease was produced for the population of drivers that indicated experiencing a pay decrease (67.4% of all respondents).
    - i. The Research Team exclusively used the conservative end of the impact range: drivers in the 1%-5% decrease range were assigned a decrease of 1%. Drivers in the 5%-10% range were assigned a 5% decrease.
    - ii. The pay decrease assignments were weighted by the number of drivers in each group, and an average pay decrease among the subset of drivers was 7.7%.
  - b. Second, a subset containing only the bottom half of drivers (those having the smallest pay decrease) was compiled.
    - i. The weighted average among this group was calculated using the same conservative category assignments listed above.
    - ii. The weighted average for this group was a 3.2% decrease.

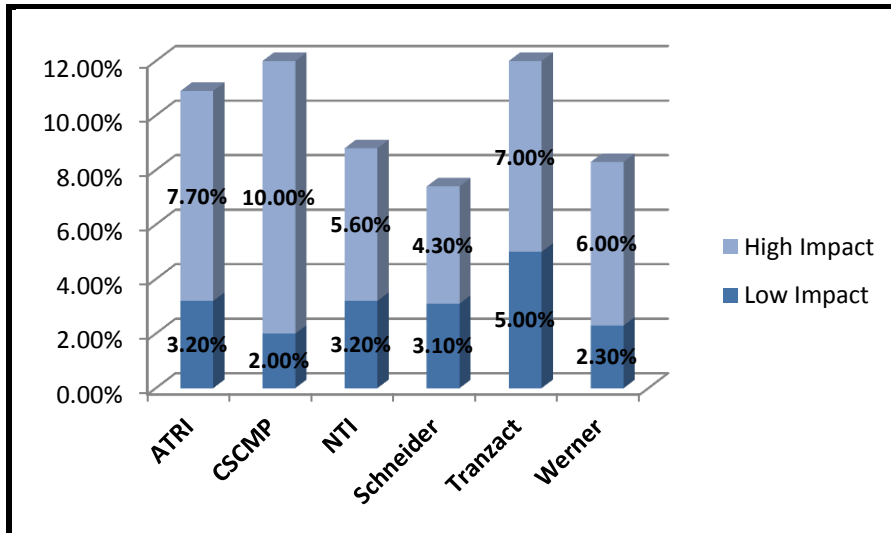
<sup>45</sup> FMCSA RIA, 2011

<sup>46</sup> This figure was derived from data on Page 52 and 53 of the American Trucking Associations *ATA Driver Compensation Study: Operations Data for 2011*. The figure of \$48,121 is an average of six median average annual salary figures (excluding bonuses) that represented both nationwide and regional employees across companies that fell within three separate revenue categories. Among the six median figures, the highest was \$51,500 and the lowest was \$44,730.

4. These 3.2 and 7.7 percent figures were assigned to both the 0.8 percent of drivers who indicated that their pay had increased and to the 67.4 percent of drivers who indicated that their pay had decreased.

As represented in Figure 6.3, the ATRI driver pay impact range of 3.2% to 7.7% is consistent with industry impacts described in the literature review in Chapter 1.

**Figure 6.3. Driver Impacts across Industry Sources**



As shown in Tables 6.1 and 6.2, the range of driver pay impacts resulting from the July 1<sup>st</sup> HOS rules changes is a conservative \$1.6 billion to \$3.9 billion annualized loss across 1.6 million over-the-road commercial drivers using the above methodology.

**Table 6.1 – Driver Pay Impacts at 3.2%**

Category	Assigned Decrease/Increase	Percent of Respondents	Number of Drivers	Average Annual 2011 Salary (\$48,121) * Number of Drivers	Annual Loss = Total Compensation by Category * Decrease/Increase
Pay has Increased	3.2%	0.8%	12,752	\$613,657,811	\$19,637,050
Pay is Unchanged	0.0%	24.7%	395,324	\$19,023,392,136	
Pay has Decreased	-3.2%	67.4%	1,078,002	\$51,874,540,276	(\$1,659,985,289)
Uncertain	0.0%	7.1%	113,921	\$ 5,482,009,777	
		100.0%	1,600,000	\$76,993,600,000	(\$1,640,348,239)

**Table 6.2 – Driver Pay Impacts at 7.7%**

Category	Assigned Decrease/Increase	Percent of Respondents	Number of Drivers	Average Annual 2011 Salary (\$48,121) * Number of Drivers	Annual Loss = Total Compensation by Category * Decrease/Increase
Pay has Increased	7.7%	0.8%	12,752	\$613,657,811	<b>\$47,251,651</b>
Pay is Unchanged	0.0%	24.7%	395,324	\$19,023,392,136	
Pay has Decreased	-7.7%	67.4%	1,078,002	\$51,874,540,276	<b>(\$3,994,339,601)</b>
Uncertain	0.0%	7.1%	113,921	\$5,482,009,777	
		100.0%	1,600,000	\$76,993,600,000	<b>(\$3,947,087,950)</b>

### 6.1.2 Carrier Loss of Productivity

Productivity is the ratio of outputs to inputs. In trucking if more inputs (e.g. drivers/trucks) are required to achieve the same output (e.g. freight moved), then productivity has decreased.

Carriers face several productivity-related challenges as a result of the HOS changes, and 80 percent of carrier respondents indicated that they have experienced a loss in productivity since the July 1<sup>st</sup> HOS rules changes. The key carrier outcomes that result from the HOS changes, including those related to productivity loss, are as follows:

- More Drivers are now Required to Move the Same Amount of Freight:** To comply with the HOS rules carriers have shifted driver schedules. Many of these new schedules have resulted in a decrease in the number of weekly miles a driver can log. Due to the decrease in miles, carriers have a choice of turning down freight or making up the miles by incorporating additional drivers and/or equipment into their operations. These options are less profitable and less efficient than operations prior to the rules changes, and are a central component of the productivity loss.
- Driver Shortage and Turnover:** Prior to the July 1<sup>st</sup> HOS rules, qualified drivers were scarce with an estimated shortage of 20,000 to 25,000 for-hire truckload drivers.<sup>47</sup> As a result of the changes more drivers are required and the level of scarcity has increased. To attract drivers after the HOS change, some carriers have opted to increase pay<sup>48</sup> and some may increase rates for shippers. Rate hikes are challenging, however, due to strong competition among industry participants. If rates do not fully compensate for driver pay increases then carriers raising pay will assume an additional financial burden.
- Decreased Flexibility to Meet Customer Requirements:** Meeting customer requirements is more difficult under the new HOS rules. In particular, drivers are limited to one restart per week and must take those restarts across two nighttime periods.

<sup>47</sup> Costello, Bob. *Truck Driver Shortage Update*. American Trucking Associations, November 2012.

<sup>48</sup> As an example, in October 2013 motor carriers CRST Expedited “announced plans to spend more than \$10 million over the next year for pay increases to attract new drivers, compensate drivers for recent productivity losses and provide performance-based bonuses for top drivers.” *Transport Topics*, October 3, 2013.

Shippers, however, may require delivery at any point on a given day, and with little notice. The data show, particularly those data describing the variability in driver weekly work time (see Chapter 5) that flexibility has decreased since July 1, 2013. As a result, drivers are less able to accumulate hours for unanticipated shipper requests via the 34-hour restart. In many instances, therefore, carriers must either turn down business or increase driver capacity.

### *6.1.3 Safety Impacts*

The central goal of the HOS rules is to create a safe operating environment. The goals of the new July 1<sup>st</sup> HOS changes were to make the existing HOS rules even safer. Drivers, however, have indicated increases in fatigue since the rules were implemented. Additionally, drivers and carriers remain uncertain about the enforceability of the new rules. Finally, there is evidence that the rules have increased time working and time away from home for many drivers. Some drivers have indicated that due to the rest break requirement, for instance, typical work day lengths have actually increased. Nearly 20 percent indicated an increase in on-duty time, though miles and pay have decreased or remained constant. Still others indicated that due to the changes, off-duty time has been required away from home more often, thus decreasing the restorative benefits of the rest period.

## **6.2 Conclusion**

Trucking is not a “one-size-fits-all” industry, and individual trucking operations vary greatly. Even so, there has been a clear, measurable and generally negative impact to a significant portion of the industry resulting from the July 1<sup>st</sup> HOS rules implementation. This report demonstrates clear evidence that the rules have generated a financial consequence on individual drivers as well as motor carriers, the majority of whom are small businesses. The financial impacts are realized through decreased earnings for drivers, decreased efficiency and productivity for carriers and, as trucking capacity tightens due to an increasing driver shortage, increased rates for businesses that ship goods. Finally, the commercial vehicle shift, described herein, to congested time periods creates new crash risks and costs that have not yet been quantified by FMCSA.



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