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Truck Combinations **Operating Conditions**

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November 2024

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Amendments

Revision Number	Revision Date	Description of Key Changes	Section
1	14/05/2020	Updated document format.	All
2	03/08/2020	Changed name from RAV Networks to Tandem Drive Network	s. 1.1 and 4.2.4
3	13/10/2020	Added trailer gap requirements and updated Compulsory Heavy Vehicle Incident Reporting.	s. 4.4 & 7
4	25/10/2022	Amended title of operating conditions to reflect new order and referenced new order title.	All
5	08/11/2022	Clarified accreditation requirement.	s.3
6	13/12/2023	Moved accreditation requirement to s.2, added GCVL requirements and added reference to Trailer Gap Calculator. Removed Appendix 1 – Low Volume Road Conditions. Added Towed Mass Ration requirements.	s.2, 3, 5.4 & 6.2
7	01/07/2024	Added RAV Warning Sign requirements.	s.8, Appendix 1 and 2.
8	01/08/2024	Added standard following distance, poor visibility and overtaking clauses. Clarify RAV Warning Sign requirements.	s.7 and 8, Appendix 1 and 2.
9	12/11/2024	Amended RAV warning sign requirements.	s.8

DEFINITIONS

The following are definitions for terms used in these Operating Conditions. Refer to the definitions in the *Road Traffic (Administration) Act 2008* and the *Road Traffic (Vehicles) Act 2012* and any subsidiary legislation to these Acts for the meanings of any terms not defined in this section. If a definition in the relevant Acts or the subsidiary legislation conflicts with a definition in this section, the definition in this section prevails for the purpose of these Operating Conditions.

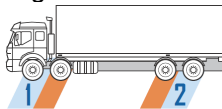
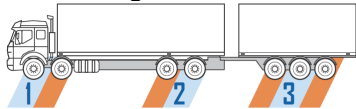
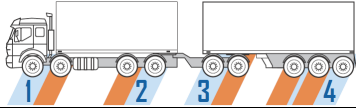
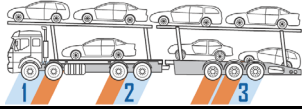
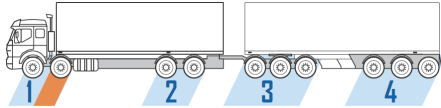
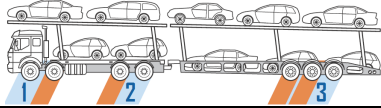
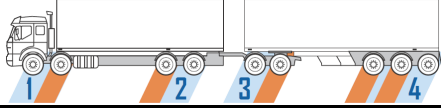
Term	Definition
Intermodal Container	A shipping container designed and built for intermodal freight transport.
Licensing Authority	A Government Authority responsible for the administration of the vehicle licensing provision of the law of the relevant State, Territory or the Commonwealth.
Livestock	Cattle, sheep, pigs or horses.
Low Volume Road	A rural Local Government road as set out in the latest version of the “ <i>Guidelines for Assessing the Suitability of Routes for Restricted Access Vehicles</i> ”, published on the Main Roads website.
Main Roads Website	www.mainroads.wa.gov.au
Non-complying Vehicle	A vehicle that does not comply with the vehicle standards and/or dimension requirements prescribed in the <i>Road Traffic (Vehicles) Regulations 2014</i> .
Order	The Order that is published in the Gazette subject to these Operating Conditions, under the provisions of Part 4 of the <i>Road Traffic (Vehicles) Act 2012</i> , which these Operating Conditions form part of.
Permit	Means a permit issued under Part 4 of the <i>Road Traffic (Vehicles) Act 2012</i> , which these Operating Conditions form part of.
Permit Holder	The Operator to whom the permit is issued.
Posted Speed Limit	The speed limit indicated by the numerals on the speed limit sign or 50 kilometres per hour in the absence of a speed limit sign in a built-up area.
Prime Mover	A motor vehicle built primarily to tow a semi-trailer, but does not include a truck or modified prime mover built primarily to carry a load or carry out a function other than towing a semi-trailer.
RAV	An approved vehicle combination to which the “ <i>Class 2 and 3 Truck Combinations Order</i> ” applies.
Rear Overhang	The distance between the rear overhang line and the rearmost part of the vehicle or the load.
Rear Overhang Line	The centre of a single axle, single axle group, tandem axle group, tri axle group or quad axle group nearest to the rear of the vehicle.
Statutory Mass Limits	The mass limits prescribed in Part 8 of the <i>Road Traffic (Vehicles) Regulations 2014</i> .
Tandem Drive Network 1	The Tandem Drive Network 1 prohibited roads are published in the form of Road Tables or are available on the RAV Mapping Tool on the Main Roads website.
Tandem Drive Network 2	The Tandem Drive Network 2 approved roads are published in the form of Road Tables or are available on the RAV Mapping Tool on the Main Roads website.

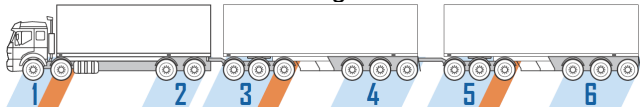
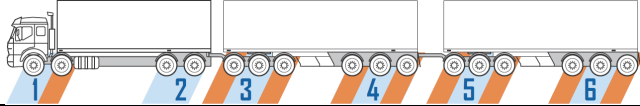
Term	Definition
Tandem Drive Network 7	The Tandem Drive Network 7 approved roads are published in the form of Road Tables or are available on the RAV Mapping Tool on the Main Roads website.
Tandem Drive Network 8	The Tandem Drive Network 8 approved roads are published in the form of Road Tables or are available on the RAV Mapping Tool on the Main Roads website.
Tow Coupling Underrun	The distance the pivot point of a coupling is forward of the rear of the trailer to which it is attached.
Truck	A motor vehicle designed primarily for the carriage of goods directly upon it, and does not include a prime mover, unless it is fitted with a block for use as a block truck, or has been modified to the extent where its primary function is no longer to tow a semi-trailer.

1 APPLICATION

1.1 Approved Vehicles

1.1.1 The *Class 2 and 3 Truck Combinations Order* applies to a RAV shown in the “Vehicle Description” column in the following table:

Category 1 RAVs				
Category	Vehicle Description	Length	Max. Mass	Approved Network
1A	Rigid Truck 	≤12.5 m	28.5 t	Tandem Drive Network 1
1B	Truck & Pig Trailer 	≤20 m	46.5 t	Tandem Drive Network 1
1C	Truck & Dog Trailer 	≤20 m	50 t	Tandem Drive Network 1
1D	Car Carrier Truck & Trailer 	≤20 m	46.5 t	Tandem Drive Network 1
Category 2 RAVs				
Category	Vehicle Description	Length	Max. Mass	Approved Network
2A	Truck & 6 Axle Dog Trailer 	≤25 m	68.5 t	Tandem Drive Network 2
2B	Car Carrier Truck & Trailer 	≤25 m	46.5 t	Tandem Drive Network 2
2C	Truck & Dog Trailer 	≤25 m	65 t	Tandem Drive Network 2
Category 3 RAVs				
Category 3 RAVs consist of Prime Mover Combinations only. Refer to the <i>Prime Mover Combinations Operating Conditions</i> .				
Category 4 RAVs				
Category 4 RAVs consist of Prime Mover Combinations only. Refer to the <i>Prime Mover Combinations Operating Conditions</i> .				
Category 5 RAVs				
Category 5 RAVs consist of Prime Mover Combinations only. Refer to the <i>Prime Mover Combinations Operating Conditions</i> .				

Category 6 RAVs				
Category 6 RAVs consist of Prime Mover Combinations only. Refer to the <i>Prime Mover Combinations Operating Conditions</i> .				
Category 7 RAVs				
Category	Vehicle Description	Length	Max. Mass	Approved Network
7A	Truck & Two 5 or 6 Axle Dog Trailers 	>27.5 m ≤36.5 m	108.5 t	Tandem Drive Network 7
Category 8 RAVs				
Category	Vehicle Description	Length	Max. Mass	Approved Network
8A	Truck & Two Dog Trailers 	>27.5 m ≤36.5 m	108.5 t	Tandem Drive Network 8
Category 9 RAVs				
Category 9 RAVs consist of Prime Mover Combinations only. Refer to the <i>Prime Mover Combinations Operating Conditions</i> .				
Category 10 RAVs				
Category 10 RAVs consist of Prime Mover Combinations only. Refer to the <i>Prime Mover Combinations Operating Conditions</i> .				

1.2 Approved Axle Configuration

1.2.1 The axle groups of a RAV described in clause 1.1 are colour coded to indicate the minimum and maximum number of axles allowable for that category of vehicle, as shown below:



1.2.2 The *Class 2 and 3 Truck Combinations Order* does not apply to a RAV with less than the number of axles indicated.

1.2.3 The *Class 2 and 3 Truck Combinations Order* does not apply to a RAV with more than the number of axles indicated.

1.3 Operating in Conjunction with another Permit or Order

The *Class 2 and 3 Truck Combinations Order* cannot be used in conjunction with another permit or order.

2 COMPULSORY WA HEAVY VEHICLE ACCREDITATION

The operator or permit holder must be accredited under the WA Heavy Vehicle Accreditation Scheme (WAHVAS) when operating a RAV used in connection with a business.

3 COMMERCIAL GOODS VEHICLE LICENCE

3.1 Obtaining a CGVL

Each RAV must obtain a Commercial Goods Vehicle Licence (CGVL), in accordance with the *Transport Co-ordination Act 1966*, when carrying iron ore, or any mining product from which iron is to be extracted, if sourced from a mine or mine stockpile situated:

- (a) Within 100km of Geraldton, Marchagee, Pindar, South Mine 94 or Wubin; or
- (b) Within 100km on either side of:
 - i. The railway between Geraldton and Wubin, including the section of railway between Mullewa and Pindar; or
 - ii. The railway between Geraldton and Marchagee; or
 - iii. The railway between Dongara and South Mine 94.

Note: to obtain a CGVL, the operator must contact the Department of Transport Freight, Ports, Aviation and Reform Section via cgvl@transport.wa.gov.au. For more information, see the *Commercial Goods Vehicle Licence page on the Department of Transport website: [Commercial goods vehicle licence \(CGVL\) \(transport.wa.gov.au\)](https://www.transport.wa.gov.au/commercial-goods-vehicle-licence-cgvl)*.

3.2 Complying with CGVL Conditions

The driver and permit holder must comply with the conditions specified in the CGVL.

3.3 Carrying a Copy of the CGVL

A copy of the CGVL must be carried in the RAV and presented to WA Police or Main Roads personnel upon request.

4 USING A NON-COMPLYING VEHICLE

4.1 Accepted Non-Complying Vehicles

4.1.1 A semi-trailer with a non-complying length may be used, provided:

- (a) The semi-trailer does not exceed 14.63 metres in length; and
- (b) The semi-trailer does not exceed 9.5 metres from the king pin to the centre of rear axle group; and
- (c) The semi-trailer does not exceed 13.2 metres from the king pin to the rear of the trailer; and
- (d) The front of the semi-trailer forward of the king pin does not exceed 1.43 metres or a radius of 1.9 metres; and
- (e) The semi-trailer is used as the rearmost trailer in the vehicle combination.

4.1.2 A semi-trailer with a non-complying tow coupling underrun may be used, provided:

- (a) The distance from the rearmost part of the semi-trailer or load, to the forward most part of the following semi-trailer or load, is not less than 1270 millimetres; or
- (b) Specific approval is obtained from Main Roads Heavy Vehicle Services.

4.1.3 A dolly with a non-complying drawbar height may be used, provided:

- (a) The drawbar is level when the combination is parked on level ground. For the purpose of this sub-clause, level means no more than 100 millimetres height difference between the drawbar ends; or

(b) The drawbar is a gooseneck drawbar.

4.1.4 A dolly with a drawbar that exceeds the maximum prescribed length may be used, provided:

(a) The dolly has a gooseneck drawbar; and

(b) The front of the drawbar is connected more than 300 millimetres forward of the rear of the leading trailer.

5 DIMENSION REQUIREMENTS

5.1 Length Limits

5.1.1 A RAV must not exceed the maximum length indicated for the particular vehicle category in clause 1.1.

5.2 Height Requirements

5.2.1 A RAV must not exceed a height of 4.3 metres, unless otherwise specified in this sub-clause 5.2.2.

5.2.2 A Category 1 and 2 RAV may operate with a height up to 4.6 metres, provided the excess height is on:

(a) A rigid truck and/or semi-trailer built to carry livestock; or

(b) A rigid truck and/or semi-trailer carrying a crate built to carry livestock; or

(c) A car carrier rigid truck and/or car carrier trailer carrying vehicles on more than one deck; or

(d) A rigid truck and/or semi-trailer carrying an intermodal container.

5.2.3 A pig trailer must not exceed a height of 3.5 metres, including any load.

5.2.4 A RAV exceeding 4.3 metres in height must not be driven on a road without current written approval from all the relevant Cable Operators, unless the height is less than 4.6 metres and the vehicle is being driven on a road that is listed in Tandem Drive Network 2. The written approval must be carried in the RAV and produced upon request.

Note: “Contact Details for Other Agency Approvals” are available on the Oversize Over-mass Permits page on the Main Roads website.

5.3 Axle Spacings

5.3.1 A RAV must comply with the minimum axle spacing requirements specified in the following table:

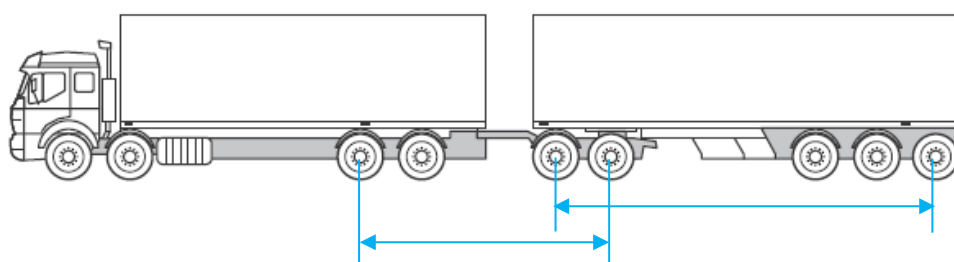
Table A

Adjacent Axles or Axle Groups	Minimum Distance
Single axle to single axle	2.5 m
Single axle to tandem axle group	4.3 m
Single axle to tri axle group	5.5 m
Tandem axle group to tandem axle group	6.8 m
Tandem axle group to tri axle group	8.0 m
Tri axle group to tri axle group	9.2 m

5.3.2 Despite sub-clause 5.3.1, a Category 1C and 2C RAV may comply with the minimum axle spacing requirements specified in the following table:

Table B	
Adjacent Axles or Axle Groups	Minimum Distance
Single axle to single axle	2.5 m
Single axle to tandem axle group	4.3 m
Single axle to tri axle group	5.5 m
Tandem axle group to tandem axle group	5.6 m
Tandem axle group to tri axle group	6.9 m

Axle spacing measurements are taken from the outmost extreme axles of the two adjacent axle groups, as shown below:



“Single Axle” does not include a single steer axle.

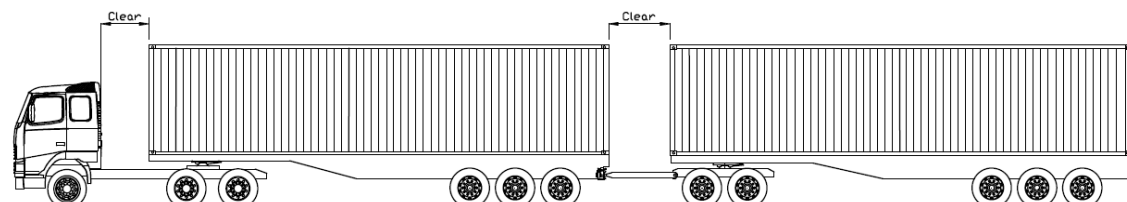
“Tandem axle group” does not include a twin steer axle group.

5.4 Trailer Gap Requirements

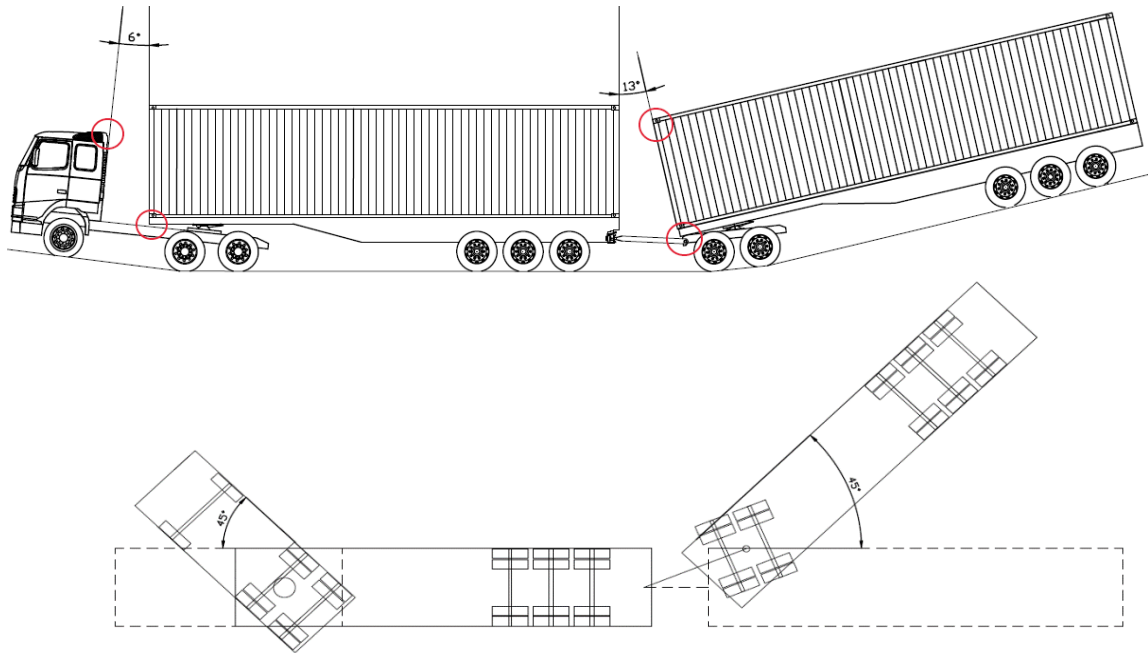
5.4.1 The RAV must be able to achieve the following angles of rotation simultaneously and independently, without any part of the trailer contacting any part of the towing vehicle (i.e. prime mover, lead semi-trailer or converter dolly), including the load:

- (a) Articulation – 45° left and right;
- (b) Pitch – 6° forward and 7° rearward;
- (c) Roll – as provided by the coupling.

5.4.2 There must be sufficient clear gap, as per the below example to achieve the specified angles of rotation:



5.4.3 The clear gap must be sufficient to enable the trailers to move through all the specified angles of rotation without contacting any other part of the towing vehicles, as per the following two diagrams. The red circles indicate the potential fouling zones.



Note: The [Trailer Clearance Calculator](#) is available on the [Permits and Orders](#) page on the [Main Roads website](#).

6 MASS REQUIREMENTS

6.1 Approved Axle Group Mass

- 6.1.1** A RAV must not exceed the maximum mass indicated for the particular vehicle category in clause 1.1.
- 6.1.2** A RAV is not permitted to exceed any statutory mass limit relating to an axle or axle group, except where specified in the following table:

Axle Group	Mass Limit
Single Steer Axle with tyres <375 mm	6.5 t
Single Steer Axle with tyres ≥375 mm	7.1 t
Twin Steer Axle Group with non-load sharing suspension	10 t
Twin Steer Axle Group with load sharing suspension and tyres <375 mm	11 t
Twin Steer Axle Group with load sharing suspension and tyres ≥375 mm	12 t

Note: The maximum mass indicated in clause 1.1 is based on a twin steer axle with 12 tonnes.

- 6.1.3** A block truck used in a RAV must have at least 14 tonnes on the tandem drive axle group.

6.2 Towed Mass Ratio

- 6.2.1** When a RAV is laden, the total axle group mass of the lead dog trailer must not exceed the total axle group mass of the rigid truck, unless the rigid truck is loaded to the maximum axle group mass limits.
- 6.2.2** When laden, the total axle group mass of the rear dog trailer in a Category 7A RAV must not exceed the total axle group mass of the lead dog trailer.

7 ACCESS REQUIREMENTS

7.1 Approved Roads and Conditions

- 7.1.1** A RAV must not operate on any road that is not in the Approved Network specified for the particular vehicle category in clause 1.1.
- 7.1.2** A RAV must operate in accordance with any conditions specified for a particular road in the Approved Network.

7.2 Prohibited Roads

A RAV in excess of 4.3 metres in height must not operate on Mitchell Freeway and Kwinana Freeway, between Powis Street and Leach Highway.

7.3 Speed Restrictions

Unless otherwise specified as a condition for a particular road in the Approved Network, a RAV must not travel at a speed exceeding 10 km/h lower than the posted speed limit, where the posted speed limit is greater than 60 km/h.

7.4 Minimum Following Distance

The driver of a RAV must maintain a distance of at least 200 metres from any other heavy vehicle travelling in front of it, unless:

- (a) The RAV is overtaking the vehicle in front or the vehicle in front is stopping; or
- (b) There is a separate lane available for the use of overtaking traffic; or
- (c) The RAV is in an urban area and it is not reasonably practicable to maintain such a distance; or
- (d) The RAV is stopped, or coming to a stop for the purpose of complying with a provision of any law or avoiding conflict with other traffic.

7.5 Poor Visibility

- 7.5.1** The driver of a RAV must not begin to travel if, due to circumstances such as fog, heavy rain, smoke, dust or insect plague:
- (a) The visibility is less than 250 metres during the day; or
 - (b) The headlights of a vehicle approaching within 250 metres could not be seen at night.
- 7.5.2** Where a RAV is already travelling when visibility is reduced to the level described above, the driver must drive into the nearest safe parking area and wait until visibility improves beyond that level before continuing to travel.

7.6 Overtaking

The driver of the RAV must not overtake another vehicle, unless:

- (a) There is a separate lane available for the purpose of overtaking traffic; or
- (b) The vehicle in front is stopping; or
- (c) The vehicle in front is travelling at a significantly lower speed, i.e., 20 km/h or more below the RAVs legal speed limit; and
- (d) It is safe to do so.

8 WARNING SIGN REQUIREMENTS

8.1 Warning Signs for Certain Combinations

- 8.1.1 In addition to, or instead of, a “Road Train” or “Long Vehicle” sign, a RAV may display one of the RAV warning signs specified in this clause.
- 8.1.2 A RAV exceeding 22 metres in length, but not exceeding 25 metres in length, may display a 25m Long RAV Warning Sign, as specified in [Appendix 1](#).
- 8.1.3 A RAV exceeding 25 metres in length, but not exceeding 36.5 metres in length, may display a 36.5m Long RAV Warning Sign, as specified in [Appendix 1](#).
- 8.1.4 The RAV warning sign must only be fitted horizontally on the rear of the RAV.

8.2 Warning Signs Specifications

- 8.2.1 The RAV warning sign must be manufactured in one or 2 parts from:
 - (a) sheet steel with a minimum thickness of 0.8 mm thick; or
 - (b) a sticker attached to an equivalent rigid surface; or
 - (c) a flexible vinyl material, provided the sign is attached in such a manner that ensures it remains taut and clearly visible.
- 8.2.2 The RAV warning sign must be at least 1.02 metres wide and at least 250 millimetres high.
- 8.2.3 The RAV warning sign must display the words specified in [Appendix 1](#), in black capital letters at least 80 millimetres high in typeface Helvetica Neue Bold Condensed.
- 8.2.4 If the RAV warning sign is in 2 parts, it must be split as shown in [Appendix 1](#).
- 8.2.5 The RAV warning sign must have a black border. A black border is not required on the inside of a RAV warning sign split in 2 parts.
- 8.2.6 The RAV warning sign must display the sign manufacturer’s name or logo, and the brand and class of retro-reflective material used, in block letters not over 10 mm high.
- 8.2.7 The RAV warning sign must be coated with yellow retro-reflective material that complies with class 100 or 400 of AS1906.1 – 2017 *Retroreflective Materials and Devices for Road Traffic Control Purposes – Retroreflective Sheeting*.
- 8.2.8 The RAV warning sign must only be fitted on the rear of the RAV and so:
 - (a) no part of the sign is —
 - (i) over 2.75 m above ground level; or
 - (ii) under 500 mm above ground level;and
 - (b) if the sign is in 2 parts, the parts are fitted at the same height above ground level.

Note: Refer to [Appendix 2](#) for example RAV Warning Sign with sizing specifications.

8.3 Warning Signs Not to be Displayed on Other Vehicles

- 8.3.1 The whole or a part of a RAV warning sign must not be displayed unless it is displayed in accordance with this section.

8.3.2 A RAV must not display a warning sign not specified in this section.

9 COMPULSORY HEAVY VEHICLE INCIDENT REPORTING

All on-road incidents involving a RAV must be reported to Main Roads Heavy Vehicle Services by the permit holder. The Heavy Vehicle Incident Reporting form is available on the Incident Reporting page on the Main Roads website and it must be submitted within 48 hours of the incident occurring.

10 AMENDMENTS TO OPERATING CONDITONS & ACCESS

10.1 Access Approval Suspension & Revocation

10.1.1 Approval to operate a RAV may be suspended when road and/or traffic conditions are considered unsuitable. Main Roads personnel, WA Police or Traffic Escort Wardens, may make verbal notification of such suspension.

10.1.2 Approval to operate a RAV may be suspended or revoked if the operator or vehicle combination fails to comply with any of the requirements specified in these Operating Conditions.

10.2 Amendments & Notifications

10.2.1 These Operating Conditions are subject to occasional amendments. If amendments are made that impact transport operators, they will be published as an “HVS Update” on the Main Roads website on the first working day of the month. Operators and drivers are required to ensure that they are operating vehicles on the public road network in accordance with the current and up to date Operating Conditions.

10.2.2 The RAV Networks are subject to periodic amendments, which include additional roads being included in the lists, roads being removed from the lists, or amendments being made to a condition relating to a particular road in the lists. RAV Network updates will be effective from the Wednesday following the amendment and the RAV Networks are maintained in the RAV Mapping Tool on the Main Roads website. Operators and drivers are required to ensure they are operating vehicles on the public road network in accordance with the current and up to date RAV Networks.

10.2.3 Heavy Vehicle Travel Impacts are published when road conditions may impede the movement of Restricted Access Vehicles. Operators and drivers are required to check the Heavy Vehicle Travel Impacts in the RAV Mapping Tool on the Main Roads website immediately prior to operating the vehicle on the public road network to ensure that there is no relevant information that will impede their vehicle operating on the WA road network.

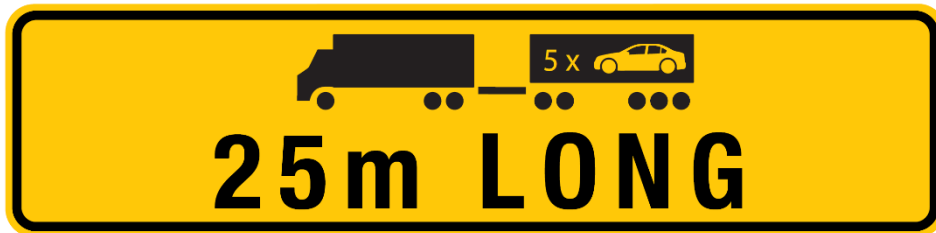
10.2.4 All conditions stipulated in HVS Updates or Heavy Vehicle Travel Impacts must be adhered to.

11 APPENDICES

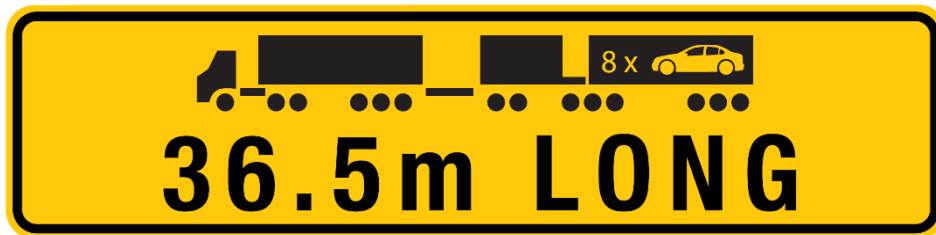
Appendix	Title
Appendix 1	RAV Warning Signs
Appendix 2	Example RAV Warning Sign with Sizing Specifications

Appendix 1 – RAV Warning Signs

25m Long RAV Warning Sign:



36.5m Long RAV Warning Sign:



Split RAV Warning Sign:



Appendix 2 – Example RAV Warning Sign with Sizing Specifications

