

## Appendix 33 Construction traffic assumptions and calculations

# Northampton Gateway

## Construction Traffic

### Calculation Methodology

The total mass of material required for each of the key components has been estimated.

The key components being:-

- Road (on Site)
- Road (off site J15 / 15a Improvements)
- Road (off site bypass / A508 improvements)
- Bridge
- Earthworks
- Buildings
- Landscaping
- Rail (Track)
- Rail (Terminal)

The total number of HGV movements has been calculated based on 18.5T per movement.

The total number of LGV movements has been calculated based on the following percentages of the HGV movements:-

- Road (on site) 20%
- Road (off site) 20%
- Bridge 40%
- Earthworks 50%
- Buildings 20%
- Landscaping n/a
- Rail (Track) 50%
- Rail (Terminal) 20%

It has been assumed that cars have an occupancy rate of 1, and vans have an occupancy rate of 3.

The number of days has been calculated at 49 weeks x 5 day = 245 day per year.

To establish the daily movements the total has been divided by the days per year x duration in years.

Northampton Gateway - Construcion Traffic Movements (One Way)

Rev 0

Construction Traffic Calculations

Component	Input Unit	HGV	LGV	Car	Vans	Total	Development Totals					Yrs	Day	Average Movements per Day					
							Quantity	HGV	LGV	Car	Van			Total	HGV	LGV	Car	Van	Total
Roads (Onsite)	m2	0.5000	0.1000	1.0000	0.7500	2.3500	20,550	10,275	2,055	20,550	15,413	48,293	2.50	612.50	16.78	3.36	33.55	25.16	78.84
Roads Off Site (J15-Site Access, J15a)	m2	0.5000	0.1000	0.3000	0.3000	1.2000	56,392	28,196	5,639	16,918	16,918	67,670	1.50	367.50	76.72	15.34	46.03	46.03	184.14
Roads Offsite (Bypass A508)	m2	0.5000	0.1000	0.3000	0.3000	1.2000	33,795	16,898	3,380	10,139	10,139	40,554	1.50	367.50	45.98	9.20	27.59	27.59	110.35
Bridges	Item	800	320	1500	1500	4120	2	1,600	640	3,000	3,000	8,240	1.50	367.50	4.35	1.74	8.16	8.16	22.42
Earthworks	m3	0.0010	0.0005	0.0020	0.0075	0.0110	3,600,000	3,600	1,800	7,200	27,000	39,600	2.00	490.00	7.35	3.67	14.69	55.10	80.82
Buildings	ft2	0.0150	0.0030	0.0075	0.0100	0.0355	5,871,713	88,076	17,615	44,038	58,717	208,446	5.00	1,225.00	71.90	14.38	35.95	47.93	170.16
Landscaping	ft2	0.0001	0.0004	0.0002	0.0004	0.0011	5,871,713	587	2,349	1,174	2,349	6,459	2.00	490.00	1.20	4.79	2.40	4.79	13.18
Railway Tracks (Phase 1)	m	0.0750	0.0375	0.0500	0.1000	0.2625	4,850	364	182	243	485	1,273	1.00	245.00	1.48	0.74	0.99	1.98	5.20
Railway Terminal (Phase 1)	m2	0.1500	0.0300	0.0300	0.0450	0.2550	22,500	3,375	675	675	1,013	5,738	1.00	245	13.78	2.76	2.76	4.13	23.42
								<b>152,970</b>	<b>34,334</b>	<b>103,936</b>	<b>135,032</b>	<b>426,272</b>			<b>239.54</b>	<b>55.98</b>	<b>172.12</b>	<b>220.89</b>	<b>688.53</b>

Year	Type	Totals	Roads (On)	Road off (J15)	Road off (Bypass)	Bridges	E/W	Landscape	Rail (track)	Rail (Terminal Building)	
Yr 1	HGV	141.06	16.78	76.72	-	-	7.35	0.45	0.37	3.44	35.95
Yr 1	LGV	32.23	3.36	15.34	-	-	3.67	1.80	0.19	0.69	7.19
Yr 1	Car	114.09	33.55	46.03	-	-	14.69	0.90	0.25	0.69	17.97
Yr 1	Vans	153.59	25.16	46.03	-	-	55.10	1.80	0.49	1.03	23.97
Yr 2	HGV	171.44	16.78	38.36	22.99	2.18	7.35	0.45	1.11	10.33	71.90
Yr 2	LGV	38.97	3.36	7.67	4.60	0.87	3.67	1.80	0.56	2.07	14.38
Yr 2	Cars	128.79	33.55	23.02	13.79	4.08	14.69	0.90	0.74	2.07	35.95
Yr 2	Vans	175.47	25.16	23.02	13.79	4.08	55.10	1.80	1.48	3.10	47.93
Yr 3	HGV	131.07	8.39	-	45.98	4.35	-	0.45	-	-	71.90
Yr 3	LGV	28.79	1.68	-	9.20	1.74	-	1.80	-	-	14.38
Yr 3	Car	89.37	16.78	-	27.59	8.16	-	0.90	-	-	35.95
Yr 3	Vans	98.06	12.58	-	27.59	8.16	-	1.80	-	-	47.93
Yr 4	HGV	71.90	-	-	-	-	-	-	-	-	71.90
Yr 4	LGV	14.38	-	-	-	-	-	-	-	-	14.38
Yr 4	Car	35.95	-	-	-	-	-	-	-	-	35.95
Yr 4	Vans	47.93	-	-	-	-	-	-	-	-	47.93
Yr 5	HGV	71.90	-	-	-	-	-	-	-	-	71.90
Yr 5	LGV	14.38	-	-	-	-	-	-	-	-	14.38
Yr 5	Car	35.95	-	-	-	-	-	-	-	-	35.95
Yr 5	Vans	47.93	-	-	-	-	-	-	-	-	47.93
Yr 6	HGV	35.95	-	-	-	-	-	-	-	-	35.95
Yr 6	LGV	7.19	-	-	-	-	-	-	-	-	7.19
Yr 6	Car	17.97	-	-	-	-	-	-	-	-	17.97
Yr 6	Vans	23.97	-	-	-	-	-	-	-	-	23.97
Yr 7	HGV	-	-	-	-	-	-	-	-	-	-
Yr 7	LGV	-	-	-	-	-	-	-	-	-	-
Yr 7	Car	-	-	-	-	-	-	-	-	-	-
Yr 7	Vans	-	-	-	-	-	-	-	-	-	-

TOTAL

# Northampton Gateway - Construcion Traffic Movements (One Way)

Rev A

## Project Summary

Row Labels	Avg Daily Oneway Movements	Sum of Peak Daily Movements
<b>Yr 1</b>	<b>455</b>	<b>909</b>
HGV	147	293
LGV	33	67
Car	117	235
Vans	157	314
<b>Yr 2</b>	<b>515</b>	<b>1,029</b>
HGV	171	343
LGV	39	78
Vans	175	351
Cars	129	258
<b>Yr 3</b>	<b>334</b>	<b>667</b>
HGV	125	251
LGV	28	55
Car	86	172
Vans	95	189
<b>Yr 4</b>	<b>170</b>	<b>340</b>
HGV	72	144
LGV	14	29
Car	36	72
Vans	48	96
<b>Yr 5</b>	<b>170</b>	<b>340</b>
HGV	72	144
LGV	14	29
Car	36	72
Vans	48	96
<b>Yr 6</b>	<b>85</b>	<b>170</b>
HGV	36	72
LGV	7	14
Car	18	36
Vans	24	48
<b>Yr 7</b>	<b>0</b>	<b>0</b>
HGV	0	0
LGV	0	0
Car	0	0
Vans	0	0
<b>Grand Total</b>	<b>1728</b>	<b>3,457</b>

Construction traffic	One-way traffic movements	Worst case year			
Operatives (Car & Vans)	304	Year 2	80% arrive for start of day at 0700 hours and depart at 1900 hours movements spread over 10 hour working day	resultant hourly flow	243
HGV	171	Year 2		resultant hourly flow	17
LGV	39	Year 2		resultant hourly flow	4

Assignment of Operatives		
Distribution of main routes from NSTM	Route	Trips
45.1%	A45	109
20.5%	M1 South	50
19.5%	A508	37
15.1%	M1 North	47
	Total	243