



Tractor-Trailer (AZ) Driver Training Standard

The approved training standard for Tractor-Trailer (AZ) Driver programs leading to an Ontario Certificate II delivered by Private Career Colleges or leading to a Local Board Certificate delivered by Colleges of Applied Arts and Technology

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I. Introduction

This document is the Training Standard for the Tractor-Trailer (AZ) Driver programs leading to an Ontario Certificate II delivered by Private Career Colleges of Ontario or leading to a Local Board Certificate delivered by Colleges of Applied Arts and Technology.

Development of System-Wide Program Standards

In 1993, the Government of Ontario initiated program standards development with the objectives of:

- bringing a greater degree of consistency to college programming offered across the province,
- broadening the focus of college programs to ensure graduates have the skills to be flexible and to continue to learn and adapt, and
- providing public accountability for the quality and relevance of college programs.

The Program Standards and Evaluation Unit of the Ministry of Training, Colleges and Universities has responsibility for the development, review and approval of system-wide standards for programs of instruction at Private Career Colleges and Colleges of Applied Arts and Technology (CAATs) in Ontario.

Training Standards

Training standards apply to all similar programs of instruction offered by Private Career Colleges and CAATs across the province. Each training standard for a postsecondary program includes the following elements:

- **Training standard** (the training specific learning outcomes which apply to the program in question), and
- **Essential employability skills** (the essential skills learning outcomes which apply to all programs of instruction).

Collectively, these elements outline the essential skills and knowledge that a student must reliably demonstrate in order to graduate from the program.

Individual Private Career Colleges or CAATs offering the program of instruction determine, within the context shown on page 4, the specific program structure, delivery methods and other curriculum matters to be used in assisting students to achieve the outcomes articulated in the standard. Individual colleges also determine whether additional local learning outcomes will be required to reflect specific local needs and/or interests.

The Expression of Program Standards as Learning Outcomes

Learning outcomes represent culminating demonstrations of learning and achievement. They are not simply a listing of discrete skills, nor broad statements of knowledge and comprehension. In addition, learning outcomes are interrelated and cannot be viewed in isolation of one another. As such, they should be viewed as a comprehensive whole. They describe performances that demonstrate that significant integrated learning by graduates of the program has been achieved and verified.

Expressing standards as learning outcomes ensures consistency in the outcomes for program graduates, while leaving to the discretion of individual Colleges curriculum matters such as the specific program structure and delivery methods.

The Presentation of the Learning Outcomes

- The Learning Outcome Statement sets out the culminating demonstration of learning and achievement that the learner must reliably demonstrate before graduation
- The Elements of the Performance for each learning outcome:
 - Clarify the depth, scope and complexity of the Learning Outcome
 - Provide indicators of the means by which the student can demonstrate satisfactory achievement of the Learning Outcome
 - The Elements do not stand alone but rather in reference to the Learning Outcome of which they form part
- The Performance Objectives of each Element of the Performance consist of concise statements that further describe the Element of the Performance, they describe the specific measurable knowledge, skill or attitude that learners must demonstrate and on which they are evaluated.

The Development of a Program Standard

In establishing the standards development initiative, the Government determined that all postsecondary programs of instruction should include vocational skills coupled with a broader set of essential skills. This combination is considered critical to ensuring that college graduates have the skills required to be successful both upon graduation from the college program and throughout their working and personal lives.

A program standard is developed through a broad consultation process involving a range of stakeholders with a direct interest in the program area, including employers, professional associations and program graduates working in the field, in addition to students, faculty and administrators at the colleges themselves. It represents a consensus of participating stakeholders on the essential learning that all program graduates should have achieved.

Updating the Training Standard

The Ministry of Training, Colleges and Universities will undertake regular reviews of the learning outcomes for this training standard to ensure that Tractor-Trailer (AZ) Commercial Driver training remains appropriate and relevant to the needs of students and employers across the Province of Ontario. Regulations referred to in this document are subject to change and the most current regulations will apply. If a regulation in this document is replaced, the replacement regulation will apply.

Certificate II and Prerequisites

Certificate II

The duration of the Tractor-Trailer (AZ) Driver program leading to a Certificate II credential under the Ontario Qualifications Framework¹ (Ontario Certificate II for PCCs or a Local Board Certificate for CAATs) will not be less than 200 hours. Program delivery will consist of a variety of teaching and/or training methods. The Tractor-Trailer should be equipped in accordance with Ministry of Transportation Drive Test specifications. The number of training hours will be allocated as shown below and a training log (signed by the student and instructor) must be kept on each student:

Method	Minimum number of hours per student	Structure
Classroom instruction	50 hours	Instructor led
Air brake	12 hours	Classroom instruction. Air brake course equivalent to the 12 hour Ministry of Transportation course.
Practice driving/Road training	50 hours*	Hands on the wheel, in truck training with an instructor.
Yards work and manoeuvres including backing	40 hours*	Small group work with no more than 4 students per Tractor-Trailer and no more than 8 students per instructor.
Other optional training <ul style="list-style-type: none">• Observation• Simulator training• Skid school• Air brake practical• Computer interactive training• Field trips	48 hours	Instructor led small group work or individual work with instructor supervision.

* Hours may be traded if agreed to by both the student and the instructor (e.g. If more hours are required for backing then these can be taken from practice driving).

¹ The OQF maps the overall structure of postsecondary qualifications in Ontario, outlines the standards or expectations that each is designed to meet and describes how the qualifications compare to one another. More information can be found at: <http://www.edu.gov.on.ca/eng/general/postsec/oqf.html>

The Learning Environment

It is also important in the design and delivery of their curriculum, that colleges view the vocational learning outcomes within the legal, ethical and professional framework of the sector.

Colleges must keep up to date on the current professional and regulatory requirements from the relevant authorities and sector standards. It is expected that colleges will adjust their training, assessment resources, training equipment and processes to suitably incorporate and accommodate any pertinent changes.

Prerequisites

- Valid Class ‘G’ Licence
- Knowledge verification of Rules of the Road and Signs
- Grade 10 English or,
 - Canadian equivalency as evaluated by “World Education Services” (WES) or,
 - Pre-employment/entry-level Trucking TOWES Test
- Completed and approved Medical Form of the Ontario Ministry of Transportation (MTO)

II. Training Standard

All graduates of Tractor-Trailer (AZ) Driver programs must have achieved the eleven learning outcomes listed in the following pages, in addition to achieving the essential employability skills learning outcomes

Preamble

The Tractor-Trailer (AZ) Driver training program provides students with the basic theoretical knowledge and fundamental practical training under controlled conditions to operate a Tractor-Trailer. Upon successful completion of the vocational training the graduate will receive an Ontario Certificate II from a PCC or a Local Board Certificate from a CAAT.

The learning outcomes include a range of skills for those interested in pursuing work as a Tractor-Trailer (AZ) Driver. Graduates who achieve certification must also obtain their Z Endorsement (Air Brakes) from Drive Test or from an Ontario Ministry of Transportation (MTO) Recognized Authority.

Even though this training would allow students to be employed as a Tractor-Trailer (AZ) Driver the training reflects a minimum standard and additional training may be undertaken by employers to meet their specific needs.

Synopsis of the Learning Outcomes for Tractor-Trailer (AZ) Driver Training

The graduate has reliably demonstrated the ability to

- 1. recognize a variety of potentially harmful conditions or circumstances and act on them as required in a manner that will contribute to the protection of self and others from harm**
- 2. contribute to the safe and efficient planning of a trip and the operation of the Tractor-Trailer**
- 3. manage and accurately maintain the required documents as required by various agencies in order to comply with applicable laws and/or regulations that relate to the safe, sealed and efficient movement of goods**
- 4. inspect and complete Pre-trip and Post-trip reports on current condition of the Tractor-Trailer for safe and effective operation**
- 5. perform trailer operations safely and effectively under a variety of operating conditions**
- 6. contribute to the safety of the driver, the Tractor-Trailer and other Tractor-Trailers or drivers who may be in close proximity to a potential driving hazard using defensive driving skills under normal operating conditions (25,000 lbs - 30,000 lbs load or 11,340 Kg - 13,608 Kg load) and/or circumstances**
- 7. recognize extreme driving conditions and utilize knowledge of defensive driving in these conditions to contribute to the safety of the driver, the Tractor-Trailer and other drivers or Tractor-Trailers who are in close proximity**
- 8. ensure cargo/goods and handling equipment are safely loaded, used and/or secured in accordance with applicable laws/regulations so that the safe transport of the cargo/goods can be undertaken**
- 9. communicate in a variety of ways as required in the operation of the Tractor-Trailer or as required by the company**

- 10. engage in various activities associated with the operation of the Tractor-Trailer and the related interactions with others that maintain and/or enhance a positive work situation**
- 11. operate air brake systems safely, contribute to their effective maintenance and identify applicable regulations and standards**

Note: The learning outcomes have been numbered as a point of reference; numbering does not imply prioritization, sequencing, nor weighting of significance.

Learning Outcomes, Elements of the Performance, Performance Objectives

Learning Outcome

1.0 *The graduate has reliably demonstrated the ability to*

recognize a variety of potentially harmful conditions or circumstances and act on them as required in a manner that will contribute to the protection of self and others from harm.

Element of the Performance

1.1 Comply with health and safety regulations.

Performance Objectives

- 1.1.1 Comply with health and safety standards in the workplace so that the potential for personal injury and damage to equipment, or the environment are minimized.
- 1.1.2 Describe corrective action as defined by government legislation when health and safety hazards are present in the workplace.
- 1.1.3 Outline approaches for reporting health and safety hazards to designated authorities.
- 1.1.4 Comply with typical company policies and procedures for responding to health and safety hazards in the workplace.

Element of the Performance

1.2 Wear and maintain personal protective equipment.

Performance Objectives

- 1.2.1 Wear personal protective equipment (clothing), including head protection, reflective vests, eye, ear, hand and safety footwear for wearer and task being performed.
- 1.2.2 Describe methods to ensure correct fit and optimum protection in the wearing of personal protective equipment.
- 1.2.3 Describe guidelines for maintaining personal protective equipment.

Element of the Performance

- 1.3 Describe the operation of emergency safety equipment.

Performance Objectives

- 1.3.1 Describe the required types of fire extinguishers and their uses.
- 1.3.2 Describe the essential contents of a first aid kit.
- 1.3.3 Describe the safe use of flares and safety triangles.
- 1.3.4 Describe general guidelines for combating different types of fires in a safe and efficient manner.

Element of the Performance

- 1.4 Adhere to safe workplace practices.

Performance Objectives

- 1.4.1 Describe safe personal lifting techniques.
- 1.4.2 Describe collision reporting measures.
- 1.4.3 Describe measures for maintaining focus/attention during the operation of a tractor-trailer.
- 1.4.4 Identify approaches for ensuring the safe and efficient operation of equipment as recommended by manufacturers' recommendations, government legislation and company policy.
- 1.4.5 Outline the importance of keeping the tractor clean.
- 1.4.6 Outline the importance of keeping the trailer clean.
- 1.4.7 Explain measures to be taken when parking or positioning the tractor-trailer when hazardous ground conditions exist such as:
 - ice,
 - snow,
 - uneven ground,
 - pot holes,
 - mud.

Element of the Performance

- 1.5 Mount and dismount a tractor-trailer.

Performance Objectives

- 1.5.1 Maintain three points of contact at all times.
- 1.5.2 Check hand and footholds are secure and free of debris (snow and ice).
- 1.5.3 Explain the need to avoid lateral movements.

Element of the Performance

- 1.6 Identify and Outline Regulatory Requirements as identified/required by various regulatory authorities.

Performance Objectives

- 1.6.1 Identify hours of service requirements.
- 1.6.2 Identify highway safety codes and related regulations.
- 1.6.3 Identify occupational health and safety requirements.
- 1.6.4 Identify carriage of goods requirements and load security.
- 1.6.5 Identify drug and alcohol regulations and policies in Canada and the United States.
- 1.6.6 Identify weights and dimensions regulations.
- 1.6.7 Identify labour code requirements.
- 1.6.8 Identify human rights requirements.
- 1.6.9 Identify transportation of dangerous goods requirements.
- 1.6.10 Identify environment protection requirements.
- 1.6.11 Identify food handling safety requirements.
- 1.6.12 Identify customs and immigration requirements.
- 1.6.13 Outline instances that affect company contracts and agreements.
- 1.6.14 Identify medical requirements in Canada and the United States.

Element of the Performance

1.7 Adhere to relevant laws, codes and agreements.

Performance Objectives

- 1.7.1 Reference Ontario Ministry of Transportation's *Highway Traffic Act, 1990*.
- 1.7.2 Reference International Registration Plan (IRP).
- 1.7.3 Reference Canadian Agreement on Vehicle Registration (CAVR).
- 1.7.4 Reference manufacturer's recommendations, specifications, safety requirements, and company policies and procedures.
- 1.7.5 Reference the Commercial Vehicle Safety Alliance (CVSA) standards.
- 1.7.6 Reference Canadian (Federal/Provincial), United States (Federal/State) and international regulations (FMCSA).
- 1.7.7 Reference International Fuel Tax Agreement (IFTA).
- 1.7.8 Reference the Environmental Protection Act (EPA).
- 1.7.9 Reference hours of service regulations (Canadian and U.S.).
- 1.7.10 Reference federal and provincial transportation of dangerous goods legislation and U.S. HAZMAT regulations.
- 1.7.11 Reference occupational health and safety legislation.
- 1.7.12 Reference load securing regulations.
- 1.7.13 Reference Federal Highways Administration regulations.
- 1.7.14 Reference regulations governing weights and dimensions.
- 1.7.15 Reference Canadian and U.S. customs and immigration regulations and Canadian Border Protection (CBP).
- 1.7.16 Reference the *Criminal Code of Canada*.
- 1.7.17 Reference Canadian human rights legislation.
- 1.7.18 Reference labour code requirements.
- 1.7.19 Reference the National Safety Code.

Learning Outcome

2.0 *The graduate has reliably demonstrated the ability to*

contribute to the safe and efficient planning of a trip and operation of the tractor-trailer.

Element of the Performance

2.1 Develop a trip plan which adapts to a variety of circumstances or conditions.

Performance Objectives

- 2.1.1 Describe a trip route, for an assigned trip, which is optimal with respect to travel time, fuel costs and potential hazards.
- 2.1.2 Identify required trip permits based on the nature of tractor-trailer, cargo and selected route.
- 2.1.3 Describe a process for arranging for required trip permits for a specified planned trip.
- 2.1.4 Calculate financial components of a trip plan including:
 - trip expenses,
 - fuel costs,
 - meals.
- 2.1.5 Estimate travel time including:
 - planned rest stops,
 - layovers,
 - meals,
 - unexpected delays,
 - fuel stops.
- 2.1.6 Describe an accepted procedure for securing tractor-trailers on layovers.
- 2.1.7 Describe personal safety measures during layover and at truck stops.
- 2.1.8 Describe how to read a map book and Global Positioning System.

Learning Outcome

3.0 *The graduate has reliably demonstrated the ability to*

manage and accurately maintain the required documents as required by various agencies in order to comply with applicable laws and/or regulations that relate to the safe, sealed and efficient movement of goods.

Element of the Performance

- 3.1 Record data and ensure the necessary personal, and Tractor-Trailer documents and receipts are on board.

Performance Objectives

- 3.1.1 Make entries to driver's daily log.
- 3.1.2 Describe measures for gathering trip data.
- 3.1.3 Describe techniques for recording trip data.
- 3.1.4 Outline need for carrying personal documents and tractor-trailer documents as prescribed by law for domestic and international trips.
- 3.1.5 Outline need to ensure that documents provided by customers accompany the load.
- 3.1.6 Describe measures for preparing expense reports, maintenance requests and customer documents to facilitate border crossings.

Element of the Performance

- 3.2 Describe/outline/organize the documents involved in the movement and exchange of goods.

Performance Objectives

- 3.2.1 Describe preparing a manifest/e-manifest.
- 3.2.2 Describe measures for verifying cargo type(s), on pick-up and delivery, including dangerous goods, nature, amount and condition.
- 3.2.3 Describe measures for verifying seals.
- 3.2.4 Describe measures for obtaining signatures.
- 3.2.5 Describe measures for verifying bill of lading, recording discrepancies, and/or damage.
- 3.2.6 Describe measures for submitting bill of lading documents and money.
- 3.2.7 Outline the need to have dangerous goods documents available.

Learning Outcome

4.0 *The graduate has reliably demonstrated the ability to*

inspect² and complete pre-trip and post-trip reports on current condition of the tractor-trailer for safe and effective operation.

Element of the Performance

4.1 Perform general tractor-trailer inspection.

Performance Objectives

- 4.1.1 Inspect the condition of various critical tractor-trailer components including:
- instruments and controls,
 - engine and drive train,
 - chassis and suspension,
 - steering systems,
 - air brake systems,
 - hydraulic brake systems,
 - air over hydraulic brake systems,
 - tires, wheels, hubs and rims,
 - lighting and signalling systems,
 - coupling system,
 - emergency equipment,
 - load and load securing devices,
 - internal heating systems.
- 4.1.2 Reference manufacturer's recommendations, specifications, safety requirements and procedures.
- 4.1.3 Outline the major/minor defects and out of service requirements that require a driver to decline to operate the tractor-trailer.

² There are four types of inspection: general, pre-trip, en-route and post-trip

Element of the Performance

- 4.2 Perform pre-trip tractor-trailer inspection and complete pre-trip report.

Performance Objectives

- 4.2.1 Describe measures to ensure cleanliness of tractor-trailer.
- 4.2.2 Verify valid tractor-trailer inspection decals, valid documentation for registration, licensing and insurance are on-board.
- 4.2.3 Reference manufacturer's recommendations, specifications, safety requirements and company policies and procedures.
- 4.2.4 Proper adjustment of mirrors and clean glass.
- 4.2.5 Identify pre-trip compliance with the *Highway Traffic Act, 1990*, and regulations.
- 4.2.6 Complete a pre-trip inspection report.

Element of the Performance

- 4.3 Perform en-route tractor-trailer inspections

Performance Objectives

- 4.3.1 Check mirrors for changing conditions.
- 4.3.2 Monitor instruments.
- 4.3.3 Describe measures to detect malfunctions of connections, hoses, and gauges.
- 4.3.4 Describe measures for conducting roadside inspections of critical components, tires, wheels and load.
- 4.3.5 Reference manufacturer's recommendations, specifications, safety requirements and company policies and procedures.
- 4.3.6 Discuss the *Highway Traffic Act* (HTA) requirement for monitoring tractor-trailer throughout a trip.
- 4.3.7 Discuss Commercial Vehicle Safety Alliance (CVSA) inspections procedures at Levels 1, 2 and 3 conducted by an MTO Officer or other law enforcement officers in the United States or other provinces and the potential consequences and actions.
- 4.3.8 Discuss *Highway Traffic Act* inspection procedures conducted by regional police service officers or provincial police service officers in Ontario, and the potential consequences and actions.
- 4.3.9 Describe actions to be taken if a tractor-trailer fails en-route inspection.

Element of the Performance

4.4 Perform post-trip tractor-trailer inspections and report.

Performance Objectives

- 4.4.1 Record and report actual and suspected component abnormalities or malfunctions.
- 4.4.2 Drain air tanks.
- 4.4.3 Access manufacturer's recommendations, specifications, safety requirements and procedures.
- 4.4.4 Describe measures for plugging in a block heater and internal heater.
- 4.4.5 Describe post-trip legal requirements for U.S. compliance.
- 4.4.6 Complete a post-trip inspection report.

Learning Outcome

5.0 *The graduate has reliably demonstrated the ability to*

perform trailer operations safely and effectively under a variety of operating conditions.

Element of the Performance

5.1 Back and Dock Tractor-Trailer safely under a variety of conditions.

Performance Objectives

- 5.1.1 Check area for obstructions, position and paths.
- 5.1.2 Judge paths and trailer clearances.
- 5.1.3 Activate warning flashers prior to moving into reverse gear.
- 5.1.4 Keep window open and radio off.
- 5.1.5 Position tractor-trailer before beginning manoeuvre.
- 5.1.6 Sound horn before moving tractor-trailer in reverse.
- 5.1.7 Execute reverse steering of an articulated tractor-trailer.
- 5.1.8 Back in straight and curved lines, and alley dock.
- 5.1.9 Describe serpentine backing.
- 5.1.10 Back into restricted space.
- 5.1.11 Check mirrors when reversing for anything that could tilt trailer, overhead obstructions and behind tractor tires.
- 5.1.12 Judge side and rear.
- 5.1.13 Pull up and start over when situation dictates.
- 5.1.14 Describe parking trailer in jackknife and blind side.
- 5.1.15 Park tractor-trailer.

Element of the Performance

5.2 Couple trailer safely.

Performance Objectives

- 5.2.1 Check and adjust mirrors.
- 5.2.2 Chock trailer wheels if not equipped with spring brakes.
- 5.2.3 Align tractor and trailer units.
- 5.2.4 Check alignment and height of kingpin and fifth wheel.
- 5.2.5 Connect air lines.
- 5.2.6 Connect electrical cable.
- 5.2.7 Charge and secure trailer system (service brakes).
- 5.2.8 Sound horn.
- 5.2.9 Lower air suspension.
- 5.2.10 Back tractor under fifth wheel to trailer threshold.
- 5.2.11 Raise air suspension.
- 5.2.12 Connect fifth wheel to kingpin.
- 5.2.13 Perform tug test by stretching the tractor and trailer.
- 5.2.14 Perform visual check for security of connection (coupling and kingpin engagement).
- 5.2.15 Confirm fifth wheel connections are locked and secured.
- 5.2.16 Apply all brakes.
- 5.2.17 Check for air leaks.
- 5.2.18 Retract and secure landing gear.
- 5.2.19 Remove chocks if used.

Element of the Performance

5.3 Uncouple trailer safely.

Performance Objectives

- 5.3.1 Spot the trailer on a surface capable of supporting weight.
- 5.3.2 Chock trailer wheels if not equipped with spring brakes.
- 5.3.3 Set in-cab air brake controls and trailer brakes.
- 5.3.4 Lower landing gear to raise trailer.
- 5.3.5 Uncouple trailer and disconnect dolly.
- 5.3.6 Check support.
- 5.3.7 Release fifth wheel pin.
- 5.3.8 Pull forward to disconnect fifth wheel.
- 5.3.9 Lower air suspension.
- 5.3.10 Disconnect air lines and secure.
- 5.3.11 Disconnect electrical units and secure.
- 5.3.12 Pull Tractor partially clear of trailer.
- 5.3.13 Raise air suspension.
- 5.3.14 Secure tractor.
- 5.3.15 Check trailer supports and brakes/chocks.
- 5.3.16 Pull tractor completely clear of the trailer.
- 5.3.17 Determine requirements to drain air tanks.

Learning Outcome

6.0 *The graduate has reliably demonstrated the ability to*

contribute to the safety of the driver, the tractor-trailer and other tractor-trailers or drivers who may be in close proximity to a potential driving hazard using defensive driving skills under normal operating conditions (25,000 lbs - 30,000 lbs load or 11,340 kg - 13,608 kg load) and/or circumstances.

Element of the Performance

6.1 Exercise basic control (carrying a load).

Performance Objectives

- 6.1.1 Identify *Highway Traffic Act* regulations (Rules of the Road).
- 6.1.2 Judge path and trailer clearances.
- 6.1.3 Execute controlled shifting and steering, sharp left and right turns, centering the tractor-trailer, and manoeuvring in restricted areas.
- 6.1.4 Avoid obstacles on both sides, front and back.
- 6.1.5 Manage space required for safe tractor-trailer operation, adjusting accelerating and stopping.
- 6.1.6 Position tractor-trailer in lane to begin and negotiate turns.
- 6.1.7 Execute emergency braking and steering techniques.
- 6.1.8 Discuss how to assess driving conditions of highways, expressways, mountain and urban roads, and overhead obstructions.
- 6.1.9 Describe use and adjustment of sliding tandems on trailers.
- 6.1.10 Describe measures to maximize fuel efficiency.
- 6.1.11 Describe how to slide fifth wheel.
- 6.1.12 Describe how to manoeuvre through construction zones.

Element of the Performance

6.2 Execute shifting.

Performance Objectives

- 6.2.1 Shift up and down progressively through all gears of multi-speed, dual range transmissions.
- 6.2.2 Execute double clutch and time shift.
- 6.2.3 Select correct gear for speed, terrain, turns and highway conditions.
- 6.2.4 Avoid riding the clutch.
- 6.2.5 Demonstrate progressive shifting technique.
- 6.2.6 Explain skip shifting.
- 6.2.7 Demonstrate gear recovery.
- 6.2.8 Demonstrate stopping in any gear.
- 6.2.9 Discuss matching shifting to engine speed.
- 6.2.10 Discuss safe shifting for road conditions.

Element of the Performance

6.3 Manage and adjust tractor-trailer speed.

Performance Objectives

- 6.3.1 Determine when driving conditions and road surfaces are safe.
- 6.3.2 Describe maintaining and adjusting ramp speed.
- 6.3.3 Judge safe speed at which a curve and off/on ramps may be entered and exited.
- 6.3.4 Describe obeying legal speed limit and signs.
- 6.3.5 Maintain speed to manage space around tractor-trailer from other tractor-trailers.
- 6.3.6 Adjust maximum safe speed that traction will permit.
- 6.3.7 Adjust maximum speed at which tractor-trailer control may be maintained under various conditions such as:
 - crosswinds,
 - road conditions,
 - weather conditions,
 - limited visibility,
 - traffic conditions,
 - hills,
 - mountains.

Element of the Performance

- 6.4 Describe precautions to be used at not protected railway crossings.

Performance Objectives

- 6.4.1 Describe stopping tractor-trailer the correct distance from the nearest rail.
- 6.4.2 Outline the need for looking in both directions.
- 6.4.3 Outline the need to turn off all interior sources of noise.
- 6.4.4 Describe how to listen to determine if a train is approaching.
- 6.4.5 Describe measures needed to cross the track safely including gearing.
- 6.4.6 Describe the significance of a raised/humped crossing.

Element of the Performance

- 6.5 Describe precautions to be used at protected railway crossings.

Performance Objectives

- 6.5.1 Describe different types of crossing control devices and different types of protected railway crossings.
- 6.5.2 Describe measures to cross protected railway crossings safely.
- 6.5.3 Describe measures to negotiate over a multiple set of tracks.
- 6.5.4 Describe measures in case of emergency.

Element of the Performance

- 6.6 Perform visual search in various types of traffic.

Performance Objectives

- 6.6.1 Describe adjusting mirrors.
- 6.6.2 Outline the need for scanning both sides of the road.
- 6.6.3 Describe checking the instrument panel.
- 6.6.4 Describe looking ahead during turns and on curves.
- 6.6.5 Describe checking side-to-side before turning or changing lanes.
- 6.6.6 Describe monitoring overtaking traffic.
- 6.6.7 Describe measures to avoid diverting attention from the path ahead.
- 6.6.8 Describe maintaining a straight-line path.
- 6.6.9 Describe correct use of mirrors.
- 6.6.10 Describe measures to avoid visual “blind spots”.

Element of the Performance

6.7 Manage and report malfunctions.

Performance Objectives

- 6.7.1 Discuss checking components and tractor-trailer systems for proper functioning.
- 6.7.2 Describe symptoms of improper operation.
- 6.7.3 Describe measures to report any breakdowns en route.

Element of the Performance

6.8 Manage and adjust tractor-trailer spatial relations.

Performance Objectives

- 6.8.1 Select traffic lanes with optimum mobility and with least traffic interruption.
- 6.8.2 Assure a safe gap before changing lanes, passing other tractor-trailers, merging and crossing or entering traffic, and positioning tractor-trailer in the lane relative to a crosswalk.
- 6.8.3 Position tractor-trailer before initiating and completing a turn to prevent other tractor-trailers from passing on the wrong side and to minimize encroachment on other lanes.
- 6.8.4 Maintain a following distance per regulation HTA S 158(2) in response to:
 - traffic,
 - road surface,
 - visibility,
 - tractor-trailer weight.
- 6.8.5 Discuss maximizing separation from traffic when tractor-trailer is disabled.
- 6.8.6 Describe placement of triangles/flares during any breakdown en route.
- 6.8.7 Judge clearances on all sides of truck including overhead when in motion.

Element of the Performance

6.9 Interpret cab instrumentation and control systems.

Performance Objectives

- 6.9.1 Operate each of the tractor-trailer's primary controls including those required for:
 - steering,
 - accelerating,
 - shifting,
 - braking,
 - parking.
- 6.9.2 Operate each of the secondary controls, including those for control of:
 - seat and safety belt,
 - warning flashers,
 - lights,
 - signal,
 - windshield wipers and washers,
 - interior climate control,
 - engine starting and shut-down,
 - suspension,
 - coupling,
 - air-ride switch.
- 6.9.3 Discuss identifying, locating, operating and indicating the acceptable reading range of various instruments required to monitor tractor-trailer and engine speed, as well as status of:
 - fuel,
 - oil,
 - air cooling,
 - exhaust,
 - emissions,
 - electrical,
 - air systems.
- 6.9.4 Describe measures to augment displayed information to ensure instruments and gauges are functioning accurately.

Learning Outcome

7.0 *The graduate has reliably demonstrated the ability to*

recognize extreme driving conditions and utilize knowledge of defensive driving in these conditions to contribute to the safety of the driver, the tractor-trailer and other drivers or tractor-trailers who are in close proximity.

Element of the Performance

7.1 Respond to potential driving hazards and perform emergency manoeuvres.

Performance Objectives

- 7.1.1 Describe measures to assess alertness and fatigue levels.
- 7.1.2 Discuss approaches to reduce driver distraction caused by drugs, alcohol, cell phones, computers and other devices.
- 7.1.3 Discuss adjusting to road, weather and traffic conditions for highways, expressways, mountain and urban roads.
- 7.1.4 Discuss managing space required for safe tractor-trailer operation.
- 7.1.5 Discuss identifying and perceiving visible road conditions and other road users that pose a potential threat to the safety of the tractor-trailer.
- 7.1.6 Discuss matching and initiating prompt defensive or evasive steering techniques to avoid skids and jack knifes.
- 7.1.7 Discuss using the brakes to stop tractor-trailer in shortest possible distance while maintaining directional control, and the effect of retreads.
- 7.1.8 Discuss over-steering and counter-steering out of a skid to regain directional control, and avoid another skid.
- 7.1.9 Discuss applying the brakes to

Element of the Performance

7.2 Adjust to difficult and extreme driving conditions (night conditions).

Performance Objectives

- 7.2.1 Adjust speed, distances and separation.
- 7.2.2 Demonstrate scanning techniques.
- 7.2.3 Use high beams and/or dimming headlights.
- 7.2.4 Describe responding safely to other tractor-trailer's glare.
- 7.2.5 Discuss managing fatigue.

Element of the Performance

7.3 Adjust to difficult and extreme driving conditions (cold conditions).

Performance Objectives

- 7.3.1 Describe measures to prepare for cold weather operation, including snow and ice removal from:
 - windows,
 - mirrors,
 - brakes,
 - lights,
 - hand holds,
 - hood,
 - trailer.
- 7.3.2 Describe measures of inspecting for cold weather operations, by checking:
 - coolant level and mixture,
 - heater,
 - defrosters,
 - wipers,
 - washers, washer fluid and level,
 - tire tread,
 - brakes,
 - lights,
 - reflectors,
 - wiring,
 - hoses,
 - fuel,
 - exhaust and emission systems,
 - fifth wheel.

- 7.3.3 Describe measures for ensuring moisture is expelled from air tanks prior to and after each trip.
- 7.3.4 Outline the need for checking ice accumulation and removing it on brakes, air hoses, electrical wiring and radiator shutters during operation.
- 7.3.5 Describe the measures required to adjust the tractor-trailer to weather conditions, including: speed selection, braking, direction changes and following distance.
- 7.3.6 Describe measures to assure safe operation of brakes.
- 7.3.7 Describe measures to maintain visibility.
- 7.3.8 Describe measures for starting engine in cold weather.
- 7.3.9 Describe measures for observing road surface for changes in conditions.
- 7.3.10 Discuss adjusting rate of change in speed and direction to road conditions to avoid skidding.
- 7.3.11 Describe installing tire chains.
- 7.3.12 Discuss coordinating acceleration and shifting to overcome the resistance of snow, ice, sand and mud, and carrying emergency provisions for 'stop' situations.
- 7.3.13 Describe personal protective clothing for extreme cold conditions.

Element of the Performance

- 7.4 Adjust to difficult and extreme driving conditions (hot weather).

Performance Objectives

- 7.4.1 Describe measures for checking tires, lubrication, levels of cooling system operation, fan belts, fans, hoses and radiator for debris.
- 7.4.2 Outline the need for provisioning extra drinking water.
- 7.4.3 Describe measures for inspecting tires, wheels and rims.

Element of the Performance

7.5 Manage and report collisions.

Performance Objectives

- 7.5.1 Describe stopping the tractor-trailer and parking in a safe location.
- 7.5.2 Describe measures to be taken to notify police and/or emergency services.
- 7.5.3 Describe placing warning devices.
- 7.5.4 Discuss measures to be taken to protect self and others from blood-borne pathogens.
- 7.5.5 Describe measures to be taken to protect injured persons.
- 7.5.6 Describe measures to be taken to guard the collision scene.
- 7.5.7 Discuss methods for extinguishing fires (cargo, engine, electrical and tire).
- 7.5.8 Describe measures to obtain information and evidence needed for collision reports.
- 7.5.9 Describe measures for directing traffic prior to arrival of police.
- 7.5.10 Outline the need for caution in discussing collision details.
- 7.5.11 Discuss measures to ensure safety of self and others in the event of hazardous spills by keeping a safe distance from the scene.
- 7.5.12 Describe the significance of a witness statement.

Element of the Performance

7.6 Deal with environmental issues.

Performance Objectives

- 7.6.1 Describe hazards associated with certain cargos.
- 7.6.2 Describe measures for inspecting hoses, couplings and other tractor-trailer components related to environmental hazards.
- 7.6.3 Describe monitoring diesel engine idle time and making adjustments.
- 7.6.4 Describe regular inspections for leaks.
- 7.6.5 Describe measures for fuelling to avoid spills and for reporting any spills.
- 7.6.6 Describe the use of a spill kit.

Learning Outcome

8.0 *The graduate has reliably demonstrated the ability to*

ensure cargo/goods and handling equipment are safely loaded, used and/or secured in accordance with applicable laws/regulations so that the safe transport of the cargo/goods can be undertaken.

Element of the Performance

8.1 Secure the load.

Performance Objectives

- 8.1.1 Describe various types of cargo and how they affect control.
- 8.1.2 Discuss the selection of proper sizes of chain, cable, webbing, strapping or rope used to secure the load.
- 8.1.3 Discuss securing load with chains, cables, webbing, strapping or rope and using the binding system.
- 8.1.4 Describe several methods of blocking and bracing the cargo.
- 8.1.5 Describe stopping to inspect the cargo.
- 8.1.6 Discuss verifying that load distribution complies with regulations.
- 8.1.7 Describe verifying that placards match the cargo.
- 8.1.8 Describe measures for covering cargo.
- 8.1.9 Describe an accepted procedure for securing hazardous/dangerous goods on a layover.

Element of the Performance

8.2 Describe the safe operation of common types of cargo handling equipment.

Performance Objectives

- 8.2.1 Discuss selection of cargo handling equipment to match load to be handled.
- 8.2.2 Identify common types of cargo handling equipment and their uses, including:
 - hand carts,
 - dollies,
 - hydraulic lifts,
 - drum handling equipment,
 - ladders,
 - conveyors,
 - platforms,
 - lift tables,
 - pallet handling equipment,
 - dock equipment,
 - fork lifts/tow motors.
- 8.2.3 Describe lifting techniques required to safely load and unload cargo.
- 8.2.4 Identify the certification required for certain types of cargo handling equipment.

Learning Outcome

9.0 *The graduate has reliably demonstrated the ability to*

communicate in a variety of ways as required in the operation of the tractor-trailer or as required by the company.

Element of the Performance

9.1 Communicate effectively with others while driving

Performance Objectives

- 9.1.1 Signal intentions, including lane changes, hazards and backing up tractor-trailer.
- 9.1.2 Use horn, headlights, turn indicators and other signalling devices.
- 9.1.3 Describe the use of establishing and maintaining eye contact with drivers and pedestrians.
- 9.1.4 Describe interpreting other driver's signals.
- 9.1.5 Describe the use of on board communication devices.
- 9.1.6 Describe conveying clear intentions so message receiver can determine intention.
- 9.1.7 Describe receiving and sending messages from/to dispatcher with on-board devices.
- 9.1.8 Describe etiquette in the use of on-board communication devices.

Element of the Performance

9.2 Employ communication techniques in the operation of the tractor-trailer and as required by the company.

Performance Objectives

- 9.2.1 Describe active listening techniques.
- 9.2.2 Describe questioning techniques.
- 9.2.3 Describe presenting a professional public image and attitude.
- 9.2.4 Describe negotiation and conflict resolution techniques.
- 9.2.5 Describe the use of industry terminology.
- 9.2.6 Describe working as a team member.

Element of the Performance

9.3 Adhere to company policy on customer relations (internal and external).

Performance Objectives

- 9.3.1 Discuss acting in a professional manner with customers, co-workers, enforcement personnel and company officials.
- 9.3.2 Describe following customer site protocols.
- 9.3.3 Describe handling enquiries.
- 9.3.4 Describe measures for confirming pick-up and delivery of shipments.
- 9.3.5 Describe sharing information about customer expectations and needs with company staff.
- 9.3.6 Describe reporting service and safety concerns.
- 9.3.7 Outline the need for keeping customer and company business information confidential.
- 9.3.8 Describe measures for advising internal and external customers of delays.

Learning Outcome

10.0 *The graduate has reliably demonstrated the ability to*

engage in various activities associated with the operation of the tractor-trailer and the related interactions with others that maintain and/or enhance a positive work situation.

Element of the Performance

10.1 Build and maintain relationships.

Performance Objectives

- 10.1.1 Describe techniques for collaborating with others in and outside the organization.
- 10.1.2 Describe approaches for gaining cooperation from co-workers and customers.
- 10.1.3 Describe presenting a positive attitude in building and maintaining relationships.

Element of the Performance

10.2 Exhibit sensitivity to customer needs and priorities

Performance Objectives

- 10.2.1 Describe techniques for gaining respect and loyalty of both internal and external customers.
- 10.2.2 Describe measures for maintaining company and customer confidentiality.

Element of the Performance

10.3 Describe fatigue-reducing strategies.

Performance Objectives

- 10.3.1 Describe options for maintaining physical fitness including a healthy diet.
- 10.3.2 Describe options for engaging in recreational activities.
- 10.3.3 Outline the legal requirement for the scheduling of layovers and rest periods.

Element of the Performance

10.4 Manage stress effectively.

Performance Objectives

- 10.4.1 Describe stress-reducing techniques.
- 10.4.2 Discuss balancing family and work commitments.
- 10.4.3 Describe time management techniques.
- 10.4.4 Describe wellness techniques.

Learning Outcome

11.0 *The graduate has reliably demonstrated ability to*

operate air brake systems safely, contribute to their effective maintenance and identify applicable regulations and standards.

Element of the Performance

11.1 Demonstrate knowledge of Air Brake System operation.

Performance Objectives

- 11.1.1 Reference current federal and provincial air brake regulations.
- 11.1.2 Describe methods to access new regulations as required.
- 11.1.3 Discuss purpose of brakes.
- 11.1.4 Explain difference between operation of air brake systems and hydraulic brake systems.
- 11.1.5 Identify types of brakes including engine brakes and anti-lock braking system.
- 11.1.6 Reference technical safety standards.
- 11.1.7 Describe air brake system components.
- 11.1.8 Describe typical operating ranges for air brakes.

Element of the Performance

11.2 Inspect and adjust air brake system.

Performance Objectives

11.2.1 Inspect the condition of various critical air brake system components including:

- belts,
- valves,
- hoses,
- gauges,
- chambers,
- controls,
- tanks,
- drums,
- rotors,
- tubing,
- linkages/pushrods.

11.2.2 Reference manufacturer's specifications for air brake adjustment.

11.2.3 Reference qualifications required to adjust air brakes.

11.2.4 Interpret gauge readings.

11.2.5 Drain air tanks.

11.2.6 Describe hazards when working with compressed air.

Element of Performance

11.3 Apply air brakes.

Performance Objectives

11.3.1 Interpret road conditions.

11.3.2 Set limiting valve.

11.3.3 Verify air brake system operating pressure.

11.3.4 Demonstrate techniques for air brake pedal execution.

11.3.5 Demonstrate emergency spring brake application.

11.3.6 Demonstrate use of hand valve.

11.3.7 Describe causes of brake fade.

Elements of the Performance

- 11.4 Identify, report, record and initiate steps to have maintenance performed on air brake system.

Performance Objectives

- 11.4.1 Test low air warning devices.
- 11.4.2 Conduct pressure build-up test.
- 11.4.3 Conduct air compressor governor test.
- 11.4.4 Conduct air-loss rate test.
- 11.4.5 Conduct protection valves test.
- 11.4.6 Conduct automatic application test.
- 11.4.7 Conduct spring brake test.
- 11.4.8 Conduct pushrod measurement.
- 11.4.9 Report test results.
- 11.4.10 Record air brake pushrod stroke.

III. Essential Employability Skills

All graduates of Tractor-Trailer (AZ) Driver training must have reliably demonstrated the essential employability skills learning outcomes listed on the following pages, in addition to achieving the vocational learning outcomes.

Context

Essential Employability Skills (EES) are skills that, regardless of a student's program or discipline, are critical for success in the workplace, in day-to-day living and for lifelong learning.

The teaching and attainment of the EES for students in, and graduates from Ontario's colleges are anchored in a set of three fundamental assumptions:

- these skills are important for every adult to function successfully in society today;
- our colleges are well equipped and well positioned to prepare graduates with these skills;
- these skills are equally valuable for all graduates, regardless of the level of their credential, whether they pursue a career path, or they pursue further education.

Skill Categories

To capture these skills, the following six categories define the essential areas where graduates must demonstrate skills and knowledge:

- Communication
- Numeracy
- Critical Thinking & Problem Solving
- Information Management
- Interpersonal
- Personal

Application and Implementation

In each of the six skill categories, there are a number of defining skills, or sub skills, identified to further articulate the requisite skills identified in the main skill categories. The following chart illustrates the relationship between the skill categories, the defining skills within the categories, and learning outcomes to be achieved by graduates from all postsecondary programs of instruction that lead to a Certificate II credential under the Ontario Qualifications Framework (Ontario Certificate II for PCCs and a Local Board Certificate for CAATs).

EES may be embedded in vocational courses or developed through discrete courses. However these skills are developed, all graduates with a Certificate II credential must be able to reliably demonstrate the essential skills required in each of the six categories.

SKILL CATEGORY	DEFINING SKILLS: Skill areas to be demonstrated by graduates:	LEARNING OUTCOMES: The levels of achievement required by graduates. The graduate has reliably demonstrated the ability to:
COMMUNICATION	<ul style="list-style-type: none">• Reading• Writing• Speaking• Listening• Presenting• Visual Literacy	<ol style="list-style-type: none">1. <i>communicate clearly, concisely and correctly within the requirements of the job responsibilities, in the written, spoken and visual form that fulfills the purpose and meets the needs of the audience.</i>2. <i>respond to written, spoken or visual messages in a manner that ensures effective communication.</i>
NUMERACY	<ul style="list-style-type: none">• Understanding and applying mathematical concepts and reasoning• Analyzing and using numerical data• Conceptualizing	<ol style="list-style-type: none">3. <i>execute mathematical operations accurately.</i>
CRITICAL THINKING & PROBLEM SOLVING	<ul style="list-style-type: none">• Analyzing• Synthesizing• Evaluating• Decision making• Creative and innovative thinking	<ol style="list-style-type: none">4. <i>apply a systematic approach to solve problems.</i>5. <i>use a variety of thinking skills to anticipate and solve problems.</i>

SKILL CATEGORY	DEFINING SKILLS: Skill areas to be demonstrated by graduates:	LEARNING OUTCOMES: The levels of achievement required by graduates. The graduate has reliably demonstrated the ability to:
INFORMATION MANAGEMENT	<ul style="list-style-type: none"> Gathering and managing information Selecting and using appropriate tools and technology for a task or a project Computer literacy Internet skills 	<p>6. <i>locate, select, organize and document information using appropriate technology and information systems.</i></p> <p>7. <i>analyze, evaluate and apply relevant information from a variety of sources.</i></p>
INTERPERSONAL	<ul style="list-style-type: none"> Team work Relationship management Conflict resolution Leadership Networking 	<p>8. <i>show respect for the diverse opinions values, belief systems and contributions of others.</i></p> <p>9. <i>interact with other in groups or teams in ways that contribute to effective working relationships and the achievement of goals.</i></p>
PERSONAL	<ul style="list-style-type: none"> Managing self Managing change and being flexible and adaptable Engaging in reflective practices Demonstrating personal responsibility 	<p>10. <i>manage the use of time and other resources to complete projects.</i></p> <p>11. <i>take responsibility for one's own actions, decisions and consequences.</i></p>

Glossary of Terms

The Training Standard for Tractor-Trailer (AZ) Driver at the Certificate II level in the Ontario Qualifications Framework covers the three domains of learning described in Bloom's Taxonomy:

1. Cognitive – Involves thinking and reasoning. The learner demonstrates knowledge and comprehension of subject matter and application to real contexts.
2. Psychomotor – Measures skills performance of the learner. Involves physical activity and/or manipulation of objects, tools, supplies and equipment.
3. Affective – Involves the demonstration of feelings, attitudes, values and sensitivities toward other people, ideas, processes or things, and concerns such as safety.

Note

The Cognitive (Knowledge) Domain has six levels of complexity, with six most complex:

1. Recall data - Observes and recalls information [define, describe]
2. Comprehension – Understands information, grasps meaning [discuss, explain]
3. Application – Uses information, uses methods [apply, calculate, operate, practice]
4. Analysis – Sees patterns, organizes parts [classify, diagram]
5. Synthesis - Uses existing ideas to create new ones [compose, develop]
6. Evaluation – Compare and discriminate ideas [justify, assess]

The Training Standard for Tractor-Trailer (AZ) Driver leading to an Ontario Certificate II or a Local Board Certificate employs verbs that reflect Cognitive Domain Levels 1, 2 and 3 only.

The Psychomotor (Skills) Domain has five levels of complexity, with five most complex

1. Imitation (copy) [follow, replicate, repeat, comply]
2. Manipulation (follow instruction) [perform, execute, implement]
3. Develop Precision [demonstrate, complete, calibrate, control]
4. Articulation (combine, integrate related skills) [construct, develop, modify]
5. Naturalization (automatic response, become expert) [design, invent]

The Training Standard for Tractor-Trailer (AZ) Driver leading to an Ontario Certificate II or a Local Board Certificate employs verbs that reflect Psychomotor Domain Levels 1, 2, and 3 only.

The Affective (Attitude) Domain has five levels of complexity, with five most complex:

1. Receive (awareness) [follow, observe]
2. Respond (react) [report, answer]
3. Value (understand and act) [defend, appreciate]
4. Organize personal value system [arranges, integrates]
5. Internalize value system (adopt behaviour) [demonstrate, display]

The Training Standard for Tractor-Trailer (AZ) Driver leading to an Ontario Certificate II or a Local Board Certificate employs verbs that reflect Affective Domain Levels 1, 2 and 3 only.

Definitions

The following are definitions for key (cognitive) verbs used to state levels of required proficiency in the Training Standards:

Identify – recall, recognize and/or locate object, process or regulation (Level 1).

Describe – recall and recite/write the characteristics of an object, method or process (Level 1).

Outline – recall and list the aspects or components of a process, method, situation or procedure (Level 1).

Reference – recognize and utilize validation and verification resources (Level 1).

Discuss – recall and present convincingly the various aspects of concepts, procedures and applications of knowledge, skill and attitude. Discussing could include presenting reasons and evidence to support a position and questioning to clarify other approaches (Level 2).

Explain – recall and clarify procedures, policies, methods, practices and systems by repeating, translating and/or paraphrasing statements used by self and others (Level 2).

Calculate – apply a given process to determine a potential result for making a decision (Level 3).

Check – inspect object, procedure, equipment or site by verifying items on a checklist (Level 3).

Judge – apply recalled knowledge to make a decision (Level 3).

Confirm – verify accuracy and/or validity of a process, procedure or situation (Level 3).

Comply – act in accordance with a code, law, guideline, policy or procedure (Level 1).

Maintain – keep in serviceable or working condition (Level 3).

Perform – carry into effect a command, task or operation (Level 2).

Activate – put into motion or action (Level 1).

Align – to adjust or form to a line or to bring into line against an established benchmark (Level 3).

Execute – to do what is provided or required to achieve a result (Level 2).

Manage – to control, lead, or direct to accomplish established outcomes (Level 3).

Select – to choose best or most suitable from a range of possibilities (Level 2).

Follow - to treat as a guide, act upon or take as a rule (Level 1).