Title	**Describe overweight and overdimension vehicle dynamics for safe driving**		
Level	**4**	**Credits**	**6**

Purpose	People credited with this unit standard are able to describe: the path of a specified loaded vehicle; how a load's position on the vehicle trailer(s) affects stability; the preparation and techniques for maintaining load stability; the effects of weather conditions in terms of transporting a heavy haulage load; and driving techniques for travelling downhill when transporting a heavy haulage load.

Classification	Commercial Road Transport > Heavy Haulage

Available grade	Achieved

Guidance Information

1 Legislation, regulations, references and/or industry standards relevant to this unit standard include but are not limited to the:

- Health and Safety at Work Act 2015;
- Land Transport Act 1998;
- Heavy Motor Vehicle Regulations 1974;
- Land Transport (Driver Licensing) Rule 1999;
- Land Transport (Driver Licensing) Amendment Rule 2006;
- Land Transport Rule: Heavy Vehicles 2004;
- Land Transport (Road User) Rule 2004;
- Land Transport Rule: Vehicle Dimensions and Mass 2016 (*the Rule*);
- Waka Kotahi New Zealand Transport Agency. (current edition). *The Official New Zealand Truck Loading Code – Code of Practice for the Safety of Loads on Heavy Vehicles.* Available from: https://www.nzta.govt.nz/assets/resources/roadcode/truck-loading-code/docs/tlc.pdf;
- Waka Kotahi New Zealand Transport Agency. *Vehicle dimension and mass permitting manual (VDAM), Volume 1.* Available from: https://nzta.govt.nz/resources/vehicle-dimension-and-mass-permitting-manual/vehicle-dimensions-and-mass-permitting-manual-volume-1/.

Any new, amended, or replacement Acts, regulations, Rules, standards, codes of practice, authority requirements or conditions affecting the outcome of this unit standard will take precedence for assessment purposes, pending review of this unit standard.

2 Definitions
A *vehicle* refers to a combination vehicle.
RCA refers to the Road Controlling Authority, which is the authority, body or persons having control of the road.
Road furniture refers to pedestrian refuges, power poles, stop and give-way signs, street signs, telephone poles, threshold signs, traffic control signs such as traffic lights, and any other items that are positioned on or near a road and that need to be considered by an operator in relation to an overdimension load vehicle fitting the route.
Road geometrics include but are not limited to – width, camber, crossfall, gradient, surface, horizontal and vertical curvature.
The Rule refers to the Land Transport Rule: Vehicle Dimensions and Mass 2016.
Workplace procedures refer to organisation policies and procedures that are documented in memo, electronic, or manual format and available in the workplace. They may include but are not limited to – standard operating procedures, site specific procedures, site safety procedures, equipment operating procedures, quality assurance procedures, product quality specifications, manufacturer's requirements, references, approved codes of practice, housekeeping standards, environmental considerations, on-site briefings, supervisor's instructions, and procedures to comply with legislative and local body requirements relevant to the transportation of overdimension and overweight vehicles and/or loads.

3 It is recommended that people hold credits for Unit 18079, *Demonstrate knowledge of heavy combination vehicle dynamics and handling for safe driving*, before being assessed against this unit standard.

4 Assessment information
Evidence presented for assessment against this unit standard must be consistent with safe working practices and be in accordance with applicable service information, workplace procedures and legislative requirements.

Outcomes and performance criteria

Outcome 1

Describe the path of a specified loaded vehicle.

Performance criteria

1.1 The amount of road space required, the trailer swing, and load tail swing outwards are described.

1.2 The boundaries of available roadway for both vehicle and load are identified.

1.3 The amount of roadway required between road furniture and structures to allow the load to safely pass is described.

Outcome 2

Describe how a load's position on the vehicle trailer(s) affects stability.

Performance criteria

2.1 The stability triangle in relation to load positioning is described.

2.2 The effect of load position on vehicle traction is described.

2.3 The effect of load position on jack-knifing is described.

2.4 The effect of the alignment of the load divider and the trailer on stability is described.

Outcome 3

Describe the preparation and techniques for maintaining load stability.

Performance criteria

3.1 Completing a route survey and temporary removal of road furniture in accordance with the Rule and RCA consent requirements is described.

3.2 Driving techniques to maintain load stability in relation to road geometrics and permanent road fixtures such as kerbs and traffic islands are described.

3.3 Trailer adaptation and steerable axle positioning to maintain load stability is described.

3.4 The use of braking systems to maintain load stability is described.

Outcome 4

Describe the effects of weather conditions in terms of transporting a heavy haulage load.

Performance criteria

4.1 The need to monitor weather forecasts and weather conditions en route is described.

4.2 Techniques to counter the effect of tail winds on vehicle engine cooling are described.

4.3 Techniques to counter the effect of rain, snow, and fog on visibility and load stability are described.

4.4 Situations where the vehicle must be stopped en route because of weather conditions as per the Rule requirements are described.

4.5 Techniques to prevent damage to a sealed road surface in bleeding tar conditions are described.

4.6 Techniques to counter the effect of ice on the road surface are described.

Outcome 5

Describe driving techniques for travelling downhill when transporting a heavy haulage load.

Performance criteria

5.1 Speed selection in relation to the gradient and gradient length, load mass and size, load position, and load stability triangle is described.

5.2 Gear selection, engine braking, use of a fitted retarder, use of service brakes, and ancillary braking systems when travelling downhill is described.

Planned review date	31 December 2028

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	21 September 2007	31 December 2021
Review	2	26 September 2019	31 December 2025
Review	3	29 June 2023	N/A

Consent and Moderation Requirements (CMR) reference	0014

This CMR can be accessed at http://www.nzqa.govt.nz/framework/search/index.do.

Comments on this unit standard

Please contact Hanga-Aro-Rau Manufacturing, Engineering and Logistics Workforce Development Council qualifications@hangaarorau.nz if you wish to suggest changes to the content of this unit standard.