

# Entry-Level Driver Training (CDL) for Maintenance Equipment Operators

Final Report



research for winter highway maintenance

**Virginia Tech Transportation Institute**

**Project 1044526/CR20-01  
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<b>16. Abstract</b> The Federal Motor Carrier Safety Administration's new Entry-Level Driver Training regulation goes into effect on February 7, 2022. The goals of this project were to (1) provide training materials and resources that will allow Clear Roads member agencies to provide entry-level commercial driver's license training that complies with 81 FR 88732, 84 FR 8029, and 49 CFR 380; and (2) develop and document a process for member agencies to follow in order for each of their training locations to be added to the training provider registry by February 7, 2022, and to comply with all federal requirements to remain on the training provider registry. This project resulted in the development of the following ELDT materials: (1) complete curriculum to meet the instructor-led classroom and behind-the-wheel components of the ELDT rule focusing on obtaining an initial Class B CDL, upgrading from a Class B CDL to a Class A CDL, and obtaining the hazardous materials endorsement for the first time; (2) all training materials and resources necessary for states to execute the training program; (3) train-the-trainer materials to assist agencies in implementing the training program; and (4) reference guides and timeline to join the TPR.			
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# **Entry-Level Driver Training (CDL) for Maintenance Equipment Operators**

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## LIST OF ABBREVIATIONS AND SYMBOLS

AAMVA	American Association of Motor Vehicle Administrators
BTW	behind-the-wheel
CDL	Commercial Driver's License
CMV	commercial motor vehicle
CVSA	Commercial Vehicle Safety Alliance
DMV	Department of Motor Vehicle
DOT	Department of Transportation
ELDT	Entry Level Driver Training
FMCSA	Federal Motor Carrier Safety Administration
FMCSR	Federal Motor Carrier Safety Regulations
G.O.A.L.	get out and look
HM	hazardous material
HOS	hours of service
IT	information technology
KDOT	Kansas DOT
LMS	learning management system
OOS	out of service
PennDOT	Pennsylvania DOT
PTDI	Professional Trucker Driver Institute
TPR	Training Provider Registry
WVDOT	West Virginia DOT



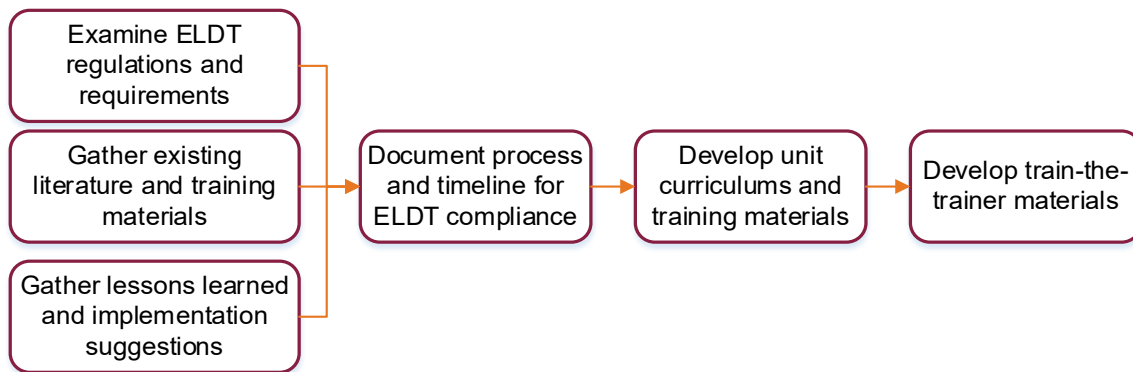
## Executive Summary

The Federal Motor Carrier Safety Administration’s (FMCSA’s) new Entry-Level Driver Training (ELDT) regulation goes into effect on February 7, 2022. Although the new ELDT regulation does not include a minimum number of hours needed to obtain a commercial driver’s license (CDL), it requires CDL applicants to demonstrate proficiency in knowledge and skills in five main sections covering 30 topics (called ‘theories’) and 19 behind the wheel (BTW) skills on a range and on a public road. The regulations apply to all individuals seeking:

1. To obtain a Class A or Class B Commercial Driver’s License (CDL) for the first time;
2. Upgrade existing Class B to a Class A CDL;
3. Obtain a school bus (S), passenger (P), or hazardous materials (H) endorsement for the first time.

The goals of the proposed project are to (1) provide training materials and resources that will allow Clear Roads member agencies to provide entry-level CDL training that complies with 81 FR 88732, 84 FR 8029, and 49 CFR 380; and (2) develop and document a process for member agencies to follow in order for each of their training locations to be added to the FMCSA training provider registry (TPR) by February 7, 2022, and to comply with all federal requirements to remain on the TPR.

To develop compliant training and guidance for state agencies, this project closely examined the ELDT regulation and collected existing information and lessons learned (Figure 1).



**Figure 1. High-Level Project Approach**

This project resulted in the following deliverables states may use to maintain compliance with the ELDT regulation.

- 1) Completely curriculum to meet the instructor-led classroom and BTW components of the ELDT rule focusing on i) obtaining an initial Class B CDL, ii) upgrading from a Class B CDL to a Class A CDL, and iii) obtaining the hazardous materials endorsement for the first time.
- 2) All training materials and resources necessary for states to execute the training program.
- 3) Train-the-trainer materials to assist agencies in implementing the training program.
- 4) Reference guides and timeline to join the TPR.

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# Chapter 1. Introduction

Currently, there are no minimum training standards for individuals seeking to obtain a commercial driver's license (CDL). There are three primary approaches for a CDL candidate to obtain driver training. In one method, the CDL candidate is trained by a friend or family member; however, this type of training typically lacks any formal structure, does not go into the theory of operating a commercial motor vehicle (CMV), and usually results in a trial-by-fire approach where the CDL candidate is thrown behind the wheel (BTW) and given pointers. The second method of training is the CDL-focused short school, sometimes referred to as a CDL-mill. These privately run schools have a typical duration of two to four weeks and teach only what is needed to pass the written exams to obtain the commercial learner's permit and the bare minimum to obtain the actual CDL. The third and most extensive training method is the CDL school with a longer duration (typically six to eight weeks). These CDL schools are often offered at community colleges and other vocational schools and provide both classroom and BTW training. Some of these longer duration CDL schools may even take the necessary steps for drivers to become certified by the Professional Truck Driver Institute (PTDI), which was founded in 1986 as a non-profit organization to develop a minimum training curriculum for both classroom and BTW for Class A CDLs. The PTDI training curriculum is based on both minimum hours of training in the classroom and BTW as well as the necessary proficiency required to achieve minimum passing scores on tests (PTDI, 1999).

Prior to the establishment of the Federal Motor Carrier Safety Administration (FMCSA) on January 1, 2000, all activities related to CMVs and CDLs were overseen by the Federal Highway Administration's (FHWA's) Office of Motor Carriers. As far back as 1985, the Office of Motor Carriers published a "Model Curriculum for Training Tractor-Trailer Drivers" in an attempt to establish minimum standards; however, this curriculum was not included in regulation, and the lack of minimum training requirements to obtain a CDL continued for decades (FHWA, 1985).

Starting in 2006, FMCSA sponsored a series of research projects led by the Virginia Tech transportation Institute (Robin et al., 2005; Morgan et al., 2011; Morgan et al., 2013) to assess different methods of truck driver training. This research provided quantitative data to assess ELDT practices and help in the development of minimum training standards. Based on these VTTI studies, in 2014, the FMCSA established the ELDT Advisory Committee to discuss and issue some form of minimum CDL training standards. The committee was comprised of 26 stakeholders, including members of safety advocacy groups, insurance companies, state departments of motor vehicles (DMVs), state enforcement agencies, training institutions, labor unions, and truck and bus fleets. Finally, in 2016, a proposed ELDT rule for CMV operators was released for public comment. The originally proposed ELDT rule, which included minimum BTW hours, was revamped due to many comments from various industry stakeholders. The final ELDT rule was released June 5, 2017 with an original implementation date of February 7, 2020.

## Project Objective

The ultimate objective of this project was to develop a complete program comprised of the following materials that state agencies can use to meet FMCSA's requirements outlined in the ELDT rule:

- 1) A robust training curriculum to meet the instructor-led classroom (theory) and BTW components of the ELDT rule focusing on i) obtaining an initial Class B CDL, ii) upgrading from a Class B CDL to a Class A CDL, and iii) obtaining the hazardous materials endorsements for the first time.
- 2) All training materials and resources necessary for states to execute the training program.
- 3) Train-the-trainer materials to assist agencies in implementing the training program.
- 4) Develop and document a process for member agencies to follow in order for each of their training locations to be added to the FMCSA TPR by February 7, 2022, and to comply with all federal requirements to remain on the TPR.

## Chapter 2. Entry-Level Driver Training Regulation

The Entry-Level Driver Training regulations, 49 CFR Part 380, Subparts F and G, go into effect February 7, 2022. These regulations set the minimum standards for CDL drivers beginning on February 7, 2022 seeking:

1. To obtain a Class A or Class B CDL for the first time
2. Upgrade existing Class B to a Class A CDL
3. Obtain a school bus (S), passenger (P), or hazardous materials (H) endorsement for the first time

The entire 49 CFR Part 380, which includes Subparts F and G, can be found here:

- [https://www.ecfr.gov/cgi-bin/retrieveECFR?gp=1&ty=HTML&h=L&mc=true&=PART&n=pt49.5.380#\\_top](https://www.ecfr.gov/cgi-bin/retrieveECFR?gp=1&ty=HTML&h=L&mc=true&=PART&n=pt49.5.380#_top)

### Required Training Content

The final rule does not include minimum BTW hours and instead requires driver-trainees to demonstrate proficiency in knowledge and skills in the following five main topics covering 30 subtopics (49 CFR Part 380, Appendix A and Appendix B) prior to testing at a Department of Motor Vehicles:

1. Basic Operation
  - a. Orientation
  - b. Control systems/dashboard
  - c. Pre- and post-trip inspections
  - d. Basic control
  - e. Shifting/operating transmissions
  - f. Backing and docking
  - g. Coupling and uncoupling (Class A CDL only)
2. Safe Operating Procedures
  - a. Visual search
  - b. Communication
  - c. Distracted driving
  - d. Speed management
  - e. Space management
  - f. Night operation
  - g. Extreme driving conditions
3. Advanced Operating Practices
  - a. Hazard perception
  - b. Skid control/recovery, jackknifing, and other emergencies
  - c. Railroad-highway grade crossings
4. Vehicle Systems and Reporting Malfunctions
  - a. Identification and diagnosis of malfunctions
  - b. Roadside inspections
  - c. Maintenance

5. Non-Driving Activities

- a. Handling and documenting cargo
- b. Environmental compliance issues
- c. Hours of service requirements
- d. Fatigue and wellness awareness
- e. Post-crash procedures
- f. External communications
- g. Whistleblower/coercion
- h. Trip planning
- i. Drugs/alcohol
- j. Medical requirements

The final EDLT also requires prospective driver-trainees to demonstrate proficiency in the following 19 BTW skills on a range and on a public road (49 CFR Part 380, Appendix A and Appendix B):

1. BTW range

- a. Vehicle inspection pre-trip/enroute/post-trip
- b. Straight line backing
- c. Alley dock backing (45/90 degree)
- d. Off-set backing
- e. Parallel parking blind side
- f. Parallel parking sight side
- g. Coupling and uncoupling (Class A CDL only)

2. BTW public road

- a. Vehicle controls including left turns, right turns, lane changes, curves at highway speeds, and entry and exit on the interstate or controlled access highway
- b. Shifting/transmission
- c. Communications/signaling
- d. Visual search
- e. Speed and space management
- f. Safe driver behavior
- g. Hours of service requirements
- h. Hazard perception
- i. Railroad-highway grade crossing
- j. Night operation
- k. Extreme driving conditions
- l. Skid control/recovery, jackknifing, and other emergencies

Unlike traditional CMV carriers, State DOTs are unique in that the majority of their CDL driver-trainees usually drive dump trucks pulling pintle-hook trailers and not fifth wheel trailers. Successfully passing the CDL test with a pintle-hook trailer results in an O restriction placed on the license that prevents the CDL holder from pulling fifth wheel trailers.

### **FMCSA's Training Provider Registry**

FMCSA's Training Provider Registry (TPR) is the primary website where prospective training providers, including state departments of transportation (DOTs), will register and self-certify that all aspects of the ELDT regulation are in compliance. This also the primary storage site where all successful driver-trainee data is uploaded and stored. The TPR website can be found here: <https://tpr.fmcsa.dot.gov/>.

## Chapter 3. Training Provider Registry

All entities wishing to provide CDL training must be listed on the TPR, which is maintained by the FMCSA. CDL applicants failing to ensure that their training provider is listed or maintaining compliance requirements for listing, even if covering all relevant training topics, will result in invalid training and, therefore, the CDL applicant will not be able to test at their respective State driver's licensing agency.

### Training Provider Registry Listing

The TPR serves two purposes. The first purpose is to maintain a database of all training providers, their self-certification that they meet all requirements of 49 CFR Part 380, Subpart G, and their continued compliance to remain listed. State DOTs will be able to access the TPR at <https://tpr.fmcsa.dot.gov/>. The second purpose is to maintain a database of drivers who have successfully completed their CDL training.

### Training Provider Certification and Registration

State DOTs wishing to provide ELDT must register on FMCSA's TPR prior to the commencement of any ELDT training on or after February 7, 2022. When first accessing the TPR website, State DOTs will be able to create an account for registration and future access. State DOTs providing ELDT at more than one location must register each location separately.

The following list provides the requirements for self-certification to be eligible for listing on the TPR per 49 CFR §380.703:

1. Follow a curriculum that meets the applicable criteria set forth in appendices A through E of 49 CFR part
  - Appendix A – Class A CDL Training Curriculum
  - Appendix B – Class B CDL Training Curriculum
  - Appendix C – Passenger Endorsement Training Curriculum
  - Appendix D – School Bus Endorsement Training Curriculum
  - Appendix E – Hazardous Materials Endorsement Training Curriculum
2. Utilize facilities that meet the criteria set forth in 49 CFR §380.709 Facilities.
3. Utilize vehicles that meet the criteria set forth in 49 CFR §380.711 Equipment.
4. Utilize driver training instructors that meet the criteria set forth in 49 CFR §380.713 Instructor Requirements.
5. Be licensed, certified, registered, or authorized to provide training in accordance with the applicable laws and regulations of any State where in-person training is conducted.
  - State qualification requirements otherwise applicable to theory instruction do not apply to providers offering such instruction only online.
6. Allow FMCSA or its authorized representative to audit or investigate the training provider's operations to ensure that the provider meets the criteria set forth in this section.
7. Electronically transmit an ELDT Provider Registration Form through the TPR Web site maintained by FMCSA, which attests that the training provider meets all the applicable requirements of this section, to obtain a unique TPR number. If a training provider has



more than one campus or training location, the training provider must electronically transmit an Entry-Level Driver Training Provider Registration Form for each campus or training location in order to obtain a unique TPR number for each location.

Additionally, training providers including State DOTs must also meet the requirements under 49 CFR §380.707:

1. Training providers must require all accepted applicants for BTW training to certify that they will comply with U.S. Department of Transportation regulations in parts 40, 382, 383, and 391, as well as State and/or local laws, related to controlled substances testing, age, medical certification, licensing, and driving record. Training providers must verify that all accepted BTW applicants or Class A theory instruction upgrade curriculum applicants hold a valid commercial learner's permit or commercial driver's license, as applicable.
2. Training providers offering online training must ensure that the content is prepared and/or delivered by a theory instructor, as defined in 49 CFR §380.605 Definitions.
3. Separate training providers may deliver the theory and BTW portions of the training, but both portions (range and public road) of the BTW training must be delivered by the same training provider

Once a State DOT electronically submits the ELDT Provider Registration Form and self-certifies that the requirements of 49 CFR §380.703 and 49 CFR §380.707 are met, FMCSA will issue the training provider a unique TPR number and, as applicable, add the provider's name and/or contact information to the TPR Web site. If a training provider is conducting entry-level CDL training at multiple sites, each site must have its own TPR registry and number. Note, all submissions must be done electronically. Paper copies of the ELDT Provider Registration Form and self-certification will not be accepted.

### **Maintaining Training Provider Registry Listing**

Per 49 CFR §380.719, to maintain a current listing in the TPR, State DOTs must continue to meet all requirements of 49 CFR §380.703 listed above and biennially update the ELDT Provider Registration Form. The following requirements also apply:

1. Report to FMCSA changes to key information, as identified in paragraph (a)(3)(i) of this section, within 30 days of the change.
  - a. Key information is defined as training provider name, address, phone number, type(s) of training offered, training provider status, and, if applicable, any change in State licensure, certification, or accreditation status.
  - b. Changes must be reported by electronically transmitting an updated Entry-Level Driver Training Provider Registration Form.
2. Maintain documentation of State licensure, registration, or certification verifying that the provider is authorized to provide training in that State, if applicable.
3. Allow an audit or investigation of the training provider to be completed by FMCSA or its authorized representative, if requested.

4. Ensure that all required documentation, as set forth in 49 CFR §380.725 Documentation and Record Retention, is available to FMCSA or its authorized representative, upon request. The provider must submit this documentation within 48 hours of the request.

### **Removal from the Training Provider Registry**

FMCSA considers a number of factors when assessing whether to remove a training provider from the TPR. The factors FMCSA may consider include, but are not limited to, the following:

1. The provider fails to comply with the requirements for continued listing on the TPR, as described in 49 CFR §380.719.
2. The provider denies FMCSA or its authorized representatives the opportunity to conduct an audit or investigation of its training operations.
3. The audit or investigation conducted by FMCSA or its authorized representatives identifies material deficiencies pertaining to the training provider's program, operations, or eligibility.
4. The provider falsely claims to be licensed, certified, registered, or authorized to provide training in accordance with the applicable laws and regulations in any State where in-person training is provided.
5. The State-administered CDL skills examination passage rate for applicants for the Class A CDL, Class B CDL, passenger endorsement, and/or school bus endorsement who complete the provider's training and the CDL knowledge test passage rate for applicants for the hazardous materials endorsement who complete the provider's training.

If FMCSA removes a provider from the TPR, any training conducted after the removal date will be considered invalid. Further, in an instance where FMCSA has determined that fraud or other criminal behavior has occurred, FMCSA reserves the right to retroactively invalidate training, on a case-by-case basis. The procedural steps for removal from the TPR, either voluntary or FMCSA requested, can be found below per 49 CFR §380.723.

### **Training Provider Registry Driver Certification**

The second purpose of the TPR, discussed below, is to maintain a database of drivers who have successfully completed their CDL training.

#### **Driver-Trainee Data**

State DOTs are required to submit certification for each CDL applicant (driver-trainee) that successfully completes the ELDT program. Submission of this certification must be completed within 48 hours of each driver-trainee's successful completion of the program. The following information must be submitted to the TPR:

1. Driver-trainee name, date of birth, and license/permit number along with State of issuance
2. CDL class/endorsement and type of training completed
3. Theory and/or BTW
4. If BTW, range and/or road
5. Total number of clock hours spent BTW (if applicable)

6. Training provider name, location, and TPR ID number
7. Date of successful completion of training

Each submission to the TPR must only contain data for one CDL applicant. The following steps describe the overall TPR process for driver certification:

1. Driver-trainees successfully complete ELDT theory instruction provided by State DOT with at least an 80% on the theory assessment.
2. Driver-trainees successfully complete ELDT BTW instruction provided by State DOT by demonstrating proficiency in all required BTW skills.
3. State DOT submits driver data to the TPR.
4. FMCSA retains and manages driver data in TPR.
5. State driver's licensing agency retrieves driver data from TPR.

### **Submission of Driver Data to the Training Provider Registry**

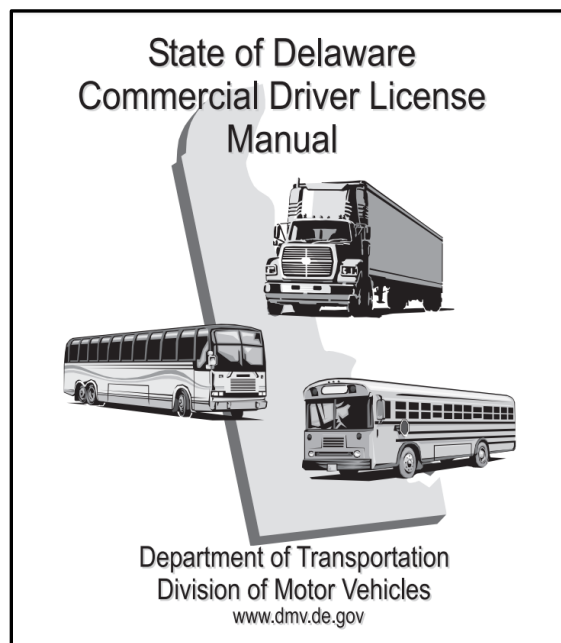
State DOTs will have two options for submitting the driver data of successful driver-trainees. Option 1 allows all State DOTs to manually enter the information directly into the TPR. Option 2 provides State DOTs with the ability to submit driver data by transferring it directly from their internal information technology (IT) systems to the TPR. This option requires the use of a Web service interface developed by each State DOT. Direct transfer of driver data through the Web service interface is the recommended approach for State DOTs that expect high CDL applicant throughput, currently maintain a robust online record keeping system, and have a dedicated IT support staff. The TPR Web Services Development Handbook as well as a webinar can be found on the TPR website (<https://tpr.fmcsa.dot.gov/DeveloperToolkit>). As of January 25, 2021, the Developer's Toolkit which contains all materials for testing your system's connection to the TPR Web Service is available to training providers for download. These materials are designed to assist IT departments at State DOTs and other training providers in the development of the Web services interface, including instructions for generating Web service credentials. FMCSA will issue a client certificate and private key for each State DOT to use during authentication through the Web service interface.

## Chapter 4. Resources for CDL Training

As the ELDT regulations have not yet begun, there are scarce resources available examining recommended strategies for meeting their requirements. A review of online resources found only the regulation itself and articles summarizing the regulation. This chapter provides a summary of the common CDL training resources.

### American Association of Motor Vehicle Administrators

The American Association of Motor Vehicle Administrators (AAMVA) was founded in 1933. Its main priority is to develop model programs in motor vehicle administration, law enforcement, and highway safety. AAMVA has developed and supplies the CDL Manual (Figure 2) to SDLAs across the country and provides training to CDL examiners at SDLAs to ensure all testing is conducted to the highest standard. The AAMVA website can be found here: <https://www.aamva.org/default.aspx>. We obtained permission from AAMVA to use and reproduce their model CDL materials, specifically the figures and diagrams, for the development of the Clear Roads' ELDT materials in this project if the training materials are provided free-of-charge.



**Figure 2. Example of SDLA CDL Manual Developed by AAMVA**

### Popular CDL Training Resource Providers

Aside from the FMCSA itself, there are a number of entities that provide guidance and other pertinent resources for CDL training. State driver's license agencies typically provide a CDL manual to help driver-trainees successfully pass the written test to obtain their Commercial Learner's Permit as well as providing basic instruction on important theory knowledge and BTW skills needed to obtain a valid CDL. However, these manuals often do not go into sufficient detail to meet all the training requirements of the new ELDT regulation. These entities range from providing regulatory compliance to full training curriculum and program certification. Unlike the

AAMVA, these CDL training resource providers do not make their training materials publicly available.

### **JJ Keller & Associates**

JJ Keller & Associates was established in 1953 with the primary focus of workplace safety, regulatory compliance, and driver training in the motor carrier industry. They currently serve over 500,000 customers, providing forms, handouts, pocket guides, regulation handbooks, and training manuals. Their website can be found here: <https://www.jjkeller.com/learn/entry-level-driver-compliance>

### **Professional Truck Driver Institute**

The PTDI is an international certifying body dedicated to ensuring excellence in truck driver training and classroom course work. PTDI was founded in 1986 following the standardization of commercial driver's licensing by the FMCSA. PTDI was the first body to establish minimum skill performance, curriculum, and certification of truck driver training programs; however, without regulations in place, the PTDI standards and certification is a voluntary program. PTDI also published a guidebook to the ELDT regulation. PTDI's website can be found here: <http://ptdi.org/>

### **Commercial Vehicle Safety Alliance**

The Commercial Vehicle Safety Alliance (CVSA) was established to improve commercial motor vehicle safety and uniformity throughout North America. CVSA is comprised of local, State, and Federal officials and representatives from the truck and bus industry. The primary goal is to provide guidance and education to enforcement agencies, industry, and policy makers. The CVSA website can be found here: <https://www.cvsa.org/>

## Chapter 5. Data Collection Methods

This project involved two data collection efforts to gather information to assist in the development of ELDT training materials: a state survey and state interviews.

### Clear Roads State Survey

A brief survey (Appendix A) of Clear Roads member agencies was developed to gather data related to the following two topics:

1. States' plans for complying with FMCSA's final ELDT rule; and
2. Existing CDL training materials that could be shared with the research team.

The survey was administered via the Internet (e.g., Qualtrics.com). Links to the survey were provided to the main Clear Roads point of contact at each of the 36 Clear Roads member states (Figure 3). That individuals subsequently distributed the link to the appropriate individual(s) (e.g., driver training director or superintendent). Survey responses were automatically entered into a secure online database.

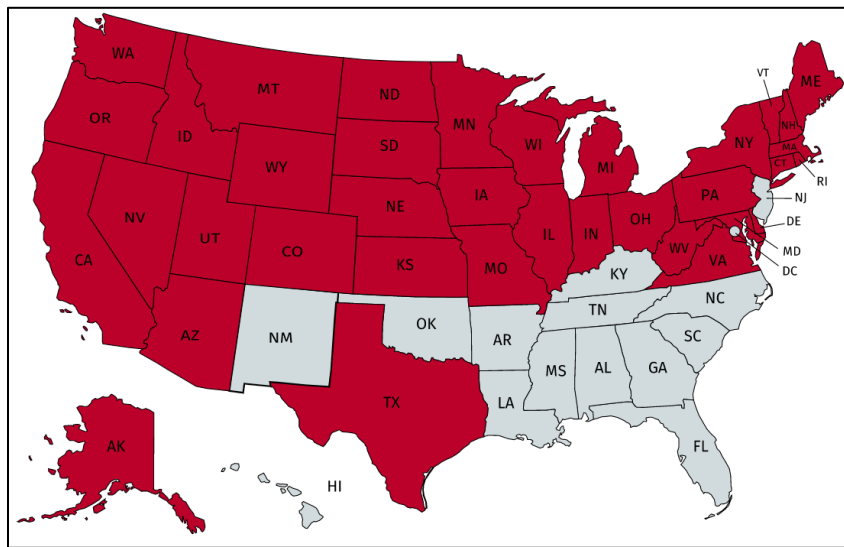


Figure 3. Map Showing the 36 Clear Roads Member States

### Clear Roads State Interviews

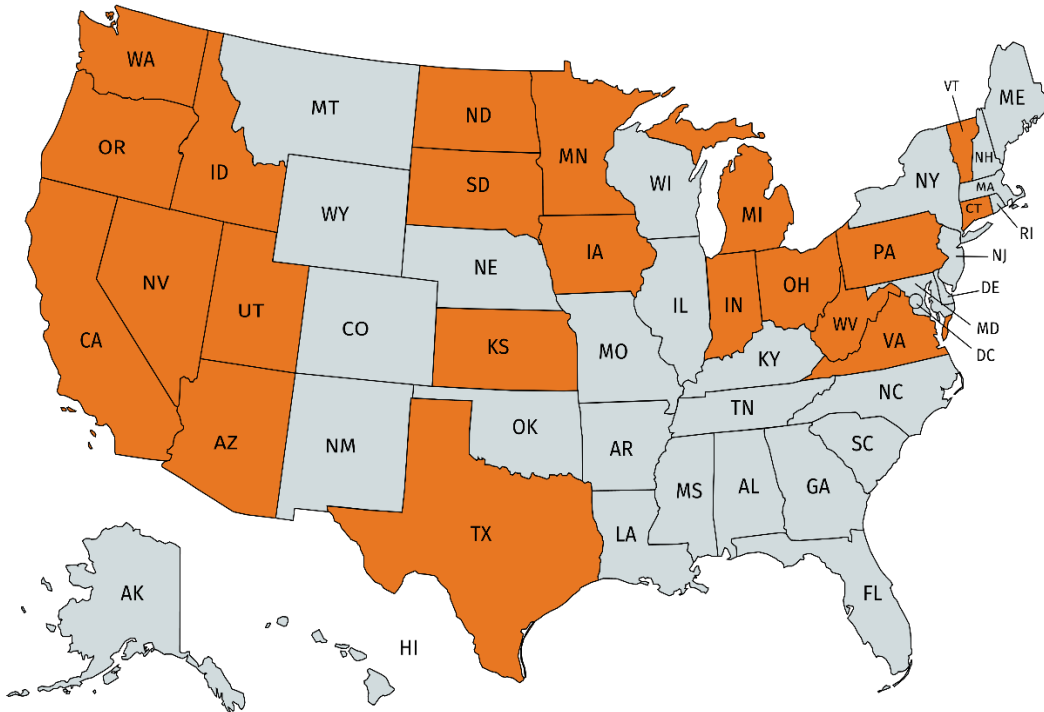
Based on the data gathered in the survey, semi-structured interviews (Appendix B) were conducted with three Clear Roads agencies that have developed or have begun developing their own training curricula, materials, and processes to comply with the ELDT final rule. The purpose of the state interviews was to gather additional insight into current CDL training and what steps each agency has already taken to begin compliance with the ELDT regulation. Further, each interviewee provided general demographic information pertaining to the number of districts, CDL drivers, yearly CDL throughput, number of training locations, etc., as well as any internal processes, organization structural changes, and hiring that has been done or may be necessary to be in compliance with the ELDT regulation. Finally, the research team examined each states' existing

training materials to identify format and content that may need to be updated to conform with the new ELDT regulation. The interviews were conducted via telephone. All interviews were recorded to ensure all the information was captured.

## Chapter 6. Data Collection Results

### Survey Results

A total of 21 Clear Roads member agencies completed the survey as of January 26, 2021 (see Figure 4). One additional response was also captured due to one member agency (Oregon) having two personnel (CDL training coordinator and CDL trainer) complete the survey. The following member agencies completed the survey:



**Figure 4. Clear Roads Members Who Responded to the Survey (Orange Shading)**

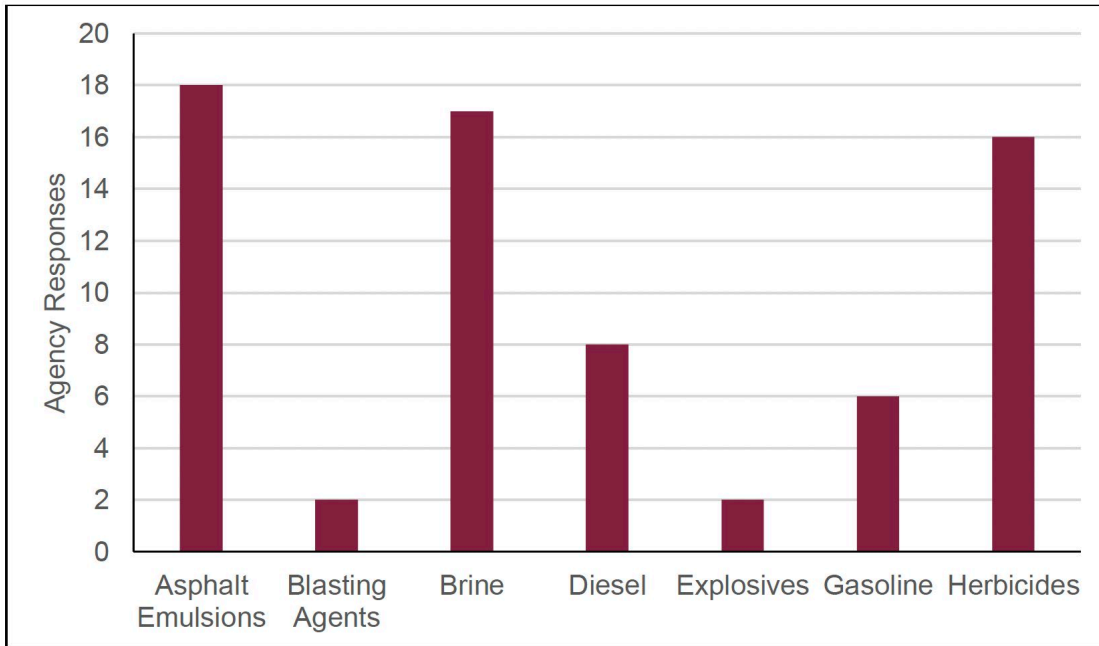
Of the 21 member agencies that responded to the survey, 17 currently provide CDL training for their drivers while four member agencies do not. However, only 12 of the 21 respondent Clear Roads agencies reported that they will continue training CDL drivers once the ELDT regulation goes into effect on February 7, 2022. Three member agencies reported they will not continue to train CDL drivers, and six member agencies reported they were unsure if they will continue training CDL drivers. Of the three member agencies that reported they will not train CDL drivers once the ELDT regulation goes into effect, two currently do not train CDL drivers while the third member agency does currently train CDL drivers but will not do so once the ELDT regulation goes into effect.

### Hazard Materials Feedback

One question in the survey asked member agencies what types of materials they currently haul or plan to haul in the future. The ELDT regulation includes a section on hazardous materials; therefore, on or after February 7, 2022, driver trainees or the CDL drivers wishing to upgrade to a



hazardous materials endorsement are required to complete the ELDT hazardous materials training from a certified training provider. There are many types of hazardous materials, which can be found as liquids, gases, or in solid forms. It is important that the ELDT curriculum covers all pertinent hazardous materials member agencies may potentially haul. CDL drivers must know the properties of all hazardous materials they haul and the proper placarding to use on their commercial motor vehicle. Figure 5 provides the breakdown of materials hauled by the responding member agencies (21 total). All materials listed in Figure 3 are classified as a hazardous material by the U.S. DOT except for brine.



**Figure 5. Materials Hauled by Clear Roads Member Agencies**

### Internal Processes

At the organizational level, multiple aspects need to be considered when gaining compliance and implementing the ELDT regulations. Several of the survey questions captured responses for these processes. As noted above, three of the member agencies that completed the survey indicated they will not provide ELDT training to their drivers; therefore, the following summary is based on the responses of 18 member agencies.

When it comes to strategies to comply with the ELDT regulations, in large part, member agencies currently did not have a set path forward. Three member agencies reported they were considering contracting out to a vocational school, community college, or private entity to train their drivers. Conversely, two members felt their training already exceeded the ELDT regulation, and they would just have the formality of registering on the TPR. When assessing information technology needs for ELDT compliance, none of the respondents knew if their systems would need adjustments; however, several, member agencies reported they would load the ELDT into their current learning management system. As for changes to their internal processes, nine member agencies reported they would have to make changes, four members reported they would not make changes, and the remaining eight members were unsure. For those member agencies likely to make

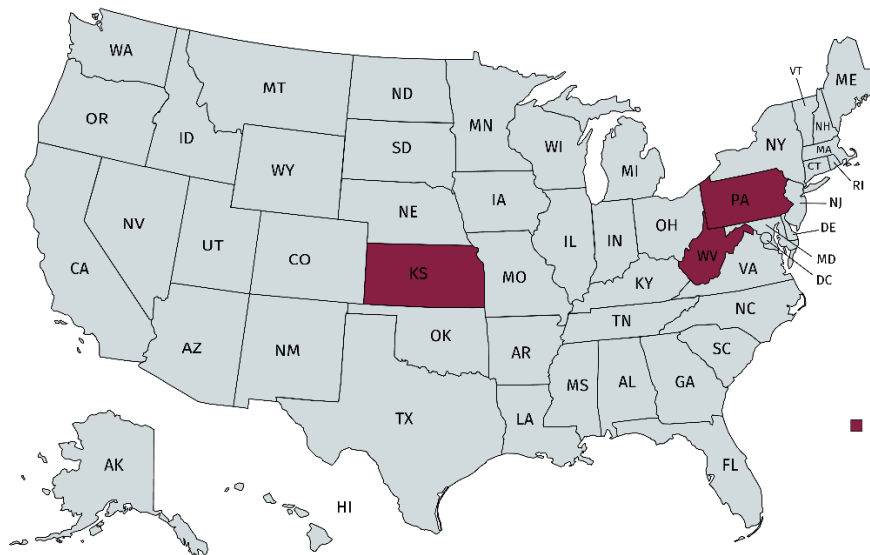
changes, adding train-the-trainer training and making the training a more structured format than the training currently provided would be necessary. Only one member agency felt they would definitely have to adjust their hiring strategies. Most member agencies indicated they would like to have their ELDT in place by the fall of 2021.

### Clear Roads Interview Recommendation

Based on the data collected in the survey, it was proposed that Kansas, Pennsylvania, and West Virginia are the member agencies to be interviewed. After reviewing the survey responses, West Virginia reported that all potential CDL drivers attend and successfully complete their Equipment Operator Training Academy which includes a full truck driver training curriculum. Pennsylvania reported that while some of their training materials will have to be updated, their employees are trained at higher level than ELDT requirements. Kansas reported to have already developed ELDT-compliant training. Thus, these three state DOTs were excellent models for gaining insight into EDLT training.

### Interviews Results

Three Clear Roads member agencies were selected for interviews with the project team (Figure 6). Two of these member agencies, Pennsylvania and West Virginia, were selected based on the data that was gathered during the survey that was administered to all Clear Roads members. These two member agencies felt that their CDL training was already compliant or nearly compliant with the new ELDT regulation. The Clear Roads Technical Advisory Committee provided input on the selection of the third member agency, Kansas.



**Figure 6. Clear Roads Member Agencies Interviewees (shaded maroon)**

The interviews were conducted on February 16, 2021 (Kansas), February 17, 2021 (West Virginia), and February 22, 2021 (Pennsylvania). Each interview lasted approximately one hour.

## Kansas

The state of Kansas has 105 counties with a total land area of 82,278 square miles. The Kansas Department of Transportation (KDOT) is comprised of six districts. The six districts are further broken into 25 areas with 112 sub-areas (Figure 7). Currently, CDL training takes place across all 112 sub-areas.



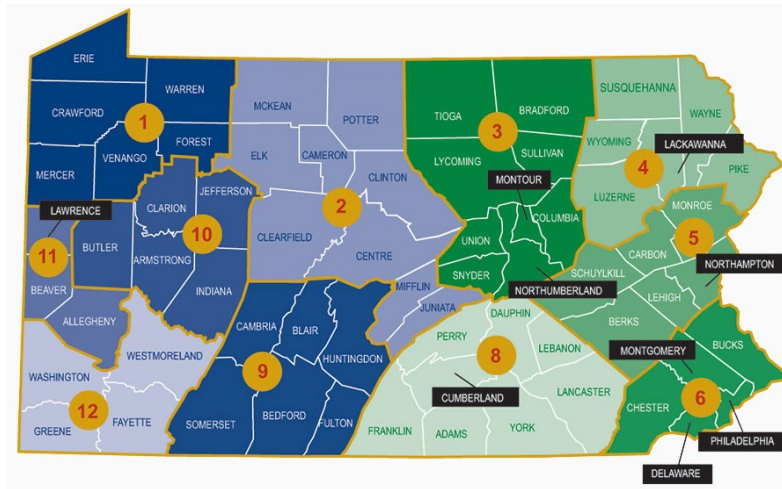
**Figure 7. Kansas DOT District and Sub-Area Breakdown**

Upon hire, CDL driver trainees are given 90 days to complete training and successfully obtain their Class A or B CDL. CDL training consists of a minimum of 15 hours of classroom instruction following the KDOT CDL Program Manual. BTW on-road training typically occurs while driving to and from job site locations or other designated routes. BTW range maneuvers typically occur in a maintenance yard. A minimum of 30 hours of BTW is required, CDL training does not occur on a scheduled basis; rather, it usually depends on the hiring needs within each district. There could be as few as two CDL driver trainees per month to upwards of 10 to 12 CDL driver trainees in a month. Approximately 80 percent of CDL driver trainees complete training in a dump truck with a pintle hook trailer, thus receiving a Class O restriction preventing operation of a fifth wheel trailer. However, a limited number of CDL trainees complete training on tractor-trailers (e.g., tanker, lowboy trailer, etc.). CDL trainers are required to have at least 2 years of driving experience.

KDOT has already implemented a learning management system (LMS), Learnsoft Technology, to help ensure consistent CDL classroom instruction across all sub-areas while also allowing all CDL driver trainees to be tracked in one centralized location. Their LMS currently contains three sections: 1) CDL walk-around/pre-trip video, 2) general knowledge, combination vehicles, air brakes, and tanker training along with tests/quizzes that are tracked, and 3) truckers against trafficking video. The driver-trainees' hours of theory instruction and BTW are tracked separately using labor activity codes. At this point-in-time, KDOT is still taking into consideration any potential additional steps that may be required to meet the new ELDT regulation, including organizational changes and/or potential hiring of new positions, but reports the need to develop a more robust administrative role to track compliance and tasks. The Human Resources department may fill the need for uploading CDL driver trainee records to the TPR. KDOT also reports that it would be a challenge to get the IT department to build the web services interface for batch uploads of driver data, so most likely they will use the manual entry method.

## Pennsylvania

The state of Pennsylvania has 67 counties with a total land area of 46,055 square miles. The Pennsylvania Department of Transportation (PennDOT) is comprised of 11 districts (Figure 8). Currently, there are two PennDOT CDL training locations: one on the west side of the state near Pittsburgh and the other on the east side of the state near Gap. However, during the COVID-19 pandemic CDL training has been pushed to each of the 67 counties. Each of these locations had trainers with a minimum of two years CDL experience with the PennDOT. CDL training is expected to return to only the two centralized locations when the FMCSA ELDT regulation goes into effect February 7, 2022.



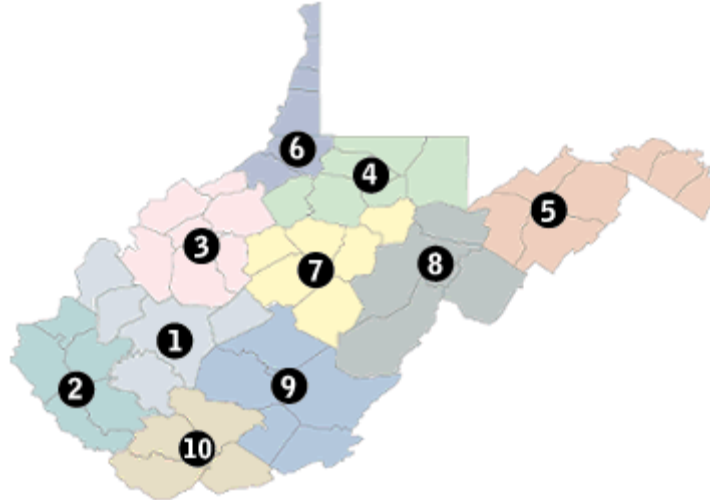
**Figure 8. PennDOT Districts**

CDL driver trainees are typically given two weeks to complete both classroom and BTW training and successfully obtain their Class A or B CDL. On average, approximately 100 CDL driver trainees complete the PennDOT training program each year. Similar to KDOT, approximately 80 percent of CDL driver trainees complete training in a dump truck with pintle hook trailer, thus, receiving a Class O restriction preventing operation of a fifth wheel trailer. However, there are a limited number of CDL trainees that complete training on tractor-trailers to haul the larger equipment on lowboy trailers, as well as gasoline and diesel fuel in tankers to jobsites. CDL trainers are required to have at least 2 years of driving experience with PennDOT and have no safety violations or at-fault incidents.

At this time, PennDOT is unsure if the state IT department will allow the FMCSA web services interface to be used for CDL driver trainee data to be uploaded to the TPR. Most of the organizational structure should already be able to accommodate the FMCSA ELDT regulation when it goes into effect on February 7, 2022.

## West Virginia

The state of West Virginia has 55 counties with a total land area of 24,230 square miles. The West Virginia Department of Transportation (WVDOT) Division of Highways is comprised of four regions and 10 districts (Figure 9). Currently, there is one CDL training location (Equipment Operator Training Academy) located in Buckhannon.



**Figure 9. WVDOT Districts**

On average, WVDOT has one CDL training class per month with approximately 10 to 12 CDL driver trainees per class. All classroom instruction, the pre-trip inspection, and introduction to the BTW range maneuvers are conducted at the centralized training location. The majority of the BTW training is completed out in the field at the district level. CDL driver trainees typically complete 20 to 40 hours of BTW time before CDL testing. Similar to KDOT and PennDOT, 85 percent of CDL trainees complete their training in dump trucks with pintle hook trailers, but each district does have CDL drivers trained on tractor-trailers. WVDOT CDL trainers are required to have at least 6 years of driving experience.

WVDOT has already implemented an LMS to track the CDL trainee process and the training materials. Organizationally, a manager is already in place to handle all procedural and compliance tasks and issues, tracking CDL driver trainees, and record keeping.

### **Key Take-aways**

The scope of the FMCSA ELDT regulation is to provide minimum training standards for both theory and BTW training to ensure that all potential CDL holders meet minimum proficiencies before being allowed to test and acquire a CDL. Ultimately, the ELDT regulation will safeguard not only commercial motor vehicle operators on our roadways but the general motoring public as well. The three Clear Roads member agencies interviewed for this project have already begun making changes and implementing many aspects of the ELDT regulation. It is understood that state DOTs are unique in that some CDL requirements are not routinely encountered and/or necessary during daily operations, and that for other requirements the states may be exempt. It is also understood that the majority of state DOT CDL drivers will be operating dump trucks with pintle hook trailers. One thing ascertained from these interviews was that certain theory requirements in the ELDT regulation may not be currently included in training (the research team notified the interviewees of these missing components and informed them that these components will be included in the Clear Roads training materials). This is likely the case for most Clear Roads members, if not all.

Section A1.5 of the ELDT regulation is for non-driving activities. These non-driving activities include the following subsections:

- Handling and Documenting Cargo
- Environmental Compliance
- Hours-of-Service Requirements
- Fatigue and Wellness Awareness
- Post-Crash Procedures
- External Communications
- Whistleblower/Coercion
- Trip Planning
- Drugs/Alcohol
- Medical Requirements

A few of the above theory subsections (e.g., Handling and Documenting Cargo, Whistleblower/Coercion, etc.) are likely discussed in their respective state DOT CDL training or by human resources. It appears that at least a few, maybe most, of these theory subsections are potentially not covered by current training. Each of these subsections will be required to be included in the training in order to be compliant with the ELDT regulation. For example, DOT employees are exempt from the medical card requirement per the Code of Federal Regulations (though some states may still require it); however, these requirements must be taught. Additionally, Section A1.4 of the ELDT regulation covers vehicle systems and reporting malfunctions. One subsection, A1.4.2 (Roadside Inspections), may not currently be covered by state DOTs due to the very low likelihood of a state-registered vehicle being stopped for inspection.

In the end, state DOTs are unique compared to typical truck and bus fleets; however, all potential state DOT CDL holders must be trained to the ELDT standards to ensure that if an employee resigns and seeks employment at another truck or bus fleet that they are able to safely operate a commercial motor vehicle and be in compliance with the ELDT regulation.

## Chapter 7. Key Considerations for ELDT Implementation

The chapter discusses the key considerations for State DOTs to ensure adequate time to be in full compliance with the new ELDT regulation when it goes into effect on February 7, 2022, and to continue to remain in compliance. While FMCSA has not provided guidance on how much time will be required to complete each step (e.g., how long between electronic submission of the TPR ELDT Provider Registration Form and receiving your TPR ID number, etc.), best practices can be applied to ensure that State DOTs have adequate time to be in full compliance with the new ELDT regulation by February 7, 2022, and remain in continued compliance. As noted above, FMCSA expects the TPR website (<https://tpr.fmcsa.dot.gov/>) to begin accepting ELDT registration forms and self-certification during the summer of 2021.

### ELDT Process Flowchart and Timeline

Figure 10 provides a flowchart of the steps necessary to become a certified training provider, registration and listing on the TPR, and for the transmission of driver data to the TPR. The timeline for completion of each of the steps is an estimate to ensure that each State DOT has ample time to comply; however, certain circumstances (e.g., current status of CDL training, updating equipment, etc.) may require adjustments at the individual State DOT level.

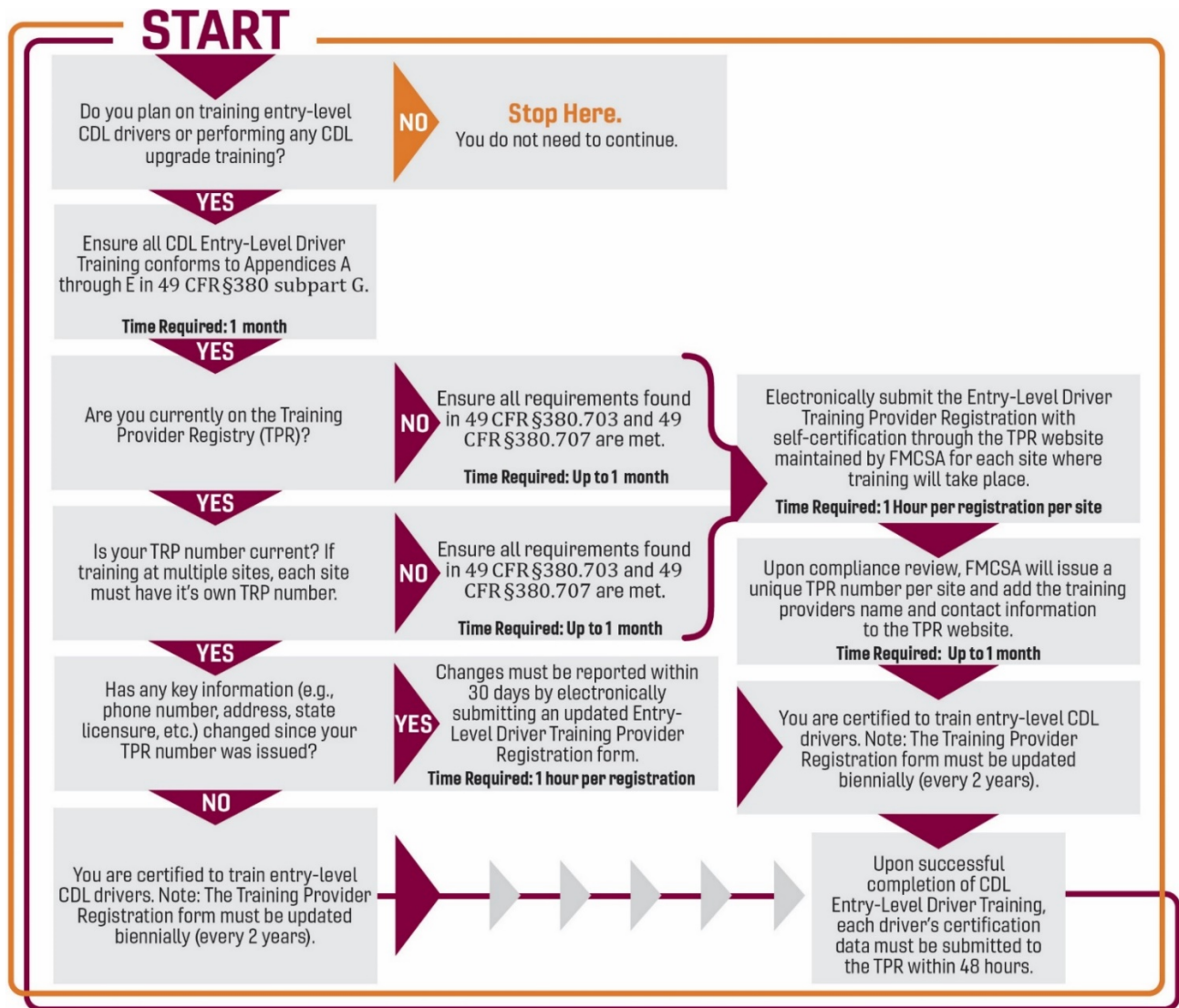


Figure 10. Workflow and Timeline for States to be Compliant with the ELDT Regulation

### Internal Processes

Steps will also need to be taken to ensure that individual State DOTs are capable of handling the requirements of the new ELDT regulation. This includes IT systems, potential process and organizational changes, potential hiring needs, and a train-the-trainer program.

### IT Systems

As noted in the previous chapter, all submissions for the TPR must be done electronically. All driver data for CDL applicants successfully completing training must be submitted within 48 hours of training completion. For State DOTs with high throughput of CDL applicants, the recommended means of electronic transfer is through the Web services interface. It is up to each State DOT to develop its Web services interface. See the previous chapter for the link to FMCSA’s Web Services Developer Guide. State DOT IT support staff will need to be fully trained on this Web services interface. It is realized that most State DOTs already conducting CDL training most likely have



electronic record-keeping in place. It is recommended to review this electronic record-keeping to ensure that adequate storage and security are in place due to the added burden of more driver data being captured and stored.

### Organizational Structure

Organizational structure should be reviewed to determine the need, if any, for adjusting personnel roles or potentially adding a new position(s) to meet all requirements of the ELDT regulation. Ideally, one person or a small team should be designated to handle all of the TPR registration processes and submission of driver data per State DOT. Depending on CDL applicant throughput, this may require hiring additional personnel. It is recommended that a review of organizational structure take place six months prior to registering for the TPR to ensure that adequate time is allotted for any restructuring necessary and potential new hire processes.

### Train-the-Trainer

With the ELDT regulation, all CDL trainers must meet 49 CFR §380.605 and 49 CFR §380.713 to be certified. Additionally, all CDL trainers must be well versed in each topic within the five core theories of instruction as well as all BTW skills. Two train-the-trainer training modules are available to guide this process. It is recommended that each instructor complete both modules prior to the commencement of the new ELDT regulation on February 7, 2022. Additionally, any new CDL instructors after February 7, 2022, should complete both train-the-trainer modules prior to instructing CDL applicants. It is estimated that experienced CDL instructors may complete both train-the-trainer modules in as little as two days; however, up to one month should be allotted to complete this task for training sites that have multiple trainers and to accommodate work schedules and/or inexperienced CDL trainers.

### Overall Compliance Timeline

Table 1 combines and summarizes the ELDT compliance process and any systemwide internal processes that need to be addressed in order to provide ELDT. As noted previously, these are best practices time estimates, but certain circumstances may require adjustments by the individual State DOT. The start by dates listed in the table are the latest that these tasks should begin to ensure compliance by February 7, 2022; however, many of these tasks (Tasks 1 through 5) can begin as soon as each State DOT is ready to implement the new ELDT. Note that the first five tasks can be conducted concurrently.

**Table 1. Compliance Timeline for ELDT Regulation**

ELDT Compliance Task	Time Required for Completion	Start by Date for Compliance by February 7, 2022
Review organizational structure needs for potential adjustments or hiring	Up to 6 months	8/1/21
Review IT infrastructure needs	Up to 4 months	10/1/2021
Ensure ELDT conforms to Appendices A–E in 49 CFR §380 Subpart G	Up to 1 month	10/1/2021
Ensure ELDT conforms to all state, and/or local statutes and regulations	Up to 1 month	10/1/2021
Train-the-trainer	Up to 1 month	11/1/2021

Ensure 49 CFR §380.709, 49 CFR §380.711 and 49 CFR §380.713 are met	Up to 1 month	12/1/2021
Submission of ELDT Provider Registration and Self-Certification	1 hour per site	1/7/2022
FMCSA compliance review	Up to 1 month	N/A
<b>ELDT compliance</b>		<b>2/7/2022</b>
Any changes in training provider information	Within one month	N/A
Submission of driver data	Within 48 hours	N/A

Appendix C provides a high-level, two-page fact sheet for ELDT training provider compliance.

## Chapter 8. ELDT Module Outlines

Complete curricula were developed to meet the requirements for ELDT Theory, BTW, and hazardous material endorsement. The developed modules are described below.

### Theory Curriculum

The theory curriculum is divided into five sections with a total of 30 instructional units. While the FMCSA does not require minimum number of hours for theory training, all 30 instructional units must be covered. Additionally, driver-trainees must be tested on all 30 instructional units and score a minimum proficiency of 80%. Training providers can make the decision whether to test driver-trainees after each unit, after each section, or to give one comprehensive exam at the end of all theory instruction.

#### **Section A1.1/B1.1 Basic Operation**

This theory section must cover the interaction between driver-trainees and the CMV. Driver-trainees receive instruction about the Federal Motor Carrier Safety Regulations (FMCSRs) and are introduced to the basic CMV instruments and controls. Training providers must teach driver-trainees the basic operating characteristics of a CMV. This section must also teach driver-trainees how to properly perform vehicle inspections, control the motion of CMVs under various road and traffic conditions, employ shifting and backing techniques, and properly couple and uncouple combination vehicles (for a Class A CDL). Driver-trainees must familiarize themselves with the basic operating characteristics of a CMV.

It is recommended that 18 hours be spent on instruction within the basic operation theory section.

#### **Unit A/B 1.1.1 Orientation**

This unit is an introduction to the Entry-level Class “A” Driving Curriculum. The history and function of the curriculum is covered, and the unit teaches a basic understanding of the safety fundamentals, rules and regulations related to operating a CMV. Driver-trainees will be oriented to the professionalism that is required of commercial drivers.

Instruction will include an overview of Parts 380, 382, 383, 390 (Commercial Driver’s License Standards; Requirements and Penalties), 391 (Qualifications of Drivers...) through 399 of the FMCSR. Driver-trainees will become familiar with the qualifications/disqualification regulations for commercial drivers along with the classifications of and the standards for obtaining a CDL.

#### **Unit A/B 1.1.2 Control Systems/Dashboard**

This unit introduces driver-trainees to the control systems in a combination-unit CMV. Driver-trainees will learn the names, locations, and functions of the primary and secondary gauges and controls. Trainees will learn the importance of using seatbelts and mirrors. They will learn to read the various gauges found in a typical commercial vehicle and be able to describe acceptable operating ranges.

#### **Unit A/B 1.1.3 Pre- and Post-Trip Inspections**

This unit introduces driver-trainees to vehicle inspections. The instructor will present and discuss the regulatory requirements for vehicle inspections found in 49 CFR 392.7 and 396.11. A video

presentation will be used to explain and illustrate a systematic vehicle inspection and critical inspection points including proper safety belt usage.

#### Unit A/B 1.1.4 Basic Control

This unit presents basic vehicle control and straight line backing of a combination-unit CMV. Driver-trainees will be taught the basics of executing left and right turns, centering the vehicle, maneuvering in restricted areas, and entering and exiting controlled access roadways. Driver-trainees will also learn about clearance requirements of large vehicles as well as vehicle weight and its effect on basic control. Starting, warm-up, and shut down procedures will be taught.

#### Unit A/B 1.1.5 Shifting/Operating Transmissions

This unit teaches the knowledge objectives necessary for shifting transmissions commonly found in heavy-duty trucks. Trainees will learn procedures for double-clutching, including the instruments and controls used in shifting to accommodate proper gear selection under a variety of circumstances. Various transmission shifting patterns will be introduced. Driver-trainees will also learn how proper shifting plays an important role in vehicle control and fuel economy. Auto-shift transmissions will also be covered.

#### Unit A/B 1.1.6 Backing and Docking

This unit presents backing maneuvers and docking a combination-unit CMV and will include evaluation of backing/loading facilities, knowledge of backing set ups, as well as instruction in how to back with use of a guide. Driver-trainees will be taught the concept of “Get Out and Look” (GOAL) and learn about CDL skills testing.

**Note: Driver-trainees that train and test in an auto-shift transmission will receive an E restriction and be prohibited from driving CMVs with manual transmissions.**

#### Unit A 1.1.7 Coupling and Uncoupling

This unit covers coupling/uncoupling procedures. Driver-trainees will learn the coupling and uncoupling procedures to safely and efficiently couple and uncouple combination unit vehicles as explained in the CDL Manual. This unit will cover both pintle hook and fifth wheel trailers.

**Note: Unit 1.7 Coupling and Uncoupling is not required for Class B CDL training. This unit will be required for driver-trainees upgrading from a Class B CDL to a Class A CDL. It is also recommended for Class B CDL driver-trainees that may pull a pintle hook trailer that is less than 10,000 pounds gross vehicle weight rating.**

### **Section A1.2/B1.2 Safe Operating Practices**

This theory section must teach the practices required for the safe operation of the CMV on the highway under various road, weather, and traffic conditions, including the federal rules governing the proper use of seat belt assemblies (49 CFR 392.16).

It is recommended that 8 hours be spent on instruction within this theory section.

#### Unit A/B 1.2.1 Visual Search

This unit presents the reasons for learning and using advanced driving practices. Basic safety theory is discussed to demonstrate that highway crashes have definite causes. A detailed

explanation of visual search techniques for the driving environment will be presented, including instruction on recognizing distracted pedestrians or distracted drivers. This unit also includes instruction in how to ensure a driver-trainee's personal security/general awareness in common surroundings such as truck stops and/or rest areas and at shipper/receiver locations.

#### Unit A/B 1.2.2 Communication

This unit will cover how a commercial driver should communicate intentions to other road users. Driver-trainees must be instructed in techniques for different types of communication on the road, including proper use of headlights, turn signals, four-way flashers, and horns. This unit must cover instruction in proper utilization of eye contact techniques with other drivers, bicyclists, and pedestrians. Communication should be discussed within the context of safe operating practices and crash prevention.

#### Unit A/B 1.2.3 Distracted Driving

This unit covers the regulations related to distracted driving and other key driver distracted driving issues, including improper cell phone use, texting, and use of in-cab technology (e.g., automatic vehicle location, maintenance decision support systems, plow controls, cameras, etc). Both 49 CFR 392.80 and 392.82 will also be discussed. Driver-trainees will learn the following distraction aspects: visual attention (keeping eyes on the road), manual control (keeping hands on the wheel), and cognitive awareness (keeping mind on the task and safe operation of the CMV).

#### Unit A/B 1.2.4 Speed Management

This unit will cover speed management. The instructor will review the previously presented materials and encourage questions. Speed Management will be discussed within the context of safe operating practices and how they prevent crashes. Driver-trainees will learn managing speed effectively in response to various road, weather, and traffic conditions. Driver-trainees will also learn methods for calibrating safe following distances under various conditions including traffic, weather, and based on CMV weight and length.

#### Unit A/B 1.2.5 Space Management

This unit will cover space management. The instructor will review the previously presented materials and encourage questions. Driver-trainees will learn space management under various traffic and road conditions within the context of safe operating practices and how they prevent accidents.

#### Unit A/B 1.2.6 Night Operation

This unit teaches the topic of night driving factors affecting the safe operation of CMVs at night and in darkness. Additionally, driver-trainees will be instructed in changes in vision, communications, speed management, space management, and proper use of lights, as needed, to deal with the special problems night driving presents including during inclement weather and plow operations.

#### Unit A/B 1.2.7 Extreme Driving Conditions

This unit teaches the specific problems presented by extreme driving conditions. Driver-trainees will learn the factors affecting the operation of CMVs in cold, hot, and inclement weather and on steep grades and sharp curves. Training must include tire chaining procedures.

### **Section A1.3/B1.3 Advanced Operating Practices**

This theory section must introduce higher-level skills that build on the fundamental skills and knowledge taught in the prior two sections. Training providers must teach driver-trainees about the advanced skills necessary to recognize potential hazards and must teach driver-trainees the procedures needed to handle a CMV when faced with a hazard.

It is recommended that 14 hours be spent on instruction within this theory section.

#### **Unit A/B 1.3.1 Hazard Perception**

This unit teaches recognition of potential hazards in the driving environment in order to reduce the severity of the hazard and neutralize possible emergency situations. Driver-trainees will learn hazard recognition, visual search, adequate surveillance, and response to possible emergency-producing situations encountered by CMV drivers in various traffic situations and conditions. Additionally, driver-trainees will learn to recognize potential dangers and the safety procedures regarding construction/work zones.

#### **Unit A/B 1.3.2 Skid Control/Recovery, Jackknifing, and Other Emergencies**

This unit covers the causes of skidding and jackknifing and techniques for avoiding and recovering from them. Driver-trainees will learn maintaining directional control and bringing a CMV to a stop in the shortest possible distance under slippery conditions. Driver-trainees will also learn appropriate responses to other CMV emergencies that must include evasive steering, emergency braking, and off-road recovery, as well as the proper response to brake failure, tire blowouts, hydroplaning, and rollovers.

#### **Unit A/B 1.3.3 Railroad Highway Grade Crossings**

This unit teaches driver-trainees how to recognize potential dangers and the appropriate safety practices regarding railroad (RR)-highway grade crossings. Driver-trainees will be provided an overview of various federal/state RR grade crossing regulations, RR grade crossing environments, obstructed view conditions, clearance around the tracks, and rail signs and signals. Additionally, this unit includes information regarding railroad “Emergency Notification Systems” relating to unsafe conditions at RR-highway grade crossings or a disabled vehicle or other obstruction blocking a RR-highway grade crossing.

### **Section A1.4/B1.4 Vehicle Systems and Reporting Malfunctions**

This theory section must provide driver-trainees with sufficient knowledge of the CMV and its systems and subsystems to ensure that they understand their role in vehicle inspection, operation, and maintenance and the impact of those factors upon highway safety and operational efficiency.

It is recommended that 6 hours be spent on instruction within this theory section.

#### **Unit A/B 1.4.1 Identification and Diagnosis of Malfunctions**

This unit presents driver-trainees with an introduction to the major mechanical systems of a typical Class A/B CMV. Driver-trainees will learn how each component functions and how to check all key vehicle systems, as appropriate (e.g., engine, engine exhaust auxiliary systems, brakes, drive train, coupling systems, and suspension) to ensure their safe operation. Driver-trainees will learn 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. This unit acts as a complement to the units involving vehicle inspections.

#### **Unit A/B 1.4.2 Roadside Inspections**

This unit covers what a CMV driver should expect during a standard roadside inspection conducted by authorized personnel along with proper conduct expected of the driver. Driver-trainees will also be introduced to the CVSA out of service (OOS) criteria. Driver-trainees will learn what vehicle and driver violations are classified as OOS, including the ramifications and penalties for operating a CMV when subject to an OOS order as defined in section 49 CFR 390.5.

#### **Unit A/B 1.4.3 Maintenance**

This unit introduces basic servicing and checking procedures for various engine and vehicle components to help develop driver-trainees' ability to perform preventive maintenance and simple emergency repairs. This unit acts as a complement to the unit for vehicle inspections.

### **Section A1.5 Non-Driving Activities**

This theory section teaches driver-trainees activities that do not involve the actual operation of the CMV but that still impact the safety of CMV operators.

It is recommended that 24 hours be spent on instruction within this theory section.

#### **Unit A/B 1.5.1 Handling and Documenting Cargo**

This unit will introduce driver-trainees to the laws and regulations on weight and length limits. It will define important terms regarding federal and state vehicle weight limit and length limit laws, including adjustments that may need to be made to the vehicle to comply with these laws. Additionally, this unit teaches cargo handling and documentation along with procedures used in loading/unloading, including lifting techniques to prevent driver injury and cargo securement devices and methods. Driver-trainees will learn various categories of cargo. Driver-trainees will also learn the driver's responsibility for ensuring shipping documentation is correct, including basic information regarding the proper handling and documentation of hazardous material (HM) cargo. Additionally, theft prevention will be emphasized.

#### **Unit A/B 1.5.2 Environmental Compliance**

This unit teaches typical environmental hazards and issues related to the CMV and load, and emphasizes that city, county, state, and federal requirements may apply to such circumstances. Driver-trainees will learn to identify these hazardous materials and environmental concerns, understand a CMV driver's obligation when confronted with these situations, and appropriate responses for situations involving hazardous materials and spills.

#### **Unit A/B 1.5.3 Hours-of-Service Requirements**

This unit introduces driver-trainees to the Hours-of-Service (HOS) regulations. This unit must teach that there are different HOS requirements applicable to different industries and must include all applicable HOS regulatory requirements. Driver-trainees will learn proper completion of the Driver's Daily Log (electronic and paper), timesheet, and logbook recap. Consequences (safety, legal, and personal) of violating the HOS regulations, including the fines and penalties imposed for these types of violations will be emphasized.

#### Unit A/B 1.5.4 Fatigue and Wellness Awareness

This unit will explain the issues and consequences of chronic and acute driver fatigue and the importance of staying alert. Driver-trainees will learn about wellness and basic health maintenance that affect a driver's ability to safely operate a CMV. Driver-trainees will also learn about the effects of stimulants such as coffee, caffeine, etc.

#### Unit A/B 1.5.5 Post-Crash Procedures

This unit will explain the proper procedures a commercial driver should follow in the event of a motor vehicle accident/crash. Driver-trainees will learn steps that should be taken if they are involved in an accident/crash, including how to: protect the area, obtain emergency medical assistance, move on-road vehicles off the road in minor crashes to avoid subsequent crashes or injuries, engage flashers, place reflective triangles and other warning devices for stopped vehicles, and properly use a fire extinguisher. Driver-trainees will also learn about post-crash testing requirements related to controlled substances and alcohol. Additionally, driver-trainees will be shown an accident reporting kit, and the instructor will demonstrate how to properly complete an accident report.

#### Unit A/B 1.5.6 External Communication

This unit teaches the value of effective interpersonal communication techniques/skills to interact with enforcement officials. Driver-trainees will learn the specifics of the roadside vehicle inspection process, and what to expect during this activity. Driver-trainees who are not native English speakers must be instructed in FMCSA English language proficiency requirements and the consequences for violations. The consequences that violating federal and/or state regulations will have on their driving records and their employing motor carrier's record must be emphasized.

#### Unit A/B 1.5.7 Whistleblower/Coercion

This unit teaches driver-trainees about their rights as 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. This unit must include the whistleblower protection regulations in 29 CFR Part 1978. The procedures for reporting incidents of coercion to FMCSA must be taught.

#### Unit A/B 1.5.8 Trip Planning

This unit addresses the importance of and requirements for planning routes and trips. Driver-trainees will learn how to plan the safest route, planning for rest stops, heavy traffic areas, RR-highway grade crossing safe clearance and ground clearance (i.e., "high center"), the importance of federal and state requirements on the need for permits, and vehicle size and weight limitations. Driver-trainees must learn the correct identification of restricted routes, the pros and cons of GPS/trip routing software, and the importance of selecting fuel-efficient routes.

#### Unit A/B 1.5.9 Drugs/Alcohol

This unit teaches the FMCSR pertaining to substance abuse (including prescription drugs) and drug/alcohol testing (49 CFR Part 382, Subpart F). Driver-trainees will learn the consequences that past and future behavior will have on their future career as professional commercial drivers.



### Unit A/B 1.5.10 Medical Requirements

This unit teaches the federal rules on medical certification, medical examination procedures, general qualifications, responsibilities, and disqualifications based on various offenses, orders, and loss of driving privileges (49 CFR part 391, subparts B and E).

### Behind-the-Wheel

Similar to the theory instruction, there is no required minimum number of hours to reach BTW proficiency. However, all training providers are required to log and track each driver-trainee's BTW time and submit those hours, along with the other required driver-trainee information, to the Training Provider Registry upon successful completion of ELDT. Although ELDT does not require a specific score on road and range assessments, the training provider must not issue the training certificate unless the driver-trainee demonstrates proficiency in all BTW skills. It should also be remembered that State administered CDL testing requires a minimum proficiency of 80% on the both the skills and road tests.

### Range A2/B2

BTW range training includes driving exercises related to basic vehicle control skills and mastery of basic maneuvers, as covered in 49 CFR 383.111 and 49 CFR 383.113, which are necessary to operate a CMV safely. Training providers will teach activities in these units on a driving range as defined in 49 CFR 380.605. Training providers must teach "Get Out and Look" (GOAL) to the driver-trainees as it applies to units A2.2-2.6/B2.2-2.6.

It is recommended that 22 hours be spent on instruction within this theory section.

### Unit A/B 2.1 Vehicle Inspection: Pre-Trip/En-Route/Post Trip

In this unit, driver-trainees will begin a daily routine of vehicle inspections. The instructor(s) will provide a demonstration of a vehicle inspection followed by a demonstration of engine start-up and shut-down procedures. Afterward, driver-trainees will practice pre-trip inspection of the vehicles using a pre-trip inspection checklist or state CDL manual as a guide. The instructor should provide guidance as the driver-trainees practice.

### Unit A/B 2.2 Straight Line Backing

In this unit, driver-trainees will place a Class A (or B if applicable) CMV in motion in a controlled environment (Range). They will practice a series of basic control exercises and advance to straight-line backing. The first exercise will teach smooth engagement of the clutch, gentle acceleration, smooth braking and stopping, and straight-line backing.

If working in a group setting, driver-trainees should be placed in groups of three and should alternate turns behind the wheel in equal time increments. Driver-trainee groups will also conduct vehicle inspections, which should not exceed one-half hour.

### Unit A/B 2.3 Alley Dock Backing (45/90 Degree)

In this unit, driver-trainees will advance to the 45/90 Degree Alley Dock backing exercise that is required by the FMCSA and which will be used in the CDL skills test. The instructor(s) will first demonstrate both 45 and 90 degree backing. Driver-trainees will then work in groups of three (if

applicable) and alternate turns behind the wheel in equal time increments. Trainee groups will also conduct vehicle inspections, which should not exceed one-half hour.

#### Unit A/B 2.4 Off-Set Backing

In this unit, driver-trainees will learn two more of the seven skills exercises required by the FMCSA and used in the CDL skills test (offset backing left and right). After the instructor(s) provides a short description of the exercises, driver-trainees will begin practicing the offset backing exercises. As appropriate, driver-trainees should work in groups of three and alternate turns behind the wheel in equal time increments. Driver-trainee groups will also conduct vehicle inspections, which should not exceed one-half hour.

#### Unit A/B 2.5 Parallel Parking Blind Side

In this unit, driver-trainees will advance to the parallel park blind side (right side to curb) exercise that is required by the FMCSA and which will be used in the CDL skills test. The instructor(s) will demonstrate this skill and then the driver-trainees will practice it. As appropriate, driver-trainees should work in groups of three and alternate turns behind the wheel in equal time increments. Driver-trainee groups will also conduct vehicle inspections, which should not exceed one-half hour.

#### Unit A/B 2.6 Parallel Parking Sight Side

In this unit, driver-trainees will learn the sight side parallel park (left side to curb) exercise that is required by the FMCSA and which will be used in the CDL skills test. The instructor(s) will demonstrate this skill and then the driver-trainees will practice it. As appropriate, driver-trainees should work in groups of three and alternate turns behind the wheel in equal time increments. Driver-trainee groups will also conduct vehicle inspections, which should not exceed one-half hour.

#### Unit A 2.7 Coupling and Uncoupling

In this unit, driver-trainees will observe the instructor couple and uncouple a Class “A” combination-unit according to the CDL Manual. After the demonstration, driver-trainees will practice coupling and uncoupling using the CDL Manual as a guide. Driver-trainees will practice coupling and uncoupling on the type of trailer (pintle hook or fifth wheel) for which they intend to take the CDL test. Driver-trainees will work in groups of three and alternate turns behind the wheel in equal time increments. Driver-trainee groups will also conduct a pre-trip inspection, which should not exceed one-half hour.

**Note: This unit is not required for Class B CDL training; however, it is still recommended for driver-trainees that will be pulling pintle hook trailers less than 10,000 pounds gross vehicle weight rating.**

#### **Public Road A3/B3**

The BTW public road training is where driver-trainees take what they have learned in theory training and put that learning into practice on real roads. Training providers must engage in active two-way communication with the driver-trainees during all active BTW public road training sessions. Skills described in paragraphs A3.8 through 3.12 of this section must be discussed during public road training but need not necessarily be performed.

### Unit A/B 3.1 Vehicle Controls: Left Turns, Right Turns, Lane Changes, Curves at Highway Speeds, and Entry and Exit on the Interstate or Controlled Access Highway

In this unit, driver-trainees will become familiar with the various controls necessary to operate a Class A or B CMV. Training will be conducted on public roadways. Driver-trainees must demonstrate proficiency in proper techniques for initiating vehicle movement, executing left and right turns, changing lanes, navigating curves at speed, exiting and entering the interstate/controlled access highway, and stopping the vehicle in a controlled manner. If appropriate, driver-trainees should work in groups of three and alternate turns behind the wheel in equal time increments. Driver-trainees will also conduct a pre-trip inspection, which should not exceed one-half hour.

### Unit A/B 3.2 Shifting/Transmission

This unit will teach the shifting skills introduced in theory instruction. Driver-trainees must demonstrate proficiency in proper techniques for performing safe and fuel-efficient shifting. They will be reminded of basic safety concerns associated with entering/exiting the vehicle and safety belt use. If appropriate, driver-trainees should work in groups of three and alternate turns behind the wheel in equal time increments. Driver-trainees will also conduct a pre-trip inspection, which should not exceed one-half hour.

**Note: Driver-trainees who train and test in an auto-shift transmission will receive an E restriction and be prohibited from driving CMVs with manual transmissions.**

### Unit A/B 3.3 Communications/Signaling

This unit will teach proper techniques for signaling intentions and effectively communicating with other drivers. It will apply safe operating principles previously learned in theory instruction while providing reinforcement of basic control skills. Driver-trainees will be reminded of basic safety concerns associated with entering/exiting the vehicle and safety belt use. If appropriate, driver-trainees should work in groups of three and alternate turns behind the wheel in equal time increments. Driver-trainees will also conduct a pre-trip inspection, which should not exceed one-half hour.

### Unit A/B 3.4 Visual Search

This unit will teach proper techniques for visually searching the road for potential hazards and critical objects. It will apply safe operating principles previously learned in theory instruction while providing reinforcement of basic control skills. Driver-trainees will be reminded of basic safety concerns associated with entering/exiting the vehicle and safety belt use. If appropriate, driver-trainees should work in groups of three and alternate turns behind the wheel in equal time increments. Driver-trainees will also conduct a pre-trip inspection, which should not exceed one-half hour.

### Unit A/B 3.5 Speed and Space Management

This unit will teach driver-trainees to demonstrate proficiency in proper habits and techniques for adjusting and maintaining vehicle speed, taking into consideration various factors such as traffic and road conditions. Additionally, training must include maintaining proper speed to keep appropriate spacing between the CMV and other vehicles. Instruction must include methods for calibrating safe following distances under an array of conditions, including traffic, weather, and in consideration of CMV weight and length. Driver-trainees will be reminded of basic safety

concerns associated with entering/exiting the vehicle and safety belt use. If appropriate, driver-trainees should work in groups of three and alternate turns behind the wheel in equal time increments. Driver-trainees will also conduct a pre-trip inspection, which should not exceed one-half hour.

### Unit A/B 3.6 Safe Driver Behavior

In this unit, driver-trainees must demonstrate proficiency in safe driver behavior during their operation of the CMV. **It is therefore suggested that this lesson be used as a final road test in which all required skills specified in Units A/B3.1 – A/B3.5 be demonstrated to the instructor’s satisfaction.** The road test must, at a minimum, address all testing requirements of the state CDL Road Test. Due to the confidential nature of testing, road testing should be conducted with no other trainees in the vehicle.

### Unit A/B 3.7 Hours-of-Service (HOS) Requirements

In this unit, driver-trainees must demonstrate proficiency in the basic activities required by the HOS regulations that were introduced in theory instruction. They must complete a Driver’s Daily Log (electronic and/or paper), timesheet, and logbook recap, as appropriate. **This should take place during all BTW road training.**

### Unit A/B 3.8 Hazard Perception

In this unit, driver-trainees must demonstrate their ability to recognize potential hazards in the driving environment in time to reduce the severity of the hazardous situation and neutralize possible emergency situations. Driver-trainees must demonstrate the ability to identify road conditions and other road users that are a potential threat to vehicle safety and suggest appropriate adjustments. This skill must be discussed during public road training, but does not necessarily need to be performed. Driver-trainees are not required to demonstrate proficiency in this skill. If appropriate, driver-trainees should work in groups of three and alternate turns behind the wheel in equal time increments. Driver-trainees will also conduct a pre-trip inspection, which should not exceed one-half hour.

### Unit A/B 3.9 Railroad-Highway Grade Crossing

In this unit, driver-trainees must demonstrate the ability to recognize potential dangers and to demonstrate appropriate safety procedures when RR-highway grade crossings are reasonably available. This skill must be discussed during public road training, but need not necessarily be performed. Driver-trainees are not required to demonstrate proficiency in this skill. If appropriate, driver-trainees should work in groups of three and alternate turns behind the wheel in equal time increments. Driver-trainees will also conduct a pre-trip inspection, which should not exceed one-half hour.

### Unit A/B 3.10 Night Operation

This unit will teach driver-trainees how to operate a CMV safely at night. Instruction must specify that night driving presents specific circumstances that require heightened attention on the part of the driver. Driver-trainees must be taught special requirements for night vision, communications, speed, space management, and proper use of lights. This skill must be discussed during public road training, but need not necessarily be performed. Driver-trainees are not required to demonstrate proficiency in this skill. If appropriate, driver-trainees should work in groups of three and alternate

turns behind the wheel in equal time increments. Driver-trainees will also conduct a pre-trip inspection, which should not exceed one-half hour.

### **Unit A/B 3.11 Extreme Driving Conditions**

This unit teaches the special risks created by, and the heightened precautions required by, driving CMVs under extreme driving conditions, such as in heavy rain, high wind, high heat, fog, snow, ice, on steep grades, and on curves. Instruction must teach the basic driving habits needed to deal with the specific challenges presented by these extreme driving conditions. Trainees will be reminded of basic safety concerns associated with entering/exiting the vehicle and safety belt use. This skill must be discussed during public road training, but need not necessarily be performed. Driver-trainees are not required to demonstrate proficiency in this skill. If appropriate, driver-trainees should work in groups of three and alternate turns behind the wheel in equal time increments. Driver-trainees will also conduct a pre-trip inspection, which should not exceed one-half hour.

### **Unit A/B 3.12 Skid Control/Recovery, Jackknifing, and Other Emergencies**

This unit will apply the safe operating principles along with emergency maneuvers/skid avoidance and skid control. Driver-trainees must know the causes of skidding and jackknifing and techniques for avoiding and recovering from them. Instruction must include maintaining directional control and bringing the CMV to a stop in the shortest possible distance while operating over a slippery surface. Driver-trainees must be familiar with proper techniques for responding to CMV emergencies, such as evasive steering, emergency braking, and off-road recovery. Prevention and proper response to brake failures, tire blowouts, hydroplaning, and rollovers must also be included. This skill must be discussed during public road training, but need not necessarily be performed. Driver-trainees are not required to demonstrate proficiency in this skill. If appropriate, driver-trainees should work in groups of three and alternate turns behind the wheel in equal time increments. Driver-trainees will also conduct a pre-trip inspection, which should not exceed one-half hour.

## **Hazardous Materials Endorsement Training**

The hazardous material endorsement curriculum contains 13 instructional units. While the FMCSA does not require minimum number of hours for theory training, all 13 instructional units must be covered. Additionally, driver-trainees must be tested on all 13 instructional units and score a minimum proficiency of 80%. Training providers can make the decision whether to test driver-trainees after each unit, after each section, or to give one comprehensive exam at the end of all theory instruction.

### **Unit E1.1 Basic Introductory HM Requirements**

This unit is an introduction to the FMCSA Entry-level HM Driving Curriculum. The unit will discuss the basic HM competencies, including applicable regulations when HM is being transported and communication requirements, including shipping paper requirements, marking, labeling, placarding, emergency response information, and shipper's responsibilities.

### **Unit E1.2 Operational HM Requirements**

This unit teaches the basic operational competencies for transportation of HM. Instruction will focus on the basic responsibilities outlined in Section 9.2 of the state CDL Manual and U.S Department of Transportation regulations 49 CFR 171.1 (HM regulations).

### **Unit E1.3 Reporting HM Crashes and Releases**

This unit teaches the proper procedures and contacts for the immediate notification of certain HM-related incidents, including instruction in the proper completion and submission of HM Incident Reports outlined in Section 9.7 of the state CDL Manual and U.S Department of Transportation regulations 49 CFR 171.15 – 171.16 (HM regulations).

### **Unit E1.4 Tunnels and Railroad-Highway Grade Crossings Requirements**

This unit teaches driver-trainees the proper operation of an HM vehicle at RR-highway grade crossings and in vehicular tunnels, as outlined in Section 9.6 of the state CDL Manual.

### **Unit E1.5 Loading and Unloading HM**

This unit teaches driver-trainees the proper loading and unloading procedures for HM cargo, including the requirements for proper segregation and securement of HM, and the prohibitions on transporting certain solid and liquid poisons with foodstuffs as specified in Sections 9.4 – 9.5 of the state CDL Manual and U.S Department of Transportation regulations 49 CFR 177.834 – 177.848.

### **Unit E1.6 HM on Passenger Vehicles**

This unit teaches driver-trainees various requirements for vehicles transporting passengers and property, and the types and quantities of HM that can and cannot be transported in these vehicles/situations as specified in Sections 4.2.1 and 4.2.2 of the state CDL Manual and U.S Department of Transportation regulations 49 CFR 177.870.

### **Unit E1.7 Bulk Packages**

This unit teaches driver-trainees the specialized requirements for transportation of HM cargo in bulk packages, including cargo tanks, intermediate bulk containers, bulk cylinders, and portable tanks. Driver-trainees will learn the operation of emergency control features, special vehicle handling characteristics, rollover prevention, and the properties and hazards of the HM transported. Methods specifically designed to reduce cargo tank rollovers include, but are not limited to, vehicle design and performance, load effects, highway factors. Driver factors must also be taught as specified in Sections 9.5 and 8 of the state CDL Manual.

### **Unit E1.8 Operating Emergency Equipment**

This unit teaches driver-trainees the applicable requirements of the regulations and procedures necessary for the safe operation of the motor vehicle. This includes training in special precautions for fires, loading and unloading, operation of cargo tank motor vehicle equipment, and shut-off/shut-down equipment as specified in Section 9 of the state CDL Manual and U.S Department of Transportation Regulation 49 CFR 177.834.

### **Unit E1.9 Emergency Response Procedures**

This unit teaches driver-trainees the proper procedures and best practices for handling an emergency response and post-response operations, including what to do in the event of an unintended release of an HM. All training, preparation, and response efforts must focus on the hazards of the materials that have been released and the protection of people, property, and the environment as specified in Section 9.6 and 9.7 of the state CDL Manual and U.S Department of Transportation Regulations 49 CFR 172.600 – 172.606.

### **Unit E1.10 Engine (Fueling)**

This unit teaches driver-trainees the procedures for fueling a vehicle that contains HM as specified in Section 9.6 of the state CDL Manual and U.S Department of Transportation Regulation - 49 CFR 397.15.

### **Unit E1.11 Tire Check**

This unit teaches driver-trainees the proper procedures for checking the vehicle tires at the start of a trip and each time the vehicle is parked as specified in Section 9.6 of the state CDL Manual and U.S Department of Transportation Regulation - 49 CFR 397.17.

### **Unit E1.12 Routes and Route Planning**

This unit teaches driver-trainees the proper routing procedures that HM drivers are required to follow for the transportation of radioactive and non-radioactive HM as specified in Section 9.6 of the state CDL Manual and Department of Transportation regulations 49 CFR 397.61 – 397.77 and 397.101 – 397.103.

### **Unit E1.13 Hazardous Materials Safety Permits (HMSP)**

This unit teaches driver-trainees the proper procedures and operational requirements—including communications, constant attendance, and parking—that apply to the transportation of HM for which a Hazardous Material Safety Permit (HMSP) is required as specified in Department of Transportation regulations 49 CFR 397.5, 397.7.

## Chapter 9: ELDT Train-the-Trainer

Train-the-trainer materials were developed for Clear Roads agencies to use to train instructors on how to implement the ELDT training materials. Specifically, the train-the-trainer materials covered instructional strategies to implement both the theory and BTW portions of the EDLT curriculum. Additionally, the train-the-trainer materials included a section describing differences between the new ELDT requirements and previous approaches to CDL training. These materials include but will not be limited to:


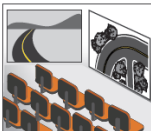



- Curriculum unit outlines;
- PPT presentations with suggested instructor narratives and notes;
- Instructor manuals with checklists, logs, and diagrams;
- Exams with answer keys;
- Required forms; and
- Suggested strategies for presenting the training in a virtual/webinar format.

Additionally, the train-the-trainer materials include three separate PowerPoint presentations. The first module provides an overview of the new ELDT regulations. The second module provides instructions and suggestions for implementing the ELDT Theory instruction. The third module provides instructions and suggestions for implementing the ELDT BTW instruction.



## Chapter 10: Summary

The FMCSA’s new ELDT regulation goes into effect on February 7, 2022. This new regulation sets minimum training standards for all individuals applying for an initial Class B CDL, upgrading from a Class B CDL to a Class A CDL, and obtaining the hazardous materials endorsements for the first time. As many state agencies provide entry-level training for drivers to earn their CDL, it was important for each state to understand the regulation and the requirements shown in Figure 11 to ensure compliance.

<b>Becoming a Compliant Training Provider</b> As a provider of ELDT, each State must self-certify on the Training Provider Registry (TPR) that they meet the following requirements:				
Curricula	Facilities	Instructors	State Licensing	Vehicles
 <p>Both theory and BTW instruction must cover all topics outlined in 49 CFR §380 Appendices A through E.</p>	 <p>Classroom and range facilities must comply with all applicable Federal, State, and/or local statutes and regulations.</p>	 <p>Theory and BTW instructors must meet the definition in §380.605.</p>	 <p>Must comply with applicable laws and regulations of any State where in-person training is conducted.</p>	 <p>Must comply with applicable Federal and State safety requirements and be in the same group and type that driver-trainees will test in for their CDL.</p>

**Figure 11. Requirements for State Agencies to be a Compliant ELDT Provider**

A major component of becoming compliant is ensuring both the theory and BTW instruction meet the new Federal criteria. This project filled this need and developed all required content, instructor-suggested narrations and notes, video demonstrations, instructor manuals, student exams, diagrams of BTW course setup, instructor checklists, and instructor logs to track student progress.

The Clear Roads ELDT program consists of theory training covering five main topics with 30 subtopics, 7 BTW range skills, and 12 BTW on-road skills. Additionally, the project includes all the training content required to obtain the HM endorsement. Although most of these subtopics/skills may be included in existing training, it is possible some are not currently covered. Each state must ensure every subtopic is included. The Clear Roads ELDT program includes the most comprehensive and in-depth content needed to be compliant.

## References

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- Morgan, J.F., Tidwell, S.A., Medina, A., Blanco, M., Hickman, J.S., & Hanowski, R.J. (2011). *Commercial Motor Vehicle Driving Simulator Validation Study: Phase II* (Report No. FMCSA-RRR-11-014). Washington, D.C.: Federal Motor Carrier Safety Administration.
- Professional Truck Driver Institute. (1999, September). Curriculum standard guidelines for entry-level tractor-trailer driver courses. Alexandria, VA: Author.
- Robin, J.L., Knipling, R.R., Derrickson, M.L, Antonik, C., Tidwell, S.A., & McFann, J. (2005). Truck simulator validation (“SimVal”) training effectiveness study. Proceedings of the 2005 Truck & Bus Safety & Security Symposium (pp. 475-483). Alexandria, VA: National Safety Council.

## Appendix A: Clear Roads Survey

1. Please select the choice that best represents who you work for during winter operations.
  - a. State DOT
  - b. Contractor
  - c. City/County
  - d. Other (Please specify): \_\_\_\_\_
  
2. In what state are you responsible for winter maintenance operations?  
\_\_\_\_\_
  
3. What is your current job title? \_\_\_\_\_
  
4. Due to the regulations and properties regarding hazardous materials, it is important for us to know the type of materials you or your drivers transport? Please check all that apply
  - a. Brine
  - b. Gasoline
  - c. Diesel
  - d. Asphalt curing and emulsion products
  - e. Blasting agents
  - f. Explosives
  - g. Herbicides
  - h. Others? Please specify: \_\_\_\_\_
  
5. Does your agency provide CDL training for drivers?
  - a. Yes
  - b. No – If no, please skip to question 9.
  
6. If you do provide CDL training, are you willing and able to share your training materials with VTTI and Clear Roads? These will be used as references and examples for the creation of the Clear Roads ELDT training?
  - a. Yes
  - b. No – If no, please skip to question 9.
  
7. If you are willing and able to share existing training materials, who should the research team contact?
  - a. Name: \_\_\_\_\_
  - b. Phone: \_\_\_\_\_
  - c. Email: \_\_\_\_\_

8. Do you plan to provide ELDT for drivers to earn their CDL once the new ELDT rule goes into effect on February 7, 2022?
- a. Yes – If yes, please skip to question 11.
  - b. No
  - c. Unsure: \_\_\_\_\_

If you do not plan to provide ELDT for drivers, you can skip to the end of the survey. You are finished. Thank you for your participation. The following questions are optional and will help the research team document the process for agencies to maintain compliance with the ELDT regulation.

9. If yes, what are your strategies to comply with the ELDT regulations?

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10. Will you need to adjust your information technology and record keeping to comply with the new ELDT regulation?

- a. Yes
- b. No – If no, please skip to question 14.
- c. Unsure: \_\_\_\_\_

11. If yes, can you please provide examples how you plan to adjust your information technology and record keeping to comply with the ELDT regulations?

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12. Will you need to adjust any internal processes to comply with the new regulation? For example, will you need to change your process for offering training, when training takes place, provide train-the-trainer instruction, etc.

- a. Yes
- b. No – If no, please skip to question 16.
- c. Unsure: \_\_\_\_\_

13. If yes, can you please provide examples how you plan to adjust your processes to comply with the ELDT regulations?

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14. Will you need to make any structural or organizational changes to comply with the new ELDT regulation? For example, will you need to change who trains the drivers, where training takes place, adding new positions to comply with the ELDT regulation, etc.

- a. Yes
- b. No – If no, please skip to question 18.
- c. Unsure: \_\_\_\_\_

15. If yes, can you please provide examples how you plan to make structural or organizational changes to comply with the ELDT regulations?

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16. Will you need to adjust your hiring strategies to comply with the new ELDT regulation?

- a. Yes
- b. No – If no, please skip to question 20.
- c. Unsure: \_\_\_\_\_

17. If yes, can you please provide examples how you plan to adjust your hiring strategies to comply with the ELDT regulations?

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18. Will you provide a train-the-trainer program for the ELDT program?

- a. Yes
- b. No – If no, please skip to question 22.
- c. Unsure: \_\_\_\_\_

19. What is your optimal start date for when you will start your train-the-trainer program?

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20. What is your optimal start date for when you will start providing the ELDT instruction?

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21. What is your optimal start date for when you submit self-certification forms and materials for instructors?

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This is the end of the survey. Thank you for your cooperation!

## Appendix B: Semi-Structured State Interview

1. Based on the survey response, you plan to continue providing CDL training to comply with the new ELDT regulation. Is that correct?
2. It also looked like you have developed or have begun developing your own training curricula, materials, and processes to comply. Correct?

The main purpose of these interviews is to gathering insight on lessons learned when developing training curricula and materials to maintain compliance with the ELDT final rule. Specifically, we want to focus on internal processes or structures that may need to be initiated prior to the February 2022 deadline.

1. Can you give us an overview of your training programs (time requirements, how it is organized, where, etc)
2. Did you need to update your information technology/record-keeping needs?
3. Did you need to make process changes?
4. Did you need to make structural/organizational changes?
5. Did you need to hire?
6. What are your suggested start dates for train-the-trainer programs and student trainings?

Can you share your training materials?

## **Appendix C: Clear Roads ELDT Factsheet**








## ENTRY-LEVEL DRIVER TRAINING FACT SHEET FOR TRAINING PROVIDER COMPLIANCE

The Federal Motor Carrier Safety Administration's (FMCSA's) Entry-Level Driver Training (ELDT) regulation, [49 CFR Part §380 Subpart F & Subpart G](#), is effective on February 7, 2022. This regulation sets the minimum training standards for the entry-level Commercial Driver's

### Becoming a Compliant Training Provider

As a provider of ELDT, each State must self-certify on the Training Provider Registry (TPR) that they meet the following requirements:

Curricula	Facilities	Instructors	State Licensing	Vehicles
 <p style="text-align: center;">Both theory and BTW instruction must cover all topics outlined in <a href="#">49 CFR §380 Appendices A, B, C, D, &amp; E</a></p>	 <p style="text-align: center;">Classroom and range facilities must comply with all applicable Federal, State, and/or local statutes and regulations.</p>	 <p style="text-align: center;">Theory and BTW instructors must meet the definition in <a href="#">§380.605</a>.</p>	 <p style="text-align: center;">Must comply with applicable laws and regulations of any State where in-person training is conducted.</p>	 <p style="text-align: center;">Must comply with applicable Federal and State safety requirements and be in the same group and type that driver-trainees will test in for their CDL.</p>

Clear Roads has developed theory and behind-the-wheel (BTW) training materials for State agencies to be compliant under the new ELDT regulation. These materials include PowerPoint presentations covering all required content, instructor-suggested narrations and notes, video demonstrations, instructor manuals, student exams, diagrams of BTW course setup, instructor checklists, and instructor logs to track student progress. Although the training materials are intended for in-person classroom instruction, the theory curriculum may be easily adapted for use in a virtual format and incorporated into a learning management system.

The Clear Roads ELDT program consists of theory training covering five main topics with 30 subtopics, 7 BTW range skills, and 12 BTW on-road skills. Although most of these subtopics/ skills are likely included in existing training, it may be possible that some are not. Each state should ensure that every subtopic is included. The Clear Roads ELDT program includes the most comprehensive and in-depth content needed to be compliant. As the ELDT program is editable, state agencies may choose to reduce the depth of content; however, each of the topics and subtopics must be included.

### Clear Roads ELDT Program

**Theory Curriculum**

- 30 units
- Estimated instructional time: 70 hours

**BTW Curriculum**

- Skill Units: 19
- Estimated instruction time: 44 hours

**Endorsements**

- Hazardous materials
- Tanker

**Train-the-Trainer Units: 2**

**Considerations for Equipment:** truck, trailer, range course, TPR web interface

### Key Considerations

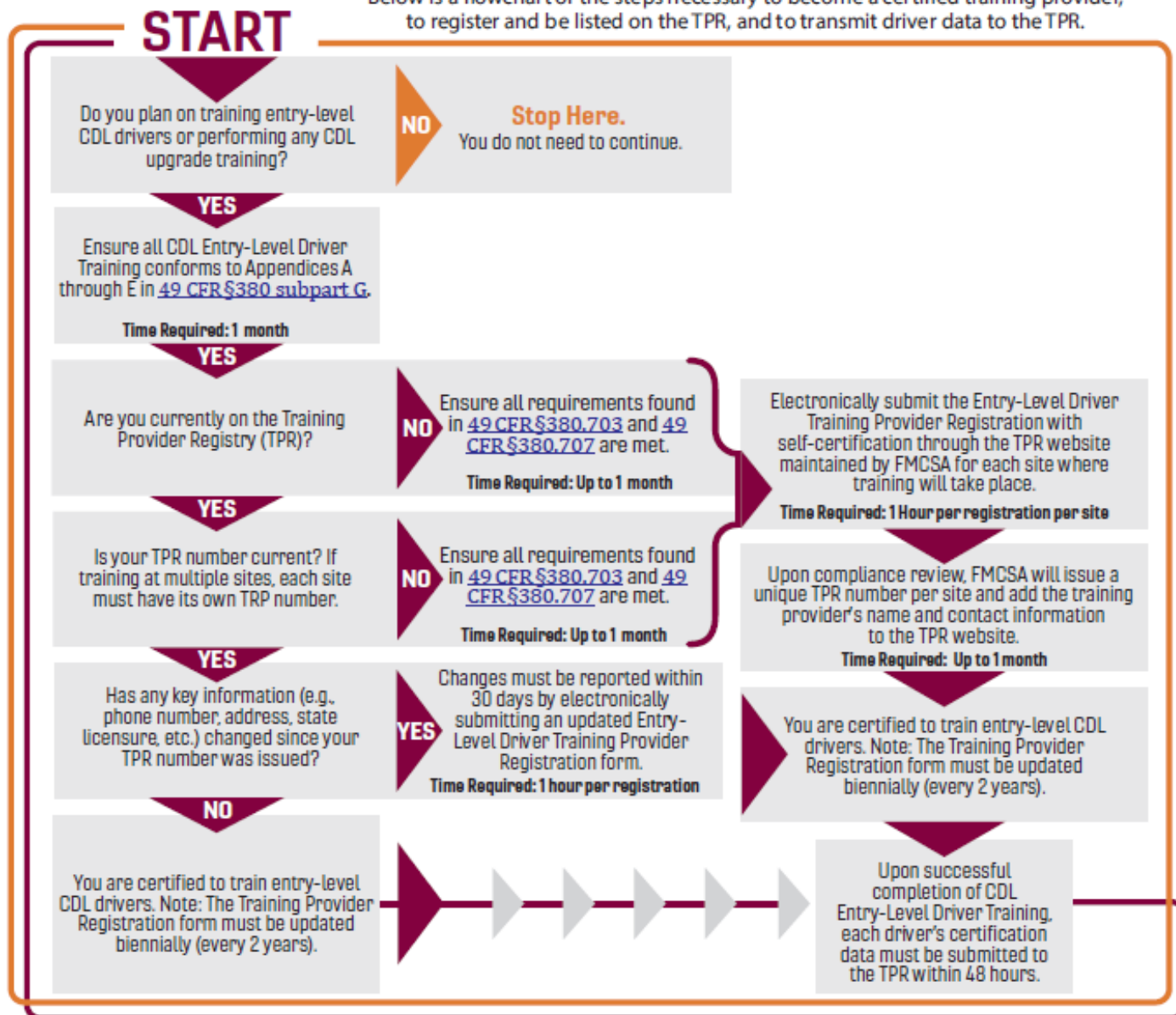


To maintain compliance with the new ELDT regulation, additional steps may be needed. Each state should consider the following:

- Register each training location separately on the TPR (<https://tpr.fmcsa.dot.gov/>).
- Consider a web service interface for the transfer of CDL applicant information (<https://tpr.fmcsa.dot.gov/DeveloperToolkit>).
- Examine the need for additional trainers to implement the ELDT program.
- Determine if a learning management system is needed to track trainee progress.
- Ensure that training covers all required content.
- Ensure that the training program follows local and state regulations

## FlowChart to Ensure Compliance with FMCSA’s ELDT Regulation

Below is a flowchart of the steps necessary to become a certified training provider, to register and be listed on the TPR, and to transmit driver data to the TPR.



ELDT Compliance Task	Time Required for Completion	Start by Date for Compliance by February 7, 2022
Review organizational structure needs	Up to 6 months	10/1/2021
Review IT infrastructure	Up to 4 months	10/1/2021
Review <a href="#">Appendices A, B, C, D, &amp; E in 49 CFR §380 Subpart G</a> to ensure compliance	Up to 1 month	10/1/2021
Ensure ELDT conforms to all State and/or local statutes and regulations	Up to 1 month	10/1/2021
Train-the-trainer	Up to 1 month	11/1/2021
Ensure <a href="#">49 CFR §380.711</a> , and <a href="#">49 CFR §380.713</a> are met	Up to 1 month	12/1/2021
Submission of ELDT provider registration and self-certification	1 hour per site	1/7/2022
ELDT compliance		2/7/2022
Any changes in training provider information	Within 1 month	N/A
Submission of driver data	Within 48 hours	N/A





research for winter highway maintenance

Lead state:

**Minnesota Department of Transportation**  
Office of Research & Innovation  
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