Proposed introduction of Lower Bound HPMV / modified Class 1

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VDM PROJECT

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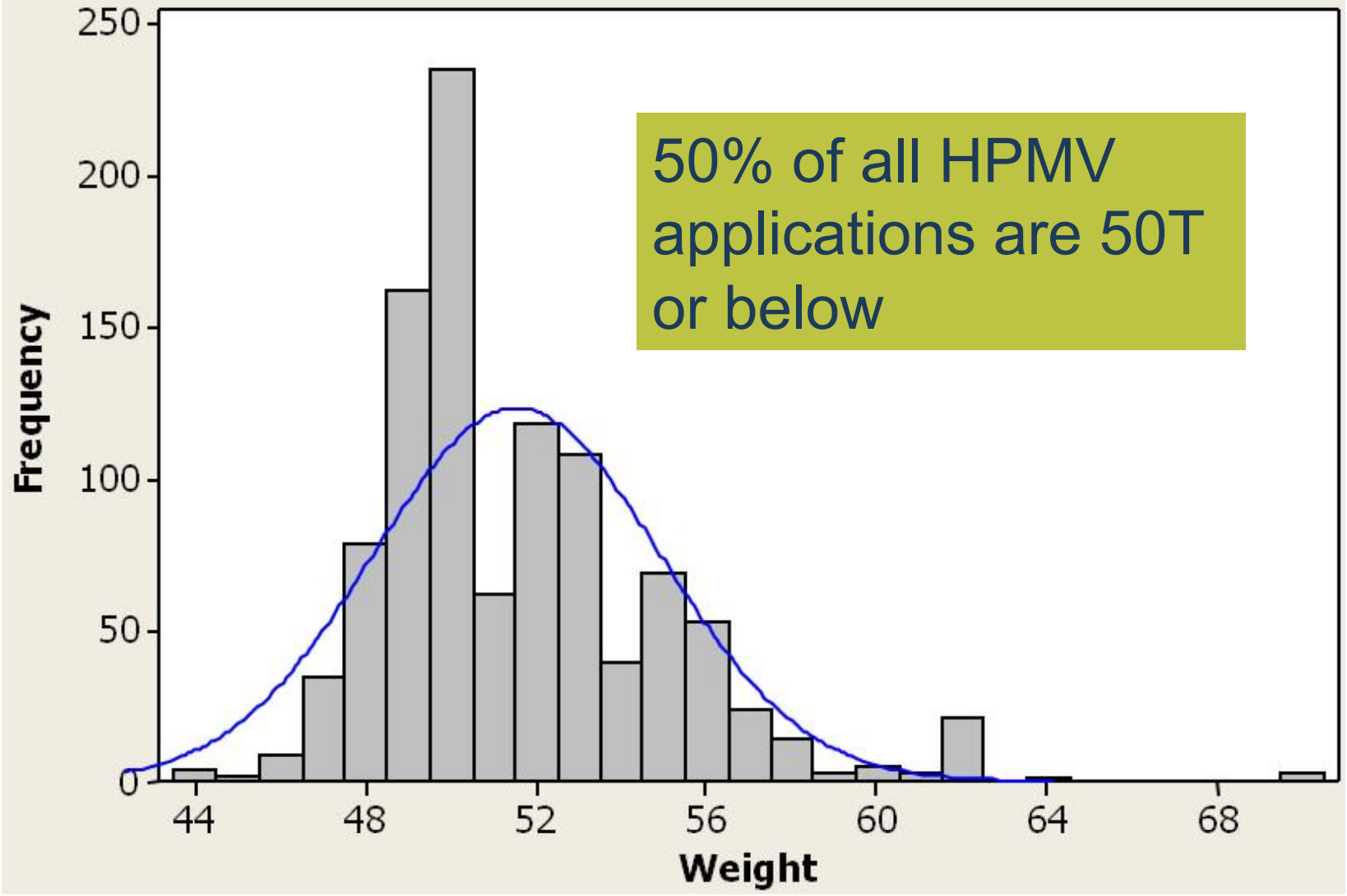
Lower Bound HPMV - overview

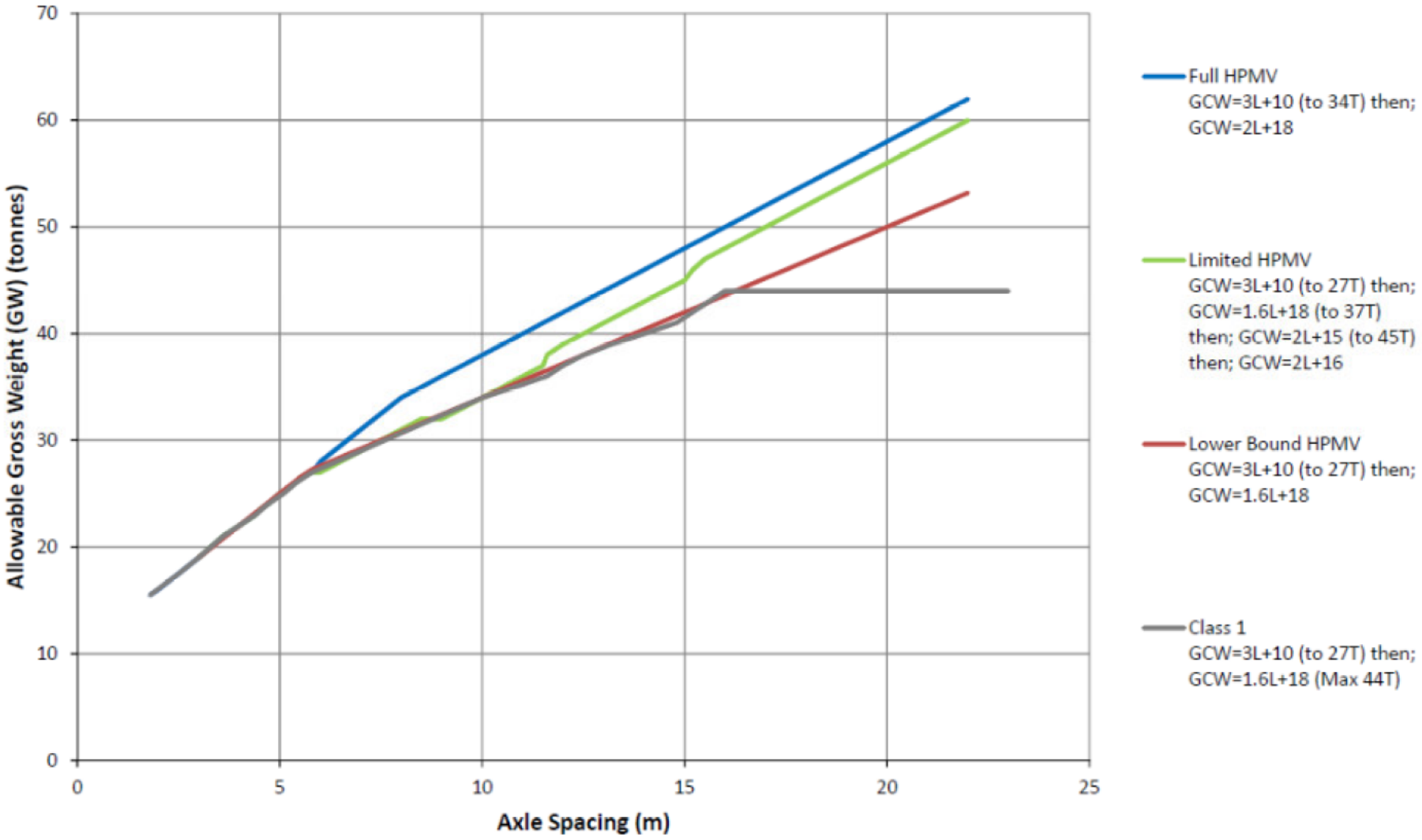
Aim:

- Increase allowable weight to 50T, cost neutral impacts on bridges and pavements, and vehicle designs that conform to VDM
- Unleash freight productivity with no investment and alleviate asset management concerns

HPMV mass applied for



LB HPMV replicates Class 1 load curve beyond 44 tonnes for wheelbases >16m



Lower Bound HPMV – Bridge Capacity

The table should only be used by experienced civil/structural engineers, in conjunction with a review of the structures condition, structural form and failure mechanisms. The table should not be relied on for a structure that contains any critical structural weaknesses that could create a non-ductile failure mechanism under live loading.

		Acceptable Span Range		
Design Loading	**Construction Date**	**Lower Bound HPMV (with Class 1 AWF)**	**Ltd. HPMV (with Class 1 AWF)**	**Full HPMV (with Class 1 or HPMV AWF)**
HN-HO-72	1972-	All spans	All spans	All spans
H20-S16-T16	1961-1971	All spans	0 – 50m	0 – 45m
H20-S16-44	1944-1960	0 – 30m	0 – 25m	0 – 20m
H20-S16-41	1943	All spans	0 – 25m	0 – 20m
Traction Engine	1933-1942	0 – 25m*	0 – 17m*	-

* Provided bridge is unposted and is assessed as being able to safely support Class 1 vehicles.

Table 4.2: Acceptable Span Ranges for Limited and Full HPMV's for Various Design Loadings

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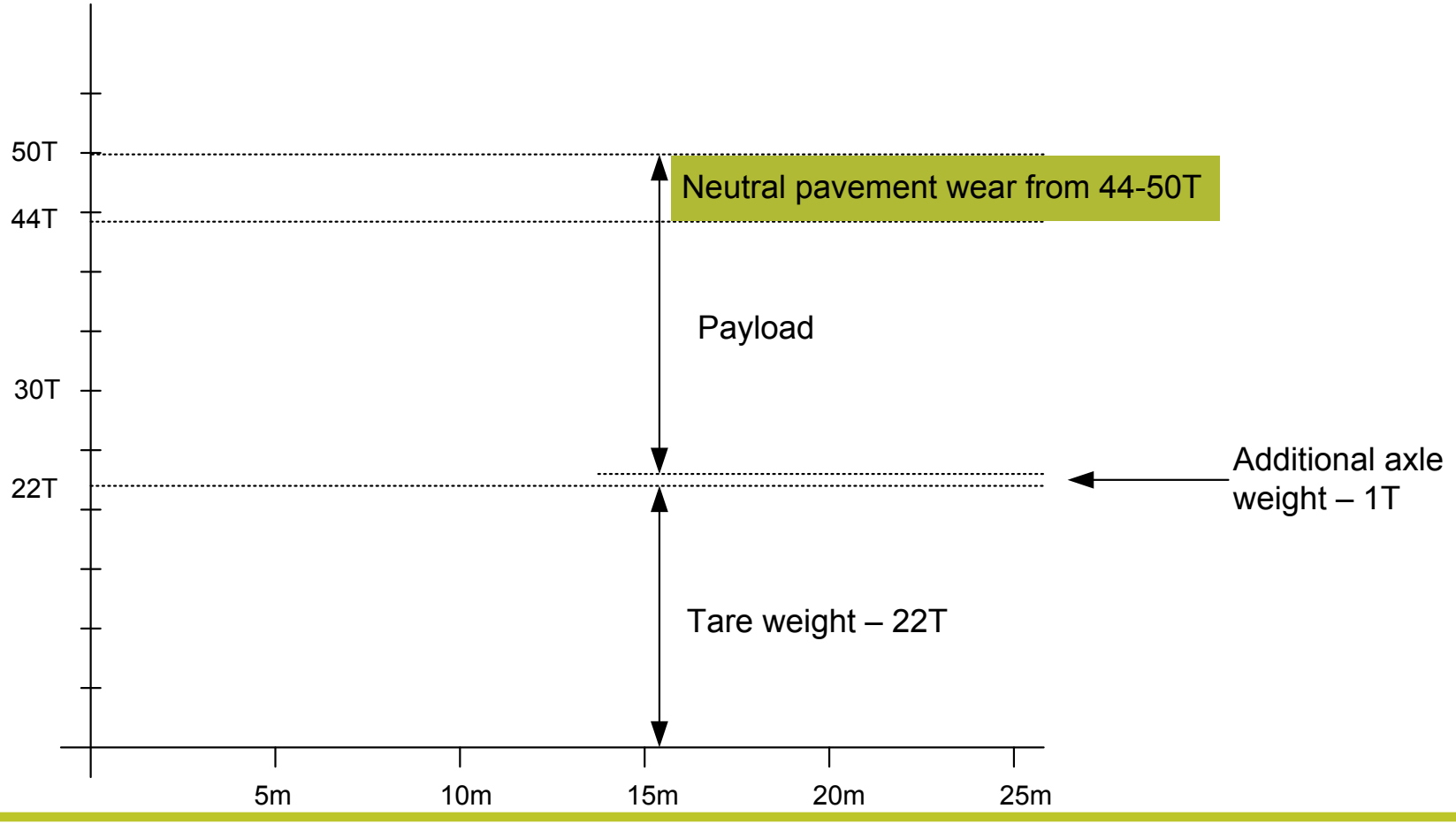
Bridge capacity

- In theory, all "Unposted bridges" up to about 25m span should be able to carry LB HPMV's

Options above 25m are to:

- Reanalyse – adopt higher risk profile
- Post (ie Limit to Class 1 or less)
- Strengthen
- Replace

Neutral impact on pavements



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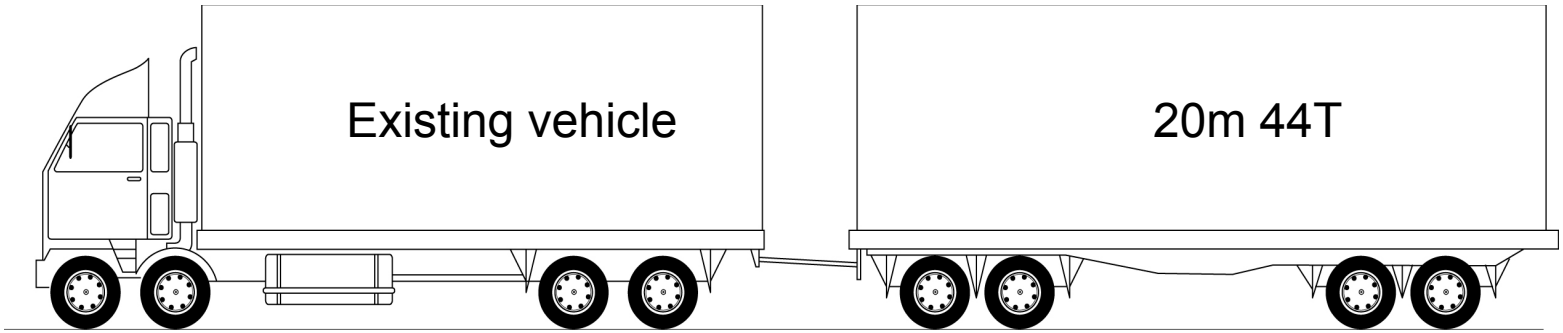
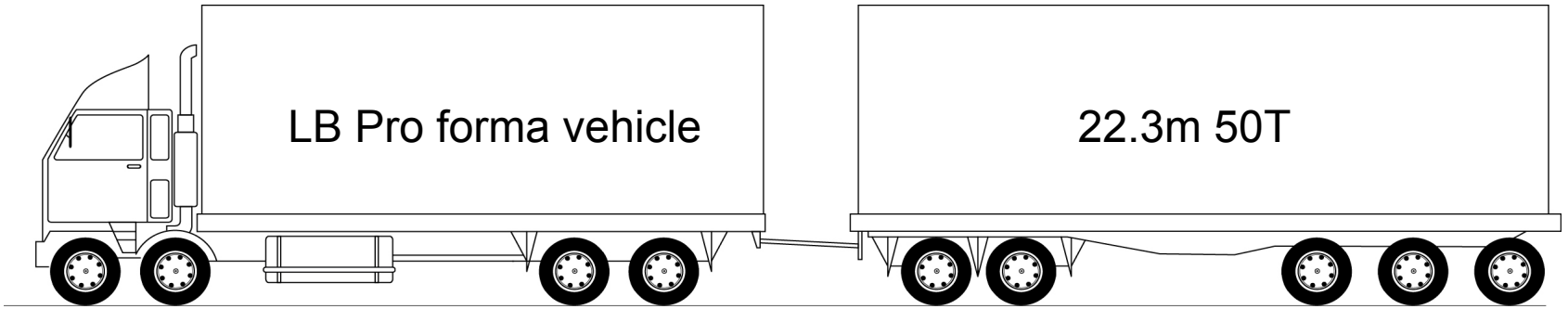
Proposal

- LB HPMV pro-formas have a neutral impact on pavement loading
- Access to almost all of the network, excluding posted bridge locations
- Limited to new vehicle types
  - Pro forma 22.3m designs
  - Same swept path as quad semi truck
  - Additional axle to disperse loads

Vehicle types – truck and trailer





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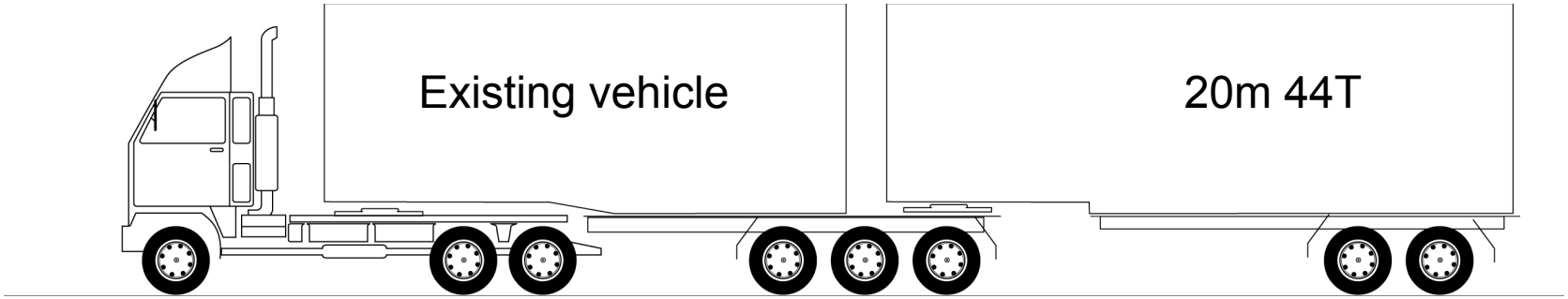
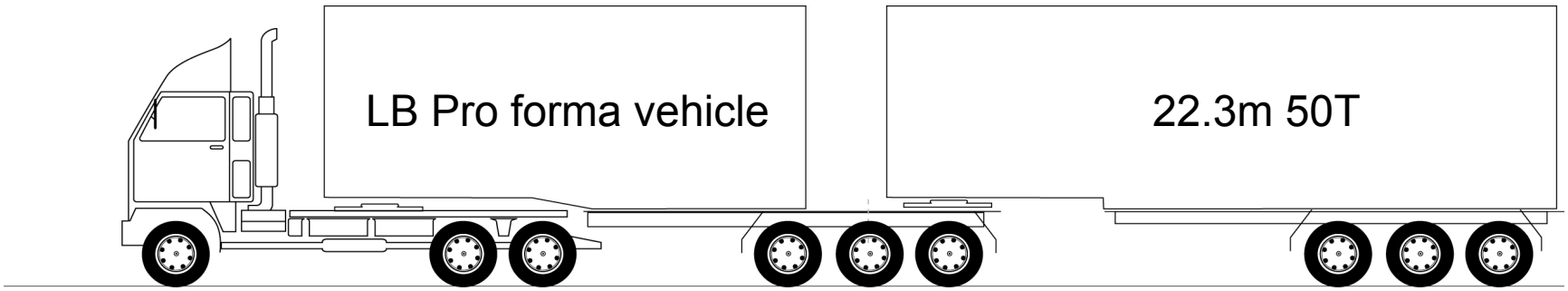
Vehicle types – B-Trains





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Business case

- Viable case shows $100M net reduction in transport costs by year 4
- Reduction in transport costs will increase the return to the producer and hence the community

How we're going about it

- Communicating to Zone meetings in November, except Zone 4 (Early 2013)
- Technical reports and business case will be on NZTA website from early October

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