

Traffic associated with new housing in Peacehaven

East Sussex County Council October 2011

- Housing trip rates (from Mott MacDonald Newhaven Study report) for the Peacehaven area:

Table 2.3: Trip Rates

Development Class	Development Type	Category	Unit	AM Peak (0800-0900)		PM Peak (1700-1800)	
				Vehicle Trip Rates		Vehicle Trip Rates	
				In	Out	In	Out
A1	Retail	Food superstore	Per 100m ²	4.411	3.248	6.685	6.905
	Retail	Non-food	Per 100m ²	0.235	0.105	0.847	0.877
A3	Hotel / food / drink	Pub / restaurant	Per 100m ²	0.000	0.000	8.000	4.889
B1	Employment	Business park (up to 10,000sqm)	Per 100m ²	2.087	0.288	0.288	1.750
B2	Employment	Industrial estate (up to 16,966 sqm)	Per 100m ²	0.993	0.363	0.191	0.842
B8	Employment	Commercial warehousing	Per 100m ²	0.117	0.069	0.058	0.117
C1	Hotel / food / drink	Hotels	Per bed	0.241	0.230	0.226	0.195
C2	Residential	Private housing	Per dwelling	0.173	0.504	0.375	0.222
	Residential	Affordable housing	Per dwelling	0.122	0.245	0.469	0.286
	Residential	Private flats	Per dwelling	0.061	0.221	0.187	0.088
	Residential	Affordable flats	Per dwelling	0.073	0.154	0.163	0.105
D1	Education	University/College	Per 100m ²	2.463	0.823	0.831	1.071
D2	Leisure	Leisure Parks	Per 100m ²	0.566	0.475	2.581	1.434
	Leisure	Sports and Leisure Centres	Per 100m ²	0.599	0.369	1.691	1.106

Source: TRICS version 2011(a) v6.7.1

- Assume 33% affordable with 50% houses and 50% flats; 67% private with 75% houses and 25% flats. Therefore make-up of total is:

Private houses	67% x 75% = 50%
Private flats	67% x 25% = 17%
Affordable houses	33% x 50% = 16.5%
Affordable flats	33% x 50% = 16.5%

- Composite vehicle trip rates for that mix of housing are therefore (hourly vehicle trips / dwelling):

AM peak	In	0.124	
	Out	0.355	2-way 0.479
PM peak	In	0.324	
	Out	0.190	2-way 0.514

- Some trips would be purely local to Peacehaven. National Travel survey 2010 shows that 20% of all trips, and 6% of car trips, are under 1 mile, and about 23% of car trips are under 2 miles. Assume here that 15% of total vehicle trips are of sufficiently short distance to have no material impact on the operation of the A259. Longer distance vehicle trip rates are therefore:

AM peak	In	0.105	2-way 0.407
	Out	0.302	
PM peak	In	0.275	2-way 0.437
	Out	0.162	

5. Proportions of all trips to/from the Brighton and Newhaven directions (from Mott MacDonald Newhaven Study report):

To calculate the appropriate proportion of trips from Peacehaven to Newhaven analysis of two permanent ATC counters on the A259 east and west of Peacehaven has been undertaken. The analysis shows that in the am peak hour (0800-0900) 35.9% of trips outbound from Peacehaven travel to Newhaven and the remaining 64.1% travel west. In the pm peak hour (1700-1800) 20.7% of trips travel from Newhaven to Peacehaven with 79.3% travelling from the west. Therefore trips generated by Peacehaven developments have been multiplied by 35.9% in the am peak and 20.7% in the pm peak to match the distribution shown by the ATCs.

6. Therefore longer distance vehicle trip rates by direction would be:

		towards Brighton	towards Newhaven
AM peak	In	0.067	0.038
	Out	0.194	0.106
	2-way	0.261	0.146
PM peak	In	0.218	0.057
	Out	0.128	0.034
	2-way	0.346	0.091

7. These are average trip rates for average inter-modal accessibility. With the Brighton – Telscombe bus corridor in place, and the scale of commuter parking restrictions in Brighton, a 'betterment' (reduction) of at least 20% could be expected here. Final longer distance vehicle trip rates would therefore be:

		Brighton	Newhaven
AM peak	In	0.054	0.030
	Out	0.155	0.085
	2-way	0.209	0.115
PM peak	In	0.174	0.046
	Out	0.103	0.027
	2-way	0.277	0.073

8. Key traffic movements are westbound (towards Brighton direction) in AM peak, and eastbound (from Brighton direction) in the PM peak. In Telscombe / Peacehaven the AM peak is the more important in terms of the network's ability to accommodate current and generated traffic.
9. Additional traffic per 100 new dwellings in Peacehaven on the key movement in the AM peak (westbound towards Brighton) would be 15.5 vehicles / hour.
10. Current Annual Average Daily Traffic (AADT – see Note below) on A259 at Telscombe Cliffs = 20310 vehicles/day 2-way.
2-way Peak hour flow = $0.83 \times \text{AADT} = 1692$
60% major flow direction = 1015 vehicles / hour
11. Network capacity is a function of both junction capacity and link capacity. The bus priority scheme balances the two west of Peacehaven. There are no bus corridor link capacity limitations on the A259 through Peacehaven. Using TA79/99 (DMRB – see Note below) link capacity is about 1285 vehs / hour 1-way in the highest flow direction (based on average of UAP2/3 road types and 6.75-7.3m width).
12. Difference between current flow and link capacity = 270 vehs/hour. Current volume : capacity ratio is therefore 80%. Allowing 10% for 'natural growth' (application of TEMPRO [see Note below] fuel and income factors over the period to 2030), that leaves remaining 'headroom' for new development in Peacehaven of 10% .
13. A 10% increase in current flows = 101 vehicles /hour in the dominant (towards Brighton) direction in the AM peak. Using the relationship in para 9 above, 101 vehicles / hour is equivalent to 652 dwellings.

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NOTES:

AADT = Total annual flow divided by number of days in year

DMRB is the government's Design Manual for Roads and Bridges, a set of technical standards and advice notes for use in the design and assessment of highways schemes.

TEMPRO is the government's standard trip end forecasting model