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Federal Motor
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Administration

Final Rule Regulatory Evaluation

National Registry of Certified Medical Examiners

By
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EXECUTIVE SUMMARY

Background

This rule establishes training, testing, and registration program that will certify health-care professionals as qualified to conduct medical certification examinations of commercial drivers. Current regulations require all interstate commercial motor vehicle (CMV) drivers (with certain limited exceptions) to be physically examined by a licensed health-care provider to determine whether these drivers meet the Federal Motor Carrier Safety Administration (FMCSA) physical qualification requirements. All drivers must have a medical examiner's certificate as proof that they have passed this physical qualification examination. The medical examiners (ME) who conduct the physical examinations must retain copies of the Medical Examination Reports of all drivers they examine and certify. The Medical Examination Report lists the specific results of the various medical tests used to determine whether a driver meets the physical qualification standards and guidelines.

Before the publication of this rule, there was no required training program for the health-care professionals who conduct driver physical examinations. The former rules required that any health-care professional licensed by his or her State to conduct physical examinations could conduct driver medical certification exams. No specific knowledge of the Agency's physical qualification standards and guidelines was required. As a result, many of the health-care professionals who conduct these examinations may be unfamiliar with FMCSA physical qualification standards and guidelines and how to apply them. These professionals may also be unaware of the mental and physical rigors that accompany the occupation of CMV driver, and how various medical conditions (and the therapies used to treat them) may affect the ability of drivers to safely operate CMVs.

This rule establishes a National Registry of Certified Medical Examiners (NRCME), to ensure that all MEs who conduct driver medical certifications have been trained in FMCSA qualification standards and guidelines. In order to be listed on the NRCME, MEs are required to participate in an accredited training program and pass a certification test to assess their knowledge of the Agency's physical qualification standards and guidelines and how to apply them to drivers. Upon passing this certification test, and meeting the other administrative requirements associated with the program, MEs will be listed on the NRCME. Once this rule is fully implemented, only medical certificates issued to drivers by MEs on the NRCME will be considered valid by the Agency as proof of medical certification.

Alternatives

The regulatory evaluation that accompanied the Notice of Proposed Rulemaking (NPRM) for this rule considered three alternatives for implementing this program. One alternative referred to as the Public-Private Partnership Model, involved a partnership between the Agency and various private-sector training and testing organizations that exist, now and

in the future, to provide continuing professional education and credentialing to health-care professionals. This Public-Private Partnership Model was the Agency's preferred alternative. Several public comments to the docket during the public notice and comment period for the NPRM supported the Public-Private Partnership Model over the other alternatives considered. This Final Rule implements the Public-Private Partnership Model. Under this partnership, the Agency will develop and provide core curriculum specifications and the certification test and protocols. Any interested organization that can meet FMCSA requirements will be eligible to deliver training or testing. Training would therefore be delivered by private-sector professional associations, health care organizations, and other for-profit and non-profit training groups. Testing will be delivered by private-sector professional testing organizations. After completing one of these accredited training programs, passing the certification test, and agreeing to comply with FMCSA administrative requirements, MEs will be listed on the NRCME, and authorized to conduct CMV driver physical examinations. Once the NRCME is fully implemented, only physical examinations conducted by MEs on the NRCME will be recognized by FMCSA and enforcement personnel as proof of driver physical qualification. This alternative is referred to as Alternative 1 in this document.

The second alternative considered by the Agency at the NPRM stage was based on the Federal Aviation Administration's (FAA) Aviation Medical Examiner (AME) Program, referred to here as the Government Model. This alternative required the Agency to establish its own centralized training and testing program. As described in the regulatory evaluation accompanying the NPRM, this program would have required MEs to attend this Agency-run program and pass a test administered by the Agency. Upon completion of the test, an ME would be eligible for listing on the NRCME. This program's components are essentially the same as Alternative 1, but all training and testing would have been conducted by the Agency rather than private-sector training and testing programs. This alternative would also have required all MEs to travel to the FMCSA facility or other regional training sites to receive the FMCSA training. This would have involved greater travel expenses on the part of MEs when compared to Alternative 1, which has training programs distributed throughout the country as well as some vendors who would offer online training modules. However, this option would have given FMCSA optimal control over the training of medical examiners. This alternative was referred to as Alternative 2.

The third alternative, referred to as Alternative 3, was based on the current Medical Review Officer (MRO) program requirements. The Department of Transportation (DOT) MRO training program grew out of the DOT controlled substances program, which monitors use of controlled substances. MROs are trained and certified by accredited training programs that are operated by professional associations in cooperation with DOT. Only licensed medical doctors (MD) or doctors of osteopathy (DO) are eligible to be MROs. MROs review controlled substances test results for safety sensitive occupations in the transportation industries, such as CMV drivers, airline mechanics, train operators, and ships' pilots.

The existing program specifies that MROs who oversee controlled substances testing for commercial drivers must attend a training and certification program that meets DOT standards. Each of these programs maintains its own registry of graduates rather than contributing names to a single Federal database. DOT does not administer the training curriculum or testing protocols for these programs. Thus, the Agency would exert less control over a program based on the MRO model than under the other options discussed at the NPRM stage. In addition, MRO programs charge more for testing than would likely be charged for testing in the National Registry program. Long distance travel for the initial training and testing would also have been required under this alternative.

As noted, the Agency has chosen to adopt the Public-Private Partnership Model (Alternative 1) at the Final Rule stage. This alternative was estimated to have the lowest cost of the three alternatives considered, and would afford the greatest degree of flexibility, convenience, and training opportunity to MEs. Moreover; it was supported by the majority of comments that mentioned the various alternative models proposed in the NPRM. We summarize the estimated costs and benefits of the three models below. To a large extent, costs have not changed. However, as noted in the Final Rule preamble, the Agency has decided to drop the phase-in described in the NPRM, in which drivers who work for carriers who employ 50 or more drivers would be required to comply with the rule 1 year earlier than drivers who work for smaller carriers. The Agency concurs with comments received that the phase-in schedule would pose some issues, such as limiting the number of MEs in the first year. Additionally, FMCSA does not believe the phase-in would reflect the reality of the industry's distribution of drivers. Under this Final Rule, all drivers, regardless of the size carrier they work for, are required to obtain medical certification from an NRCME-certified ME within 2 years of the full implementation of the program. This change has advanced the date at which all drivers must be certified by an ME on the NRCME, and as a result, a portion of the impacts that would be felt by drivers and the industry will be felt earlier than would have been the case with the phase-in. In addition, because all drivers will have to be examined by an NRCME registered ME beginning in the third year after the program is implemented, initial ME training costs are compressed into two years instead of three. In addition, the costs for Alternative 1 have changed due to technology advancements, which facilitate online training and testing. It is expected, that due to advances in information technology, some portion of MEs will receive online certification training and testing, and as a result travel and associated costs will be lower compared to the analysis that accompanied the NPRM. These cost adjustments are described below in detail.

Summary of Costs and Benefits

The costs and benefits for all three alternatives are analyzed in this regulatory evaluation. It is anticipated that approximately 40,000 MEs will be needed for the NRCME to accommodate the demand for an estimated 2.6 million medical examinations per year, and to provide adequate access, both in terms of geographic coverage and relatively short appointment waiting times. All alternatives involve an initial training phase in which the 40,000 MEs receive training. This phase is expected to last 2 years. At the beginning of the third year the Agency requires drivers to be examined by MEs listed on the NRCME

once their current medical certification expires. Under Alternative 1, the alternative adopted by this Final Rule, MEs are required to attend a training conducted by a private-sector organization. It is anticipated that this will result in training and testing fees that would have to be paid by MEs. Under Alternative 2, no training or testing fees would have been incurred by MEs, but the Agency would have borne the costs of providing the training and testing services. MEs would have borne the cost of long distance travel to the FMCSA training center under Alternative 2. Long distance travel to a designated training program was also anticipated under Alternative 3. Under Alternative 1 it is anticipated that training programs will be available throughout the country, and that some programs will offer online training courses, which will minimize the need for long distance travel.

It is also anticipated that by screening out physically unqualified drivers, this rule may require some drivers, who cannot meet the physical qualification standards, and would no longer be able to evade detection, to leave the industry and seek an alternative occupation. Carriers would bear the cost of hiring replacement drivers. Recruiting new drivers is an activity that consumes carrier resources, and there is therefore a cost associated with that activity. We therefore provide an estimate of the number of drivers who may be forced to retire from the occupation, and estimate the costs associated with recruiting an equal number of replacement drivers.

The 10-year total cost of the Public-Private Partnership Model is estimated at \$232 million, when discounted at a 7 percent discount rate. Undiscounted annual costs vary between \$14 million and \$59 million, with ME certification costs (training and testing costs plus lost time and travel costs) being the largest portion of the cost at approximately \$31.5 million in the highest-cost year. Alternative 2 has a total discounted 10-year cost of \$383 million, with annual costs ranging between \$17 million and \$88 million. Alternative 3 has a total 10-year discounted cost of \$337 million, with annual costs ranging between \$16 million and \$92 million. In all alternatives, the value of ME time spent in training is the largest portion of cost. The undiscounted costs of the training/testing, including lost time and travel costs for MEs, is estimated to vary between \$63 million and \$131 million during the two-year initial training phase, depending on the alternative, with Alternative 1 having the lowest cost. The lower cost associated with Alternative 1 is due to its minimization of travel and associated costs, both in expenses and lost time, to MEs.

Because all three alternatives are expected to improve the performance of MEs by equivalent amounts, total benefits are expected to be equivalent for all programs. These benefits are based on the reduction in CMV crashes that is likely to result from improved medical screening of drivers. It is estimated that physically impaired interstate drivers are responsible for approximately 9,687 of the roughly 440,000 commercial motor vehicle crashes that occur annually. Although it is not anticipated that this program would completely eliminate these crashes, it is expected to prevent a portion of them. We estimate that this program may prevent up to one-fifth of these crashes annually, which would result in approximately 1,219 fewer crashes per year. The estimated annual benefit associated with avoiding these crashes is \$189 million per year, undiscounted. These full benefits are not realized until the program is fully phased in, which is several years after the establishment of the program. Nevertheless, at a 7 percent discount rate, the 10-year

net benefits of this rule are estimated at approximately \$633 million to \$784 million over 10 years depending on the alternative. The Agency's chosen alternative has the highest net benefits at \$784 million. Table ES-1 below presents the estimated cost and benefit figures for all alternatives considered at a 7 percent discount rate. Table ES-2 presents these figures at a 3 percent discount rate.

Table ES-1							
Benefit-Cost Comparison of Alternatives (7 percent discount rate) (Thousands of dollars)							
Year	Benefits	Alternative 1 Costs	Alternative 2 Costs	Alternative 3 Costs	Net Benefit Alternative 1	Net Benefit Alternative 2	Net Benefit Alternative 3
1	\$0	\$41,404	\$70,048	\$74,060	-\$41,404	-\$70,048	-\$74,060
2	\$44,165	\$55,144	\$81,914	\$85,664	-\$10,979	-\$37,748	-\$41,498
3	\$82,552	\$31,706	\$31,706	\$30,745	\$50,846	\$50,846	\$51,807
4	\$154,302	\$36,603	\$43,422	\$42,436	\$117,699	\$110,881	\$111,866
5	\$144,208	\$10,711	\$20,441	\$19,519	\$133,496	\$123,767	\$124,688
6	\$134,774	\$16,698	\$12,053	\$11,555	\$118,075	\$122,721	\$123,219
7	\$125,957	\$15,606	\$51,343	\$25,678	\$110,351	\$74,614	\$100,279
8	\$117,717	\$8,744	\$47,984	\$23,998	\$108,973	\$69,732	\$93,718
9	\$110,015	\$8,172	\$9,839	\$9,432	\$101,844	\$100,177	\$100,583
10	\$102,818	\$7,637	\$14,574	\$13,917	\$95,181	\$88,244	\$88,901
Total	\$1,016,508	\$232,425	\$383,322	\$337,004	\$784,083	\$633,185	\$679,503

Table ES-2							
Benefit-Cost Comparison of Alternatives (3 percent discount rate) (Thousands of dollars)							
Year	Benefits	Alternative 1 Costs	Alternative 2 Costs	Alternative 3 Costs	Net Benefit Alternative 1	Net Benefit Alternative 2	Net Benefit Alternative 3
1	\$0	\$41,404	\$70,048	\$74,060	-\$41,404	-\$70,048	-\$74,060
2	\$45,880	\$57,285	\$85,095	\$88,990	-\$11,405	-\$39,214	-\$43,110
3	\$89,088	\$34,216	\$34,216	\$33,179	\$54,872	\$54,872	\$55,909
4	\$172,987	\$41,035	\$48,680	\$47,575	\$131,951	\$124,307	\$125,412
5	\$167,948	\$12,475	\$23,806	\$22,733	\$155,473	\$144,142	\$145,215
6	\$163,056	\$20,203	\$14,582	\$13,979	\$142,854	\$148,474	\$149,077
7	\$158,307	\$19,614	\$64,530	\$32,273	\$138,693	\$93,777	\$126,034
8	\$153,696	\$11,416	\$62,651	\$31,333	\$142,280	\$91,046	\$122,363
9	\$149,220	\$11,084	\$13,345	\$12,793	\$138,136	\$135,875	\$136,427
10	\$144,873	\$10,761	\$20,535	\$19,610	\$134,113	\$124,338	\$125,264
Total	\$1,245,056	\$259,493	\$437,486	\$376,526	\$985,563	\$807,570	\$868,530

1.1 BACKGROUND

The physical qualification and examination requirements for drivers of CMVs are contained in 49 CFR part 391, subpart E. This subpart also provides guidance to the health-care professionals who examine drivers regarding how they should conduct examinations and what medical conditions they must check for. FMCSA's current definition of an ME is contained in 49 CFR 390.5, and states that an ME can be any "person who is licensed, certified, and/or registered, in accordance with applicable State laws and regulations, to perform physical examinations." This definition includes, among others, medical doctors, doctors of osteopathy, doctors of chiropractic (DC), physician assistants (PA), and advanced practice nurses (APN).

In conducting physical examinations, MEs are required to fill out a Medical Examination Report that lists the results of the various tests and findings from the examination. Provided a driver passes the physical examination, the ME issues the driver a medical examiner's certificate, which provides proof that the driver has been examined as required by Federal regulations and been found to be physically qualified. MEs are required to retain the Medical Examination Reports for all drivers they certify. Drivers must carry a copy of their medical examiner's certificate with them whenever they are operating a CMV, and motor carriers must have on file a copy of the medical examiner's certificate for all the drivers they employ.

The driver physical qualification regulations state that the ME shall be knowledgeable about both the requirements contained in the Federal regulations, and the advisory criteria prepared by FMCSA to guide MEs in conducting an adequate examination. In addition, the ME shall be knowledgeable about the physical and mental demands associated with the occupation of operating a CMV. They must also be proficient in the use of and use the medical protocols necessary to adequately perform the required medical examination. Evidence suggests that many of the MEs who conduct driver examinations may not be adequately familiar with Federal requirements or the demands of the occupation of driving a CMV. As a result, the Agency believes that some drivers who do not meet the physical qualification requirements are being certified as physically qualified. The purpose of this Final Rule is to improve ME knowledge of Federal requirements and to ensure that only drivers who meet FMCSA's physical qualifications receive ME certificates.

Evidence that medical examiners are not making appropriate determinations when evaluating drivers comes from both Agency investigations and the few States that require medical examiners to submit driver Medical Examination Reports to the State Driver Licensing Agency (SDLA) for review. Three States – Arizona, Indiana, and California – require that CDL licensed drivers submit the Medical Examination Report to the SDLA after each physical examination. If the State does not receive a new Medical Examination Report for a driver prior to the expiration of that driver's current medical certification, that driver would be considered physically unqualified and must stop driving a CMV until the driver submits a new Medical Examination Report. This requirement enables these States to examine the degree to which Medical Examination Reports are filled out properly, and whether MEs in these States are correctly interpreting FMCSA

requirements and certifying only drivers who meet those requirements as physically qualified.

At the request of FMCSA, California's SDLA conducted an analysis of Medical Examination Reports to determine the percentage of drivers in that State being certified as physically qualified even though the results of the examination indicate that they do not meet FMCSA requirements. This analysis examined 66,000 Medical Examination Reports received by the California Department of Motor Vehicles (DMV) from January to June of 2005, and found that 10 percent of drivers were improperly certified as physically qualified even though they had a condition that should have prevented them from being qualified. Of this number, 7 percent had high blood pressure, which does not disqualify a driver from driving if the condition is being treated effectively. However, although drivers who bring their blood pressure under control can continue driving CMVs, they should not be certified for the full 2-year period because Federal guidelines recommend more frequent monitoring of hypertensive drivers. The error made most frequently by California MEs is to certify drivers with hypertension for a full 2 years rather than for the 6-month or annual certification specified by the Federal advisory criteria. The other 3 percent of drivers in California that were not qualified were unqualified because of some other physical condition.

Indiana has found that, in general, approximately 28 percent of the Medical Examination Reports it receives are either not properly filled out (certain fields are left blank or illegible), so that medical qualification cannot be determined from the form, or that drivers whose health histories or other exam results indicate that they do not meet physical qualification standards are erroneously certified as physically qualified. In addition, FMCSA is aware of MEs who have certified drivers even though the examiners have stated that they are not familiar with FMCSA requirements and do not have time to conduct full examinations. Given this evidence, there appears to be opportunity for improvement in how the health-care community is interpreting and applying the FMCSA physical qualification requirements and guidelines.

1.2 FINAL RULE

This rule establishes the NRCME. Upon full implementation, only physical examinations performed by health-care professionals who are on this registry would be recognized by FMCSA and State enforcement personnel as proof that the driver is physically qualified. In order to be listed on the NRCME, MEs are required to attend training designed to educate them on both the Federal physical qualification requirements and the physical and mental demands that accompany the occupation of CMV driver. MEs are also required to demonstrate knowledge of FMCSA medical standards and guidelines by passing a certification test after completing the required training. Once an ME has passed this test, he or she would be eligible to be listed on the NRCME, provided the ME met all the other criteria necessary for listing on the NRCME. It is anticipated that enhanced training will improve ME familiarity with FMCSA requirements and improve the quality of driver physical examinations, thereby leading to fewer errors that result in drivers who do not meet the Agency's physical qualification standard being issued ME certificates.

In support of the NRCME, this rule will establish required training and testing for MEs. FMCSA will establish the core curriculum specifications as guidance for ME training, and develop the certification test instrument that will be used to assess ME knowledge of FMCSA physical qualification standards and guidelines. The Agency considered three alternatives for delivering training and testing to MEs. These alternatives are described below. This rule also establishes criteria by which MEs can be removed from the NRCME. These criteria include, but may not be limited to, loss of their State license to practice, failure to complete required refresher training, or a pattern of errors or improper certification of CMV drivers.

1.3 NUMBER OF DRIVERS

The number of drivers currently operating CMVs determines how many physical examinations are needed annually; and the number of exams determines the number of MEs that would be needed for the NRCME in order to handle this volume. All drivers of CMVs who operate in interstate commerce and are subject to the physical qualification requirements must be physically examined at least every 2 years. Both commercial driver's license (CDL) and non-CDL drivers who operate in interstate commerce would have to be examined by an ME on the NRCME.

At the NPRM stage of this rulemaking, FMCSA estimated that there were about 3.1 million interstate CDL drivers, and 1.3 million interstate CMV drivers whose vehicles do not require the driver to have a CDL. A more recent analysis of the Agency's MCMIS database indicates that the number of drivers employed by the industry may have declined in the intervening years, possibly due to the recession and improvements in MCMIS data quality and analysis of MCMIS data. Our current estimates indicate that there are approximately 2.9 million interstate CDL licensed drivers currently working in the industry, and another 1.1 million non-CDL CMV drivers working in interstate commerce. We have therefore adjusted the number of drivers directly affected by this rule based on this more recent estimate that was developed in June of 2010. This rule therefore applies to approximately 4 million interstate drivers. The breakdown of FMCSA's estimates for the number of interstate drivers in various categories is presented in Table 1.

Table 1. Total Number of Drivers in National Fleet, by Driver Category

Driver Category	Estimated Number of Drivers
Interstate CDL Drivers	2.9 Million
Non-CDL Interstate Drivers	1.1 Million
Total Drivers	4 Million

Source: Analysis of FMCSA MCMIS database, 2010.

In order to remain physically qualified, drivers must be certified at least every 2 years. Although most drivers only need a biennial examination, drivers with certain medical conditions are required to be examined more frequently than once every 2 years. In addition, some employers contract with MEs to provide physical examinations for all of

the drivers they employ. These carriers require the drivers they hire to be examined by one of their MEs regardless of whether the driver has a current medical certification from another ME. As a result of these exceptions to the biennial examination schedule, simply taking half of the number of drivers does not yield an accurate estimate of the number of physical examinations conducted each year. FMCSA estimates that these exceptions to the biennial examination schedule would result in a 31 percent increase in the number of examinations that would have to be conducted if all drivers only had to be examined every 2 years. The total number of exams that would be needed for current active drivers is therefore $4 \text{ million} / 2 \times 1.31 = 2,620,000$ per year. FMCSA has used an estimated number of 2.6 million examinations per year in this analysis.

The Agency has developed an estimate for the number of MEs that would be required to meet this demand for certifications. The Agency estimates that 40,000 medical examiners may be needed to satisfy the demand for driver physical certifications. FMCSA knows of medical examiners who conduct more than 1,000 driver physical certifications per year. However, most medical examiners have duties other than examining commercial drivers to attend to, so it is not anticipated that most MEs would handle quite this volume of examinations. With 40,000 medical examiners on the NRCME, each ME would have to conduct, on average, 65 driver examinations per year. The Agency believes that this volume is feasible for the majority of MEs.

1.4 NUMBER OF HEALTH-CARE PROFESSIONALS

Although different States have different rules regarding who can perform physical examinations of commercial drivers, Federal regulations enable any of the following health-care professionals, among others, to conduct the CMV driver examination, provided they are licensed, registered, or certified by their State to conduct physical examinations: MDs, DOs, PAs, APNs, and DCs. The Bureau of Labor Statistics (BLS) collects employment figures, which are published in its National Occupational Employment and Wage Estimates.¹ This publication provides wage and employment information on all of these professions, with the exception of APNs, who are included with other registered nurses (RNs) in the BLS occupational classification scheme.

The most recently available BLS occupational employment statistics available at the time the Final Rule was developed were from May of 2008. BLS estimated that there were approximately 568,400 physicians employed in the United States. This category includes all MDs and DOs, and includes all specialty fields (such as anesthesiology, surgery, cardiology, and pediatrics) in addition to family practice doctors and doctors of general internal medicine. There were approximately 153,190 general or internal medicine and family and general practice doctors employed in the United States in May of 2008. The BLS also estimated that there were approximately 27,050 employed DCs and 71,950 PAs.

¹ Bureau of Labor Statistics. *May 2008 National Occupational Employment and Wage Estimates*. Online at http://www.bls.gov/oes/current/oes_nat.htm#b29-0000. 2008.

BLS groups APNs with other RNs, so their statistics cannot be used to estimate the number of APNs currently practicing. However, the Department of Health and Human Services (HHS) conducts periodic surveys of health service professions, including nursing. Its nursing survey estimates the number of APNs employed in the United States. HHS estimated that there were 141,286 nurse practitioners, 15,581 nurse midwives, 79,763 clinical nurse specialists, and 31,868 nurse anesthetists employed as of 2008, the last year for which full reports are available.² It is unlikely that nurse midwives and nurse anesthetists would conduct driver examinations, but they are included here for thoroughness, because they are qualified to conduct driver examinations under current regulations. All of these professions fall under the category of “APNs” and may be eligible to perform driver examinations. Table 2 summarizes the number of various kinds of health-care professionals eligible to be MEs.

Table 2: Number of Practicing Health-Care Professionals Eligible to Conduct Driver Examinations, by Profession	
Profession	Number practicing
Physicians	568,400
General Internists and Family Practice	153,190
Physician Assistants	71,950
Doctors of Chiropractic	27,050
Advanced Practice Nurses	238,498
Nurse Practitioners	141,286
Nurse Midwives	15,581
Clinical Nurse Specialists	79,763
Nurse Anesthetists	31,868
Total	905,898

2.1 ALTERNATIVE MODELS

FMCSA considered three alternative models for establishing the NRCME program. One model was based on the FAA AME program, which is part of the Federal Air Surgeon Designee Program. Another model was similar to the program that DOT has established for training the MROs that oversee controlled substances testing for the transportation industry. Another alternative, called the Public-Private Partnership Model, combines elements of the MRO and FAA programs. In this analysis, the Public-Private Partnership Model is referred to as Alternative 1. The Government Model, which is based on FAA’s

² Health Resources and Services Administration. *2008 National Sample Survey of Registered Nurses*. U.S. Department of Health and Human Services. 2008. Available online at: <http://bhpr.hrsa.gov/healthworkforce/rnsurvey/2008/nssrn2008.pdf>

Aviation Medical Examiner Program, is called Alternative 2. The DOT MRO Program model is referred to as Alternative 3.

2.2 ALTERNATIVE 1

Background: Public-Private Partnership Model

This is the model the Agency preferred at the NPRM stage, primarily because of its lower cost when compared to the other alternatives considered. For this reason, and because several of the public comments on the proposed alternatives also favored the Public-Private Partnership Model, the accompanying Final Rule implements this alternative. Under this rule, the Agency establishes the NRCME. The key aspects of this program are ME training and certification testing to ensure that MEs are knowledgeable about FMCSA physical qualification standards and guidelines. In order to be listed on the NRCME, an ME is required to attend training on FMCSA physical qualification standards and guidelines. After attending the training, the ME must pass a certification test on FMCSA standards and guidelines and how they should be applied to determine whether a driver is physically qualified. Both training and testing will be delivered by private-sector organizations. The Agency will develop the core curriculum training specifications and test instruments and provide them to private-sector organizations, who will deliver both training and testing.

All training must be provided by accredited training programs and contain the required elements of the FMCSA core curriculum specifications. Testing organizations must meet FMCSA criteria for secure handling of the certification test. After completing required training, passing the certification test, and meeting FMCSA administrative requirements, an ME will be listed on the NRCME, and is authorized to conduct CMV driver physical examinations for as long as he or she remains on the NRCME. Once the NRCME is fully implemented, only physical examinations conducted by MEs on the NRCME would be recognized by FMCSA and enforcement personnel as proof of driver physical qualification.

Health-care professionals are required to take periodic continuing education courses in order to maintain their professional licenses. The organizations that offer continuing education training provide training on a variety of topics, which can range from occupational health subjects to training in specialized surgical techniques. A few organizations already offer training on FMCSA physical qualification examinations, despite the fact that MEs have not been required to obtain any training on FMCSA physical qualification standards and guidelines prior to conducting driver physical qualification examinations. Under this rule, these accredited continuing education organizations will use FMCSA-provided core curriculum specifications to develop training courses on the FMCSA physical qualification standards and guidelines. It is anticipated that these courses will be offered throughout the Nation, and that some will be Web-based courses which could be completed online. As a result, MEs should have convenient access to a training program regardless of the area of the country they live in.

Upon completing the training, candidates are required to pass a certification test to prove their knowledge of FMCSA's physical qualification standards and guidelines and how they should be applied to determine whether a driver is physically qualified to operate a CMV. This test will be developed by FMCSA, and furnished to the private-sector professional testing organizations that meet FMCSA's requirements for testing security and protocols. It is anticipated that several national testing organizations will deliver the test to candidates. These testing organizations administer tests for a fee, and have test centers located throughout the Nation, which would ensure that most candidates have a center that is reasonably convenient. In addition, technological developments have made it possible to authenticate the identity of test-takers for online testing, and remotely monitor test-takers to prevent cheating. The final rule therefore allows monitored online, in addition to in-person, testing.

Upon passing the test, the candidate will be certified and placed on the NRCME. The ME is then eligible to conduct commercial driver physical examinations and issue medical certificates to CMV drivers that would be recognized as valid by the Agency. Drivers and motor carriers will be able to access the NRCME online, or via a toll-free telephone number, in order to find certified MEs to conduct medical certifications. The NRCME will be searchable by provider name or location. In order to remain on the list, MEs will have to undergo refresher training every five years in order to maintain and update their knowledge of changes that may be made to FMCSA standards and guidelines. In addition, every ten years MEs are required to re-take the certification test to demonstrate that their knowledge remains up to date. MEs will likely bear tuition expenses related to obtaining and maintaining certification. MEs will also incur all personal expenses (lodging, travel expenses) associated with attending one of the in-person training programs. It is anticipated that the training will take approximately 1 full day, as other similar trainings are of this duration. We also expect online courses to be offered that would eliminate lodging and travel costs for MEs altogether.

2.3 ALTERNATIVE 2

Background: Government Model

Alternative 2 was modeled on the FAA Aviation Medical Examiner Program. The key features of this program are training and testing conducted by FMCSA. Under this alternative, FMCSA would have been the only organization that would have offered the training that qualifies physicians to conduct driver medical certifications. This training would have been an in-person, classroom-based training conducted at an FMCSA training facility. Under this alternative, FMCSA would have required a post-training knowledge assessment test as well. This alternative is referred to as the Government Model because the Federal government would directly handle all aspects of training, testing, and listing of MEs on the NRCME.

The FAA designee program is overseen by FAA's Federal Air Surgeon. Only MDs and DOs are eligible to become FAA designees. All designees must participate in the FAA training program, which is designed to educate designees on the FAA physical

examination requirements and on the rigors of aviation occupations. This training program consists of five days of training at the Federal Civil Aerospace Medical Institute (CAMI) in Oklahoma City. Upon completing the training, designees must pass a test before they can conduct FAA physical examinations. In addition, designees must attend 3-day training seminars once every 3 years in order to maintain their designee status. These shorter seminars are offered at various locations around the country, and an online training option is also offered by FAA to satisfy the 3-year training requirement. However, the MEs must attend the in-person seminars every 6 years to maintain certification.

Training sessions are conducted by FAA and are free to participating doctors, although FAA does not provide accommodations to participants or reimburse them for travel expenses. Pilots must be examined by a designee in order to remain eligible to fly. The frequency with which pilots must undergo physical examination varies depending on the type of aircraft and flights they pilot. Commercial airline passenger pilots must be medically examined every six months. Other commercial pilots must be examined annually. Private pilots must be examined every 3 years up to the age of 40, and then every 2 years thereafter. The FAA designee program has almost 5,000 AMEs who oversee physical examinations for approximately 630,000 pilots. In 2004, AMEs conducted around 500,000 examinations.

The annual budget for FAA's medical program is approximately \$40 million, but this includes funding for several functions in addition to the Aviation Medical Examiner Program. There are currently 5 full-time employees working on the AME training program, and that program's current training budget is approximately \$138,000 per year. This budget does not include the cost of space in FAA's Oklahoma City training center, or the salary and other benefits for the Federal staff, but does pay for space and instructors for the 3-day seminars that are offered at various locations throughout the Nation every year.

The FMCSA program would have had training of comparable duration to Alternative 1 as described in this document, i.e., approximately 1 day of training. This training would be in-person training delivered by the Agency, so MEs would incur travel-related expenses to become certified. The testing instrument would also be the same as the instrument developed under the Public-Private Partnership Model. The only difference between the two models, other than the type of entity delivering the training and testing, is that this model requires full re-training and re-testing every six year. Alternative 1 requires testing at six years but does not require the medical examiner to attend the initial training again. Under Alternative 1, separate private-sector organizations will deliver the training and testing. Under Alternative 2, the Agency would have delivered both the training and testing.

2.4 ALTERNATIVE 3

Background: The DOT MRO Program

The DOT MRO training program is part of the DOT drug program, which monitors use of controlled substances by transportation industry employees. MROs are trained and certified by approved training programs that operate independent of DOT. Only licensed MDs or DOs are eligible to be MROs. MROs review controlled substances test results for safety-sensitive occupations such as CMV drivers, airline mechanics, train operators, and ship pilots. Motor carriers must submit all positive employee controlled substances tests to testing labs, and these results are reviewed by MROs. MROs interpret controlled substances tests to determine whether any Federal regulations have been violated by a driver with inconclusive or difficult-to-interpret results. MROs are used to determine whether there is a valid medical reason for a driver to be using a particular drug, which might impair driving ability if used irresponsibly.

MROs are used in monitoring the controlled substances testing of employees of other transportation modes in addition to the motor carrier industry. As of August 1, 2001, all MROs who review DOT controlled substances testing results must have attended a training program and passed an examination conducted by a nationally recognized MRO certification board. These training sessions are conducted by MRO professional associations rather than by DOT. Attending physicians bear the expense of this training, including tuition and travel and other related expenses. There are currently three organizations that provide training and certification programs that satisfy DOT requirements: the American Association of Medical Review Officers (AAMRO), the American Society of Addiction Medicine (ASAM), and the American College of Occupational and Environmental Medicine (ACOEM). All three organizations offer certification examinations for MROs. In addition to passing one of these approved training programs and the certification examination, MROs must obtain 12 hours of additional professional training every three years in order to remain certified.

Because three independent organizations offer training, and two different organizations provide certification testing, there is some variation in the requirements for becoming an MRO and maintaining MRO certification. AAMRO requires the MROs it certifies to re-certify by taking an at-home open book test every 5 years. The Medical Review Officer Certification Council (MROCC) requires initial MRO applicants to have completed training with either ACOEM or ASAM, and to pass the initial certification test. Thereafter, MROs certified by MROCC must take an at-home open book recertification test every 6 years to remain certified. Both the MROCC and AAMRO certification programs require 12 hours of training in areas relevant to controlled substances testing every 3 years to maintain certification.

These programs predate the August 2001 training requirement, i.e., they were already in existence and training MROs prior to the DOT requirement that MROs attend such trainings (see 49 CFR § 40.121(c) (3)). DOT therefore did not develop a curriculum or establish any training programs or examinations for MROs. DOT also does not register MROs who have completed the training. The certification programs all maintain registries of certified MROs, and are able to refer motor carriers to MROs that have completed their training program.

DOT exercises less control over the MRO training and certification process than FAA does over its designee program, or FMCSA would exercise over the NRCME under the Public-Private Partnership Model. FAA exerts complete control over the designee system, from establishing the curriculum and conducting training and testing, to registering trained designees, providing ongoing training, and monitoring designee performance. DOT provides some limited curriculum guidance to the various associations that offer MRO training, but does not provide specific testing materials, track continuing education, or list MROs on a national registry.

3.1 COSTS OF ALTERNATIVES

Estimated costs for the various components of an FMCSA program are presented below. Although the Agency considered three different models for constructing the NRCME, each of the alternatives had similar components. These components included classroom training and testing for MEs, and the administrative costs of overseeing the program and constructing and maintaining the NRCME. In Alternative 1, which is implemented by this Final Rule, FMCSA provides administrative oversight and maintains the NRCME. The costs presented below are estimates for the implementation of the Final Rule. The features of this program include training conducted by private-sector accredited training organizations, proctored certification testing, and registration of MEs on an FMCSA-maintained NRCME. For Alternative 2, the Government Model, FMCSA would have conducted all training and testing of MEs. Under Alternative 3, a select few private-sector groups would have trained and tested MEs with limited curriculum and testing guidance from FMCSA.

In presenting the costs, it is necessary to note that the initial training to populate the NRCME will be conducted over 2 years. Once this training period is completed and a sufficient number of MEs are registered with the Agency, drivers will be required to be examined by an ME on the NRCME as their certifications expire. By 2 years after the training phase, all interstate CMV drivers will have been examined and certified by an NRCME-registered ME. The initial training and testing costs therefore are assumed to occur over the first 2 years of the program, with one-half of the projected 40,000 MEs being trained in each of the 2 years. Beginning in year 3, drivers are required to obtain certification from an ME on the NRCME when their current certification expired.

3.2 COSTS: ALTERNATIVE 1, PUBLIC-PRIVATE PARTNERSHIP MODEL

Training Costs

A small number of private-sector organizations currently provide training to health-care professionals on conducting commercial driver medical certification examinations. We anticipate that the requirements of this rule will dramatically increase demand for this training, and that many other organizations that provide continuing education to health-care professionals would begin to offer ME training. As a result, FMCSA anticipates that training programs will be available throughout the country, and online, which should minimize the travel costs to participants, and make participation more convenient.

One organization that currently offers training on driver physical qualification examinations charges \$385 for a 1-day training session. This cost is fairly comparable to similar physician-oriented training programs of a similar length. Another accredited program currently offers online training at \$295, although this training is estimated by the provider to take only 2 hours to complete, so it may not be rigorous enough to meet the FMCSA curriculum specifications that are currently under development. Other health care organizations offer training on driver physical examinations, but only to medical professionals in their network, and it is free to them. These programs may have to modify their curriculum somewhat to meet FMCSA training recommendations, although the Agency envisions this training as a 1-day course. It is therefore possible that our requirements will result in some modification of these existing training courses. However, the requirement that all MEs attend training programs will increase the volume of students at these training programs and may allow the training programs to offer them at a rate below what they are currently charging.

The 2- to 2.5-day MRO Programs cost approximately \$600-800 each, roughly twice the cost of the 1-day training being offered on the CMV driver physical examination. Given that the Agency expects the ME trainings to take 1 day, it is likely that the training costs would approximate the current 1-day medical examiner trainings currently being offered by at least one organization. At the NPRM stage, FMCSA assumed that the training costs would average \$400 for a 1-day training session on the CMV driver examination. We have updated this figure to \$440 to account for inflation, and use it to estimate the training costs associated with the program below. All figures below have also been inflated by 10 percent from those presented at the NPRM stage using the Consumer Price Index to account for inflation. Figures are presented in 2008 dollars in this final rule regulatory evaluation.

It is possible that internet-based training programs could be offered at a lower cost, because e-learning has been shown to lower the cost of training in both academic and corporate settings. However, no definitive measure of the cost savings of e-learning has been developed to date, so we assume here that online courses would cost an equivalent amount to classroom-based training, minus travel costs. In addition, continuing education training programs for physicians often charge more for courses than comparable programs for other health-care professionals such as PAs and APNs. The training costs presented here may therefore overestimate the true costs of the average training, because they are geared primarily toward MDs and DOs, but they are currently the only market-based estimates available for a training of this nature on this particular subject. Given 40,000 MEs trained, the tuition costs of this program are likely to be approximately $\$440 \times 40,000 = \17.6 million. These costs are spread out over 2 years. MEs are required to undergo retesting every 6 years, to ensure that their skills and knowledge are up to date.

In order to maintain certification, MEs also must complete refresher training every 5 years. This continuing education will consist primarily of updates on changes to FMCSA's physical qualification standards and guidelines for drivers, and will be made available online by the Agency as Web-based training. These online courses will be

produced using the Agency's medical program funds. As a result, there will be no additional cost to MEs other than opportunity costs associated with the time needed to complete the training. However, there is an implicit cost of producing these trainings, and it is likely that the cost would mimic to some degree the costs of classroom-based training. Evidence exists that Web-based training can result in cost savings over classroom-based training, but no consensus has been reached on the degree of these potential cost savings. In order to be conservative, we assume here that the cost of producing an online training course is equivalent to that of producing a classroom-based training. It is anticipated that these trainings would be approximately 3-hours long, which is slightly less than half the length of the initial training, and would therefore cost half that of the full training, or \$220, per trainee. This estimate is based on the per-student fee charged for classroom-based trainings of this length. Online training programs marketed to health-care professionals are difficult to price, because many drug companies and other commercial entities offer online training credits free of charge. However, the free content does not indicate that it costs nothing to develop such trainings – it simply means that the promotional opportunities available to the course sponsors are more valuable to them than any costs associated with producing the content. Given the wide variety in pricing of online content, we have opted to be conservative and assume that course development costs for this online training will be similar to those incurred in developing a similar length classroom-based training.

Testing Costs

The NRCME program requires all MEs to pass a certification test after completing required training. This test will ensure that all MEs who conduct commercial driver examinations have demonstrated that they are knowledgeable about Federal regulations and how to apply them prior to performing driver examinations. Testing will be conducted at testing centers located throughout the Nation belonging to one or more of several different professional testing organizations, and will be independent of the various training programs. FMCSA has contacted three such organizations to inquire as to how much the proposed test might cost on a per test basis. All three testing companies have provided estimates at about \$110 per test taker. Based on this estimate, the total cost for testing the initial 40,000 registered MEs is expected to be approximately \$4.4 million. These costs are spread out over the first two years, and recur in years 11 and 12 because of the 10-year retesting requirement. However, those years are beyond the 10 year time horizon for the analysis.

It is expected that online testing will impose comparable fees to in-person testing. Although there is the possibility that online vendors could charge a reduced cost compared to in-person testing, evidence to date on the availability and cost of webcams, which are essential for authenticating the identity of the test taker and remote proctoring or other monitoring to prevent cheating, and the fees charged for monitoring and delivering the test, indicate that total direct costs for online testing may be comparable to in-person testing. Online testing would eliminate costs associated with travelling to a test site (described below), and the opportunity cost of the time spent travelling to a test site, which are discussed below. As a result of eliminating travel and travel time, online

testing does save costs relative to in-person testing. These cost savings are described below.

Management Costs

In addition to training and testing, some management and oversight is required in order to maintain the NRCME. These activities would include maintaining and updating the NRCME, i.e., adding medical examiner names to the registry and making sure the information posted on the Web site is current, among other administrative tasks. In addition, these costs will include maintaining and updating the core curriculum specifications and model curriculum and test question databank. It is anticipated that these costs will amount to approximately \$2.2 million per year.³

Other costs include the costs associated with the new paperwork burden imposed by this rule. Three provisions impose new burdens on ME's or the industry. ME's bear the added burden of providing the personal/professional information necessary for obtain training, testing and certification. This burden is time related and is subsumed within the time-related costs presented for training and testing above. In addition, ME's are required submitting monthly reports on medical examinations to the Agency, and the burden associated with those hours is calculated at \$2.2 million per year. For the details on how this cost was arrived at, please see the accompanying PRA supporting statement.

Carriers would be required to check each medical certificate for each driver employed by a carrier to verify that the ME is listed on the medical certificate is listed on the registry. Again, the reader is referred to the PRA supporting statement to see how the costs associated with this verification were calculated. The costs are estimated at \$5.5 million per year. The total costs of managing the registry and reporting and verification of data are therefore \$5.5 million + \$2.2 million + \$2.2 million = \$9.9 million per year.

Travel Costs

Although it is anticipated that several training programs would offer an e-learning or other distance learning options for ME training, it is likely that some classroom-based trainings would be offered as well. In order to attend a classroom-based training, a participant will incur some costs related to travel, including lost time, fuel costs, and the cost of a plane ticket and/or overnight lodging if there is no local training program available in a particular candidate's home area. It is anticipated that training programs will be located throughout the country so that travel costs will be minimal for most participants, and would primarily consist of fuel expenses and lost time. This assumption means that there will be limited need for expensive air travel, and reduces the need for overnight hotel stays as well. However, since it is possible that airfare and hotel lodging would be necessary, we estimate these costs to the extent we are able to.

³ This is the value of the contract to develop and administer the National Registry database.

Assuming that training is provided in most major metropolitan areas, most MEs could drive 70 miles or less to get to one and not need to stay overnight in a hotel. Under these assumptions, travel costs are valued at \$71 per attendee (based on the 2008 Federal reimbursement rate of 50.5 cents per mile).⁴ However, as noted above, we expect some training organizations would offer online training modules, which would eliminate the cost of travel for those MEs who choose to obtain training online. We assume that 50 percent of MEs will train online, which yields a total cost of \$1.4 million for the 20,000 MEs who would attend in-person training. Candidates who test in person would incur similar costs to travel to a testing center. However, the final rule allows for online testing as well as online training, and we assume that 50 percent of MEs will choose the online testing option. Total travel costs for testing and training combined would therefore be roughly \$2.8 million. These costs would be spread over the 2-year implementation phase of the program, and a portion would also be incurred at 6-year intervals thereafter due to the retesting requirement.

Time-Related Costs

The certification program will cost the health-care professionals who attend it in time for travel, classroom training, and testing. We assume that travel would average 3 hours round trip. This same assumption is made with regard to the time it will take trainees to get to testing centers, so total travel time is estimated at 6 hours. The training is expected to take approximately 6 hours of health-care professional time. Testing is expected to last approximately 2.5 hours, for a total time cost of 8.5 hours of training and testing. Travel is, as noted above, expected to be an average 70 mile round trip for those MEs who attend in person training or testing. We estimate that this trip would take approximately 3 hours. However, it is expected that half of the MEs will train and test online. As a result, the “average” travel time will be three hours – 6 hours of the half of MEs who train and test in person, and no time for those who train and test online. Therefore training/testing is expected to take an average of 11.5 hours combined.

The fifth-year online refresher training produced by the Agency is anticipated to take approximately 3 hours of ME time. It is assumed that MEs will have internet access, and that no extra IT investments would be needed for them to access course content. Since the training material will be available online, no travel costs would be associated with this refresher training. Every third year in which an ME does not participate in a full training, he or she would incur 3 hours of time-related opportunity costs.

Health-care professional salaries vary widely depending on their degree of specialization, expertise, and field. Physicians, which are defined to be MDs and DOs, have the highest earnings among the 5 professional groups that are allowed to conduct driver physical examinations. Earnings vary fairly widely even among physician groups. A weighted average of BLS hourly wages for the three sub categories of physicians most likely to

⁴ See the IRS announcement IR-2007-192 from November 27, 2007 regarding federal mileage reimbursement rates for 2008 at: <http://www.irs.gov/newsroom/article/0,,id=176030,00.html>

conduct driver physical examinations yields an estimated wage of \$79.54 per hour.⁵ On average, DCs make \$39.11 an hour, and PAs make \$39.24 per hour, according to the BLS. All categories of APNs are combined with other nurses in the BLS employment and wage estimates, so BLS data cannot be used to determine the salary or hourly wage of APNs. These data are available for APNs from the U.S. Department of Health and Human Services' Health Resources and Services Administration. They are based on the Health Resources and Services Administration's National Sample Survey of Registered Nurses, which was last conducted in 2008.⁶ We exclude Nurse Anesthetists and Nurse Midwives from this analysis because members of both occupations would be unlikely to conduct driver physicals. The wage estimates for APNs are therefore based on Clinical Nurse Specialists and Nurse Practitioners. The average wage for APNs is approximately \$40.07 per hour. The weighted average hourly earnings estimate for all health-care professionals included in this analysis that are likely to do driver medical certifications is \$63.20. We inflate this number by 31 percent to account for fringe benefits, which bring the total per-hour value of medical examiner time to \$82.79. We round this figure to \$83 in calculating costs. The calculations for generating the weighted average wage are presented in Table 3 below.

Table 3 Weighted Average Wage for Health Care Professionals Calculations			
Profession	Number Employed	Average Wage	Total Earnings
Family and General Practitioners	106,210	\$77.64	\$8,246,144.40
Internists, General	46,980	\$84.97	\$3,991,890.60
Physicians and Surgeons, All Other	262,850	\$79.33	\$20,851,890.50
Physician Assistants	71,950	\$39.24	\$2,823,318.00
Nurse Practitioner	141,286	\$40.00	\$5,651,440.00
Clinical Nurse Specialist	49,763	\$40.28	\$2,004,453.64
Chiropractors	27,050	\$39.11	\$1,057,925.50
Total	706,089		\$44,627,062.64
Weighted Average			\$63.20

The weighted average is derived by multiplying the Number Employed column by the Average Wage column to get the figures in the Total Earnings Column. The Number Employed column is summed in the Total row to get the total number of all health care professionals included in the calculations. The Total Earnings column is also summed in the Total row to get the total earnings of all health care professionals. The weighted average is calculated by dividing the total earnings by the total number of health care professionals.

⁵ Bureau of Labor Statistics. May 2008 National Occupational and Employment and Wage Estimates. Available online at: http://www.bls.gov/oes/2008/may/oes_nat.htm#b53-0000. The three sub categories of physicians included were Family and General Practitioners, General Internal Medicine, and Physicians and Surgeons – All Others.

⁶ U.S. Department of Health and Human Services, Health Resources and Services Administration. The Registered Nurse Population: Findings from the 2008 National Sample Survey of Registered Nurses. September 2010. Available online at: <http://bhpr.hrsa.gov/healthworkforce/rnsurvey/2008/nssrn2008.pdf>

This wage estimate can be multiplied by the number of health-care professionals who would be trained and the time it would take them to complete training and testing in order to estimate the value of the time costs they must incur to become registered. Carrying out this calculation yields an estimate of $\$83 \times 11.5 \times 40,000 = \38.2 million. Spreading these costs out over 2 years yields an average annual cost of \$19.1 million. Costs associated with annual online refresher training are calculated analogously, using 3 hours as the time commitment for a per-trainee cost of \$249, and a total cost of \$10 million.

ME Turnover

It is unlikely that all MEs who join the registry will remain on it for the full 10 year analysis period considered by this regulatory evaluation. MEs will have various reasons for removing themselves from the NRCME, including retirement or deciding that they no longer wish to conduct driver physicals and therefore do not wish to be listed any longer. Other MEs may be removed involuntarily for failing to comply with one or more of the requirements for remaining on the NRCME. Although the Agency cannot be sure what the turnover rate of MEs will be, we believe that 5 percent is a reasonable figure. We assume also that there will be no net growth in the registry – i.e., that the replacement rate of new MEs will exactly equal the removal rate, so that 40,000 MEs will remain on the Registry at all times.

Given this assumption, costs in later years should net out as the MEs who leave the registry would be relieved from the requirements for maintaining their listing, but this burden would be borne by the newly-listed MEs who replace them. The new MEs, and MEs who have let their certifications lapse, would have to bear the cost of initial training, whereas retiring MEs have already borne these costs and would not be relieved of them. As a result these costs associated with initial training of new MEs would not net out. We therefore include the training costs described above in later years, but for 2,000 rather than 40,000 MEs in later years. These costs amount to approximately \$4.1 million per year. These costs begin accruing in Year 4, as it is unlikely that there would be significant turnover in the first few years of the program, because any ME who was not planning on conducting driver physical examinations for at least a few years would lack an incentive to join the registry in the first place.

Driver-Related Costs

In addition to the training and testing program costs, this rule will be likely to have some impacts on drivers and motor carriers. One current problem with the driver certification program is that some medical professionals who conduct driver examinations are largely unfamiliar with FMCSA physical qualification standards and guidelines and how various medical conditions can affect the safe operation of CMVs. Other problems include failure to conduct a thorough exam and fraud. The NRCME should address all of these problems to some extent, but the greatest impact will be on improper certification due to lack of knowledge of FMCSA standards and guidelines. This rule requires MEs to demonstrate their knowledge of FMCSA standards and guidelines by passing the certification test, and

therefore ensures that only knowledgeable MEs will be conducting driver medical certifications. The rule will also address the problems of fraud and less-than-thorough examinations because it provides the Agency with greater enforcement options against MEs who fail to conduct exams properly or who are found to be involved in fraudulent issuance of medical certificates. By addressing these weaknesses in the current medical certification program, some drivers who are currently employed as CMV operators, but do not meet the Federal physical qualification standards and guidelines, may have to find other occupations, as they will no longer be able to obtain medical certificates. The motor carriers who employ these drivers will have to recruit new drivers to replace the drivers who can no longer obtain medical certification.

In order to determine the effects of this rule on drivers and motor carriers, some estimate of the number of drivers who fail the exam must be obtained. As noted above, both California and Indiana have provided the Agency with data on the most common mistakes made by MEs and the most common reasons cited for failing a driver. In the case of California, the mistake that most MEs make with drivers who have high blood pressure is to certify them for a full 2 years when they should be certified for only 3 months to 1 year, depending on how high their blood pressure is, and the degree to which treatment brings it under control.

FMCSA guidelines may allow the majority of drivers with high blood pressure to continue driving, provided they receive effective treatment for their condition. Drivers can remain qualified as long as treatment brings their blood pressure down to below 140/90. In the California sample, an additional 3 percent of drivers were disqualified for reasons other than high blood pressure, but it is unclear whether the disqualifying conditions were treatable, and therefore resulted in temporary disqualification, or permanently disqualified the driver. However, it is likely that many of the drivers that California determined should be unqualified for reasons other than high blood pressure also have treatable conditions. With effective treatment, these drivers should have a safety record comparable to healthy drivers. This rule may therefore increase the incentive that CMV drivers have to obtain effective treatment for disqualifying conditions and lead to better health outcomes among this population.

The State of Indiana has conducted an analysis of its medical certification program, which provides useful statistics on the number of drivers who submit medical examination reports that show the driver to be unqualified. This analysis also provides information on the length of time it takes drivers who submit disqualifying Medical Examination Reports to submit new Medical Examination Reports showing the drivers to be qualified. Over 90 percent of drivers who failed a medical certification exam were able to submit a new qualified form to the State within a month. This is an indication that treatable medical conditions are responsible for drivers' physically unqualified status in the majority of cases, and that once treated, these conditions no longer pose a barrier to driving. On the other hand, this figure may indicate that up to 10 percent of drivers may not be healthy enough to obtain physical qualification despite treatment. In commenting on the Medical Certification rule NPRM mentioned above, Greyhound Lines examined a relatively small sample of drivers to determine the number that failed the medical

certification exam. Their finding was that 1.5 percent of the sample (5 drivers out of 332) failed the medical certification exam. Again, it is unclear from their comments whether the drivers who failed were able to regain eligibility by having their condition treated, or had permanently disqualifying conditions. Given the evidence from California and Indiana, as well as Greyhound Lines, we assume in this analysis that somewhere between 3 and 5 percent of drivers have a medical condition that would prevent them from becoming physically qualified because it cannot be treated adequately. We assume that one percent of all drivers (between 20 percent and 33 percent of those drivers who have permanently disqualifying conditions) that currently are able to obtain medical certification would not be able to obtain certification once the National Registry is implemented, because the improvements in screening and fraud deterrence would prevent these drivers from finding an ME that would certify them. In other words, about 40,000 of the 4 million CMV drivers subject to FMCSA's physical qualification requirements would no longer be qualified to drive as a result of the final rule.

It should be noted that this rule does not impact or change the Agency's physical qualification standards and guidelines. The drivers affected by this rule should not be driving commercially, because they do not meet our physical qualification standards and guidelines. The Agency therefore considers the costs incurred (i.e. lost income) by drivers who do not meet our physical qualification standards to be attributable to the underlying standards rather than the improvements in compliance that will result from implementation of this rule. However, because this rule is likely to improve the ability of MEs to recognize drivers who are physically unqualified, some portion of drivers who are currently driving would be forced out of the occupation. As noted above, we assume 1 percent of drivers would have to find alternative occupations. The Agency considers the loss of income to these drivers to be a transfer payment rather than a true economic cost. The income these disqualified drivers would have earned will be transferred to other drivers – i.e. new or current drivers who meet the physical qualification standards. These drivers will be carrying the loads the non-compliant drivers otherwise would have carried, and will earn the income the unqualified drivers would have earned. Despite the fact that these impacts are not considered costs in the benefit-cost analysis, we have produced estimate of these impacts as part of this analysis, because the drivers affected would suffer loss of income. While income gains to new and existing physically qualified drivers would offset the losses to those drivers who can no longer obtain medical certification, the effects on the income of those drivers who must find new occupations would be real and immediate.

Our estimate of the income losses to affected drivers was based on an analysis of the trucking labor market conducted by Global Insights for the American Trucking Associations. That report estimated that drivers earn approximately 6 percent more in this occupation than they would in alternative occupations in manufacturing or construction. Current driver wages are estimated at \$35,741 annually.⁷ In determining the impact of

⁷ Based on a weighted average of truck driver wages from the Bureau of Labor Statistics' May 2008 National Occupational Employment and Wage Estimates. The weighted average combined the average wages of two categories of CMV operators: Truck Drivers, Heavy and Tractor Trailer and Truck Drivers, Light and Delivery Services.

moving to an alternative occupation on income it is necessary to identify occupations to which truck drivers might move. As noted above, at the NPRM stage, we used a wage differential between the truck driving occupation and other alternatives – manufacturing and construction jobs, as developed in an ATA sponsored report on the driver shortage that was conducted by Global Insights. That report, produced in 2005, is now somewhat dated.⁸

In order to identify a more recent wage differential, we analyzed May 2008 BLS wage and occupation data. As noted above, truck driver wages are based on a weighted average of two occupation categories: Heavy Truck Drivers and Light Truck Drivers. We used a similar approach to estimate average wages in alternative occupations. The occupations chosen were all non-supervisory occupations in production (manufacturing) occupations; construction and extraction occupations; and installation, maintenance and repair occupations, as defined in the BLS's May 2008 National Occupational Employment and Wage Estimates report. In addition, we included other occupations in the Transportation and Material Moving occupation group, excluding aviation and supervisory occupations. A weighted average of earnings for non-supervisory occupations in each of these occupational sectors was calculated, resulting in an estimate of \$33,935. Given that the weighted average for truck driving occupations was \$35,741 the resulting wage differential is \$1,807 per year per driver displaced. This is a slightly smaller differential than that used at the NPRM stage, resulting in a reduction in the estimated costs of the rule. Given the age of the report used to develop the previous estimate, however, we believe this new analysis provides a more accurate picture of the current wage differential. The annual cost of this loss to drivers, when multiplied by the number of drivers who would be required to switch occupations (40,000), is \$72.3 million.

While the lost income to drivers who are disqualified is not considered to be a cost of the rule, the costs to motor carriers to recruit new drivers are considered to be true costs and are accounted for in the benefit-cost analysis. These costs cannot be considered transfer payments because carriers do not save on hiring costs when a driver leaves their employment. Therefore, while the loss of income for a particular driver is made up for by gains for another new or existing worker, there are no offsetting gains for motor carriers to compensate for the resources they expend to recruit and train new drivers. Furthermore, it would be difficult for a carrier to detect that a driver in their employ did not meet the physical qualification standards if an ME certified the driver. Hiring costs to replace the drivers who are no longer able to obtain certification are therefore considered to be costs of the current rule, and are incorporated below in the benefit-cost analysis. Previous estimates from the regulatory evaluation that accompanied the Hours of Service regulations have put the cost of recruiting new drivers at \$1,760 per position. These hiring costs are one-time costs, but would be borne over time as unqualified drivers are detected and removed from the CMV driver labor force, and new drivers are hired to replace them.

⁸ Global Insight, Inc. The U.S. Truck Driver Shortage: Analysis and Forecasts. Prepared for the American Trucking Associations, May 2005. Available online at: http://www.cdlschool.com/_pdf/ATADriverShortageStudy05.pdf

The cost of hiring new drivers is expected to fluctuate between \$17 million and \$26.4 million per year. This fluctuation is due to the 2-year period for populating the NRCME with certified medical examiners, and the 2-year period thereafter in which drivers will be obtaining medical certificates from NRCME-registered MEs. We assume costs will begin accruing in year 2, when some MEs will be certified and conducting improved driver examinations. By the end of Year 4, all drivers would have been examined by an NRCME registered ME, because the maximum duration of a medical certificate is two years. At this point the full labor market costs associated with better driver screening are realized. Hiring costs drop to zero at the end of year 4 because all unqualified drivers have been screened out of the occupation. Beginning in year 3, all commercial drivers would have to be certified by an ME on the NRCME when their current medical certificate expired. Table 4 below presents the 10-year costs for this alternative. We assume that in year 2, approximately one-fourth of drivers will be examined by an ME on the NRCME, and that this proportion will rise to one-half in year 3. As noted above, by the end of Year 4 all of the remaining drivers who have not been previously examined by an NRCME-registered ME will obtain medical certificates from MEs on the registry. Since one-half of drivers will have already been examined by these MEs, this amounts to another one-half of the driver population.

Table 4: Costs - Public-Private Partnership Model											
Thousands of Dollars											
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
Training	\$8,800	\$8,800	\$0	\$4,400	\$0	\$4,400	\$4,400	\$0	\$0	\$0	\$30,800
Testing	\$2,200	\$2,200	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$4,400
Management of Registry	\$9,900	\$9,900	\$9,900	\$9,900	\$9,900	\$9,900	\$9,900	\$9,900	\$9,900	\$9,900	\$99,000
Travel	\$1,414	\$1,414	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,828
Lost Time	\$19,090	\$19,090	\$0	\$0	\$0	\$4,980	\$4,980	\$0	\$0	\$0	\$48,140
Registry Turnover	\$0	\$0	\$0	\$4,140	\$4,140	\$4,140	\$4,140	\$4,140	\$4,140	\$4,140	\$28,983
Hiring Costs	\$0	\$17,600	\$26,400	\$26,400	\$0	\$0	\$0	\$0	\$0	\$0	\$70,400
Total	\$41,404	\$59,004	\$36,300	\$44,840	\$14,040	\$23,420	\$23,420	\$14,040	\$14,040	\$14,040	\$284,551
7 Percent Discount	\$41,404	\$55,144	\$31,706	\$36,603	\$10,711	\$16,698	\$15,606	\$8,744	\$8,172	\$7,637	\$232,425
3 Percent Discount	\$41,404	\$57,285	\$34,216	\$41,035	\$12,475	\$20,203	\$19,614	\$11,416	\$11,084	\$10,761	\$259,493

3.3 COSTS: ALTERNATIVE 2, GOVERNMENT MODEL

This alternative was based on the FAA AME program. Under this program, training, testing, and registration would have been conducted by FMCSA. Although this alternative differed substantially from Alternative 1 with regard to which organization would conduct training and testing, the components are similar. Alternative 2, like Alternative 1, would have included training, testing, and placement on the NRCME for all MEs who complete the training and pass the certification test.

Training Costs

It is expected that the training costs under this alternative would have been similar to those under Alternative 1. There is no reason to assume that a training conducted by FMCSA would cost significantly more or less than comparable training conducted by private-sector organizations. In either case, curriculum development would be necessary, instructors would have to be hired, and facilities booked to hold classes. Although FMCSA would not charge for the training, the Agency would bear the implicit costs of producing the training. We believe these costs would be approximately equal to the costs to private-sector organizations of conducting a similar training. The Agency estimated the costs of conducting this training program during the initial training years in which the NRCME is populated with 40,000 medical examiners as follows:

- Facility costs: \$220,000 per year
- Cost for staffing the program \$3.58 million per year
- Cost of materials and equipment: \$2.75 million per year

The figures above have been adjusted for inflation from those used at the NPRM stage using the CPI. Further adjustment is necessary given that the initial training phase was projected to be 3 years at the NPRM stage but has since been compressed to two years. As a result, larger facilities, more staff and associated materials and equipment would be needed to cover the increased volume. The new estimated annual cost of the training program is \$9.8 million (basically three halves of the costs under the three year phase in) which is higher, but relatively close to, the estimated costs associated with private sector training. The higher cost of this training model reflects the fact that, rather than using the prevailing market price for training, we have built the cost figures for this training from the bottom up using facility rental rates and compensation levels for instructors. Also, unlike the private-sector training organizations, FMCSA does not have specialized expertise in conducting training programs in the medical field, and currently does not have facilities that could be used for that purpose. There are therefore some economies of scale that allow private- sector organizations with this infrastructure in place to offer training at a cost slightly below that which the Agency would incur.

Like the Public-Private Partnership Model, FAA requires AMEs to get periodic retraining. The FAA program requires a full retraining and retesting every 6 years, and

shorter duration 3-day training every 3 years. This continuing education requirement is equivalent to that in Alternative 1, with the exception that under Alternative 1 MEs are only required to be retested (not retrained) at 6-year intervals. Thus the training requirements under Alternative 2 are slightly more stringent than those under Alternative 1, resulting in a slightly higher total training cost. Alternative 2 requires 6 hours of training every six years, and 3 hours of training every 3 years. In years in which only the shorter training is conducted, the training costs should be approximately half the projected costs for the full training years, or \$4.9 million.

Testing Costs

Under this alternative, testing would have been conducted by FMCSA. Testing protocols would have been similar to those associated with Alternative 1. However, it is anticipated that the costs to the Agency would be somewhat higher than costs as described under the Public-Private Partnership Model. Under Alternative 1, private-sector professional testing organizations would deliver the test. Under Alternative 2, FMCSA would have to establish its own testing program, although it could potentially purchase testing technology from one of several private-sector testing organizations.

The private-sector testing organizations currently operating in the United States have testing centers located throughout the Nation, and have specialized skills and information technology assets that enable them to provide testing at a low cost. These organizations run various testing programs and can spread their capital investments among these different programs, which reduces the amount of time the testing hardware and software sit idle. FMCSA has limited specialized technology or knowledge in conducting testing, and would have only one testing program over which to spread the costs of testing equipment and software. As a result, the costs of a testing program operated by FMCSA would have been somewhat higher than that conducted by a private-sector organization. We estimate that the test would have cost approximately 20 percent more per testing candidate than was estimated for Alternative 1. The cost would therefore be approximately \$132 per testing candidate. The testing and training costs associated with this alternative would have been borne by FMCSA rather than the MEs, although MEs would have had to bear other costs associated with the training, such as travel costs.

Management Costs

These activities would have been identical to those as described under Alternative 1, and the costs are expected to be the same as under that alternative, or \$9.9 million per year.

Travel Costs

We expect travel costs to have been significantly higher under the Government Model than under the Public-Private Partnership Model. Under the Public-Private Partnership Model, it is expected that there will be training programs located in various places around the Nation, which would help to reduce the cost of travel necessary to obtain training. In addition, at least two potential training organizations have expressed an interest in

providing online training modules to MEs. These modules would largely eliminate travel costs for MEs who participate in these programs. Testing organizations have facilities around the Nation, often with multiple testing centers in every State, which tends to minimize the travel necessary to take the test. In contrast, the Government Model would have involved one centralized training and testing facility. This model would have required the vast majority of MEs to incur airfare and hotel lodging expenses in order to attend the training. As a result, travel costs under this model would have been higher than those associated with Alternative 1.

For the purposes of this analysis, we assumed that an airline ticket to the training location would have cost participants \$440. We also assumed that a 2-night hotel stay would be necessary, and that an average hotel stay would cost \$128 per night. Combined airfare/lodging would therefore total approximately \$695 per person. In addition, travel to the airport is expected to average 70 miles round trip at both the attendee's home airport and the training destination, for a total cost of \$71 per person. The total per person cost is therefore \$766. No extra trip for testing would have been necessary under this alternative because testing would have been conducted at the same location as training.

Time-Related Costs

We estimated that time-related costs associated with this alternative would be greater than those described under Alternative 1. The training and testing programs were expected to be of the same duration – 6 hours of training and 2.5 hours of testing - as under the Public-Private Partnership Model. Because there would have been only one central training site under this alternative, most MEs would have to fly to get to the training center, and this would increase the travel time of attending training. In addition to 45 minutes for travel to and from the airport on both ends of the trip, we assumed 2 hours of time at the airport to allow for adequate check-in time, and an average length of 2 hours in-flight both going and returning. Total travel time was therefore 3 hours total to get to and from airports, 4 hours at airports, and 4 hours flying, for a total of 11 hours of travel time. Adding training and testing time yields a total time commitment of 19.5 hours. Because ME time is valued at \$83 per hour, this equates to a total cost of \$1,619 in lost time per ME.

The FAA AME program upon which this alternative is based requires interim training every 3 years. This training is made available online for free to AMEs, so no travel is required. FAA also offers a limited number of medical condition-specific theme seminars in a few locations which also satisfy the three-year training requirement. Any ME can use either option to satisfy the three-year training requirement. Since an online option is provided for this three-year requirement, no travel is necessary. No time-related costs associated with travel for this training would be incurred in these years. Also, testing would not be required either. The cost for this interim training would therefore have mimicked the costs accrued under Alternative 1 above for online training years, at 3 hours of time, with a value per participant of \$249. Under this alternative, MEs would have had to return to the FMCSA facility every 6 years for full retraining and retesting.

Therefore the full cost of lost time for training and testing - \$1,619 – would have been incurred by a medical examiner every six years.

Driver-Related Costs

We expected this alternative to achieve comparable improvements in the application of FMCSA physical standards to those achieved under Alternative 1. As a result, the impacts on carriers were estimated to be equivalent to those described earlier for that alternative. Table 5 presents the total 10-year costs of this alternative.

Table 5: Costs - Government Model											
Thousands of Dollars											
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
Training	\$9,818	\$9,818	\$0	\$4,909	\$4,909	\$0	\$9,818	\$9,818	\$0	\$4,909	\$53,997
Testing	\$2,640	\$2,640	\$0	\$0	\$0	\$0	\$2,640	\$2,640	\$0	\$0	\$10,560
Management of Registry	\$9,900	\$9,900	\$9,900	\$9,900	\$9,900	\$9,900	\$9,900	\$9,900	\$9,900	\$9,900	\$99,000
Travel	\$15,320	\$15,320	\$0	\$0	\$0	\$0	\$15,320	\$15,320	\$0	\$0	\$61,280
lost time	\$32,370	\$32,370	\$0	\$4,980	\$4,980	\$0	\$32,370	\$32,370	\$0	\$4,980	\$144,420
ME Turnover	\$0	\$0	\$0	\$7,005	\$7,005	\$7,005	\$7,005	\$7,005	\$7,005	\$7,005	\$49,033
hiring costs	\$0	\$17,600	\$26,400	\$26,400	\$0	\$0	\$0	\$0	\$0	\$0	\$70,400
Total	\$70,048	\$87,648	\$36,300	\$53,194	\$26,794	\$16,905	\$77,052	\$77,052	\$16,905	\$26,794	\$488,690
7 Percent Discount	\$70,048	\$81,914	\$31,706	\$43,422	\$20,441	\$12,053	\$51,343	\$47,984	\$9,839	\$14,574	\$383,322
3 Percent Discount	\$70,048	\$85,095	\$34,216	\$48,680	\$23,806	\$14,582	\$64,530	\$62,651	\$13,345	\$20,535	\$437,486

3.4 COSTS: ALTERNATIVE 3, DOT MRO PROGRAM MODEL

The MRO Program model would have consisted of two or more private-sector training programs that satisfy Agency standards, which would have been organized and conducted by medical professionals, and would have provided testing as well as training to participants. FMCSA would have had some limited oversight, but these programs would have developed their own standards, curriculum, and testing procedures. FMCSA would have provided some minimal guidance, but would not have developed detailed curriculum specifications or directly overseen any aspect of the training and testing programs. Each training program would have maintained its own registry of graduates, and only graduates of these training programs would have been eligible to conduct driver physical examinations. Instead of one unified NRCME, there would have been multiple registries of MEs, one for each of the training programs. SAFETEA-LU mandated one unified registry, so this alternative is not fully compliant with the Congressional requirements for the program.

Although this program would have been relatively inexpensive for the Agency, it would not provide the Agency with nearly as much control over the quality and content of training, testing protocols, and registering of MEs as the other alternatives and would not meet the requirements of SAFETEA-LU. In addition, it is probable that the maintenance of multiple certification lists might make this system cumbersome to use, and make it more difficult for drivers to find a certified ME. Also, as will be seen, this system is likely to have been somewhat more costly to MEs than either of the other alternatives. These costs stemmed primarily from higher testing costs.⁹

Training Costs

These costs were expected to be the same as those discussed under Alternative 1, or \$440 per ME. At least one of the organizations that provide MRO training also provides a 1-day training on conducting driver physical examinations. This organization charged approximately \$700 for the 2-day MRO training and \$395 for the 1-day ME training as of 2005. After the initial training, MEs would have to obtain 3 additional hours of training every three years. Training costs were therefore estimated to be equivalent to those described under Alternative 1 for later years as well.

Testing Costs

The DOT MRO Program educates and tests approximately 5,000 MRO officers a year. In order to complete the program, an MRO candidate must pass an examination that is

⁹ The Office of the Secretary of Transportation has revised the maintenance requirements for the MRO program. The new standards require re-training and re-certification every 5 years to maintain MRO status. Since these requirements are more stringent, incorporation of these changes into the analysis would have resulted in this option being even less cost-effective relative to the Agency's chosen option. See Docket OST-2010-0026 August 16, 2010, 75 FR 49850.

offered by one of the certifying organizations. The organizations that offer these tests charge testing candidates considerably more than the estimates FMCSA has received for conducting the NRCME test. Testing organizations estimate that they could provide this test at a cost of \$100 per candidate. The MRO examination fee charged by the organizations that provide it was \$400 - \$600 as of 2005. These figures have been increased by 10 percent to 2008 dollars using the CPI, to \$440 - \$660. It is believed that the professional associations that run the MRO training and testing programs use the test as a revenue generator, which elevates the cost of the examination to candidates. We anticipated that the same testing costs would have applied if this model were adopted for the NRCME program. This substantially raises testing costs for this alternative to \$17.6 million for the initial training of 40,000 MEs. The extra cost of testing under this alternative could be considered a transfer cost, rather than a true economic cost, because in theory these organizations could offer testing at a rate similar to the cost incurred under the first two alternatives. The excess charge is therefore not a true reflection of cost, but represents a premium over and above the actual resources dedicated to provide testing. Nevertheless, MEs would have been likely to bear the burden of this higher testing charge under this alternative. The recertification test was expected to cost \$440 as well, but no travel cost would have been associated with taking that test because it is offered as an open book at-home test.

Management Costs

Agency management costs would have been somewhat lower under this alternative because the registry would be maintained by the certification organizations, as is the case under the current MRO Program. We estimated management costs under this alternative to be \$1.1 million. Under this alternative the PRA burden costs would be the same as under the other two alternatives at \$7.7 million per year, bringing the total management costs to \$8.8 million per year for this alternative.

Travel Costs

The MRO Program currently has 3 providers of training and 2 testing programs. As a result, air travel and overnight hotel stays are necessary for participants. Related travel costs were therefore expected to be similar to those as described under the Government Model, or \$766 per person, during the first two years. After that, travel would have been minimal, because the supplemental training required in later years would have been offered online, and recertification testing would have been taken at the testing candidates home or office via the internet or courier delivery.

Time-Related Costs

These were also expected to be the same as those as described under the Government Model with respect to travel time, since only a few training vendors would be expected. This model also would have been congruent with the Government Model with respect to time spent in refresher training. This amounts to an initial-year time related cost of

\$1,619 per candidate. Following initial certification, certified MEs would have had to obtain 3 hours of training every 3 years, and every 6 years would have had to take a recertification exam that is expected to last 2.5 hours. The cost for the time-related cost of training would have been \$249 per ME, and the time-related costs for testing would have been \$208 per ME. No time would have been needed for travel in the later years since both testing and training are conducted online.

Driver-Related Costs

These costs are expected to be equivalent to those as described under the previous alternatives.

Table 6: Costs - MRO Model											
Thousands of Dollars											
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
Training	\$8,800	\$8,800	\$0	\$4,400	\$4,400	\$0	\$4,400	\$4,400	\$0	\$4,400	\$39,600
Testing	\$8,800	\$8,800	\$0	\$0	\$0	\$0	\$8,800	\$8,800	\$0	\$0	\$35,200
Management of Program	\$8,800	\$8,800	\$8,800	\$8,800	\$8,800	\$8,800	\$8,800	\$8,800	\$8,800	\$8,800	\$88,000
Travel	\$15,290	\$15,290	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$30,580
lost time	\$32,370	\$32,370	\$0	\$4,980	\$4,980	\$0	\$9,130	\$9,130	\$0	\$4,980	\$97,940
ME Turnover	\$0	\$0	\$0	\$7,406	\$7,406	\$7,406	\$7,406	\$7,406	\$7,406	\$7,406	\$51,842
hiring costs	\$0	\$17,600	\$26,400	\$26,400	\$0	\$0	\$0	\$0	\$0	\$0	\$70,400
Total	\$74,060	\$91,660	\$35,200	\$51,986	\$25,586	\$16,206	\$38,536	\$38,536	\$16,206	\$25,586	\$413,562
7 Percent Discount	\$74,060	\$85,664	\$30,745	\$42,436	\$19,519	\$11,555	\$25,678	\$23,998	\$9,432	\$13,917	\$337,004
3 Percent Discount	\$74,060	\$88,990	\$33,179	\$47,575	\$22,733	\$13,979	\$32,273	\$31,333	\$12,793	\$19,610	\$376,526

4.1 PROGRAM EFFECTIVENESS

In order to provide benefits to public safety, this program must improve the performance of the MEs who conduct driver physicals. We believe that poor application of FMCSA standards is one of the main sources of erroneous medical certification of unqualified CMV drivers. By educating health-care professionals on FMCSA physical qualification standards and guidelines and why they are important, given the need to protect public safety and the rigors of the commercial driving occupation, we expect that MEs will do a better job of screening drivers for disorders that may impair either their ability to drive safely or their health. Better screening of drivers should result in a safer commercial driving population, and fewer large truck-involved crashes.

Most health-care professionals are required by licensing boards to regularly attend continuing education (CE) training courses in order to maintain their license to practice. Evaluations of these courses, including pre- and post-course knowledge assessments, have generally shown that they improve participant knowledge. Fewer studies have been conducted to evaluate whether these knowledge gains translate into improvements in patient evaluation and care. However, the studies that have evaluated CE contributions to improvement in patient care have generally found that these courses do in fact improve practices in the examining room, and result in more effective evaluation and treatment of patients.

The extent to which CE courses lead to improvements in patient care depends on a variety of factors. The length of the training and the complexity of implementing the practices covered in the training are one factor. Another factor is the degree to which the practices being covered are already being used by a majority of health-care professionals. If a large majority of MEs were already very familiar with FMCSA physical standards and guidelines and interpreting them properly, training courses would be unlikely to improve their performance greatly. However, if there are a large number of MEs who are unfamiliar with FMCSA standards and guidelines, training would result in much larger gains. A third factor in the effectiveness of CE training is the quality and content of the course.

The training program being adopted here will ensure that MEs are familiar with the demands of the commercial driving occupation and the environment in which drivers work. It will also familiarize MEs with the physical qualification standards FMCSA has established to ensure that commercial drivers are healthy enough to operate their vehicles safely. Finally, the training will educate MEs on how the conditions listed in the FMCSA physical qualification guidelines can impair the ability of drivers to safely operate their vehicles, thereby emphasizing the importance of ensuring that only qualified drivers are certified as fit to drive. Many MEs who currently conduct driver physical examinations are familiar with FMCSA standards and guidelines and apply them accurately, making proper determinations on driver fitness for duty. However, there are other MEs who are unfamiliar with the Agency's standards and guidelines, but certify drivers anyway. Even

more troubling, there are a small number of MEs who know the standards and guidelines but are willing to certify drivers who do not meet FMCSA standards in exchange for payment from the unqualified driver. Even the most qualified MEs may benefit from a training program that would refresh their knowledge of FMCSA standards and guidelines and correct any misinterpretations they may be making.

Causes of Increased Crash Risk

Several medical conditions can impair the ability of a driver to safely operate a motor vehicle. Conditions of prominent concern, according to the academic literature, include sleep apnea, diabetes, poor vision, certain psychiatric conditions, and operating under the influence of alcohol and certain illicit drugs. In addition, several classes of prescription drugs used to treat common medical conditions have been found to adversely affect driver performance. Classes of prescription drugs that have been shown to impair driving ability include, but are not limited to, benzodiazepines, opioid pain medications, and tricyclic antidepressants.

There is evidence from the industry that improving driver health can result in substantial health insurance premium savings for motor carriers, and improve driver retention. Training can help improve driver health by making MEs more aware of the importance of accurately applying FMCSA physical qualification standards and guidelines to ensure driver safety. Improved evaluation of driver health would lead to more aggressive treatment of conditions that might cause a driver to be ineligible to drive. This training would also make participants more aware of the ways in which various health conditions and prescription drugs can negatively affect driving performance.

The Agency believes that many health-care professionals currently are failing to properly apply FMCSA standards and guidelines when conducting physical examinations of drivers, and fail to perceive the importance of making accurate judgments because they are unaware that commercial drivers with these health conditions pose an increased safety risk. As a result, many drivers who pose an increased risk to both themselves and others are continuing to operate commercial motor vehicles. FMCSA believes that many of these drivers would seek effective treatment for their disqualifying medical condition if FMCSA standards were applied accurately, because the risk of being barred from their occupation would provide a greater incentive to better manage their health. Effective treatment of disqualifying conditions would make these drivers safer, improve their health, and reduce the number of crashes in which they are involved.

FMCSA found few studies that specifically examine the increased safety risk posed by physically unqualified drivers in general (i.e., studies that are not linked to a particular medical condition). A study conducted by the American Transportation Research Institute explored factors that increase the likelihood of crash involvement among commercial drivers, and found that Medical Certification violations increased the likelihood of crash involvement by 18 percent.¹⁰ The Agency's Large Truck Crash

¹⁰ American Transportation Research Institute. *Predicting Truck Crash Involvement: Developing a Commercial Driver Behavior-Based Model and Recommended Countermeasures*. October 2005.

Causation Study (LTCCS), which examines the critical reasons that contributed to large truck crash involvement, found that “heart attack or other physical impairment of the ability to act” was the critical reason in 2.2 percent of injury and fatality crashes.¹¹ The LTCCS did not include crashes in which no one was injured, so the degree to which these findings can be applied to property damage only (PDO) crashes is debatable. However, it seems reasonable to assume that if being physically impaired makes a driver more likely to be involved in an injury or fatality crash, that condition would make the driver more likely to be involved in PDO crashes as well.

The LTCCS also examined fatigue as a critical reason for crashes and found that falling asleep behind the wheel was responsible for 3.8 percent of crashes, and fatigue was a factor in 13 percent of crashes.¹² It is likely that a subset of the drivers who fell asleep behind the wheel did so because of some medical condition such as a sleeping disorder. Others are likely to have been on one of several different classes of prescription drugs which reduced their alertness or ability to stay awake. It is therefore unlikely that the category of “heart attack or other physical impairment of the ability to act” captures all of the crashes involving physically unqualified drivers.

Still, the 2.2 percent of crashes involving drivers with a physical impairment represents a substantial cost to society. On average, this percentage represents approximately 99 fatal crashes and 1,879 injury crashes per year.¹³ The estimated cost of these crashes to society is \$677 million for the fatal crashes alone. This figure is based on the Agency’s estimate of the cost of a fatal crash, which is \$7,200,310.¹⁴ The cost of the nearly 2,000 injury crashes attributable to physical impairments can also be quantified. Injury crashes vary by severity from crashes involving minor scrapes to those involving incapacitating injuries, and the cost of these crashes varies by their severity, but on average, crashes in which one or more person is injured cost approximately \$331,108. The costs associated with injury crashes are estimated at \$545 million per year. The total cost attributable to physically impaired commercial drivers is therefore \$1.2 billion per year. In addition, although the LTCCS only covered injury and fatality crashes, it is likely that a similar proportion of PDO crashes are attributable to physically impaired drivers. These crashes have an average cost of \$17,816 per crash, and on average there are 7,709 PDO crashes that may be attributable to physically impaired drivers, assuming their propensity for involvement in these crashes is the same as their propensity for involvement in the more serious injury and fatal crashes.

Sources of Certification of Unqualified Drivers

¹¹ FMCSA Analysis of Large Truck Crash Causation Data. May 13, 2006.

¹² FMCSA. *Report to Congress on the Large Truck Crash Causation Study*. March 2006. Available online at: <http://www.fmcsa.dot.gov/facts-research/research-technology/report/ltccs-2006.htm>

¹³ The derivation of these crash figures is presented below on pages 35-36.

¹⁴ E. Zaloshnja, T. Miller, and R. Spicer, “Unit Costs of Medium and Heavy Truck Crashes,” Final Report to the Federal Motor Carrier Safety Administration (Landover, Maryland: Pacific Institute for Research & Evaluation, 2006), updated by FMCSA staff for a change in DOT guidance on the value of a statistical life.

There are three main factors contributing to the certification of unqualified drivers. The first is MEs who are unfamiliar with FMCSA standards and guidelines. In some cases, MEs lack a basic understanding of FMCSA's physical qualification standards and guidelines, and the conditions that should be checked to ensure that a driver is physically qualified. MEs are also unaware of the demands that operating a CMV can make on drivers, and how various medical conditions can impact the safety and health of CMV operators. As a result of this lack of knowledge, it is sometimes the case that an ME would sign off on a driver's medical certificate even though the driver has a condition that should be disqualifying.

The second factor is unscrupulous MEs who are willing to certify drivers as qualified in exchange for payment from the driver. According to our regulations, all MEs who conduct driver physical examinations must be licensed by their State to conduct physical examinations of patients. MEs in some cases may or may not conduct an actual physical examination of the driver. Whether an actual physical examination is conducted or not, they are willing to certify a driver as physically qualified despite the fact that the driver has a physically disqualifying condition, provided the driver is willing to pay them a sufficient sum of money. MEs who are willing to commit this type of fraud are known among the driving community, and can therefore be found by drivers who are physically unqualified but want to continue driving.

The third factor is drivers who conceal conditions from the ME who conducts their physical examination. In many cases, a disqualifying condition would not be detectable during a physical examination unless the driver provides a full and accurate history of pre-existing conditions. Conditions such as insulin-treated diabetes mellitus and seizure disorders are not detectable by a normal physical examination. These conditions must be diagnosed either with specialized tests and/or by obtaining an accurate medical history from the driver. Drivers sometimes conceal these conditions from MEs in order to obtain medical certification even though they do not meet FMCSA standards.

This rulemaking addresses the first two sources of erroneous physical qualification of drivers. The training portion of this rule will ensure that all MEs who conduct commercial driver examinations are knowledgeable about FMCSA standards and guidelines and familiar with the rigors of the truck driving occupation. This improved knowledge, when applied, should result in a more accurate determination of driver physical qualification. MEs who have a pattern of qualifying drivers who should not be qualified (i.e., certification mills) will be removed from the NRCME database, thus barring them from continuing to certify drivers. It is possible that, by making MEs more aware of the importance of obtaining an accurate driver history, the training program will also address to some extent the third source of certification of unqualified drivers. However, it is unlikely that all drivers who seek to conceal a portion of their medical history will be identified and an accurate medical history obtained, so it is likely that some medically unqualified drivers will continue to be certified.

Prior to this rule, the Agency had no rules in place that enabled it to take action against MEs who fraudulently certify drivers who are physically unqualified (e.g., certification

mills), although if the Agency became aware of an ME who was certifying unqualified drivers we were able to refer the case to the State that licensed the ME to practice medicine, and the State licensing board had the ability to take action against the ME. The NRCME program gives the Agency a direct mechanism to remove these MEs from the population of health-care professionals that conduct driver physicals. As a result, it poses a deterrent to certification mills. This rule enables the Agency to remove from the NRCME database any ME who is found to have issued medical certificates to drivers who are physically unqualified. Once removed from the NRCME, these MEs will not be able to issue valid driver medical certificates. This provides a powerful incentive to MEs to ensure that they make accurate assessments of driver medical conditions and a powerful deterrent to fraud.

Number of Crashes Prevented

As has already been discussed, the findings of the Large Truck Crash Causation Study indicate that in approximately 2.2 percent of crashes where the truck driver was at fault, “heart attack or other physical inability to perform” was the critical reason for the crash. These would be cases where the crash was caused by the driver having a heart attack, stroke, seizure, or other debilitating attack while driving. It would also include any neuromuscular or orthopedic conditions that prevented the driver from being able to control the vehicle due to a weak grip, lack of dexterity, or injured limb. In addition, this group would include any sleep disorder that might have caused the driver to lose consciousness or fall asleep behind the wheel. The LTCCS included only crashes in which a person was injured or killed. Crashes in which only damage to the vehicles involved were not included in the study. However, it is reasonable to assume that medical conditions that increase the propensity of being involved in an injury or fatal crash would increase the propensity for involvement in less serious crashes as well. The analysis presented here breaks the crashes out by crash type, and presents associated costs separately, to ensure transparency in how crash costs were developed.

Table 7 below presents the number of different types of crashes involving CMVs that have occurred over the past 5 years for which data are available, and the 5-year average for each crash type. Assuming that 2.2 percent of each type of crash is attributable to physical impairment, 99 fatal crashes would have been caused by drivers with a physical impairment. These drivers would also have caused 1,879 crashes in which someone was injured, and 7,709 crashes in which only property damage occurred.

Multiplying the number of fatal crashes times the value of fatal crashes yields a cost estimate of \$713 million per year. Property damage only crashes attributable to physically impaired CMV drivers are valued at $7,709 \times \$17,816 = \137 million. The estimated value of injury crashes is calculated by multiplying the total average number of injury crashes per year. The value of an injury crash is \$331,108, and there is an average of 1,879 injury crashes per year attributable to physically impaired drivers, for a total crash value of \$622 million in crash costs. The total annual cost of crashes attributable to physically impaired drivers, rounding to the nearest hundred million, is \$1.5 billion.

Although the LTCCS contains valuable information regarding the cause of crashes, it depends to some extent on the veracity of those involved in the crash to report medical conditions to investigators. While it may be difficult to hide a seizure, limb impairment, or heart attack, other problems, such as vision impairments, sleep apnea, and hearing problems are easier to disguise from crash investigators. It is therefore likely that these conditions were underrepresented as associated factors in crashes, either because the driver was unaware of the condition, or successfully concealed it from investigators. However, the LTCCS data are currently the most accurate information the Agency has on the degree to which physical impairments contribute to crashes. We will therefore use the LTCCS as the basis for predicting benefits for this rule, while acknowledging that because of the study's methodology, we may be undercounting the number of crashes caused by physically impaired commercial drivers, and hence the benefits that may be associated with this rule.

The incidence of crashes involving large trucks and buses varies somewhat from year to year, but has remained relatively stable over the past several years, although it has declined generally over time. In calculating the likely number of crashes avoided, we averaged the number of crashes involving CMVs over the years 2004-2008. Table 7 below presents the annual number of crashes for these years, and the 5-year average number of crashes per year.

Table 7

	Number of CMV Crashes, by Type and Year					
	Year					
Type of Crash	2004	2005	2006	2007	2008	5 Year Average
Fatal	4,734	4,805	4,643	4,472	3,994	4,530
Injury	95,000	89,000	87,000	82,000	74,000	85,400
Property Damage Only	349,000	377,000	324,000	360,000	342,000	350,400
Total	448,734	470,805	415,643	446,472	419,994	440,330

Source: FMCSA. Large Truck and bus Crash Facts 2009. Available online at <http://www.fmcsa.dot.gov/facts-research/LTBCF2009/2009LargeTruckCrashOverview.aspx>

As can be seen, there was an average of roughly 440,000 crashes involving large trucks and buses over the years 2004 – 2008. This number could potentially be reduced by 2.2 percent if all drivers with physical impairments were replaced with healthier drivers, or had their health conditions treated adequately, which would give them comparable driving performance to healthy drivers. We assume the interstate driver crash rates are equivalent to the crash rates for intrastate drivers. Because interstate drivers make up approximately 62.9 percent of the total commercial driver population we assume that they are responsible for approximately 62.9 percent of the crashes listed above. Because the Agency only has jurisdiction over interstate drivers, only benefits associated with preventing crashes involving these drivers are calculated here. The potential effectiveness of CE training programs has already been discussed in Section 4.1 above. We expect the NRCME program could reduce the number of physically unqualified drivers, and the associated crashes, by one-fifth, based on results achieved by other continuing education

programs in the health-care sector, and on the reasonable assumption that recertification would protect against a health condition serious enough to affect a driver's safety performance for at least a few months post-exam.¹⁵ Put another way, drivers would be less likely to have a crash related to a serious health condition for at least a few months after certification, because if the driver had a condition that posed an imminent safety risk, that driver would not have been certified. Over time, any driver's health condition may worsen to the point where that driver might pose an increased safety risk. This would imply a reduction in crashes of 970 PDO crashes, 236 injury crashes, and 13 fatal crashes, for a total of 1,219 crashes.¹⁶ These crashes combined have a total value of \$189 million. This is our estimate of the annual safety benefits of the rule once all drivers have been screened by a NRCME registered ME. The calculations for these figures are presented in Table 8 below. The figures in Column A are from Table 7 above. The figures in column B are derived by multiplying the figures in column A by 2.2 percent. The figures in Column C are derived by multiplying the figures in Column B by 62.9 percent. Finally, the figures in Column D are derived by multiplying the figures in Column C by 20 percent.

Table 8: Calculations of Projected Reduction in Crashes Resulting from Adoption of this Rule				
	Column A: 5 Year Crash Average	Column B	Column C	Column D
Fatal	4,530	99	62	13
Injury	85,400	1,879	1,182	236
PDO	350,400	7,709	4,849	970
Calculations using the figures in table will not exactly match the final numbers due to rounding.				

4.2 BENEFITS

Program Period

The period for training MEs for inclusion in the NRCME database is expected to take approximately 2 years to fully populate the NRCME with trained and certified MEs. However, those MEs who receive training earlier will be examining drivers upon completion of the training program. Some limited benefits can therefore be expected

¹⁵ The U.S. Department of Health and Human Services has conducted a comprehensive review of CME programs and their effectiveness in improving medical professionals' knowledge and practice behavior. This review found that continuing medical education is effective in imparting knowledge and significantly changing medical professionals' practice behavior. See HHS Agency for Healthcare Research and Quality Evidence Report Number 149 - *Effectiveness of Continuing Medical Education*. January 2007.

¹⁶ The Agency estimates that 440,000 crashes would occur in an average year. Of this 62.9 percent, or 276,760 are attributable to interstate drivers. Of this number, approximately 2.2 percent, or 9,687 are attributable to physically unqualified drivers. We estimate that this rule will reduce these crashes by 20 percent, for a total crash avoidance of 1,219.

starting in year 1, at which point approximately one-half of the MEs that would populate the NRCME will be trained. Benefits will increase in years 2 through 4 as more MEs are trained, and as the requirement that drivers be examined by a ME who is in the NRCME begins to take effect.

As a result of the requirements for drivers and MEs, full benefits are not attained until year 4 of the program. However, some benefits will begin accruing in year 1, when at least some drivers would be obtaining medical certification from certified MEs. We assume that one-fourth of drivers would be examined by certified MEs by the beginning of year 2. By the end of year 2, it is assumed that one-quarter of the drivers would be examined by MEs on the NRCME. In year 3, half of all drivers would have been examined, and by the end of year 4, the remaining drivers will be required to be examined by an ME on the NRCME, meaning that full benefits will accrue. Table 9 presents the number of drivers affected and the undiscounted benefits that will accrue, according to our estimates, in each year.

Table 9			
Phase in and Benefits Associated with NRCME (Thousands of dollars)			
	Number of Trained Medical Examiners	Number of Drivers Examined by Trained Medical Examiners	Benefits
Year 1	20,000	0	0
Year 2	40,000	1,000,000	\$47,256,760
Year 3	40,000	2,000,000	\$94,513,519
Year 4	40,000	4,000,000	\$189,027,038
Year 5	40,000	4,000,000	\$189,027,038

Table 10 presents the discounted costs and benefits of each of the alternatives we considered at the NPRM stage, along with net benefits. As shown, benefits begin to exceed costs in Year 3 for all alternatives, and continue to exceed costs thereafter. This rule should produce large positive benefits by preventing a substantial number of CMV crashes. As shown, over time, all three alternatives yield similar benefits, and these benefits are substantial, at over \$633 million in net benefits over 10 years for the least beneficial alternative. Alternative 1, the Public-Private Partnership Model, is the most cost beneficial, because of its lower cost. The lower cost of this alternative is due primarily to the reduction in travel costs for MEs who attend training associated with this alternative. The reduction of travel also impacts the opportunity cost of time associated with attending a training course, since less travel equates to less time away from the office.

Table 10
Benefit-Cost Comparison of Alternatives (7 percent discount rate) (Thousands of dollars)

Year	Benefits	Alternative 1 Costs	Alternative 2 Costs	Alternative 3 Costs	Net Benefit Alternative 1	Net Benefit Alternative 2	Net Benefit Alternative 3
1	\$0	\$41,404	\$70,048	\$74,060	-\$41,404	-\$70,048	-\$74,060
2	\$44,165	\$55,144	\$81,914	\$85,664	-\$10,979	-\$37,748	-\$41,498
3	\$82,552	\$31,706	\$31,706	\$30,745	\$50,846	\$50,846	\$51,807
4	\$154,302	\$36,603	\$43,422	\$42,436	\$117,699	\$110,881	\$111,866
5	\$144,208	\$10,711	\$20,441	\$19,519	\$133,496	\$123,767	\$124,688
6	\$134,774	\$16,698	\$12,053	\$11,555	\$118,075	\$122,721	\$123,219
7	\$125,957	\$15,606	\$51,343	\$25,678	\$110,351	\$74,614	\$100,279
8	\$117,717	\$8,744	\$47,984	\$23,998	\$108,973	\$69,732	\$93,718
9	\$110,015	\$8,172	\$9,839	\$9,432	\$101,844	\$100,177	\$100,583
10	\$102,818	\$7,637	\$14,574	\$13,917	\$95,181	\$88,244	\$88,901
Total	\$1,016,508	\$232,425	\$383,322	\$337,004	\$784,083	\$633,185	\$679,503

As can be seen in Table 10, Alternative 1 has the largest benefits, with a total 10-year net benefit of \$784 million. Alternative 3 has \$680 million in total net benefits, while Alternative 2, with its higher costs, has a 10-year net benefit of \$633 million.

Admittedly, the Agency cannot predict with a high degree of certainty whether this level of benefits will be achieved. As a result of this uncertainty, we have conducted a sensitivity analysis by varying the number of crashes prevented over a range from half that projected above to 150 percent of that projected above. The upper and lower bounds results of this analysis are presented in Tables 11 and 12 below. At half the level of effectiveness of our baseline assumption, 1 in 10 crashes attributed to poor driver health would be prevented. The rule and all other alternatives considered would still be cost beneficial at this level of benefits, with a 10 year net benefit of the rule at \$256 million, using a 7 percent discount rate. At 150 percent of crash benefits, as shown in Table 12, the rule would be more cost beneficial, with total 10 year net benefits at nearly \$1.3 billion.

Table 11 Benefit-Cost Comparison of Alternatives – 50% Reduction in Baseline Crash Prevention (7 percent discount rate) (Thousands of dollars)							
Year	Benefits	Alternative 1 Costs	Alternative 2 Costs	Alternative 3 Costs	Net Benefit Alternative 1	Net Benefit Alternative 2	Net Benefit Alternative 3
1	\$0	\$41,404	\$70,048	\$74,060	-\$41,404	-\$70,048	-\$74,060
2	\$21,241	\$55,144	\$81,914	\$85,664	-\$33,902	-\$60,672	-\$64,422
3	\$39,704	\$31,706	\$31,706	\$30,745	\$7,998	\$7,998	\$8,959
4	\$74,212	\$36,603	\$43,422	\$42,436	\$37,609	\$30,791	\$31,776
5	\$69,357	\$10,711	\$20,441	\$19,519	\$58,646	\$48,917	\$49,838
6	\$64,820	\$16,698	\$12,053	\$11,555	\$48,122	\$52,767	\$53,265
7	\$60,579	\$15,606	\$51,343	\$25,678	\$44,973	\$9,236	\$34,901

8	\$56,616	\$8,744	\$47,984	\$23,998	\$47,873	\$8,632	\$32,618
9	\$52,912	\$8,172	\$9,839	\$9,432	\$44,741	\$43,074	\$43,480
10	\$49,451	\$7,637	\$14,574	\$13,917	\$41,814	\$34,877	\$35,534
Total	\$488,894	\$232,425	\$383,322	\$337,004	\$256,469	\$105,571	\$151,889

Table 12 Benefit-Cost Comparison of Alternatives – 150% Reduction in Baseline Crash Prevention (7 percent discount rate) (Thousands of dollars)							
Year	Benefits	Alternative 1 Costs	Alternative 2 Costs	Alternative 3 Costs	Net Benefit Alternative 1	Net Benefit Alternative 2	Net Benefit Alternative 3
1	\$0	\$41,404	\$70,048	\$74,060	-\$41,404	-\$70,048	-\$74,060
2	\$65,484	\$55,144	\$81,914	\$85,664	\$10,340	-\$16,430	-\$20,180
3	\$122,400	\$31,706	\$31,706	\$30,745	\$90,694	\$90,694	\$91,655
4	\$228,785	\$36,603	\$43,422	\$42,436	\$192,182	\$185,363	\$186,349
5	\$213,818	\$10,711	\$20,441	\$19,519	\$203,106	\$193,377	\$194,298
6	\$199,830	\$16,698	\$12,053	\$11,555	\$183,131	\$187,777	\$188,275
7	\$186,757	\$15,606	\$51,343	\$25,678	\$171,151	\$135,414	\$161,079
8	\$174,539	\$8,744	\$47,984	\$23,998	\$165,795	\$126,555	\$150,541
9	\$163,121	\$8,172	\$9,839	\$9,432	\$154,949	\$153,282	\$153,689
10	\$152,449	\$7,637	\$14,574	\$13,917	\$144,812	\$137,875	\$138,532
Total	\$1,507,182	\$232,425	\$383,322	\$337,004	\$1,274,757	\$1,123,860	\$1,170,178

The Agency also conducted a threshold analysis to identify the minimum number of crashes that would have to be prevented in order for this rule to yield net benefits under the preferred option. If this rule were to prevent 242 PDO crashes, 59 injury crashes, and 3 fatal crashes, Alternative 1, the alternative adopted by the final rule, would still yield \$12 million in net benefits at this level of effectiveness. These crash figures represent roughly a 5 percent reduction in crashes attributed to physically impaired drivers. Given reasonable assumptions about the effectiveness of improved driver screening, it appears that the rule would be cost beneficial.

In addition, although we have not attempted to quantify them here, this rule may result in benefits due to better treatment of driver health problems. This rule gives drivers and their employers an incentive to address health conditions that might result in the driver becoming physically unqualified. An improvement in driver health may be the result. Aggressive treatment of driver health problems may also reduce overall health care costs, as aggressive treatment of disorders early on can eliminate the need for more drastic and expensive treatments later on. On balance, we expect this rule to be cost beneficial regardless of which alternative, although we have chosen to implement Alternative 1 because it appears to be the most beneficial of the alternatives due to both its lower cost and greater convenience for ME candidates.

5.1 REGULATORY FLEXIBILITY ANALYSIS

Final Regulatory Flexibility Analysis

The Regulatory Flexibility Act of 1980 (5 U.S.C. 601-612) requires Federal agencies to consider the effects of the regulatory action on small business and other small entities and to minimize any significant economic impact. The term “small entities” comprises small businesses and not-for-profit organizations that are independently owned and operated and are not dominant in their fields, and governmental jurisdictions with populations of less than 50,000. Accordingly, DOT policy requires an analysis of the impact of all regulations on small entities, and mandates that agencies strive to lessen any adverse effects on these businesses. The Agency conducted an initial Regulatory Flexibility Analysis for the NPRM and found that the rule would not have a significant impact on a significant number of small entities. No comments were received on that analysis from the public. The Agency therefore certifies that this rule would not have a significant impact on small entities.

The Agency estimates that this rule would impact approximately 500,000 motor carriers that qualify as small entities. The main impact on these carriers would be replacing drivers who cannot maintain medical certification with new drivers who are physically qualified. The current revenue threshold for qualifying as a small business in the trucking industry is \$25.5 million or less per year. We estimate that the per-driver cost to motor carriers would be approximately \$1,760 and the total cost to the industry in any one year would be \$26.4 million. This represents less than .02 percent of revenue for a carrier averaging \$10 million in revenue, which is less than half the SBA threshold for qualifying as a small business. Firms in this industry generally earn between \$108,000 and \$175,000 per truck. Even for sole proprietorships, the direct costs of hiring a new driver would amount to less than 2 percent of annual revenue.

This rule would also affect MEs, and the firms that employ them. The total costs imposed on MEs are approximately \$1,575 in the initial training phase, which is when the majority of costs are imposed. The SBA threshold to qualify as small business varies from \$10 million or less in revenue for physician owned firms to \$7 million in revenue for APN and PA firms. Even for firms that generate a relatively modest \$3150,000 in revenue, this cost amounts to only 0.5 percent of revenue. This rule would therefore not have a significant impact on a significant number of firms in either the health care or motor carrier industry.