For an air-suspension to be classified as Road Friendly it is required to

- have a bounce frequency below 2.0Hz
- have damping greater than 20% of critical
- the suspension group achieves load sharing within 5%.

Triaxle dollies offer a productivity benefit of between 2.5 and 4.5 tonnes when compared to a tandem converter dolly

Simulation show that:

- Tandem air-suspended converter dollies
  - could pitch significantly under braking as compared to mechanically suspended dollies
- Triaxle air suspended dollies
  - pitch somewhat less than the tandem air-suspended dolly and
  - generated a lower longitudinal force in the coupling.
  - This indicated that the triaxle dolly has better brake balance and should be encouraged by allowing the weight increase.
- Rigid drawbars on converter dollies
  - reduce the amount of dolly pitch
  - hence have better brake balance.
  - tandem axle air-suspended converter dollies perform significantly better with a rigid drawbar.









Simulation show that:

Load transfer seen as axle loads is larger for Tractor – Semi-trailer than for Dolly – Semi-trailer

		$\mathbf{f}_{\mathbf{load}}$ [-]									
configuration		axle 1	axle 2	axle 3	axle 4	axle 5	axle 6	axle 7	axle 8		
tractor semitrailer		1.698	0.893	0.844	0.812	0.779	_	_	_		
truck trailer		1.447	0.712	1.407	0.592	—	_	_	_		
truck db trailer		1.595	0.983	0.830	0.763	0.860	_	_	_		
LZV A		1.670	0.853	0.998	1.010	1.021	0.832	0.762	_		
LZV B		1.630	0.835	1.019	1.036	1.052	0.861	0.822	0.782		
LZV C	2 MAD 8 HH	1.702	0.995	0.799	0.607	1.746	0.762	0.486	_		
LZV D		1.535	1.023	0.888	0.945	1.145	0.856	0.816	0.777		
LZV E		1.583	1.000	0.852	0.985	1.129	0.848	0.682	—		
LZV F		1.552	1.105	1.013	0.914	0.808	0.800	0.791	_		
LZV G		1.463	1.161	1.080	1.003	0.833	0.808	0.783	_		

Simulation show that:

Load transfer seen as coupling loads is about the same for Tractor – Semi-trailer than for Dolly – Semi-trailer

Forces coupling 1		$0\mathrm{m/s^2}$		$-6 {\rm m/s^2}$			
configuration	$\mathbf{F}_{\mathbf{x}} [kN]$	$\mathbf{F}_{\mathbf{y}} [kN]$	$\mathbf{F_z}$ [kN]	$\mathbf{F}_{\mathbf{x}}$ [kN]	$\mathbf{F}_{\mathbf{y}} [kN]$	$\mathbf{F}_{\mathbf{z}}$ [kN]	
tractor semitrailer	-1.4	0.0	-117.8	106.3	0.0	-153.0	
truck trailer	-1.2	0.0	0.0	-0.5	0.0	0.0	
truck db trailer	-0.9	0.0	-4.4	19.7	0.0	-29.1	
LZV A	-2.7	0.0	-116.4	98.8	0.0	-143.0	
LZV B	-2.8	0.0	-100.7	87.0	0.0	-126.3	
LZV C	-1.9	0.0	0.0	-2.0	0.0	-0.1	
LZV D	-2.3	0.0	0.0	20.5	0.0	-30.6	
LZV E	-2.3	0.0	-2.9	19.4	0.0	-30.8	
LZV F	-1.7	0.0	-125.3	110.6	0.0	-167.7	
LZV G	-1.8	0.0	-5.7	37.4	0.0	-60.0	
Forces coupling 2	$0 { m m/s^2}$			$-6\mathrm{m/s^2}$			
configuration	$\mathbf{F}_{\mathbf{x}} [kN]$	$\mathbf{F}_{\mathbf{y}} [kN]$	$\mathbf{F}_{\mathbf{z}}$ [kN]	$\mathbf{F}_{\mathbf{x}}$ [kN]	$\mathbf{F}_{\mathbf{y}} [kN]$	$\mathbf{F}_{\mathbf{z}}$ [kN]	
LZV A	-1.3	0.0	-5.1	31.0	0.0	-47.6	
LZV B	-1.4	0.0	-118.1	101.2	0.0	-158.0	
LZV D	-1.4	0.0	-114.8	95.5	0.0	-153.2	
LZV E	-1.4	0.0	-4.9	28.5	0.0	-43.1	