

The logo for IRTEENZ, featuring the word "IRTEENZ" in white, bold, sans-serif capital letters. The text is set against a blue trapezoidal background that tapers to the right, with an orange trapezoidal shape below it that tapers to the left, creating a dynamic, arrow-like effect.

IRTEENZ



Innovative & High Productivity Vehicles

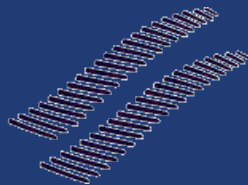
Performance, Infrastructure & Safety

HPMVS IN NEW ZEALAND

“YOU DON’T KNOW HOW LUCKY YOU ARE”

John de Pont

TERNZ
TRANSPORT RESEARCH



Since trucking began operators have been looking for ways to carry more payload



A Federal tractor (perhaps a Model WD rated 3-1/2 ton, selling @ \$3950) with a Washington state plate, hauls a huge log out of the woods on a plank road. A linen backed photo, it is dated June 5, 1918.

Since trucking began operators have been looking for ways to carry more payload



But there are issues with infrastructure



...with vehicle design



...and with safety



Size and Weight Regulations

- Regulations go back to early 20th century
- Three processes for increasing size and weight
 - Incremental creep
 - Trial and error
 - Performance- based standards

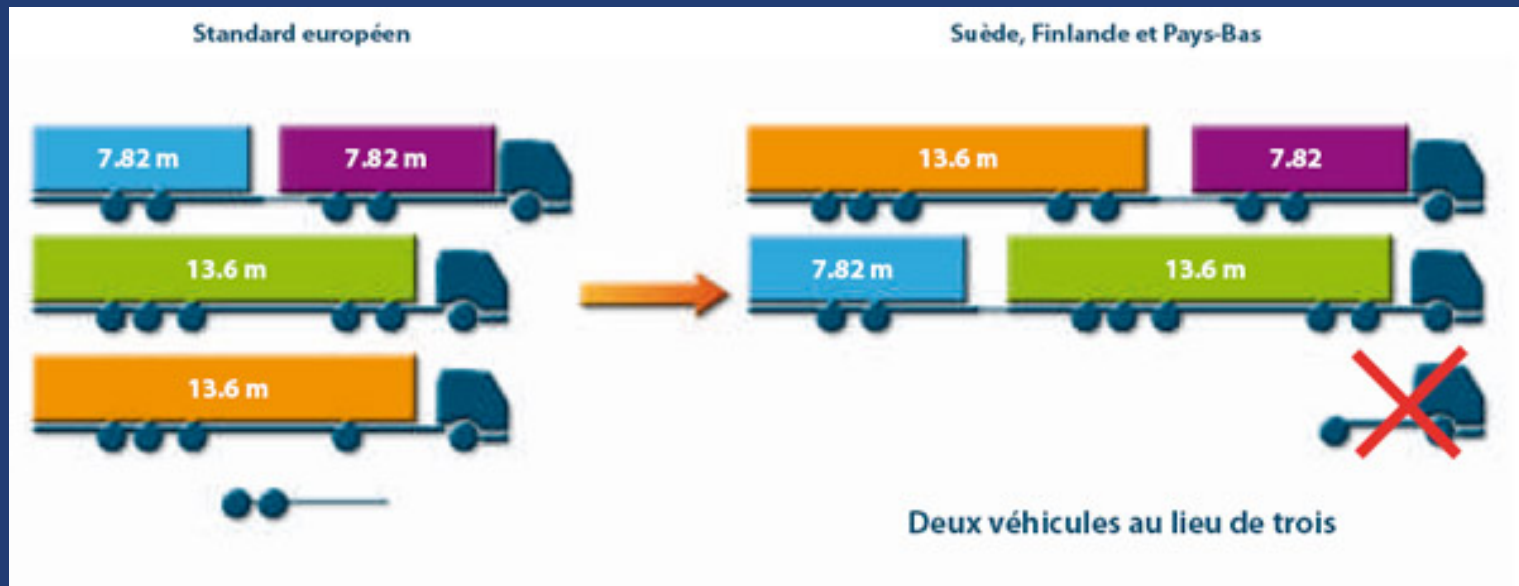
Europe

Standard general access European combination
16.5m, 40t, 5-axle semitrailer



European Modular System

25.25m, 60t. Allowed in Sweden and Finland and operating on trial in the Netherlands



United States

Standard general access combination

80,000lb (36.3t) 5-axles with 53' (16.2m) semitrailer



United States - LCVs

Rocky Mountain Double



- Allowed in some states on some roads
- Combined trailer length limit up to 110' (33.5m)
- Gross weight limit up to 129,000lbs (58.5t)
- Limits frozen.

Turnpike Double



United States – State Specific



Michigan 11-axles gross weight 164,000lb (74.4t)

Canada

MOU between provinces agreed standard size and weight limits for eight vehicle categories

Category	Vehicle Configuration	Max Length (m)	Max Weight (t)
1	Tractor Semitrailer	23	46.5
2	A Train Double	25	53.5
3	B Train Double	25	62.5
4	C Train Double	25	58.5
5	Straight Truck	12.5	24.25
6	Truck - Pony Trailer	23	42.25
7	Truck - Full Trailer	23	53.5
8	Intercity Bus and Recreational Vehicles	14	24.25

Canada - semi



Hank Suderman Collection

Australia



The AEC Government Road Train is shown here being checked on a rough track at the British Army proving grounds before being shipped to Australia in 1934. It was loaded with heavy steel plates for the trial. (*The Engineer*)

Australia – General Access

- Semi-trailers, truck and full trailers, B-doubles all at 19m, 42.5 tonnes
- Concessional Mass Limits available for NHVAS accredited operators – some route restrictions
- Higher Mass Limits available for vehicles with road-friendly suspensions on approved routes.

Australia – Route Specific

- B-doubles – 26m, 62.5t with higher weights possible under CML or HML
- Type 1 Road Trains – 36.5m, 79t up to 82.5t with RFS
- Type 2 Road Trains – 53.5m, 115.5t up to 122.5t with RFS



Australia – PBS Vehicles

- Alternative regime to prescriptive size and weight
- Four levels of infrastructure access
- Vehicles need to be approved (NHVR) and routes have to be approved (RCAs)
- Prescriptive length limits still apply
- Operational since 2007
- 359 applications approved representing 1000+ vehicles
- 75% PBS vehicles are in Victoria
- 63% are truck and trailer combinations

New Zealand – General Access

- Semi-trailer combinations – 19m, 39t-44t depending on number of axles
- Truck and full trailer and B-train combinations – 20m, 44t
- Truck and simple trailers – 20m, 36t



New Zealand - HPMVs

- Available since May 2010
- Vehicles operate under permit on where the infrastructure can cope
- NZTA has promoted the development of pro-forma designs
- Vehicles fitting the pro-forma design envelopes can be approved for general access at standard weights without requiring additional assessment
- For higher weights or dimensions outside the envelopes an assessment of the vehicle and the route is required

New Zealand – HPMV Vehicles

- Pro-forma designs available
 - 19.45m quad semi-trailer
 - 23m truck and full trailers
 - 23m B-trains
 - 23m truck and simple trailers
- General access at 44t (36t for simple trailers)
- Higher weights on approved routes
- 50Max pro-forma designs likely to be approved soon
- Non pro-forma designs approved at individual vehicle level – up to 25m and 62t.

NZ HPMVs and the World

- Uptake has been excellent – over 2000 HPMVs approved since 2010 compared to 649 LHVs since 2001 in the Netherlands and about 1000 PBS vehicles since 2007 in Australia
- Cost of compliance is very low
- Payload volume capacity is high particularly for general access
- Payload weight capacity moderate
- 50Max option is not optimal but can be implemented reasonably quickly
- Axle weight limits are relatively low

Conclusions

- HPMV process is a performance-based approach but there are still elements of incremental creep
- Implementation and uptake has been relatively rapid and strong
- Pragmatic approach taken by industry and regulators to find compromise solutions that are acceptable to all stakeholders
- Process is simplified by having fewer layers of government