

Roadside Inspection Costs

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Abstract

This report estimates the average total cost of a commercial vehicle roadside inspection. It is an updated and expanded version of a cost estimate produced by FMCSA staff in 2003. It includes both weighted and unweighted cost estimates for the various components of a roadside inspection. The weighting applies to enforcement costs and is based on the number of roadside inspections conducted and the number of active safety inspectors in each State. The *enforcing agency's* total cost for conducting these roadside inspections is \$30.52 (\$32.78 unweighted) per inspection. The total cost to the *motor carrier* is approximately \$47.76. Thus the total cost per inspection is approximately \$78.28 (\$80.54 unweighted). Given the current number of roadside inspections and the current number of safety inspectors, an additional roadside inspection would cost the enforcing agency approximately \$23.06 (\$24.68 unweighted).

Roadside Inspection Costs

Purpose

The purpose of this report is to provide cost estimates of an average roadside inspection of a commercial motor vehicle. These estimates are used by the Federal Motor Carrier Safety Administration (FMCSA) and State commercial motor vehicle enforcement agencies to help budget and allocate monetary resources. The estimates are also used for policy formulation.

Introduction

The FMCSA has a number of programs that enforce the Federal safety regulations, and the roadside inspection program is one of its most significant tools used to enhance safety on America's highways. When vehicles are found to be in violation of Federal safety regulations, such as the Federal Motor Carrier Safety Regulations (FMCSRs) and Hazardous Materials Regulations (HMRs), the vehicles are placed out-of-service until the violation is rectified.

There are uniform procedures for inspection that apply throughout the United States and Canada. The North American Standard Truck Inspection procedures include six levels of inspections that cover the vehicle, driver, or both (see Appendix C). Inspectors conduct thorough mechanical examination of vehicles, verify that the drivers have the proper documentation (vehicle registration, valid commercial driver's license, insurance documents, etc.), and determine whether the driver is in compliance with the hours-of-service rule.

To help States better enforce the Federal safety regulations, the Motor Carrier Safety Assistance Program (MCSAP) offers a grant program that covers 80 percent of the cost of roadside inspections.¹ Results from 3,015,790 roadside inspections were recorded in the Motor Carrier Management Information System (MCMIS) during the 2005 calendar year. The average time per inspection, regardless of the inspection level, was 29 minutes (see Appendix B).

Data Methodology

This report uses the 2003 cost estimate² as a starting point for data collection. The focus of this report, and of the 2003 estimate, is the costs incurred while carrying out a regular roadside inspection. These costs include administrative costs incurred while recording the results of the inspection, training, and equipment. They do not include costs associated with prosecution of violations, nor do they include program or other costs incurred before or after the inspection.

¹ Authorized under the 1982 Surface Transportation Assistance Act. The grant is administered by FMCSA.

² "Estimating the Costs of Commercial Vehicle Roadside Inspections," Draft for Review, February 24, 2004.

For some costs, such as training and software development and maintenance, we contacted the appropriate United States Department of Transportation (DOT) officials and confirmed that the values used in the 2003 cost estimate were still valid. With regard to assumptions made in the 2003 cost estimate, where data were available, we revised the assumptions; otherwise, we used the 2003 assumptions in this report. We used a MCMIS snapshot, retrieved on August 14, 2006, of calendar year 2005 data on roadside inspections. This is a complete record of activities entered into the MCMIS database during 2005.

The most notable changes from the 2003 cost estimate are the data and technique used to determine average costs based on information supplied by State DOTs. The 2003 report used an unweighted average of wages, benefits, and other costs given by four States (New York, Michigan, Tennessee, and California) and wage information from the Federal Government. This report uses data from 29 States, Puerto Rico, the District of Columbia, and American Samoa derived from fiscal year 2006 Commercial Vehicle Safety Plans (CVSP). The CVSPs are required in order to receive MCSAP funds, and they contain detailed line-item budgets. We also use data obtained from Tennessee and New York and Federal wage information. Furthermore, this report uses weighted average values based on either the number of inspections conducted by each State or the number of active inspectors in each State. We believe that the weighted average costs more accurately describe the costs of a roadside inspection, because they account for the differences in size, activity, and administrative structure among the State programs. For a description of the CVSP data, see Appendix A.

The quality and accuracy of the raw data provided are questionable for the purpose of this report. The most noticeable discrepancy is the variance in costs and inspection activity among the States. In order to adjust for this, we weighted most of the data elements. Logically, the average hourly wage of a safety inspector (including benefits and overhead) is weighted by the number of inspectors in each State. All other weighted costs used the number of roadside inspections per State as the weight. Costs that should not vary due to the number of inspectors or inspections—such as software maintenance, training, and computer equipment—are not weighted.

More subtle discrepancies become apparent when reading the CVSPs and comparing them with the MCMIS data. The budgets in the CVSPs are for the entire MCSAP grant, of which roadside inspection programs are a major component. Only one CVSP specifically listed the amount budgeted for the roadside inspection program as a separate item. Furthermore, the number of unique inspectors entered in MCMIS³ exceeds the number of safety inspectors included in State budgets. Most State DOTs form an enforcement partnership with the State Highway Patrol and local law enforcement groups so that the majority of active inspectors are not explicitly accounted for in the CVSPs. Only a few States identify specific funding for this overlap of duties. Finally, according to MCMIS, the average inspector spent approximately 110 hours conducting roadside

³ The number of unique inspectors entered in MCMIS may be overstated due to the lack of control and standardization in the assignment of inspector ID numbers.

inspections in 2005. It thus appears that roadside inspections account for less than 10 percent of a safety inspector's duties and obligations.

We were unable to determine an appropriate fraction of the MCSAP budget to apply to the roadside inspection programs, so the cost data presented below are based on the entire budget found in the CVSPs. Wages are based on those listed for inspectors and for clerical or low-level administrative positions. Travel expenses are limited to in-State expenses. Both gas and vehicle maintenance and equipment use the entire line item in the CVSPs.

In order to offset the discrepancies identified above, we calculated labor expenses based on an hourly wage. Where possible, we removed line items (such as educational material) that are not germane. We also eliminated all capital vehicle costs, assuming that the gas and vehicle maintenance line item more accurately reflects the cost per roadside inspection. Due to these modifications, we believe that the enforcement cost estimates presented in this report are inflated but within the upper limit of a reasonable range.

For clarity, the costs incurred by enforcement agencies and motor carriers have been estimated independently. The costs incurred by the enforcement agency are further stratified into the following: variable costs for each inspection, fixed costs for each inspector, and fixed costs associated with the overall implementation of the inspection program. The variable enforcement costs consist primarily of labor costs, which include direct wages, benefits, and overhead for safety inspectors and administrative support staff. Fixed costs for inspectors include training and equipment. Programmatic fixed costs include software maintenance. The motor carrier costs include driver and administrator wages and benefits, as well as opportunity cost to the carrier. (Opportunity cost is loosely defined as the amount of one thing an entity gives up to do another thing.) In this case, our opportunity cost is the motor carrier cost of operating the vehicle (net of wages) per minute, plus a profit margin.

Marginal Enforcement Costs

Typical roadside inspection labor costs include the services of specially trained State or Federal employees. Because economic and social factors vary across the United States, a weighted average of wages for State and Federal safety inspectors is used. Unlike the other costs, the wage is weighted by the number of active safety inspectors in each State as identified in MCMIS. Based on the data collected, the average labor expense incurred by the enforcing agency for a safety inspector conducting a roadside inspection is \$37.14 (\$33.40 unweighted) per hour, including benefits and overhead. An average inspection in 2005 took approximately 29 minutes to complete. We concluded this based on the 3,015,790 inspections that were conducted in 2005 and recorded in MCMIS. Given this information, the enforcing agency's labor cost during the average inspection is \$17.95 (\$16.14 unweighted).

In addition to the safety inspector, the enforcing agency has labor costs associated with clerical support for each inspection. Based on conversations with State representatives, it takes approximately 5 minutes per inspection to complete this work. This is a significant improvement in efficiency since 2003. The weighted (by number of inspections per State) average labor expense incurred by the enforcing agency for clerical support is \$24.28 (\$20.99 unweighted) per hour, including benefits and overhead, or \$2.02 (\$1.75 unweighted) per inspection. The total labor cost to the enforcing agency is thus \$19.97 (\$17.89 unweighted) per inspection.

All in-State travel expenses, including gas and vehicle maintenance, are averaged per inspection and are considered marginal costs. The average total travel expense per roadside inspection is \$3.09 (\$6.79 unweighted).

Fixed Enforcement Costs

Fixed costs represent costs associated with training and supplying a safety inspector and with administering the roadside inspection program. Assuming that the number of safety inspectors is fixed, these costs will not change as the number of roadside inspections changes marginally.

In 2005, an average safety inspector performed 227 roadside inspections. We assume that this is a stable average number of inspections per year over a 10-year period of service for each inspector. The total cost of training one inspector is \$4,562.⁴ Currently, there are no retraining requirements, provided that an inspector conducts a given number of roadside inspections per year.⁵ Thus, the training cost is a required one-time cost per safety inspector, and the amortized cost of training per inspection over a 10-year period of service (2270 inspections) is \$2.01.

Inspectors are issued uniforms, flashlights, gloves, and other equipment by the State. The average annual expenditure on equipment per inspector is \$121.89 (\$269.61 unweighted), and the amortized cost per inspection is \$0.79 (\$1.43 unweighted). In order to record and upload the inspection data, each safety inspector is issued a laptop computer. The cost of an average computer is \$2,950.63, and it has a 3-year functional life. The resultant amortized cost of computer equipment is \$4.33 per inspection.⁶

All data collected through roadside inspections are entered into the MCMIS database and disseminated through various FMCSA data systems. FMCSA and its State partners allocate \$1 million per year to develop and maintain the software used for roadside

⁴ Based on data from the 2003 report, confirmed by Kelly Kelley and Judy Babbitt, FMCSA.

⁵ According to Judy Babbitt, FMCSA is considering implementing a retraining requirement, but at this time no such requirement is in effect.

⁶ This cost estimate follows the assumption in the 2003 report that each safety inspector is issued a laptop computer, and that computer is used solely for recording and managing roadside inspection data. In practice, inspectors may use the computer for other purposes, and multiple inspectors may use the same computer.

inspections.⁷ Given that there were 3,015,790 roadside inspections conducted in 2005, the amortized cost per inspection for software is \$0.33.

Total Enforcement Costs

The total cost to the enforcing agency for conducting one roadside inspection is \$30.52 (\$32.78 unweighted).

The number of cost estimates used in the cost of a roadside inspection analysis depends on the scope of the analysis or the policy measurements intended to be examined. All cost estimates will be relevant in the cost analysis if roadside inspections were to be increased by a large amount. However, if small increases or decreases in the number of roadside inspections are proposed, then marginal cost would be the appropriate cost measure. This estimate suggests that the marginal cost to the enforcing agency is approximately \$23.06 (\$24.68 unweighted) for each additional roadside inspection that it conducts.

It is worth considering the marginal cost of a larger unit, particularly since there are more than 3 million roadside inspections per year. The logical unit is the marginal cost of 227 inspections, which is the average number of roadside inspections conducted by a safety inspector in one year. The approach we take in this analysis is that the enforcing agency hires an additional safety inspector or reassigns an existing (untrained) employee. In this case, the marginal cost of 227 additional inspections is \$6,854.68 (\$7,367.28 unweighted). The marginal cost includes the amortized cost of training and equipping an additional safety inspector for one year. Wages, benefits, and overhead components of this marginal cost are specific to the 227 roadside inspections. As noted above, the new safety inspector can expect to spend approximately 110 hours conducting the 227 additional inspections. This marginal cost does not take into account the costs of other duties and activities performed by the new safety inspector, nor wages, benefits, and overhead costs unrelated to roadside inspections.

An alternate approach to the marginal cost of a larger unit of inspections is to increase the number of inspections conducted by existing safety inspectors. In this case, the marginal cost does not include additional training or equipment, but it would include costs associated with changing the workload of existing safety inspectors. Because fixed costs are distributed over a greater number of inspections, enforcing agencies would experience cost reductions per roadside inspection based on the increase in the average number of inspections conducted by a safety inspector. Estimating costs associated with increasing or redistributing the workload of existing safety inspectors, including overtime, is beyond the scope of this report. Assuming that these additional costs and cost reductions are negligible, the marginal cost of additional roadside inspections is a linear function of the marginal cost of one additional roadside inspection. For example, the marginal cost of 227 additional roadside inspections is \$5,234.62 (\$5,602.36 unweighted).

⁷ Based on data from the 2003 report, confirmed by Angie Sebastian, FMCSA.

Motor Carrier Costs

The Bureau of Labor Statistics (BLS) estimates that truck drivers earn an average of \$15.02 per hour, based on various surveys. To account for nonwage benefits (such as health insurance and pension contributions) and overhead, we follow assumptions used in the 2003 cost estimate and adjust the wage rate by 31 percent and 5 percent, respectively. This results in a total driver's labor cost of \$20.43 per hour incurred by the motor carrier. With an average inspection lasting 29 minutes, the carrier's cost for the driver's labor is \$9.87.

In addition to the driver's labor cost, the motor carrier incurs the cost of clerical labor necessary to maintain appropriate safety records. The clerical work includes filing, copying, mailing, and data entry necessary to complete the roadside inspection process. Based on BLS estimates, administrative workers at a motor carrier earn a base wage of \$14.28 per hour. To determine the total labor cost for administrative employees, benefits and overhead must be included. These additional costs of 25 percent and 5 percent of the base wage, respectively—as assumed in the 2003 cost estimate—result in a total labor cost of \$18.56 per hour for motor carrier administrative employees. We assume that clerical efficiency has improved since 2003 and that the motor carrier spends 10 minutes with paperwork and filing after each inspection. The administrative cost to a motor carrier for the average roadside inspection is \$3.09.

The final cost that a motor carrier confronts is the opportunity cost of idling during an inspection. Since the opportunity cost is difficult to estimate, the 2003 cost estimate used an operating cost, less wages, of \$1.00 per minute—provided by the American Trucking Association (ATA)—as a proxy for the opportunity cost. A lengthy discussion with ATA's Economics and Statistical Analysis Group led to an opportunity cost estimate of \$1.20 per minute in 2006. We chose to begin with the operating cost used in 2003, a number ATA now considers "conservative." Based on historical data, we added a 5-percent profit margin, resulting in gross revenue of \$1.05 per minute in 2003. Since 2003, demand for shipping has increased, leading to tighter capacity in the industry. In addition, fuel prices have increased. These factors led to a 15-percent increase in average revenue per mile, adjusted for inflation. Assuming that the number of miles traveled in 1 hour has not changed since 2003, this translates into gross revenue less wages of \$1.20 per minute in 2005, the value that we use for opportunity cost to the motor carrier. Given that the average inspection lasts 29 minutes, the motor carrier's opportunity cost per inspection is \$34.80.

Thus, the average total cost to the motor carrier of a roadside inspection is \$47.76. The largest component of this cost is the opportunity cost incurred while idling.

Summary

The average total cost of a roadside inspection in 2005 is \$78.28 (\$80.54 unweighted). Of that, \$30.52 (\$32.78 unweighted) is attributable to the enforcement agency. The residual amount of \$47.76 is from the costs incurred by the motor carrier. The marginal cost to the enforcement agency per inspection is \$23.06 (\$24.68 unweighted). This report also

considered the marginal cost to the enforcement agency of adding a safety inspector to perform 227 inspections (the average number of inspections conducted by a safety inspector in one year). This cost is \$6,854.68 (\$7,367.28 unweighted) and includes training and equipment costs amortized over one year (227 inspections) for one additional safety inspector. This cost does not include the costs of other duties and activities performed by the additional safety inspector, nor does it include labor costs unrelated to roadside inspections. Alternately, the enforcing agency could increase the number of inspections conducted by existing safety inspectors. Analyzing additional costs and benefits associated with significantly increasing the average number of inspections performed by existing safety inspectors is beyond the scope of this report.

Tables 1 through 3 provide details of the specific costs discussed in this report.

Table 1. Costs of Conducting a Roadside Inspection (RI)

Cost Component	Average Cost per RI	Weighted Cost per RI
Enforcement Costs		
Labor		
Safety Inspector (includes benefits and overhead)	\$16.14	\$17.95
Administrative Staff (includes benefits and overhead)	\$1.75	\$2.02
<i>Subtotal</i>	<i>\$17.89</i>	<i>\$19.97</i>
Safety Inspector Training		
Training Costs	\$0.88	\$0.88
Testing Fees and Manual	\$0.03	\$0.03
Travel, Lodging, Meals	\$1.10	\$1.10
<i>Subtotal</i>	<i>\$2.01</i>	<i>\$2.01</i>
Other Costs		
Gas and Vehicle Maintenance	\$4.05	\$1.34
In-State Travel Expenses	\$2.74	\$1.75
Equipment (uniform, creeper, etc.)	\$1.43	\$0.79
Laptop Computer	\$4.33	\$4.33
Software Maintenance	\$0.33	\$0.33
<i>Subtotal</i>	<i>\$12.88</i>	<i>\$8.54</i>
Total Enforcement Cost per RI	\$32.78	\$30.52
Motor Carrier Costs		
Labor		
Driver (includes benefits and overhead)	\$9.87	\$9.87
Administrative Staff (includes benefits and overhead)	\$3.09	\$3.09
<i>Subtotal</i>	<i>\$12.96</i>	<i>\$12.96</i>
Idling Cost (opportunity cost)	\$34.80	\$34.80
Total Motor Carrier Cost per RI	\$47.76	\$47.76
Total Cost per RI	\$80.54	\$78.28

**Table 2. Marginal Costs to the Enforcement Agency
of Conducting an Additional Roadside Inspection (RI)**

Cost Component	Average Cost per RI	Weighted Cost per RI
Safety Inspector Wage (includes benefits and overhead)	\$16.14	\$17.95
Administrative Staff Wage (includes benefits and overhead)	\$1.75	\$2.02
Gas and Vehicle Maintenance	\$4.05	\$1.34
In-State Travel Expenses	\$2.74	\$1.75
Total Marginal Cost	\$24.68	\$23.06

**Table 3. Marginal Costs to the Enforcement Agency
of Conducting 227 Additional Roadside Inspections
(Including the Cost of Training and Equipping an
Additional Safety Inspector)**

Cost Component	Average Cost per RI	Weighted Cost per RI
Labor		
Safety Inspector (includes benefits and overhead)	\$3,664.54	\$4,074.88
Administrative Staff (includes benefits and overhead)	\$397.06	\$459.30
<i>Subtotal</i>	<i>\$4,061.60</i>	<i>\$4,534.17</i>
Safety Inspector Training		
Training Costs	\$200.00	\$200.00
Testing Fees and Manual	\$6.20	\$6.20
Travel, Lodging, Meals	\$250.00	\$250.00
<i>Subtotal</i>	<i>\$456.20</i>	<i>\$456.20</i>
Other Costs		
Gas and Vehicle Maintenance	\$919.35	\$304.18
In-State Travel Expenses	\$621.98	\$397.25
Equipment (uniform, creeper, etc.)	\$324.61	\$179.33
Laptop Computer	\$983.54	\$983.54
<i>Subtotal</i>	<i>\$2,849.48</i>	<i>\$1,864.30</i>
Cost of 227 Additional RI	\$7,367.28	\$6,854.68

Appendix A—State Salary and Cost Comparisons

Table A.1. Safety Inspector Salaries

State	Annual Salary	Benefits	Wage+Benefits	RIs Conducted	Inspectors
AK	\$31,384.71	\$22,282.94	\$53,667.65	9,939	71
AL	\$55,594.00	\$13,392.00	\$68,986.00	29,298	220
AR	\$48,958.00	\$10,281.18	\$59,239.18	53,397	156
AS	\$19,325.00	(included)	\$19,325.00	860	10
CA	\$77,357.00	\$42,270.19	\$119,627.19	469,430	1,229
CO	\$62,766.00	(included)	\$62,766.00	62,884	682
DC	\$56,112.33	\$11,222.47	\$67,334.80	8,645	15
GA	\$28,525.00	\$9,504.15	\$38,029.15	92,771	338
HI	\$71,385.00	(included)	\$71,385.00	3,418	19
MA	\$74,959.00	\$25,486.06	\$100,445.06	18,358	67
ME	\$37,690.00	\$22,422.00	\$60,112.00	11,699	50
MS	\$41,552.37	\$14,713.69	\$56,266.06	20,271	160
MT	\$38,192.00	(included)	\$38,192.00	32,924	287
ND	\$20,625.00	\$11,125.00	\$31,750.00	18,281	129
NE	\$61,318.86	(included)	\$61,318.86	34,444	341
NM	\$25,212.00	\$7,563.60	\$32,775.60	71,858	251
NV	\$47,290.50	\$18,413.00	\$65,703.50	26,766	163
NY	\$42,644.00	\$20,469.12	\$63,113.12	95,027	228
PR	\$62,074.00	\$18,132.00	\$80,206.00	1,379	16
TN	\$47,040.00	\$4,704.00	\$51,744.00	66,360	1,396
US	\$43,620.00	\$10,905.00	\$54,525.00	104,440	589
WA	\$50,837.76	\$12,767.68	\$63,605.44	128,576	692
WV	\$33,895.00	\$12,134.41	\$46,029.41	16,632	79

Average **\$59,397.65**

Weighted Average **\$66,052.51**

Standard Dev. (unweighted) \$21,763.04

State	Wage	Overhead	% of wage
AL	\$55,594.00	\$11,137.00	20.03%
CA	\$77,357.00	\$12,725.00	16.45%
MA	\$74,959.00	\$23,754.00	31.69%
MD	\$48,154.00	\$9,130.00	18.96%
ND	\$20,625.00	\$1,877.00	9.10%
NM	\$25,212.00	\$1,386.00	5.50%

Average Overhead: **16.95%**

Standard Dev. 9.21%

Table A.2. Administrative Staff Salaries

State	Annual Salary	Benefits	Wages+Benefits	RIs Conducted	Inspectors
AK	\$34,823.00	\$24,725.00	\$59,548.00	9,939	71
AL	\$24,721.00	\$3,564.00	\$28,285.00	29,298	220
AR	\$27,274.00	\$5,727.54	\$33,001.54	53,397	156
AS	\$12,000.00	(included)	\$12,000.00	860	10
CA	\$35,976.00	\$15,881.25	\$51,857.25	469,430	1,229
CO	\$41,869.00	(included)	\$41,869.00	62,884	682
GA	\$22,056.00	\$7,395.26	\$29,451.26	92,771	338
ME	\$24,104.00	\$20,234.00	\$44,338.00	11,699	50
MT	\$28,496.00	(included)	\$28,496.00	32,924	287
NE	\$32,173.00	(included)	\$32,173.00	34,444	341
NM	\$22,921.00	\$6,876.30	\$29,797.30	71,858	251
NV	\$33,343.67	\$13,791.00	\$47,134.67	26,766	163
NY	\$30,000.00	\$14,400.00	\$44,400.00	95,027	228
PR	\$19,416.00	\$6,204.00	\$25,620.00	1,379	16
RI	\$30,739.00	\$20,637.00	\$51,376.00	3,240	14
TN	\$28,125.00	\$2,812.50	\$30,937.50	66,360	1,396

Average **\$36,892.78**

Weighted Average **\$42,685.11**

Standard Dev. (unweighted) \$12,270.12

State	Wage	Overhead	% of wage
AL	\$24,721.00	\$8,016.00	32.43%
CA	\$35,976.00	\$5,918.00	16.45%
MD	\$30,000.00	\$5,688.00	18.96%
NM	\$22,921.00	\$1,261.00	5.50%

Average Overhead: **18.33%**

Standard Dev. 11.06%

Table A.3. Roadside Inspection Costs

State	Costs						RIs	Inspectors
	Equipment	Eq per RI	Maintenance and Gas	M/G per RI	Travel	Tvl per RI		
AK	\$5,100.00	\$0.51	\$47,500.00	\$4.78			9,939	71
AL			\$230,000.00	\$7.85	\$130,822.00	\$4.47	29,298	220
AR	\$90,260.00	\$1.69			\$133,985.00	\$2.51	53,397	156
AS			\$7,000.00	\$8.14			860	10
AZ	\$29,441.00	\$0.67					43,654	784
CA			\$318,240.00	\$0.68			469,430	1,229
CO	\$18,000.00	\$0.29	\$85,000.00	\$1.35	\$10,000.00	\$0.16	62,884	682
DC	\$15,000.00	\$1.74	\$18,000.00	\$2.08			8,645	15
FL							76,982	238
GA	\$7,156.00	\$0.08	\$46,800.00	\$0.50	\$154,500.00	\$1.67	92,771	338
HI	\$22,520.00	\$6.59					3,418	19
ID	\$21,000.00	\$2.26	\$80,000.00	\$8.59			9,312	114
MA	\$40,000.00	\$2.18					18,358	67
MD							102,823	391
MS			\$5,040.00	\$0.25			20,271	160
MT	\$71,560.00	\$2.17			\$30,706.00	\$0.93	32,924	287
ND	\$20,000.00	\$1.09			\$95,000.00	\$5.20	18,281	129
NE	\$12,977.00	\$0.38	\$182,049.00	\$5.29	\$28,500.00	\$0.83	34,444	341
NH	\$58,000.00	\$5.83			\$60,000.00	\$6.03	9,957	92
NM	\$23,700.00	\$0.33	\$25,720.00	\$0.36	\$16,800.00	\$0.23	71,858	251
NV	\$23,360.00	\$0.87	\$10,500.00	\$0.39			26,766	163
NY	\$114,000.00	\$1.20					95,027	228
OR	\$29,217.00	\$0.52			\$39,830.00	\$0.71	55,825	472
PR	\$1,100.00	\$0.80	\$21,608.00	\$15.67			1,379	16
RI			\$25,000.00	\$7.72			3,240	14
SD	\$32,300.00	\$1.36					23,791	218
TN							66,360	1,396
UT	\$15,923.00	\$0.59	\$22,808.00	\$0.84			27,151	183
VT			\$5,700.00	\$0.57			10,024	54
WA	\$15,952.00	\$0.12	\$75,600.00	\$0.59			128,576	692
WV			\$175,000.00	\$10.52	\$150,000.00	\$9.02	16,632	79
WY	\$6,000.00	\$0.30	\$15,000.00	\$0.75	\$23,175.00	\$1.17	19,889	200
Average per RI	\$0.79 (weighted)	\$1.43	\$1.34 (weighted)	\$4.05	\$1.75 (weighted)	\$2.74		
Standard Deviation	\$28,640.32	\$1.69	\$88,856.27	\$4.51	\$56,218.29	\$2.81		

Appendix B—Inspections Performed by Type in 2005

Table B.1. provides information obtained from MCMIS. It is estimated that there are approximately 13,285 inspectors in the United States (Federal and State employees). On average, each inspector conducted 227 inspections in 2005. The average inspection in 2005 took 29 minutes.

**Table B.1. Inspections Performed by Type:
Calendar Year 2005**

	Number of Inspections	Average Duration (minutes)
Inspection Level 1	1,085,072	36
Inspection Level 2	1,071,458	30
Inspection Level 3	797,864	22
Inspection Level 4	23,914	26
Inspection Level 5	37,482	33
Total	3,015,790	29

Appendix C—Description of Truck Inspection Levels

The North American Standard Truck Inspection procedures have identified six inspection levels. The following paragraphs describe each level of inspection.

LEVEL I

North American Standard Inspection: This inspection includes each of the items specified under the North American Uniform Out-of-Service Criteria. At a minimum, North American Standard Inspections must include examination of: the driver's license, the medical examiner's certificate and waiver, if applicable; alcohol and drugs; the driver's record of duty status as required; hours of service; seat belt; vehicle inspection report; brake system; steering mechanism; wheels and rims; tires; coupling devices; suspension; frame; fuel system; exhaust system; windshield glazing and wipers; lighting devices; safe loading; and hazardous materials (HM) requirements, as applicable.

LEVEL II

Walk-Around Driver/Vehicle Inspection: This inspection, at a minimum, includes: the driver's license; the medical examiner's certificate and waiver, if applicable; the driver's record of duty status as required; hours of service; seat belt; vehicle inspection report; fire extinguisher; warning devices for stopped vehicles; headlamps; turn signals; stop lamps; windshield and wipers; wheels; tires; fuel system; exhaust system; visible brake components; coupling devices; cargo security; low-air warning device; visible suspension components; and HM requirements, as applicable. It is contemplated that the walk-around driver/vehicle inspection will be conducted without inspecting underneath the vehicle.

LEVEL III

Driver-Only Inspection: This roadside inspection includes: the driver's license; the medical certification and waiver, if applicable; the driver's record of duty status as required; hours of service; seat belt; and vehicle inspection report.

LEVEL IV

Special Inspection: Inspections under this heading typically include a one-time examination of a particular item. These inspections are normally made in support of a study or to verify or refute a suspected trend.

LEVEL V

Vehicle-Only Inspection: This is a full (Level I) vehicle inspection without a driver, conducted at any location. Upon successful passing of the inspection, the vehicle will be eligible for a CVSA decal.

LEVEL VI

Hazardous Materials (Enhanced NAS Inspection for Radioactive Shipments): This inspection for select radiological shipments includes: inspection procedures, enhancements to the Level I inspection, radiological requirements, and enhanced out-of-service criteria.

Appendix D—Comparison of Estimated versus Actual Costs

Table D.1 summarizes the changes in costs between the 2003 cost estimate and this report. It is followed by a brief explanation of some of the changes.

Table D.1. Comparison of Component Costs per Roadside Inspection

Cost Component	RI Cost 2002 (in 2002 dollars)	RI Cost 2002 (in 2005 dollars)	RI Cost 2005 (weighted)	RI Cost 2005 (unweighted)
<i>Enforcement Costs</i>				
Labor (including benefits and overhead)				
Safety Inspector	\$15.20	\$16.43	\$17.95	\$16.14
Administrative Staff	\$3.90	\$4.22	\$2.02	\$1.75
Safety Inspector Training				
Training Costs	\$0.60	\$0.65	\$0.88	\$0.88
Testing Fees and Manual	\$0.01	\$0.01	\$0.03	\$0.03
Travel, Lodging, Meals	\$0.80	\$0.86	\$1.10	\$1.10
Other Costs				
Travel Expenses (including car and gas)	\$4.00	\$4.32	\$3.09	\$6.79
Equipment (uniform, creeper, etc.)	\$1.00	\$1.08	\$0.79	\$1.43
Laptop Computer	\$3.20	\$3.46	\$4.33	\$4.33
Software Maintenance	\$0.40	\$0.43	\$0.33	\$0.33
Total Enforcement Cost per RI	\$29.10	\$31.46	\$30.52	\$32.78
<i>Motor Carrier Costs</i>				
Labor (including benefits and overhead)				
Driver	\$9.70	\$10.49	\$9.87	\$9.87
Administrative Staff	\$3.90	\$4.22	\$3.09	\$3.09
Idling Cost (opportunity cost)	\$29.00	\$31.35	\$34.80	\$34.80
Total Motor Carrier Cost per RI	\$42.60	\$46.06	\$47.76	\$47.76
Total Cost per RI	\$71.70	\$77.52	\$78.28	\$80.54

The 2003 cost estimate is based on 3.0 million roadside inspections conducted in 2002. That report assumes that 9,000 safety inspectors conducted those roadside inspections in 2002, resulting in an average of 333 inspections performed per inspector per year. The average time needed to perform a roadside inspection in 2002 was 29 minutes. This report used data entered into MCMIS in order to determine the exact number of safety inspectors conducting roadside inspections. We found that, in 2005, 13,285 inspectors conducted 3,015,790 roadside inspections, or an average of 227 inspections per inspector per year. The average time needed to perform a roadside inspection in 2005 was 29 minutes.

The decrease in the average number of inspections per inspector per year resulted in an increase in the cost per inspection of both training and the laptop computer. An increase in efficiency more than offset the wage increase for both enforcement agency and motor carrier administrative staff, as the time necessary for paperwork and filing decreased

considerably from 2002. The increase in idling cost is discussed in the body of this report. Adjusting for inflation eliminates almost entirely the differences in total costs between 2002 and 2005.