Federal Motor Carrier Safety Administration
Notice of Proposed Rulemaking on
Minimum Training Requirements for Entry-Level
Commercial Motor Vehicle Operators
(Docket # FMCSA-2007-27748)

Submitted by:
National Advocates for the Advancement of New Drivers

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National Advocates for the Advancement of New Drivers ("NAAND") is pleased to submit the following comments to the Federal Motor Carrier Safety Administration ("FMCSA") in response to the agency's request that NAAND members provide further information respecting the relationship between the availability of student financial aid funding and the notice of proposed rulemaking ("NPRM") issued by FMCSA to establish minimum training requirements for entry-level commercial motor vehicle operators (72 Federal Register 73226, December 26, 2007). NAAND is a coalition of accredited private commercial truck driver training schools from throughout the United States offering comprehensive training programs of 600 clock hours or the equivalent credit hours. These private schools and their students are eligible to participate in the federal student aid programs, including the Pell Grant program and are approved for training veterans, active duty personnel, Reservists and National Guardsmen. Since 1985, our programs have trained over 100,000 men and women for entry level commercial driver positions, which positions currently earn first year incomes of $36,000 - $40,000.

I. Introduction

In 2004, the FMCSA implemented rules addressing the required training of entry level drivers of commercial motor vehicles. This rule was held by the DC Circuit Court in 2005 to be "arbitrary and capricious" because, among other things, it failed to contemplate and fully respond to the need for behind-the-wheel training. Advocates for Highway and Auto Safety v. Federal Motor Carrier Safety Administration, 429 F. 3d 1136 (D.C. Cir. 2005). The FMCSA's Notice of Proposed Rulemaking published on December 26, 2007, proposes to create a curriculum for Commercial Motor Vehicle ("CMV") driver training schools setting forth a minimum standard of 120 hours of training for all commercial driver's license ("CDL") Class A applicants. The proposed rule attempts to address the Court's decision by setting new curricular and instructional hour requirements for an *entire* driver training program, rather than focusing on behind-the-wheel training as addressed by the DC Circuit Court in its 2005 ruling. Although it is clear from the language of the proposed rule that the intent is to improve highway safety, the proposed rule does not consider the multiple unintended consequences that such

standards pose for driver training schools, their students and the entire trucking industry. We believe these consequences will have the aggregate effect of *impairing*, rather than enhancing, the training of entry-level drivers and, consequently, will actually have a *detrimental* impact on highway safety.

Most notably, the proposed rule could have the unintended consequence of eliminating the availability of federal financial aid under U.S. Department of Education ("USDOE") rules and substantially reducing active duty military and veteran's education benefits for commercial driver training students. These resources provide NAAND students, a large percentage of whom are economically disadvantaged, with the means to enroll in our schools' comprehensive commercial driver training programs—programs that currently exceed the minimum requirements contemplated by the proposed rule. Without this financial aid assistance and/or military education benefits, students will be unable to afford, and will thus forego enrolling in these more comprehensive programs. In turn, the comprehensive programs will no longer be financially viable and will, almost certainly, be eliminated by NAAND schools as a result.

The proposed rule, which ostensibly is intended to establish a licensing standard, may be read to set a minimum program length, and consequently could have the perverse effect of establishing a de facto maximum program length, thereby depriving the approximately 15,000 annual enrollees at NAAND schools from receiving the comprehensive commercial driver training they might have otherwise sought. Clearly, this result and the corresponding negative impact on highway safety run contrary to the intent of the proposed rule. If students are unable to receive financial aid, it also stands to reason that fewer drivers will enter an in-demand industry that will require 50,700 new drivers for each of the next ten years. Not only would the proposed change decrease the job prospects for potential new drivers in an economy with a high unemployment rate, but it has the potential to eliminate a critical source of highly trained and qualified new drivers.

Simply stated, we believe the proposed rule has the potential to decrease highway safety precisely because it does not consider the negative effects that a minimum program standard will have on existing, fully accredited driver training programs.

II. Comments to Proposed Rule

a. A Minimum Standard of 120 Hours will Cause Commercial Driving Students and Programs to Lose Eligibility for Federal Student Aid

A 120 hour minimum training standard would have the unintended consequence of causing commercial driving students and programs to lose current access to federal student assistance administered by the USDOE and appropriate military educational benefits. Currently, many rigorous driver training programs satisfy USDOE requirements that programs be of sufficient length in order to receive federal student aid, including federal Pell Grants ("FSA funding"). USDOE rules state, however, that a vocational program is *not* eligible for FSA funding if the program *exceeds by more than 50% the minimum number of clock hours* required for training in a recognized occupation *as established by* a state *or federal agency*. *See* 34 CFR 668.8(e)(iii) and 668.14(b)(26). Specifically, 34 CFR 668.14(b)(26) states:

> (26) If the stated objectives of an educational program of the institution are to prepare a student for gainful employment in a recognized occupation, the institution will—
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> (i) Demonstrate a reasonable relationship between the length of the program and entry level requirements for the recognized occupation for which the program prepares the student. The Secretary considers the relationship to be reasonable if the number of clock hours provided in the program *does not exceed by more than 50 percent the minimum number of clock hours required for training in the recognized occupation for which the program prepares the student, as established by the State in which the program is offered, if the State has established such a requirement, or as established by any Federal agency . . . .*

(Emphasis added.)

Therefore, if the FMCSA establishes a minimum curriculum length of 120 clock hours for entry-level truck driver training, then the USDOE could take the position that under its standards the "maximum" acceptable length of such a program is 180 hours (i.e., 150% of 120 hours).[1] Programs that are 180 hours in length do not meet the minimum thresholds for eligibility for FSA funding, and thus, such programs and the students who attend those programs would not be eligible for financial assistance, including Pell Grants.

The impact of the proposed rule in light of USDOE standards plainly was not envisioned by the FMCSA. According to the FMCSA, the agency "is not aware of any other rules which duplicate, overlap, or conflict with the proposed action." *See* 72 FR 73240. The relevant USDOE Title IV standards that we have identified clearly overlap with the proposed rule and are in conflict with federal student aid access. The proposed rule has the potential to prevent over 15,000 students, who we believe would otherwise attend a comprehensive accredited driver training program in the next year, from receiving FSA funding for their education. This result also has the similarly significant potential of causing accredited institutions to discontinue their truck driver training programs since those programs, and the attending students, would no longer be eligible for FSA funding.[2] If the proposed rule were published in final form, it could trigger an immediate loss of FSA funding for commercial driver training students and the underlying programs, and, just as dramatically, significantly impede highway safety.

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[1] NAAND members believe that the FMCSA is attempting to establish a licensing standard through this rulemaking. However, because the NPRM uses variable language to describe the agency's intent, the USDOE could read the rule to establish a minimum program length (in hours) for training commercial drivers. Although we would dispute such a reading, the risk of such a reading is a matter of profound concern and consequence to each member of NAAND.

[2] Although our schools strongly support the accreditation process as described more fully below, given the costs of maintaining accreditation and acceptable tuition levels for a 120 hour program, it is unlikely that the revenues from such a program could support accreditation. This result would have the further ripple effect of disenfranchising thousands of veterans who would have otherwise utilized their education-related benefits (e.g., the Montgomery G.I. Bill) to enroll in the comprehensive driver training programs currently offered by NAAND schools and other accredited institutions.

b. A Minimum Standard of 120 Hours is Inconsistent with the Proposed Rule's Accreditation Requirement

The proposed rule requires that all commercial driver training programs be accredited. The FMCSA stated in the preamble to the NPRM that one of the reasons it supports accreditation of all commercial driver training programs is because only accredited institutions and programs are eligible for FSA funding (*see* 72 FR 73234). However, the FMCSA is on the cusp of publishing a minimum training standard that could *eliminate* FSA funding and substantially reduce appropriate military education benefits for all commercial driver training students since the commercial driver training programs would arguably then exceed the "maximum" program length permitted by the USDOE.

The preamble to the proposed rule properly recognizes that accreditation by a recognized accreditor demonstrates an important commitment to meeting research-based standards, engaging in continuous improvement, and providing for quality assurance through self evaluation and peer review. And yet, the proposed rule, which could be read to establish a 120 hour minimum training requirement, would have the perverse incentive of discouraging schools from maintaining accredited comprehensive commercial driving programs because accreditation is an expensive and time-consuming process. Accreditation would be of questionable value for programs that could not serve a large population of students who might otherwise want to attend commercial driver training programs but are unable to do so because they cannot obtain FSA or veterans program funding. On the other hand, if the 120 hour minimum requirement were eliminated from the proposed rule as NAAND is recommending, this would ensure that adequate economic incentives exist for training institutions to seek and maintain accredited comprehensive driver training programs that produce well prepared commercial drivers.

c. A Minimum Standard of 120 Hours of Instruction is Arbitrary

The establishment of a 120 hour minimum program length for entry-level driver training is arbitrary because the proposed rule does not state the basis for its assignment of a set number of hours of training for any subject matter and because it assumes one-on-one training will occur, which as a practical matter is not how most educational institutions deliver their programs. Indeed, the Model Curriculum suggests a curriculum of 320 hours (well beyond the 120 suggested in the NPRM), and our curricula teach beyond the Model Curriculum. *See* 72 Federal Register 73227, December 26, 2007 and Annex A attached hereto reflecting a side-by-side comparison of the FMCSA proposed training program to a typical comprehensive program certified by the Professional Truck Driver Institution ("PTDI").

All members of the Commercial Vehicle Training Association ("CVTA"), of which the undersigned are members, offer commercial driver training programs significantly longer than the proposed 120 hours of training and many of these programs exceed PTDI standards. These programs are longer than 120 hours because, among other reasons, they are provided in a classroom setting, not in the one-on-one training setting assumed in the proposed rule.[3] Classroom training also requires a longer

[3] We disagree with the reference to the time a student spends observing classmates driving as "unproductive waiting time." This time is often quite productive for the student, who is able to learn while observing the instruction provided to fellow students. Observation is a proven educational delivery method and offers students a different perspective of the road.

program period to ensure that the majority of students receive and grasp the instructional materials. Most significantly, however, our programs tend to be longer than 120 (or 320) hours because our programs do not focus on providing a bare minimum of instruction in order to pass the CDL exam, which is the objective of the proposed rule. Accredited programs are developed under peer reviewed standards with the goal of preparing professional commercial drivers to engage in long-term commercial driving careers. The value offered by comprehensive commercial driver training programs, and the consequential enhancement to highway safety, will be lost if the proposed rule's 120 hour de facto "maximum" requirement is retained by the FMCSA.

Accredited driver-training schools have been proactively diligent and forward thinking in developing a safe and effective program in advance of a requirement to do so. The typical comprehensive curriculum of a PTDI certified training program teaches several important subject matters not sufficiently covered in the proposed curriculum, such as the operation of special rigs, cargo documentation, fuel conservation, progressive shifting, transportation operations, principals of first aid, personal health and safety, and public and employer relations. See Annex A attached hereto. The inclusion of these critical training topics—many, if not almost all of which impact safety issues—is only possible in programs substantially exceeding the proposed 120 hour standard.

The primary reason set forth in the proposed rule for creating a minimum clock hour standard is that entry-level drivers are not receiving sufficient behind-the-wheel training to be safe and competent on the road. It was this lack of a behind-the-wheel training requirement that concerned the DC Circuit Court in their 2005 ruling. The Court's decision quoted the Final Regulatory Evaluation: Entry Level Driver Training reflecting that "based on the information presented from case studies, a reduction in accidents is possible when training is well designed." See 429 F.3d 1136 at 1142. This Final Regulatory Evaluation was formed from the findings of the Adequacy Report published in 1995 which stated "for a program to be considered 'adequate' it must have on-street training." Id. at 1145 quoting 3 Adequacy Report at B-5. The Court went on to focus attention on the fact that "the best way to enhance safety among truck drivers is to ensure practical but supervised experience handling heavy vehicles." Id. at 1145. The Court questioned why the 2004 final rule lacked any behind-the-wheel training requirement if the Adequacy Report and Final Regulatory Evaluation had both so clearly emphasized the importance of such training. As the Court stated in its ruling, "the agency has adopted a rule with little apparent connection to the inadequacies it purports to address." Id.

Although the proposed rule contains a behind-the-wheel component that was missing from the 2004 rule, it goes too far in creating instructional hour requirements for an entire driver-training program. As evidenced by the Adequacy Report and Final Regulatory Evaluation, behind-the-wheel training is a crucial part of educating safe drivers. As educators of commercial drivers whose mission it is to prepare students for an occupation, we understand the importance of behind the wheel of training in commercial vehicles and support the proposal of a requirement for such training. However, the creation of a minimum hourly standard for an entire driver-training program does not have the intended effect of further improving highway safety. A program-wide 120 hour minimum standard will cause the competitive market for driver training to gravitate toward 120-hour programs – a counterproductive "least common denominator" effect that will satisfy the minimum need of preparing students for a CDL exam but not the mission of educating professional entry-level drivers. This result would also conflict with "the studies cited in the Final Regulatory Evaluation [which] measured the effect of more substantial training." See

429 F.3d 1136 at 1146. The proposed rigid formula thus will not meet the needs of our students or the public and will undermine the public safety objectives behind the proposed rule. The lack of additional training would also mean that graduates of the proposed 120 hour programs would not meet the hiring criteria for commercial drivers maintained by some large and most small carriers.

It would be more prudent for the proposed rule to establish materials that should be covered in a comprehensive driver training program and measure performance according to demonstrated student learning (such as tests). This would create a baseline standard for all training programs and assure the public that drivers applying for a CDL have the necessary on-the-road experience and have achieved requisite performance benchmarks while avoiding establishing what amounts to a "maximum" program length that would prevent students from receiving additional training and FSA funding.

We note in particular the Supplemental Comments provided by the Commercial Driver Training Foundation, Inc. ("CDTFI") to the FMCSA on May 21, 2009, which state that "the whole premise of the performance based approach advocated by CDTFI is that the student can demonstrate that he or she has actually learned the material and is capable of performing the requisite skills necessary to safely operate a commercial motor vehicle on the highways." See pg. 3. CDTFI developed the "Entry-Level Driver Performance Assessment Tool" as an alternative to hour-based curriculums because "counting the inputs [hours] does not take into account the quality of the teaching materials or instructors, the aptitude of the individual student or an assessment of the outcome of the educational effort. Further, . . . the CDL examination that is administered by the States is (of necessity) a limited examination which is not designed to assess whether the student has actually learned the materials." See pg. 3-4 of Supplemental Comment. The CDTFI performance assessment is broken down into two sections: Performance Capabilities and Performance Standards. "Performance Capabilities are those areas of knowledge and demonstrable skills that should be possessed by all commercial drivers. The Performance Standards are the means of measuring (through knowledge and skills assessment) that the driver actually has acquired the knowledge and/or skill." See pg. 4 of CDTFI Comment dated May 23, 2008.

Simply creating a minimum hour standard as a means of evaluating a training program or even particular skills within a training program will not help the FMCSA reach its goal of increased highway safety. A performance based approach such as that developed by CDTFI allows training programs to accurately test students on their progress and evaluate students on knowledge and skills they have gained throughout the training program. This type of assessment is much more critical to highway safety than counting the hours spent in the classroom.

If the FMCSA maintains a minimum behind-the-wheel hourly training component (or whatever behind-the-wheel minimum may be established) we suggest that the FMCSA clarify that completion of this requirement is a pre-requisite to sit for the CDL exam and is not a programmatic or occupational standard. The proposed rule reflects the intent to regulate licensure, stating that "successful completion of training required by this proposed rule would ensure that an applicant for a CDL had successfully acquired essential knowledge and skills, based on classroom and behind-the-wheel training, to safely operate a CMV" and that the training requirements "would apply to all persons applying for a CDL." See 72 FR 73231. By clarifying that the requirement to complete a certain number of behind-the-wheel hours is only a requirement for applicants to obtain a CDL and not a minimum standard for driver training programs, the multiple unintended consequences discussed in this comment could be mitigated. If the

distinction was amply clear, driver training programs would be allowed to provide the additional training that they believe leads to safer and more experienced drivers without the risk of depriving their students of access to FSA funding and appropriate military educational benefits.

In summary, commercial driving is difficult and fraught with danger, and the training of these drivers should not be constrained by a least common denominator in the form of an arbitrary, and ultimately counterproductive, threshold for minimum training hours. Instead, driver training schools should be required to teach a certain set of skills and should be judged based on whether their students are able to demonstrate a mastery of those skills. Our schools' longer programs appropriately provide training beyond that needed to obtain a CDL. This additional training allows graduates to progress more rapidly in their finishing training and ensures that short-distance drivers, for whom finishing training often is not required, are better qualified to immediately command their vehicles and are better prepared to operate these vehicles in a safe manner. Since the goal of the proposed rule is to provide for safer highways, the rule should not require schools to reduce the length and content of their training programs. And yet, the creation of a 120 hour minimum standard would have the effect of eliminating any additional training that such programs offer and of making entry-level commercial drivers less experienced and less safe on the roads – the opposite anticipated result of the proposed rule.

III. Proposed Resolution

The FMCSA should address the concern raised by the DC Circuit in its 2005 ruling and state minimum instructional requirements and learning outcomes for behind-the-wheel training. There is no doubt that behind-the-wheel training is a vital part of highway safety and it is for that reason we support a behind-the-wheel training requirement. However, the final rule should not include a minimum hourly standard for behind-the-wheel training or for a complete driver training program.

In addition, the standards set by the FMCSA should clearly apply to an individual's ability to obtain a CDL and should not be presumed to establish a programmatic or occupational standard, and the preamble to the final rules should so specify. This would allow schools to offer the longer programs they believe necessary to adequately prepare professional commercial drivers without the risk of losing FSA funding for their students because of a minimum program or entry-level standard established by the FMCSA.

Further, if the FMCSA maintains the 120 hour minimum training requirement in the final rule, which we advise against, then that requirement should, by definition, and by thorough explanation in the preamble, apply only to schools and programs not accredited by an institutional accreditor recognized by the USDOE and eligible for FSA funding at the time of the rule's enactment. As noted, accredited commercial driver training programs are developed through a careful, proven, peer-review process assuring program quality. These accreditation standards, and the fact that the programs do not aim to teach the bare minimum needed to obtain a CDL, cause such programs to be more comprehensive than unaccredited programs. Commercial driver training programs accredited by an institutional accreditor recognized by the USDOE and eligible for FSA funding, including Pell Grants, must meet minimum USDOE program length standards which well exceed 120 hours of instruction. As a result, such programs clearly meet and exceed the proposed minimum training requirement proposed by the FMCSA.

If the ultimate goal is to create safer highways, allowing accredited institutions to determine the length and focus of their programs meets that goal. In contrast, a rule that sets a minimum program length will have the effect of eliminating programs that are already accredited and eligible for FSA funding, thereby undermining public safety and barring tens of thousands of future drivers from gaining access to the comprehensive curricula currently offered through such accredited programs. The FMCSA will improve highway safety by exempting such accredited programs from any final hourly training requirement.

IV. Conclusion

The FMCSA's proposed minimum standard could have the overall effect of impairing the training of entry-level drivers and, consequently, negatively impacting highway safety. The proposed standard would trigger this effect in part by establishing a "minimum" training standard which would soon become a de facto industry "maximum" training standard. Such a minimum training standard also could completely eliminate the availability of federal financial aid for commercial driver training students wishing to attend comprehensive programs and substantially reduce by thousands of dollars military educational benefits, thus depriving such students of the ability to obtain such training. As such, the proposal also will economically jeopardize the ability of accredited schools to offer the most comprehensive and qualitative driver training programs available today—programs which have been carefully crafted in accordance with established industry and accreditation standards – thereby causing the industry to lose access to thousands of potentially highly qualified entry-level professional drivers.

We respectfully request the FMCSA to 1) set performance standards (including validated testing) for all aspects of the commercial driver training curriculum including behind-the-wheel training, 2) clarify that any proposed hourly requirements are relevant to obtaining a CDL only, and are not intended to constitute a minimum curricular or instructional standard or program length, or in any way inhibit students from obtaining additional in-school or experiential training in order to become entry-level commercial drivers, and 3) exempt from any program length requirement those institutions currently accredited by an accrediting agency recognized by the USDOE, and offering commercial driver training programs that are eligible for FSA funding (and therefore exceed the current proposed minimum CDL training requirement).

Thank you for the opportunity to comment on the proposed rule.

Annex A

SIDE BY SIDE COMPARISON OF
PROPOSED CURRICULUM AND TYPICAL COMPREHENSIVE CURRICULUM

PROPOSED CURRICULUM OUTLINE	**TYPICAL COMPREHENSIVE CURRICULUM OUTLINE** **This curriculum is based on the Model Curriculum with updated material for CDL requirements and current industry needs.** ***(NOTE: The items in Bold are <u>not</u> included in the proposed regulations and as a result of the proposed regulations being finalized in its current form may be eliminated for curriculums in the future)***
Section 1—Basic Operation *[MINIMUM HOURS—Classroom—20; BTW—24; Total Hours—44]* The units in this section must cover the interaction between the driver and the CMV. The student will receive instruction in the Federal Motor Carrier Safety Regulations (FMCSRs) and will be introduced to the basic CMV instruments and controls. The student will also receive basic instruction in the Hazardous Materials regulations issued by the Pipeline and Hazardous Materials Safety Administration (PHMSA). The units in this section must also teach entry-level CDL driver-trainees how to properly perform vehicle inspections, control the motion of CMVs under various road and traffic conditions, shifting and backing techniques, and how to properly couple and uncouple tractor-trailers. During the off-street driving exercises required by this section, entry-level CDL driver-trainees must first familiarize themselves with the basic operating characteristics of a CMV. Then, students must be able to perform the skills in each unit to a level of proficiency required to permit safe transition to on-street driving. *Unit 1.1—Orientation.* This unit must introduce students to the tractor-trailer driver-training curriculum and the components of a tractor-trailer. The student will learn the safety fundamentals, essential regulatory requirements (i.e., overview of FMCSRs/HM regulations), and driver responsibilities not directly related to driving. This unit must also include an overview of the applicability of State and local laws relating to the safe operation of the CMV.	Section 1 – Basic Operation *Unit 1.1—Orientation.* This unit introduces – **- the major parts of a tractor-trailer.** **- how the trucking industry operates.** **- the objectives of this training course.** **- rules needed to be followed in class.** **- safety rules needed to be follow on the range and when driving on the street.** **- how rating and grading is determined during the course.** **- what must be accomplished to pass the course and graduate**. **- Commercial Driver License requirements** **- Hazardous Material Endorsement requirements** **- how to obtain a Transportation Worker Identification Card** Most of the information will be presented in classroom lessons. There will be a short lab class during which an examination of a tractor-trailer and identification of key parts. Outline of Classroom Lessons: **Orientation to Tractor-Trailer Driving Training** **I. Background to Tractor-Trailer Driving** **A. Importance of Trucking Industry** **B. Regulation of Trucking Industry** **C. Definition of a Professional Driver** **II. Brief Review of the Course Contents** **A. Section 1 - Basic Operation** **B. Section 2 - Safe Operating Practices**

	C. Section 3 .- Advanced Operating Practices **D. Section 4 - Vehicle Maintenance** **E. Section 5 – Non-vehicle Activities** **III. School Rules for Students** **IV. Tips of How to Study** **V. Student Evaluation Procedures**
Unit 1.2—Control systems. This unit must introduce students to vehicle instruments and controls. The student will learn to read gauges and instruments correctly and learn proper use of vehicle safety components, including safety belts and mirrors. The student will also learn to identify, locate, and explain the function of each of the primary and secondary controls including those required for steering, accelerating, shifting, braking, and parking.	*Unit 1.2—Control systems.* This unit focuses on: -the name, location, and function of each of the primary controls including those required for steering, accelerating, shifting, braking, and parking. -the name, location, and function of each of the secondary controls including those required for control of lights, signals, windshield wipers and washers, interior climate, engine starting and shutdown. -the name, location, function, and the acceptable reading range of the various, gauges and instruments required to monitor vehicle and engine speed, as well as status of fuel, oil, air, cooling, exhaust, and electrical systems. -the importance of checking the instrument panel regularly so problems can be spotted early. Most of this unit will be a classroom session to familiarize the student with the purpose and function of the controls and instruments commonly found on a truck tractor. During the lab lesson, the instructor will point out the controls on a truck tractor and, where possible, demonstrate the operations. Outline of Classroom Lessons: Introduction to Vehicle Instruments and Controls 1. Function and Operation of Vehicle Controls A. Controls Related to Starting and Stopping the Engine B. Primary Vehicle Controls 1. Accelerator Pedal 2. Steering Wheel 3. Clutch Pedal 4. Transmission Controls 5. Brake Controls 6. Optional Controls C. Secondary Vehicle Controls II. Purpose and Function of Vehicle Instruments A. Importance of Instruments B. Basic Instruments C. Pressure Gauges D. Temperature Gauges E. Warning Devices F. Tachometer Description of Lab Lesson: Instrument and Control Familiarization In this lesson, the instructor will take three students at a time on a systematic tour of the tractor-trailer's controls. He will also identify the instruments and warning devices on the tractor and indicate instrument readings for proper operation. At the end of the lesson, student will be able to answer questions concerning the function and operation of vehicle controls and instruments.
Unit 1.3—Vehicle inspection. This unit must stress to students the importance of vehicle inspections and help them develop the skills necessary for conducting pre-trip, en-route, and post-trip inspections.	*Unit 1.3—Vehicle inspection.*_The focus of this unit - inspect, and check the condition of important parts of the tractor-trailer, including instruments and controls; engine and drive train; chassis and suspension; steering system; braking system; tires, wheels, and rims; lights and signals; coupling system; emergency equipment; and equipment used to secure cargo. - make pre-trip inspections correctly and quickly. - make enroute inspections by checking mirrors for signs of trouble, checking instruments and watching for other signs that there is a problem, and by stopping from time to time for a walk around inspection, especially when students are transporting dangerous cargo. - make post-trip inspections by properly noting problems student had on the

	trip and vehicle parts that are not working correctly. - a systematic procedure for making a quick and complete inspection. - why an undiscovered malfunction or vehicle problem can be unsafe and cost time and money. - the importance of having malfunctions corrected quickly. - Federal, State, and other regulations on inspections, including special regulations for hazardous cargo and the driver's responsibility for inspections. - procedures for performing post-trip inspections The unit begins with a classroom session that covers the objectives of inspections, types of inspections, and proper procedures. The majority of the unit wi1l be devoted to range demonstration and student practice and making inspections and detecting malfunctions and potential problems. Outline of Classroom Lesson: Vehicle Inspections: Procedures I. Types of Vehicle Inspections and Their Importance II. What to Look For When Inspecting Vehicles A. Fluid Leaks B. Interference with Visibility C. Bad Tires D. Wheel and Rim Defects E. Braking System Defects F. Steering System Defects G. Suspension System Defects H. Exhaust System Defects I. Coupling System Defects J. Cargo Problems III. Pre-trip Inspection Procedures A. Characteristics of a Good Pre-trip Inspection B. Federal Requirements C. Inspection Procedures IV. Enroute and Post-Trip Inspections V. Additional Procedures for Special Vehicles A. Twin Trailers B. Tankers C. Refrigerated Units VI. Reporting Findings Description of Lab Lesson: Vehicle Inspections: Practice This lesson begins with a demonstration of the pre-trip inspection procedure by the instructor and questions by students. In the second part of the lesson, the students will practice the pre-trip inspection procedure. **One student will inspect the vehicle for real or simulated defects, describing out loud what he is doing as he goes. The remaining students wi1l observe his progress, noting any mistakes he makes.** Students will take turns inspecting and observing on different days, to avoid having overly long, fatiguing lab sessions.
Unit 1.4—Basic control. This unit must introduce basic vehicular control and handling as it applies to tractor-trailers. This must include instruction addressing basic tractor-trailer controls in areas such as executing sharp left and right turns, centering the vehicle, and maneuvering in restricted areas.	*Unit 1.4—Basic control.* Learning in the unit will focus on: - check the trailer coupling before driving each day. - to put the vehicle in motion and accelerate smoothly, forward and backward. - stop the vehicle smoothly. - back the vehicle in a straight line. - put the vehicle in position to turn and make left and right turns. - the procedures for starting, warming up, and shutting down the engine. - the problems caused by idling longer than necessary. - how the length of vehicle's wheelbase, articulation (tractor and trailer); and the number of axles will affect the path of a turn and the "off-track" of the rear of the vehicle. - where to put vehicle before a turn, how to make a turn correctly and how to recover from a turn. - manufacturer's specifications for engine operation. - use of the accelerator and clutch so that accelerate can be smooth and

	avoid clutch abuse. - use of air brakes correctly so that stopping can be smooth. - steer, brake, and accelerate correctly so that vehicle can keep on a proper path forward and back in a straight line. - judge the "off-track" of the rear of vehicle on left and right turns and curves. Most of the learning in this unit will take place during practice on the range. First, there will be a short classroom session to present the information needed and to help get ready for range practice. Outline of Classroom Lessons: Introduction to Basic Control Maneuvers I. Starting, Warming Up, and Shutting Down the Engine A. Starting the Diesel Engine B. Starting the Gasoline Engine C. Fuel Efficient Starting D. Engine Warmup E. Engine Shutdown F Excessive Idling II. Putting the Vehicle in Motion and Stopping A. Putting the Vehicle in Motion B. Testing the Tractor-Trailer Hookup C. Stopping the Tractor-Trailer III. Backing in a Straight Line A. Positioning the Vehicle Properly B. Proper Speed C. Steering D. Starting Again IV. Turning the Vehicle A. Basic Rules B. Off-Tracking C. Right Turns D. Left Turns E. Right and Left Curves
Unit 1.5—Shifting. This unit must introduce shifting patterns and procedures to the students so that they can proficiently perform basic shifting maneuvers. This must include training each student to execute up and down shifting techniques on multi-speed dual range transmissions.	*Unit 1.5—Shifting.* Instruction on: - shift up and down through all gears of all major types of conventional transmissions, including auxiliary transmissions and multi-speed axles. - double-clutch and time shifting for smooth and fuel-efficient driving. - select the proper gear for speed and highway conditions. - operate a fully automatic and semi-automatic transmissions - shifting procedures for vehicles used in this training course. - the instruments and controls needed for proper shifting. - the shift patterns of all major types of conventional transmissions. - common shifting errors and the problems they cause. There will be a short classroom session covering basic shifting rules and terms, and describing shifting patterns and procedures for common transmissions. The rest of the unit will be devoted to gear shifting practice on the range. Outline of Classroom Lessons: Shifting Procedures I. Key Elements of Shifting A. Shifting Controls B. When to Shift C. Double Clutching II. Shift Patterns and Procedures A. Clark Five Speed B. Spicer 4x3 C. 10 Speed Road Ranger D. 13 Speed Road Ranger E. Two-Speed Rear Axle III. Shifting Automatic and Semi-automatic Transmissions A. Fully Automatic Transmissions B. Semi-automatic Controls and Procedures

Unit 1.6—Backing. This unit must prepare students to back-up the tractor-trailer safely. *Unit 1.7—Coupling and uncoupling.* This unit must provide instruction for the student to develop the skills necessary to conduct the procedures for safe coupling and uncoupling of tractor-trailer units.	IV. Consequences of Improper Shifting Description of Range Lesson: Development of Shifting Skills In this lesson, acceleration, up shifting to third gear, and decelerate, downshifting back to first. Stop and back to original position. The instructor will be looking to see if over revving or lugging the engine or if too long to shift or miss any shifts *Unit 1.6—Backing.* Lessons will include: - back in a straight line and on a curved path. - back into an alley dock. - parallel park. - park in a jackknife position. - judge side, rear, and overhead clearances and the path of the trailer. - warn others that the truck is backing. - check to the rear before backing. - correct procedures for backing and parking. - the position vehicle should be in before student start to back. - the correct way to steer an articulated vehicle (tractor-trailer) in reverse. - why backing is dangerous and why the need to avoid all unnecessary backing, particularly blind-side backing. - the importance of checking the area before backing and of using a guide or helper whenever possible during backing. The unit begins with a brief classroom lesson to familiarize students with the procedures for backing maneuvers and to explain the precautions required for backing safely. The rest of the unit is spent in training with tractor-trailers on the driving range. Outline of Classroom Lessons: Backing Procedures I. Backing Principles and Rules A. Steering Principles B. Types of Backing Maneuvers C. Rules for Safe Backing D. General Procedures II. Four Basic Backing Maneuvers A. Straight-Line Backing B. Alley Dock Backing C. Jackknife Parking D. Parallel Parking Description of Range Lesson: Development of Backing Skills This unit consists of range exercises to give student practice in backing and parking maneuvers. Student must park without hitting course markers or boundaries and without having to restart the exercise more than three times. Student must also park within a certain distance from the curb. *Unit 1.7—Coupling and uncoupling.* Student will learn how to - align the tractor properly to connect with the trailer. - secure the trailer to prevent it from moving while coupling and uncoupling. - back the tractor properly to the trailer to prevent damage. - check ensure the coupling is secure. - connect and disconnect electrical and air lines properly. - raise and lower trailer landing gear properly. - the procedures for proper coupling and uncoupling. - the hazards of improper coupling and uncoupling. There will be a brief classroom session to familiarize student with coupling and uncoupling procedures and required precautions. The rest of the unit is

Unit 1.8—Proficiency development. The purpose of this unit is to enable entry-level CDL driver-trainees to gain proficiency and demonstrate the skills taught in Units 1.1 through 1.7. The activities of this unit must consist of driving exercises that provide practice for the development of basic control skills and mastery of basic maneuvers. Nearly all activity in this unit will take place on the driving range or on streets or roads that have low-density traffic conditions.	spent in practice on the range. Outline of Classroom Lesson: Coupling and Uncoupling 1. Overview of Coup1ing Procedures II. Detailed Step-by-Step Procedures III. Uncoupling Procedures IV. Summary of Safety Hazards V. Coupling and Uncoupling Twin Trailers Description of Range Lessons: Coupling and Uncoupling Skills This lesson begins with an instructor demonstration of coupling and uncoupling procedures. **Students will then work in teams of three and practice the procedures. One student will read the procedures from the checklist while the other demonstrates the procedures, describing out loud what he/she is doing as they proceed.** As this course continues, students will receive further practice coupling and uncoupling on the school vehicles as they are being prepared for the street and range activities, and at the end of the day when the units are separated for cleaning and maintenance. *Unit 1.8—Proficiency development: Basic Control*. The purpose of this unit is to help the student develop and improve his driving skills, including the skills needed to - maneuver through a series of sharp turns in both forward and reverse. - maneuver into areas that are restricted to the rear, sides and front in both straight-line and jackknife positions. - parallel park. - judge the position of the right front wheel. - judge clearances to the rear, the sides and above vehicle. - accelerate and brake smoothly and control vehicle well enough to drive on the street safely. Nearly all activity in this unit will take place on the range. There will be a brief classroom session to familiarize students with the exercises that will be performed on the range and how their performance will be rated. Outline of Classroom Lesson: Introduction to Proficiency Development ·Exercises 1. Description of Range Exercises and Practice A. Purpose B. Backing - Straight Line C. Offset Alley Exercise D. Alley Dock Backing Exercise E. Serpentine Exercise - Forward and Reverse F. Parallel Parking Exercise G. Controlled Stop Line Exercise H. Overhead Clearance Exercise II. Description of Pre-Street Range Test A. Purpose B. General Description of Exercises C. Description of Standards for Range Exercises D. Scoring of Pre-Street Range Test II 1. On-street Proficiency Development Exercises A. Purpose B. Routes C.· Procedure D. Eva1uation Description of Range Lesson: Proficiency Development Exercise This lesson is intended to give students an opportunity to increase their driving proficiency. Students have already practiced some of these

	exercises in earlier units. The exercises in this lesson also serve as practice for the Pre-Street Range Test. In this lesson student will be practicing 9 exercises which are: 1. Backing - Straight Line Exercise 2. Offset Alley Exercise 3. Alley Dock Exercise 4. Alley Dock - Jackknifed Exercise 5. Serpentine - Forward Exercise 6. Serpentine - Reverse Exercise 7. Parallel Parking - Jackknifed Exercise 8. Controlled Stop Line Exercise 9. Overhead Clearance Exercise Each of these exercises will be performed at three different levels of difficulty. As the student masters the exercise on one level he/she will move up to the next. In addition, the serpentine exercise which was performed moving forward in Unit 1.4 will be performed moving forward and backward in this unit. In the final exercise, Overhead Clearance, student will approach an obstacle across path and judge whether or not student can move the tractor-trailer under it without hitting it. If student thinks that the obstacle is too low to pass under safely, student must ask to have it adjusted before student proceeds. If student think it is high enough, student must proceed under it. ***Unit 1.8—Special Rigs.*** **Students will learn to** **- recognize the most frequently encountered special rigs.** **- determine whether student can safely operate any type of special rig.** **- the function, operating characteristics, physical dimensions, special features and hazards of special rigs.** **- the hazards of attempting to operate a rig that student are not qualified to operate.** **This unit will begin with a classroom session in which the common types of special rigs will be described. This unit may also include a field trip to allow students to see special rigs first hand.** **Outline of Classroom Lesson:** **Characteristics of Special Rigs** **I. Multiple Articulation Vehicles** **II. Oversized Vehicles** **III. Low Clearance Vehicles** **IV. High Center of Gravity Vehicles** **V. Special Cargo Vehicles** **VI. Special Handling Vehicles** **Description of lab lesson:** **Observation of Special Rigs** **This is a field trip lesson designed to give student an opportunity to observe special rigs. Throughout this course, during the on-street activities, the instructor may ask student to identify and describe special rigs that are seen.** Section 2—Safe Operating Practices **Presentation of the National Traffic Safety Institute – Defensive Driving Course**
Section 2—Safe Operating Practices *[MINIMUM HOURS—Classroom—8; BTW—17; Total Hours—25]*	*Unit 2.1—Visual search.* Student will learn to

The units in this section teach the practices required for safe operation of the tractor trailer on the highway. Entry-level CDL driver-trainees must be taught how to apply their basic operating skills in a way that ensures their safety and that of other road users under various road, weather, and traffic conditions. *Unit 2.1—Visual search.* The purpose of this unit is to enable students to visually search the road for potential hazards and critical objects.	- maintain a minimum 12-second eye lead time. - scan both sides of the road using quick glances to observe roadside activity and vehicles near student. . - check mirrors for hazards frequently, particularly before changing speed or direction. - check instrument panel frequently. - look ahead as far as possible during turns and on curves. - check to the side before turning *or* changing lanes. - monitor overtaking traffic in order to be aware of vehicles behind the vehicle and in blind spots at the side of the vehicle. - avoid diverting attention from the path ahead of student for longer than a second at a time. - adjust mirrors properly. - maintain a straight line path whenever taking eyes off the road ahead. - the differences between flat and convex mirrors and how to use them. - the importance of checking mirrors and checking to the sides and rear quickly in order to 1imit the time that eyes are off the road ahead. - the relationship between speed and sight distance - the search patterns appropriate for straight driving, changing speed or direction and entering or crossing traffic. The unit will begin with a classroom lesson covering the importance of proper visual search and proper methods. Following a range exercise, students will practice search activities during on-road driving. Outline of Classroom Lesson: Visual Search Principles in Driving I. Seeing Ahead and to the Sides A. Importance of Seeing Properly B. Distance Scanning C. Scanning to the Sides D. Problem-Solving II. Use of Mirrors A. Importance of Mirrors B. Two Types of Side Mirrors C. Taking Care of Mirrors D. Problem-Solving III. Seeing to the Rear A. Using Mirrors to Monitor to the Rear B. Using Mirrors to Check to the Rear When Changing Speed or Position C Problem-Solving IV. Commentary Driving A. The Basic Process B. General Rules Description of Lab Lesson: Use of Mirrors In this lesson, student will learn how to adjust vehicle's mirrors to reflect the proper view of the roadway and how to judge distances using mirrors. Description of Street Lesson: Application of Visual Search This lesson is intended to give student an opportunity to apply principles of visual search to on-street operation. In the first part of the lesson student will be driving in 1ight traffic. Later, student will be using commentary driving techniques to let the instructor know where student is looking as student drives. **Students will be in groups of three students for every instructor. Student will take turns driving and observing the other student's driving. While student are an observer, student will keep track of the driver's performance using the observer checklist** *Unit 2.2—Communication.* Student will learn

Unit 2.2—Communication. The purpose of this unit is to enable students to communicate their intentions to other road users (e.g., proper signaling). Students will learn techniques for different types of communication on the road.	- to cancel turn signals after the trailer has completed a turn and is straightened out. - to flash brake 1ights to warn following drivers that vehicle is slowing or stopping. - to use four-way flashers according to State laws and company policies. - to use headlights in daytime under conditions of low visibility. - to position vehicle where it can be seen by- other drivers. - to use horn and lights properly to prevent collisions. - the importance of using signals to tell other drivers when student plans to change position in traffic. - the importance of limiting the use of the CB radio to communications that are important to safety and for maintaining traffic flow. - laws and regulations on the use of signals and lights. - why good communication helps to avoid collisions and violations. - how to send and receive communications with other highway users. The unit will begin with a classroom lesson dealing with the principles and procedures for proper communications and the hazards of fai1ure to signal properly. The remainder of the unit is devoted to practice of proper communication during on-road driving. Outline of Classroom Lesson: Principles of Communication I. Communicating Intent A. Signaling When Changing Position in Traffic B. Communicating Intent to Slow or Stop C. Keeping the Size of Vehicle in Mind D. Inadvertent Signals II. Communicating Presence A. Using Horn to Communicate Presence B. Using Horn to Communicate Danger C. Using Lights to Communicate Presence III. Misuse of Communications A. The Horn B. The CB Radio IV. Communications from Others V. Problem-Solving Exercises A. Application of Basic Rules for Signaling B. Discussion of Problems Created by Poor Signaling Description of Street Lesson: Application of Communication In this lesson Student will apply the principles of communication taught in the classroom to on-street driving. **Students will be in groups of three and will take turns driving and observing. While student is an observer, will keep track of the driver's performance using the observer checklist.**
Unit 2.3—Speed management. The purpose of this unit is to enable students to manage speed effectively in response to various road, weather, and traffic conditions. Emphasis must be placed upon maintaining	*Unit 2.3—Speed management.* Student will learn - to adjust speed to the configuration and condition of the roadway; weather and visibility conditions; traffic conditions; vehicle and cargo conditions; and own condition. - to obey the legal speed limit. - how speed is related to stopping distance, hydroplaning, crash severity, the ability to maneuver and fuel 'economy. - how maximum safe speed depends on vehicle weight, center of gravity, stability, available sight distance and road surface conditions. - how to judge maximum safe speed, including the speed at which a curve can be entered. - why the posted speed limit is not always safe. Most of the learning in this unit will take place in the classroom. There will be a brief lab session demonstrating the effects of speed upon stopping distance and vehicle maneuverability. Outline of Classroom Lesson:

safe vehicular speed. *Unit 2.4—Space management.* The purpose of this unit is to enable students to manage the space required for safe vehicle operation. Emphasis must be placed upon maintaining appropriate space surrounding the vehicle under various traffic and road conditions.	Speed Management Principles I. Speed and Stopping Distance A. Importance of Speed Management B. Braking Distance C. Driver Response Time D. Stopping Distance II. Speed and Surface Conditions A. Friction and Traction B. Hydroplaning C. Icy or Snowy Roads III. Speed and the Shape of the Road A. Adjusting Speed for Curves B. Adjusting Speed for Grades IV. Speed and Visibility A. Speed and Sight Distance B. Speed and Field of Vision C. Adjusting Speed to Reduced Sight Distance V. Speed and Traffic Flow A. Influence of Traffic on Speed Management B. Speed Management When Entering and Exiting Traffic VI. Obeying the Speed Limit A. Speed Limits Based on Principles of Speed Management B. Reasons for National Speed Limit C. Speed and Risks D. Penalties for Speeding E. Why Drivers Exceed Speed Limit VII. Class Discussion: Problems Created by Speed Description of Lab Lesson: Speed Management Demonstration This lesson is a demonstration of the effects of speed on stopping distance and maneuverability. In the first demonstration, a student driver will drive a school vehicle in four runs at 10, 15, 20, and 25 mph. An instructor will ride with the student. At a certain point in each run, he or she will be instructed to stop as quickly as possible. Observes will then compare the student's reaction time distance, braking distance and total stopping distance for each run. In the second demonstration a student driver will attempt to drive a serpentine course in three runs at 10, 15, and 20 mph. Students will then discuss the effects that speed had on the student's ability to maneuver in each run. *Unit 2.4—Space management.* Students will learn - to select the traffic lane that offers the best mobility and least traffic interruption. - to choose a safe gap for changing lanes, passing other vehicles, and crossing or entering traffic. - to position vehicle correctly within a lane and relative to crosswalks, so that student don't create hazards for other road users. - to position the tractor and trailer correctly before and during a turn to prevent other vehicles from passing on the wrong side and to prevent problems caused by off-tracking. - to maintain a safe following distance according to amount of traffic, condition of the road, visibility and vehicle weight. - to avoid structures having inadequate overhead clearance. - the importance of separating vehicle from traffic on the roadway when it is disabled. - the appropriate following distance for various conditions. - State regulations about following distance, lane use, changing lanes and passing. - the importance of maintaining space around vehicle so that student have room to maneuver in an emergency. - the importance of checking the position of vehicle and of other vehicles by using mirrors. - the dangers created by overhead obstructions.

This unit begins with a classroom lesson in which students will learn techniques for, and the importance of, controlling the space around vehicle. Second lesson will apply the principles learned in the classroom to actual street operation.

Outline of Classroom Lesson:

I. The Importance of Space Management
II. Space Cushion Concept Space Ahead
- A. Following Distance
- B. Managing Space to the Rear
- C. Legal Requirements for Following Distances
- D. Class Discussion: Why Do Some Tractor-Trailer Operators Follow Too Closely?

III. Space to the Sides
IV. Manage Space to the Sides
- A. Positioning the Vehicle Properly
- B. Compromising Space
- C. Separating Hazards

V. Space for Traffic Gaps
- A. Definition of Gap
- B. Difficult Skill to Master
- C. Differences Between Car and Tractor-Trailer for Handling Gaps
- D. Situations Requiring Adequate Gaps
  1. Crossing and Entering Traffic
  2. Passing
  3. Merging
  4. Railroad Crossings

VI. Giving Space to Others
- A. Principles of Right-of-Way
- B. Avoid Hindering Traffic
- C. Discussion of Space Management Principles

Description of Street lesson:

Application of Space Management
In the first exercise of this lesson, student will be recording the length of time it takes to cross traffic at an intersection, enter traffic at an intersection and pass a vehicle ahead. A student will drive while the instructor times the maneuvers with a stopwatch.

In the second exercise of this lesson, student will practice deciding when a gap is large enough to allow entry to traffic, cross traffic or pass a vehicle ahead. To practice judging gaps in crossing and entering traffic, student will be stopped at an intersection. The instructor will pick out an approaching car. Student will say "now" at the last moment that he/she thinks pulling out and entering or crossing traffic is safe. The instructor will time the interva1 between when the student says “now” and when the car crosses the truck’s path. He will then compare the time it took in the first exercise, to pull into or across traffic, to the length of the gap chosen in this exercise.

To practice judging gaps in passing while driving down a two-lane road. As a car approaches in the opposite direction, student will say "now" at the last moment that he/she thinks a safe pull out, pass a vehicle ahead and pull back into lane. The instructor will time the interval between when the student says "now" and when the oncoming car passes by. He will then compare the time it took the student in the first exercise to pass a vehicle ahead, to the length of the gap student chose in this exercise.
In the third exercise in this lesson student will apply the principles of space management taught in the classroom to on-street operation. **Students will take turns driving and observing. While the student is observer, he/she will keep track of the driver's performance using the observer checklist.**

Unit 2.5—Night operations. Student will learn

- to adjust speed, following distance, and gap selection to nighttime conditions.

Unit 2.5—Night operations. Students will learn how to operate safely at night. Emphasis must be placed upon the factors affecting operation of CMVs at night. Night driving presents specific factors that require special attention on the part of the driver. Changes in vehicle safety inspection, vision, communications, speed, and space management are needed to deal with the special problems night driving presents.	- to use high beams wherever legally permitted. - to dim headlights in accordance with State laws and to minimize glare for other drivers. - to respond safely to the glare of other vehicles by averting eyes. - to use auxiliary lighting properly. - how the level of illumination affects ability to see. - State laws on the use of headlights and other vehicle lights. - the symptoms and danger of fatigue. - the effects of glare on vision. - factors that can reduce night vision. - how to judge speed, distances and separation at night. The unit begins with a brief classroom lesson covering preparation and procedures for night driving. During exercises on the range, student will have an opportunity to practice preparation for night driving and to perform basic maneuvers in darkness prior to on-road night driving. During on-street night operation, student will drive in a variety of nighttime conditions. Outline of Classroom Lesson: Night Operation I. Night Driving Factors A. Driver Factors 1. Vision 2. Glare 3. Fatigue 4. Driver Inexperience B. Roadway Factors 1. Low Illumination 2. Variation in Illumination 3. Familiarity with Roads 4. Other Road Users 5. Drinking Drivers C. Vehicle Factors 1. Headlights 2. Auxiliary Lights 3. Turn Signals 4. Windshields 5. Mirrors II. Night Driving Procedures A. Preparing to Drive at Night 1. Getting self Ready 2. Plan Route 3. Getting the Vehicle Ready B. Driving at Night 1. Avoiding Blinding Others 2. Avoiding Glare 3. Maximizing Visibility 4. Adjusting Basic Driving Techniques Description of Range Exercises: <u>Night Operation: Basic Maneuvers</u> This lesson is intended to give student practice inspecting, coupling, and uncoupling, and driving a tractor-trailer in the dark. In the first exercise, student will practice coupling, inspecting and uncoupling in an unilluminated area. In the second exercise, student will practice basic driving techniques including staying in a lane, following, crossing and meeting other vehicles, and dealing with glare. This exercise will take place either on the range or on the street in light traffic. In the third exercise, student will practice backing and parking in the dark. Description of Street Lesson: <u>Night Operation: On-street</u> This lesson is provided to give student the opportunity to practice basic driving procedures (shifting, braking, etc.) under a variety of nighttime conditions. In the first exercise student will be driving on suburban or rural highways with 1 light traffic, wide lanes, uncontrolled intersections and road edges that are easy to see. In the second exercise student will be

Unit 2.6—Extreme driving conditions. This unit must provide instruction addressing the driving of CMVs under extreme driving conditions. Emphasis must be placed upon the factors affecting the operation of CMVs in cold, hot, and inclement weather and on steep grades and sharp curves. Changes in basic driving habits are needed to deal with the specific problems presented by these extreme driving conditions. Students will also learn proper tire chaining procedures in this unit.	driving on two-lane rural rounds with narrower lanes, little or no street lighting and road edges that are harder to see. In the third exercise student will be driving in city traffic with parked cars on the side of the road, and a high level of background lighting from street lights, neon signs, oncoming cars, etc. **Students will take turns driving and observing. While student is an observer, student will keep track of the driver's performance using the Observer Checklist** *Unit 2.6—Extreme driving conditions.* Driving in Adverse Weather. Student will learn - to prepare for operation in cold weather including activating the front brake limiting valve; removing snow and ice from windows, mirrors, brakes, lights, hand and toe holds, etc.; and installing tire chains when necessary. - to inspect for cold weather operation by paying special attention to coolant level and mixture, heater, defrosters, wipers, washers, tire tread, brakes, lights, reflectors, wiring system, hoses, fuel, exhaust system and fifth wheel. - to provide adverse weather equipment including chains, scraper, shovel and warm clothing. - to make sure that moisture is expelled from the air tanks after each trip. - to obtain weather information before and during trips and adjust trip plan accordingly. - to check for ice accumulation on brakes, slack adjuster, air hoses, electrical wiring and radiator shutters during operation. - to adjust operation of vehicle to weather conditions, including speed selection, braking, making direction changes, and adjusting following distance, to maintain control and avoid jackknifing. - to assure safe operation of brakes after driving through deep water. - use windshield wipers, washers, arid defrosters to maintain visibility. - to observe the road surface for changes in conditions. - the conditions that produce low traction including rain, ice, and mud. - the effects of rain, snow and ice upon the ability to maneuver and stop the vehicle. - causes of, and procedures for, avoiding skidding and jackknifing - the effect of ice, snow, water, mud, snow and debris on operation of the brakes - the need to make sure all wheels are free to turn. Driving in Hot Weather. Student will learn - to check tires, lubrication, levels and operation of cooling system, fan belts, fans and hoses, and see that the radiator is clear of debris - to carry an ample supply of drinking water. - to inspect tires frequently. - to avoid leaving the vehicle if it is disabled in the desert. - procedures for hot weather driving. - the hazards of hot weather driving. - the effect of hot weather upon the vehicle operation. - the effect of hot weather upon- tire pressure and tire life. Driving in Mountains. Student will learn - to check brake adjustment before driving in the mountains. - use right lane or special truck lane when going up grades. - to place the transmission in the appropriate gear for engine braking before starting down a grade. - to use proper braking techniques for long downgrades. - to properly use special speed reduction devices (e.g., engine exhaust brakes).

- to use a truck escape ramp if one is available when brakes fai1 on a downgrade.
- to check the temperature gauge frequently when pulling heavy loads up long grades.
- the effect of vehicle weight and speed upon braking and shifting ability on long downgrades.
- the function and value of escape ramps.
- the meaning and use of percent of grade signs.

Basic information on operating in extreme driving conditions and the hazards that are encountered in extreme conditions will be presented in the classroom. The unit concludes with a range lesson demonstrating the proper procedures for mounting snow chains and for using tow chains and cables to free stuck vehicles.

Outline of Classroom Lessons:

Operation During Extreme Driving Conditions
- I. Adverse Weather
  - A. Tire Chains
  - B. Cold Weather Starting
  - C. Foul Weather Operating Hazards
  - D. Freeing a Stuck Vehicle
- II. Hot Weather
  - A. Vehicle Inspection
  - B. Driving in Desert Conditions
- III. Mountain Driving
  - A. Gravity
  - B. Mountain Pre-inspection
  - C. Operating on Upgrades
  - D. Operating on Downgrades
  - E. Auxiliary Brakes (Speed Retarders)
  - F. Truck Escape Ramps
- IV. Summary

Description of Range Lesson:

Techniques Used During Extreme Conditions
This lesson begins with an instructor demonstration of procedures for mounting snow chains. After the demonstration, each student will have an opportunity to mount and remove a set of snow chains. In the second part of the 1esson, two instructors will demonstrate procedures for using tow chains or cables to free stuck vehicles. **The students will then divide into groups of threes and practice the procedures. Students will take turns hooking up the chains or cables driving the towing vehicle and driving the "stuck" vehicle.**

Unit 2.7—Proficiency development. The purpose of this unit is to permit students to practice what students have learned in other units so that students can reach the level of skill required to drive a tractor-trailer safely.

This unit begins with a brief classroom lesson describing basic procedures for safe driving. Driving practice will take place in all kinds of traffic, on all kinds of streets, including highway, city, and rural roadways, in all kinds of weather, during daytime and nighttime. **By the time students finish this unit, each student will have completed the minimum requirement of 38.5 hours and 1,000 miles of actual behind-the-wheel time necessary to graduate.**

Outline of Classroom Lesson:

Procedures for Safe Operation
- I. Lane Changing and Passing
- II. Passing
- III. Merging
- IV. Exiting
- V. Turning
  - A. Right Turns
  - B. Left Turns

Unit 2.7—Proficiency development. This unit must provide entry-level CDL driver trainees an opportunity to refine, within the on-street traffic environment, their vehicle handling skills learned in Units 1.4, 1.8, and the safe operating practices learned in Units 2.1 through 2.6. Driver-student performance progress must be closely monitored to determine when the level of proficiency required for carrying out the basic traffic maneuvers of stopping, turning, merging, straight driving, curves, lane changing, passing, driving on hills, driving through traffic restrictions, driving through intersections, and parking has been attained. Driver-students must also be assessed for compliance with all traffic laws. Nearly all activity in this unit will take place on public roadways in a full range of traffic environments applicable to this vehicle configuration. To the extent possible, this must include urban and rural uncontrolled roadways, expressways, or freeways, under light, moderate, and heavy traffic conditions.	VI. Parking Procedures VII. Preparation for Street Lessons A. Description of Street Lessons B. Questions Description of Street, Lessons: Proficiency Development: Safe Operating Practices In this lesson student will be working toward developing proficiency in all the safe driving practices (visual search, communications, speed and space management) that student have been taught in this course. Student will drive on all types of roads and in a variety of traffic and weather conditions. Throughout the practice sessions in Unit 2.7, the instructor will observe student as student drives and help student to correct any errors student are making. Student will complete additional course units involving classroom, range, and street lessons while student continues on-street practice in Unit 2.7. **Throughout this lesson student will take turns driving and observing. As an observer, student will continue to use the Observer Checklist.** **[This method of training will provide 3-4 times the amount of in-truck training than the proposed regulations.]**
Section 3—Advanced Operating Procedures *[MINIMUM HOURS—Classroom—15; BTW—3; Total Hours—18]* The units in this section must introduce higher level skills that can be acquired only after the more fundamental skills and knowledge taught in sections one and two have been mastered. Qualified driver instructors must teach the perceptual skills necessary to recognize potential hazards, and must demonstrate the procedures needed to handle a CMV when faced with a hazard. *Unit 3.1—Hazard perception*. The purpose of this unit is to enable students to recognize potential dangers in the driving environment and to take appropriate defensive action(s) before the dangers develop into emergency situations. The unit must provide instruction	Section 3—Advanced Operating Procedures *Unit 3.1—Hazard perception*. Student will learn to identify conditions and other road users that might or will cause a problem for student. Student will learn - to recognize things that could cause student a problem, such as road conditions; low clearances; and other road users who are not looking at student, cannot see truck, not paying attention, unable to control their vehicle, or could suddenly change their position in traffic. - to take quick defensive or evasive action to avoid problems caused by other road users. - how likely a particular kind of situation is to cause student to have an accident. - how weather, visibility and light (for example, glare in eyes) can make it hard for student to see. There will be a brief classroom session to present basic information on hazard perception and clues for recognition of hazards. Commentary driving will be explained to prepare student for on-street practice. The remainder of the unit will be devoted to on-street driving during which student will practice recognizing and dealing with hazards. Outline of Classroom Lesson: Hazard Perception I. Importance of Hazard Recognition A. What is a Hazard B. Role of Hazard Perception C. Method of Hazard Perception D. learning Hazard Perception E. Source of Clues

addressing the principles of recognizing hazards in sufficient time to reduce the severity of the hazard and neutralize possible emergency situations. Students must identify road conditions and other road users that are a potential threat to the safety of the tractor-trailer and suggest appropriate adjustments. Emphasis must be placed upon hazard recognition, visual search, and response to possible emergency-producing situations encountered by CMV drivers in various traffic situations. Included in this unit should be a discussion of driver distraction issues (e.g., in-cab technology). *Unit 3.2—Emergency maneuvers.* The purpose of this unit is to enable students to carry out appropriate responses when faced with CMV emergencies. These must include evasive steering, emergency braking, off-road recovery, brake failures, tire blowouts, hydroplaning, skidding, jackknifing, and the rollover phenomenon. The discussion must include a review of unsafe acts and the role they play in producing hazardous situations.	II. Road Characteristics A. Nature of Problem B. Surface Conditions C. Shape and Contour III. Road User Characteristics A. Obstructed Vision B. Distracted Drivers C. Confused Drivers D. Low Speed E. Impatient Drivers F. Drunk Drivers Impairment IV. Road User Activities A. Driver Movement B. Vehicle Movement C. Pedestrians/Cyclists D. Conflicts V. Commentary Driving Description of Street Lesson: Application of Hazard Recognition This lesson is included to give student an opportunity to apply the principles of hazard recognition taught in the classroom to on-street operation. Student will be driving on all types of roads and in a variety of traffic conditions. **Students will take turns driving and observing. While students are observing, student will keep track of the driver's performance using the observer checklist.** *Unit 3.2—Emergency maneuvers.* Student will learn - how to bring truck to a stop in the shortest possible distance on a dry surface while controlling direction. - how to make a quick evasive turn on a dry surface. - how to make an evasive turn off of the roadway and back onto it while controlling direction. - how to stop vehicle if brakes fail. - keep control of vehicle if a tire blows out. - why it is easier to turn vehicle than to stop it. - why it is generally safer to leave the roadway rather than risk striking another vehicle head on. - the critical importance of seatbelts in driver safety and vehicle control. Basic information concerning when and how to make emergency maneuvers will be presented in the classroom lesson. The unit concludes with a range lesson during which student will practice three emergency maneuvers. Outline of Classroom Lesson: Emergency Procedures I. Role of Emergency Maneuvers II. Evasive Steering III. Emergency Stop IV. Off-Road Recovery V. Brake Failure VI. Blowouts VII. Emergency Maneuver Exercise VIII. Range Procedures Description of Range Lesson: Emergency Skills This lesson is designed to give student practice at three essential emergency maneuvers: The Emergency stop, Evasive Steering, and the Off-road Recovery. In each exercise, an instructor will ride with student to give student tips on improving performance. In the first exercise student will practice stopping by locking up all the brakes at 10 mph. Then student will practice "stab" breaking techniques at 10, 20 and 30 mph.

Unit 3.3—Skid control and recovery. The purpose of this unit is to teach the causes of skidding and jackknifing and techniques for avoiding and recovering from skids and jackknifes. The student must be able to maintain directional control and bring the CMV to a stop in the shortest possible distance while operating over a slippery surface.	In the second exercise student will practice evasive steering. Student will accelerate to 30-35 mph toward a barrier (Simulated with cones). On the command of the instructor, student will have to turn either right or left around the barrier. Student will perform this maneuver three different ways: once without stopping, once stopping as quickly as possible after making the turn, and once slowing down before making the turn and stopping as quickly as possible after making the turn. In the third exercise, student will practice driving off the road, on to a simulated shou1der area and then back on to the road again. Student will perform this exercise at 10, 20, and 30 mph. At each speed, student will practice both driving completely off the road and driving with just the right wheels off the road. *Unit 3.3—Skid control and recovery.* Student will learn - to keep control of vehicle when student are driving on a slippery surface. - to stop vehicle in the shortest possible distance on a slippery surface while controlling direction. - to recover from a tractor or trailer skid or jackknife caused by snow, ice water, oil or sand. - how skid control prevents accidents. - the importance of checking mirrors often so student can spot a jackknife skid immediately. - what happens in a tractor or trailer jackknife and how they happen. The unit begins with a classroom lesson, during which information will be presented on the causes and major types of skids, along with procedures for recovering from skids. The rest of the unit will be devoted to practice on the range. Outline of Classroom Lesson: Techniques of Skid Control and Recovery I. Role of Skidding in Accidents II. Skid Dynamics A. Friction (Traction) B. Wheel Load C. Forces of Motion D. Three Basic Types of Skids 1. Braking 2. Turning 3. Accelerating E. Preventing Skids III. Tractor-Trailer Skids A. Trailer Jackknife B. Tractor Jackknife C. Front Wheel Skids D. All Wheels Skids E. Summary of Skid Prevention F. Anti-Jackknife Devices IV. Skid Recovery A. Speed Control B. Corrective Steering C. Counter steering D. Braking to Stop V. Range Procedures A. Maneuvers B. Range Safety Rules Description of Range Exercises: Skid Control and Recovery (An Optional Lesson) This lesson begins with a review of the Range Safety Rules. All range exercises in this lesson take place on an area of the range that has been wetted to reduce traction. An instructor will be with student in the cab during each exercise.

	The range exercises begin with three exercises in controlling just the tractor under slippery conditions. The first exercise is the "Tractor Skid" exercise. The first time through this exercise student will completely lock the brakes at 20 mph but will not attempt to control the tractor during the skid. This way student can observe the natural effects of a full skid. After the first run, student will make several more, locking up the brakes and trying to keep the tractor under control and moving in a straight line. Student will continue doing this until student is able to control the tractor with the wheels locked. When student has mastered this maneuver at 20 mph, the speed will be raised to 25, 30 and 35 mph. The next exercise is the "Tractor Stop" exercise. Student will enter the wet portion of the range at 20 mph and attempt to come to a smooth, controlled stop as quickly as possible, keeping the tractor under control and moving in a straight line. Student will repeat this exercise at 25 and 30 mph. The third exercise is the "Tractor Turn and Stop" exercise. Student will enter the wet portion of the range at 15 mph. When the instructor tells student to, student will apply the brakes to slow the tractor down, release the brake and make a quick lane change and then come to a complete stop in a straight line. Student will repeat this exercise at 20, 25, and 30 mph. The 1ast two exercises, the "Tractor-Trailer Stop" and "Tractor-Trailer Turn and Stop" are performed with a tractor-trailer combination. The Tractor-Trailer Stop is basically the same as the "Tractor Stop" exercise.
	Section 4—Vehicle Maintenance
Unit 3.4—Special situations. Students will learn to recognize potential dangers and appropriate safety procedures to utilize at railroad (RR) grade crossings, construction/ work zones, and low clearance areas (e.g., CMV height restrictions). **Section 4—Vehicle Maintenance** *[MINIMUM HOURS—Classroom—7; BTW—*	*Unit 4.1—Vehicle systems.* Student will learn the location, function, and purpose of - the frame, suspension systems and axles. - various types of internal combustion engines. - the fuel systems. - the air intake and exhaust systems. - the lubrication systems. - the cooling systems. - the electrical systems. - the drive train. - the brake systems. - the wheels, wheel bearings, rims, and tires. - the steering systems. - the coupling systems. This lesson consists of two lessons. The first lesson is in the classroom. Student will learn the theory of operation and purpose of each vehicle system, the function of major system components and the importance of each system to safety and economy of operation. The second lesson is a lab lesson in which student will have an opportunity to

0; Total Hours—7] This section is intended to provide entry level CDL driver-trainees with sufficient knowledge of the tractor-trailer and its systems and subsystems to ensure that they understand and respect their role in vehicle inspection, operation, and maintenance and the impact of those factors upon highway safety and operational efficiency. *Unit 4.1—Vehicle systems.* The purpose of this unit is to teach students to identify major tractor/trailer systems. The goal is to explain their function, and how to check all key vehicle systems, e.g., engine, engine exhaust auxiliary systems, brakes, drive train, coupling systems, and suspension. The student will be provided with a detailed description of each system, its importance to safe and efficient operation, and what is needed to keep the system in good operating condition. *Unit 4.2—Preventative maintenance and servicing.* The purpose of this unit is to introduce students to the basic servicing and checking procedures for various engine and vehicle components and to help develop their ability to perform preventative maintenance and simple emergency repairs.	see the workings of vehicle systems on an actual tractor-trailer. Outline of Classroom Lessons: Vehicle Systems I. Frame, Suspension Systems and Axles II. Engines III. Fuel Systems IV. Ai r Intake and Exhaust Systems V. Lubrication Systems VI. Cooling Systems VII. Electrical Systems VIII Drive Trains IX. Brake Systems X. Wheels, Bearings, Rims and Ti res XI. Steering Systems XII. Coupling Systems Description of Lab Lesson: In this lesson instructor will take small groups of students around a tractor-trailer, pointing out the vehicle systems and system components. Then the instructor will name vehicle components and ask individual students to find them and explain their purpose and function. *Unit 4.2—Preventative maintenance and servicing.* Student will learn - how to check and service engine fuel, oil, coolant, battery and filters involved. - how to check tire air pressure. - how to change a wheel (with tire mounted) and check for proper tire and wheel mounting. - how to drain moisture from air brake supply reservoirs and fuel systems - how to check and adjust brakes. - how to clean and repair lights. - how to change fuses and reset circuit breakers. - the importance of periodic inspection and repair to prevention of enroute breakdowns, long life of parts, safety and economy of operation. - the applicable requirements of the Federal Motor Carrier Safety Regulations. This unit consists of one classroom and three lab lessons. Outline of Classroom Lesson: Nature and Importance of Preventive Maintenance I. Overview of Maintenance A. Fleet-Performed Maintenance B. Driver-Performed Maintenance II. Types of Maintenance A. Routine Servicing B. Scheduled Preventive Maintenance C. Unscheduled Maintenance III. The Federal Motor Vehicle Inspection and Maintenance Requirements IV. Importance of Preventive Maintenance A. Breakdown Costs B. Maintenance Costs C. Operating Costs D. Purpose of Unit Description of Lab Lessons: Engine Fluids, Filters, Lights, and Filters In this lesson the instructor will demonstrate procedures for checking and/or changing the fuel tanks, fuel level, fuel filters, oil level and filter, coolant level and filter, battery fluid level, power steering fluid level and air filter. He will also demonstrate procedures for

Unit 4.3—Diagnosing malfunctions. The purpose of this unit is to enable the students to diagnose vehicle malfunctions and to perform emergency maintenance procedures correctly.	inspecting and changing lights and fuses and for resetting circuit breakers. Changing Tires and Checking Tire Air Pressure In this lesson the instructor will demonstrate procedures for checking tire inflation pressure and for removing a tire and wheel assembly and replacing it with a spare. Air Reservoir Drainage and Brake Adjustment In this lesson the instructor will demonstrate procedures for draining moisture from air reservoir tanks and for adjusting both drum and disc brakes. *Unit 4.3—Diagnosing and Reporting malfunctions.* Student will learn -to identify vehicle systems or components that are functioning properly, in imminent danger of failing or functioning improperly. - to describe, through sight, sound, feel and smell, the symptoms of improper operation completely and accurately to the people in charge of maintenance. - to start a vehicle with dead batteries or no' air pressure (if equipped with air starters). - the importance of not attempting vehicle repairs for which student is not qualified. - the importance of properly reporting breakdowns that occur enroute. Most of this unit will take place in the classroom. Student will learn the importance of, and techniques for, troubleshooting and reporting malfunctions. The classroom lesson concludes with an exercise in troubleshooting and filling out vehicle condition report forms. In the lab, student will observe how to start a vehicle with dead batteries or no air pressure. Outline of Classroom Lesson: Diagnosing and Reporting Malfunctions I. The Importance of Troubleshooting and Reporting A. Driver Awareness B. Early Detection of Malfunctions C. Driver Responsibility D. Mechanics Responsibility E. Driver and Mechanic Joint Responsibility II. Troubleshooting A. Knowledge of Vehicle B. Detection of Symptoms C. Troubleshooting Guide III. Reporting Requirements Driver's Job IV. Problem-Solving Exercise V. Summary Description of Lab Lesson: Emergency Starting Procedures In this lesson the instructor will demonstrate procedures for starting a vehicle that has a dead battery and for starting a vehicle, equipped with an air starter that has no air pressure. **Section 5—Non-Driving Activities**

Section 5—Non-Driving Activities
[MINIMUM HOURS—Classroom—26; BTW—0; Total Hours 26]
The units in this section are designed to prepare entry-level CDL driver-trainees to handle those responsibilities of a tractortrailer driver that do not involve operating the CMV. The units in this section must ensure these activities are performed in a manner that ensures the safety of the driver, vehicle, cargo, and other road users.

Unit 5.1—Handling cargo. The purpose of this unit is to enable students to understand the basic theory of cargo weight distribution, cargo securement on the vehicle, cargo covering, and techniques for safe and efficient loading/unloading in the classroom followed by practical demonstration and practice. Basic information regarding the proper handling and documentation of hazardous materials cargo will also be covered in this unit.

Unit 5.1—Handling cargo. Student will learn

- to load and unload cargo safety and efficiently.
- to make sure that the weight and the distribution of the load meet safety standards and legal requirements.
- to secure loads properly **in vans and on flatbed trailers**.
- to mount placards when carrying hazardous materials.
- the various methods for securing cargo, including how to block, brace, pack, and stack cargo.
- how to use straps, rope, cable, chains and chain binders for safe tie down to prevent damage and accidents.
- how common cargo handling equipment works, including pallets, jacks, dollies, hand trucks, forklift trucks, nets, slings, rug poles, and Johnson bars.
- the kinds of hazardous materials and when placards and special paperwork are required.
- **Federal and State regulations on loading, weight limits, and distribution of cargo**
- why improper loading and unloading, overloading, and improper weight distribution are dangerous.
- **the kinds of unstable freight and how to handle unstable freight**.
- how to operate common cargo handling equipment safely.
- how to tie knots for securing cargo.
- how to block and brace cargo properly.
- **how to utilize proper lifting techniques to prevent driver injuries**

This unit consists of classroom lessons and lab lessons, the last of which is optional.

Outline of Classroom Lessons:

Basic Cargo Handling Procedures and Requirements
- I. The Importance of Proper Cargo Handling
  - A. Overview
  - B. Consequences of Improperly Secured Cargo
  - C. Driver's Responsibilities
  - D. Federal, State and local Regulations
- II. Principals of Weight Distribution
  - A. Overweight Definitions
  - B. Weight Distribution
  - C. Consequences of Overloads/Poor Distribution
  - D. Problem Solving Discussion
- III. Principles and Methods of Cargo Securement
  - A. Problems Associated with Improperly Secured or Covered Cargo
  - B. Driver Responsibility
  - C. Loading Procedure
  - D. Sealed and Containerized Loads
  - E. Examples of Loading and Securing Common Loads
  - F. Driving Specialized Cargo
  - G. Recap -
- IV. Handling Hazardous Materials
  - A. Basic Types of Hazardous Materials
  - B. Handling Hazardous Materials
  - C. Inspecting Vehicles Carrying Hazardous Materials
- V. Problem-Solving Discussion: Seven Situations

Techniques for Loading, Securing and Unloading Cargo
- I. Function and Operation of Cargo Handling Equipment
  - Types of Equipment to Move Cargo
  - Student Problem-Solving Exercises
- II. Demonstration of Cargo Securing Equipment

Outline of Lab Lessons:

Demonstration of Cargo Securement
In this lesson student will practice tying down and covering cargo on a loaded trailer. Student will start with a trailer that is completely loaded except for one or two pieces of cargo. The class will inspect the load and discuss the distribution of weight. Under the instructor's supervision, student will then load the remaining cargo, tie it down and secure the tarp.

Observation of Cargo Handling Operation (This is an optional lesson)
This lesson consists of a field trip to a local freight terminal or similar operation to give student a firsthand look at actual cargo handling operations. Among the things student may observe are; shipping papers and their use, loading and unloading of cargo and the operation of cargo handling equipment. Instructor may elect to omit this lesson if suitable facilities and sufficient time cannot be found to include it.

Unit 5.2—Cargo Documentation. **Student will learn how**

- how to check cargo on both pickup and delivery to see what it is, how much there is, and what condition it is in.
- how to check the information on the bill of lading and properly record and report any over, short, or damaged cargo.
- how to obtain required signatures on delivery receipts and other required forms.
- how to properly prepare a manifest, freight bi n, bill of lading, and other required forms.
- how to meet the requirements for hazardous materials and waste documentation.
- the driver's responsibilities for making sure paperwork is properly filled out.
- the problems that can be caused by paperwork that is not properly filled out.

The entire unit will take place in the classroom. Following the presentation of information, student will participate in discussion and problem-solving activities in which student can practice applying what student has learned.

Outline of Classroom Lessons:

Cargo Documentation: Basic Forms and Procedures
- **1. Basic Definitions and Forms**
  - **A. Definitions of Motor Carriers**
  - **B. Who Needs Cargo Documentation**
  - **C. Basic Terms Related to Freight**
  - **D. Definitions of Documents**
  - **E. Transportation Charges and Services**
- **II. Filling Out Basic Shipping Documents**
  - **A. Bi1ls of Lading**
  - **B. Freight Bil1s**
  - **C. Cargo Manifest**
  - **D. Other Documents Related to Shipping**
- **III. Pickup and Delivery Procedures**
  - **A. Pickup of Freight**
  - **B. Delivery of Freight**
  - **C. Special Pickup and Delivery Situations**
  - **D. Inter1i ne Freight**
- **IV. Documentation and Placarding of Hazardous Materials**
  - **A. Basic Responsibilities**
  - **B. Labeling and Placarding Hazardous Materials**
- **V. Review**

Cargo Documentation Problems
- **I. Review of Cargo Documentation Procedures**
  - **A. Four Situations Involving Cargo Documentation**
  - **B. Problem-Solving Exercise: Preparing a Bill of Lading**
- **II. Consequences of Faulty Cargo Handling Procedures**
  - **A. Main Reasons for Cargo Loss**

	B. Main Reasons for Cargo Damage **C. Consequences of Loss and Damage Affect Driver** **D. Prevention of. Cargo Loss and Damage** **E. Student Discussion: What Can the Driver Do?** **Ill. Procedures for Over, Short, and Damaged Cargo** **A. Discrepancies that Occur on Delivery of Freight** **B. What Happens When 0, S, and 0 Occur** **C. General Procedures for Handling All Cargo Discrepancies** **IV. Problem-Solving Situations--Class Discussion of Four Cargo Documentation Problems**
	Unit 5.3—Hours of service requirements. Student will learn - the requirements of the Federal Motor Carrier Safety Regulations on hours of service and how to comply with them. - to maintain a complete, neat, and accurate record and recap of daily activities. - to complete daily log correct correctly - to interpret hours of service categories correctly. - to add and subtract correctly on recap chart so that student can figure out how many driving hours student have left. - the serious consequences that can result if student do not comply with the hours of service regulations All activity will take place in the classroom. Throughout the unit during the presentation of information there will discussions to help student learn the hours of service regulations. There will also be exercises that let students practice filling out daily logs and monthly recap charts. Outline of Classroom Lessons: Basic Requirements of Hours of Service Regulations I. Overview and Introduction to Logbooks A. Purpose of Hours of Service Regulation B. Basic Requirements of Hours of Service Regulation C. Distribution of Logbooks D. Introduction to Logbooks II. Status of Driver Categories A. Status Situations 1. Off Duty 2. Sleeper Berth 3. Driving 4. On Duty--Not Driving B. Student Exercise: Identifying Correct Status III. Driving and On-Duty Rule A. Requirements for 8 Hours Consecutive Rest B. On-Duty Rule C. Questions for Review IV. Preparing a Daily Log V. Additional Examples VI. Preparation Exercise VII. Completing a Log Recap VIII. Direct Method of Determining Hours Available Complying with the Hours of Service Regulations I. Interpretations of Hours of Service Regulations for Routine Situations II. Extending Driving Time III. Using Sleeper Berth Time IV. Exceptions to Hours of Service Regulations V. Driver's Multi-day Logs VI. Maintaining Good Logs and Avoiding Violations A. Maintaining Accurate and Current Logs B. Errors in Maintaining Logs VII. Class Discussion
Unit 5.2—Hours of service requirements. The purpose of this unit is to enable students to understand the basic concepts and requirements of the FMCSRs—Part 395, "Hours of Service of Drivers"—and to develop the ability to complete a Driver's Daily Log and logbook recap. The issues of driver fatigue and staying alert will also be covered in this unit.	

Unit 5.3—Crash procedures. The purpose of this unit is to teach students how to follow safe and legal procedures at a crash scene.	Log Keeping Exercise I. Explanation of Exercise II. Completion of Exercise III. Review of Exercise IV. Additional Log Keeping Practice *Unit 5.4—Accident procedures.* Student will learn - to protect the scene of an accident to prevent further injury or damage. - to get the proper help. - to obtain all information needed for accident reports to the State, the Federal government, employer and the insurance company. - to help injured people, if student can by providing first aid, but only if student has had the necessary first aid training. - to put out fires, including cargo, engine, electrical, and tire fires. - to avoid discussions of legal questions. such as questions about who was at fault in the event of an accident. - State 1aws and company requirements about stopping at the scene of an accident and helping people. - Federal, State, insurance company, and employer requirements on reporting accidents. **- first aid procedures for treating the kinds of injuries student is likely to find at an accident.** **- the kinds of fire extinguishers, the types of fires they should be used on and how to use them.** **- the methods for putting out fires.** **- where to stop safely if student has a vehicle fire.** Most learning in this unit will take place in the classroom. At the end of the unit there will be a lab lesson during which the use of a fire extinguisher will be demonstrated. Outline of Classroom Lessons: Accidents and Accident Reporting 1. Steps to Take At the Scene of an Accident A. Facts to Know Before an Accident B. Steps to Take at the Scene of an Accident in Which You Are Involved II. Protecting the Scene of an Accident, Breakdown or Fire A. Driver Responsibility B. Purpose C. Types of Warning Devices Required to Protect the Scene D. Purpose III. Handling the Accident Scene IV. Reporting the Accident **V. Evaluating the Accident** **A. Why Evaluate?** **B. Accidents Classified as Preventable Vs. Nonpreventable** VI. Accidents Involving Hazardous Materials **VII. Review and Problem-Solving Discussion** **Principles of First Aid** **I. Overview** **A. Know Role and Limitations** **B. Basic Principles of First Aid** **C. Procedures to be Discussed, and Practiced** **II. Evaluation of Injuries** **A. General Directions** **B. Priorities for Treatment** **III. Evaluation and Treatment of Bleeding** **A. Determine Type of Bleeding and Amount of Blood Lost** **B. Evaluating Severity of Bleeding** **C. Control of Bleeding** **IV. Instructor Demonstration and Student Practice: Treatment of Bleeding**

V. Evaluation and Treatment of Breathing Stoppage
A. Three Reasons Breathing May Stop
B. Artificial Respiration
VI. Instructor Demonstration and Student Practice - Artificial Respiration
VII. Evaluation and Treatment of Shock
A. Evaluation of Shock
B. Treatment of Shock
VIII. Instructor Demonstration: Treatment of Shock
IX. Summary

Fires and Fire Fighting
I. Causes of Fires
A. Scope of Problem
B. Anatomy of a Fire
C. Truck Fire Sources
II. Basic Prevention
A. General Rules
III. Fire Extinguishers
A. Classes of Fires
B. Types of Fire Extinguishers
C. Operation
D. Inspection
E. Recap
IV. Firefighting Methods
A. Techniques for Specific Kinds of Fire
B. Preview of Firefighting Demonstration
Fire Fighting Demonstration
In this lesson student will observe the use of a fire extinguisher in putting out a Class B (flammable liquid) fire. Student will not be participating in the actual extinguishing of the fire.

Unit 5.5—Personal Health and Safety. Student will learn

- to avoid the use of alcohol and drugs that can affect abi1ity to drive safely.
- to use proper diet, exercise, and rest so that student will be alert while driving.
- to avoid fatigue by getting proper rest while off duty and by using rest stops while student are enroute.
- to utilize the current data of the effective of fatigue on driving performance and safety
- how the use of cell phones and other technology can distract driver causing unsafe situations
- to obtain regular vision, hearing, and health checkups.
- to use personal protection gear (goggles, hardhat, etc.) when necessary. "
- to use safe lifting techniques.
- to wear proper clothing for cold, hot, and other kinds of bad weather conditions.
- to avoid unsafe situations that could result in robberies, hijackings, and other loss of cargo.
- how to utilize Over-The-Road management skills i.e. a personal budget, life on the road while still satisfying family needs
- how to operate in the industry as an owner-operator
- how to be watchful for general security issues and report those issues to the proper authorities
- how alcohol, drugs, poor diet, fatigue, poor vision, hearing problems, and health problems can cause problems when student drives.
- **how various kinds of personal protection gear help to prevent student from being hurt.**.
- Federal and State regulations on the physical requirements of drivers.
- **the importance of staying with a disabled vehicle if student get stranded in bad weather.**
- the kind of background and character student need to have in order to be a safe and successful truck driver.

All three lessons in this unit will take p1ace in the c1assroom.

Outline of Classroom Lessons:

Personal Health and Driving
1. Basic Physical Requirements
A. Mental and Physical Condition
B. Maintaining a Good Diet
C. Exercise
II. Fatigue and Driving
A. Causes of Fatigue
B. Effects of Fatigue
C. Dealing with Fatigue
III. Alcohol and Driving
A. Myths and Facts
B. How Alcohol Works
C. How Alcohol Affects Driving
D. Risks of Drinking and Driving
E. Sobering Up
F. Federal Law and Truck Drivers Drinking
IV. Drugs and Driving
A. Effects of Major Categories of Drugs
B. Rules for Using Drugs
V. Class Discussion

Safety Equipment and Practices
I. Dressing Safely for the Job and Using Proper Equipment
II. Vehicle and Cargo Danger Zones: Falling and Other Hazards
III. Avoiding Injuries When Lifting
IV. Roadside Emergencies
V. Avoiding Crime

The Truck Driver's Environment
I. Driver Error: The Major Cause of Traffic Accidents
A. Direct Causes of Traffic Accidents
B. Underlying Causes of Driver Error
II. On- and Off-Duty Job Stresses
A. Stress Leads to Driver Error
B. Job Demands
C. Job Conditions That Lead to Physical/Mental Fatigue
D. Off-Duty Living Habits and Problems Affect Job Performance
E. Responsibility of Professional Driver to Stay in Shape
III. Class Discussion

Unit 5.6—Trip planning. Student will learn
- to plan a route that is the best after student consider travel time, fuel costs, possible hazards, and Federal, State, and local restrictions on where a truck may be driven.
- to obtain any special permits student might need because of the type of vehicle student are driving, the kind of cargo student are hauling, or the road student will be driving on.
- to choose a safe place for stops and layovers particularly if student are transporting hazardous materials.
- the kinds of vehicles, cargo, and routes that call for special permits.
- common map symbols.
- procedures for route planning.
- laws and restrictions on vehicle size and weight.
- how to interpret maps correctly.
- how to estimate travel time and plan rest stops and layovers.
- how to estimate fuel consumption and plan fuel stops.
- how to estimate expense money student will need and obtain money or credit cards for use on trip.

All learning in this unit will take place in the classroom.

Outline of Classroom Lessons:

Trip Analysis and Procedures

Unit 5.4—Trip planning. This unit must address the importance of and requirements for planning routes and trips. This instruction must address the importance of planning the safest route, including planning for rest stops, heavy traffic areas, rail highway grade-crossing safe clearance, etc. Classroom discussion must include information on the importance of and requirements for planning trips, Federal and State requirements on the need for permits, and vehicle size and weight limitations.	I. Trip Planning Principles A. What is Trip Planning? B. Class Discussion: Trip Planning Factors and Why They are Important C. Trip Planning Principles 1. Type of Trip 2. Factors Related to the Driver 3. Factors Related to the Vehicle 4. Factors Related to the Cargo 5. Factors Related to Environmental Conditions II. Federal, State and Local Regulations A. Federal Regulations B. State Regulations 1. Permission to Operate 2. Reciprocity Agreements C. Size and Weight Limitations III. Hazardous Materials A. Federal Regulations B. State and Local Restrictions IV. Record Keeping and Trip Reports A. Key reports driver must maintain B. Freight Documentation and Related Reports C. Trip Records and Related Expense Reports D. Tachograph Programs and Other Monitoring Records V. Estimating Time, Fuel, and Money A. Estimating Time of Trip B. Estimating Fuel Usage C. Estimating Money Needed VI. Map Reading A. Key Characteristics of Maps B. Sources of Maps C. Types of Maps D. Using a Map VII. Summary VIII. Assignment of Trip Planning Exercise Trip Planning Exercise I. Preparation for Classroom Activity II. Student Presentations III. Instructor Critique ***Unit 5.7—Public and Employer Relations.*** **Student will learn** **- to show courtesy to other drivers by helping them when they need assistance, by not using horn unless it1s necessary, by not blocking driveways and entrances, and by pulling over to let faster vehicles pass student.** **- to show courtesy to customers by not arguing with them and by referring any problems to the company.** **- to dress neatly and properly when student are on duty.** **- to prepare job applications properly and be ready for job interviews.** **- to help motorists when permitted by company policy.** **- how unsafe and rude behavior by drivers gives the public a bad image of drivers, their employers, and the whole trucking industry.** **- the proper way for handling complaints of the public and customers.** **- how lack of driving courtesy can cause accidents.** **- that employer's rules are more important than any taught by the school.** This unit consists of classroom lessons. As part of the lessons, school may elect to invite a guest lecturer from a local trucking company to discuss job opportunities and answer questions. Outline of Classroom Lessons: **The Drivers Role in Public Relations** **I. The Image of the Trucking Industry** **II. Contact With the Public** **A. Maintaining a Good Image in Driving**

Unit 5.5—Miscellaneous topics. In this unit, students will learn the Federal rules on procedures, general qualifications, responsibilities, and disqualifications based on various offenses, orders, and loss of driving privileges (49 CFR part 391, subparts B and E). The student will learn about driver wellness. Basic health maintenance including diet and exercise and the importance of avoiding excessive use of alcohol must be covered in this unit. The right of an employee to question the safety practices of an employer without incurring the risk of losing a job or being subject to reprisals simply for stating a safety concern is included in this unit. The student will become familiar with the whistleblower protection regulations in 29 CFR Part 1978.	**1. Following the Law** **2. Maintaining a Good Appearance** **3. Sharing the Road** **B. Maintaining a Good Image in Public Contact** **1. On Duty** **2. Off Duty** **3. Rendering Assistance** **4. Standing up for the Industry** **III. Customer Relations** **A. A Driver is His Company's Visible Contact with the Customer** **B. Assisting in Gaining Business ...** **C. Following Company Rules** **D. Displaying a Positive Attitude** **IV. Class Discussion: Public Relations** **Employer Relations** **I. Basic Job Requirements** A. Federal Motor Carrier Safety Regulations Requirements B. General Job Qualifications **C. Basic Company Policies** **D. Opportunities for Advancement** **II. Applying for a Job** **A. The Job Application Process** **B. Reference Checks** **C. The Job Interview** **D. Tests** **III. Practical Exercises: Two Exercises in Applying for a Job** **A. Filling out a Job Application** **B. Practice Job Interviewing** **VI. Guest Lecturer (Optional)**