

This note shows that infrastructure maintenance costs, in terms of the product flow, is probably between 5 and 7.5 times as high by rail as it is by road. The basis for that follows.

- 1 Tables 6.2 and 4.1 of Transport statistics Great Britain 2004 provides 41 billion passenger-km and 19 billion tonne-km via national rail. Dividing the passengers by 20 yields 2.05bn coach-km. Dividing the freight by 15 yields 1.27 lorry-km. Adding the two yields 3.32bn (bus plus lorry)-km. Maintenance and renewals for the system may be running at between £2 and £3 billion annually for the decade (Table 8.2 of Network Management Statement 2001). On that basis the cost per equivalent bus/lorry vehicle-km has the range (60-90) pence. (If the equivalent bus flows are eliminated from the sum on the basis that it would be lorries that do the damage then the cost has the range (157-236) pence per equivalent lorry-km). Alternatively divide the £(2-3) billion by the 32,000 km of track length and get £62,000-£94,000 per track-km per year. Alternatively again, if we set one tonne as equivalent to one passenger then the infrastructure maintenance cost per (passenger + tonne)-km has the range 3.3 pence to 5 pence.
- 2 For roads we here consider the Motorway and Trunk road Network only. All maintenance costs are assigned to the heavier class of lorries, namely 4 axle rigids, and all artics, since it is those classes of vehicle that do most of the structural damage. Further, maintenance costs have been set to the current account cost plus half the capital expenditure on the basis of discussions with the DfT. On that basis the emboldened data in table following show:
 - (a) That the cost per lorry-km was 12 pence (compared with the (60-90) pence by rail).
 - (b) The annual cost per lane km has the range £25,000-£33,000 (compared with £62,000-94,000 per track-km for rail).
 - (c) The cost per (person + tonne)-km is 0.5 pence, one-sixth to one-tenth the value for rail.

The comparison at (a) is biased in favour of rail since (i) buses on trunk roads and motorways amount to one tenth of the heavy lorry flow but are ignored when calculating the factors (ii) substantial elements of road maintenance such as signs, lighting, verges, hard shoulders, winter maintenance, and some wear and tear should be attributed to vehicles other than to lorries alone.

Table – Lengths, costs and unit costs – Motorways and Trunk Roads in GB

Year	1999/00	2000/01	2001/02	2002/03	2003/4	Total
Lengths-km TSGB 2004 Table 7.8						
M'way, M	3449	3468	3476	3476	3476	17345
Trunk, T, excluding M	11698	11701	11369	10640	9340	54748
Lane Lengths km						
(a) M = 6 lane, T = 2 lane	44090	44210	43594	42136	39536	213566
(b) M = 7 lane T = 2 lane	59237	59379	58439	56252	52352	285659
Expenditure outturn £millions TSGB 2004 Table 1.15						
Capital	1079	1021	1152	1395	1038	5685
Current	574	760	776	819	982	3911
GDP deflator TSGB 2004 Table 1.2	1.102	1.087	1.063	1.03	1	
Expenditure £millions 2003 prices						
Capital, Cap	1189	1110	1225	1437	1038	5998
Current, Cur	633	826	825	844	982	4109
Total	1822	1936	2049	2280	2020	10107
1/2(cap)+cur (xx)	1227	1381	1437	1562	1501	7108
4 Axle rigids and artics veh-km billion	11.5	12.1	12.7	12.14	11.55	59.99
Cost (xx) per Lane-km (a) £	27831	31238	32967	37070	37965	33284
Cost (xx) per lane-km (b) £	20715	23258	24593	27768	28671	24884
Cost (xx) per Veh-km pence	11	11	11	13	13	12
System- wide passenger-km Billion	696	695	710	734	736	
System-Wide Tonne-km Billion	157	158	157	157	159	
(passenger + Tonne)-km Billion	853	853	867	891	895	
% total traffic on Motorways and Trunk roads	36	35.6	34.6	33.7	32.5	
(passenger + Tonne)-km on M and T	307	304	300	300	291	1502
Pence per (passenger + Tonne)-km	0.400	0.455	0.479	0.520	0.516	0.473