

EMRA Statement of Transport Conditions and Issues

2010 Update

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Contents

Section	Page
1. Introduction	1
1.1 Background	1
1.2 The East Midlands region	1
1.2.1 Context	1
1.2.2 The Economy of the East Midlands	1
1.2.3 East Midlands Housing Market Areas	3
1.3 Regional demographic profile	5
1.3.1 Population	5
1.3.2 Levels of deprivation	8
1.3.3 Income and employment	11
1.4 National Policy Context	11
1.4.1 Delivering a Sustainable Transport System (DaSTS)	11
1.5 Study approach	15
1.6 Report structure	15
2. The East Midlands transport networks	16
2.1 Highway network	16
2.1.1 Highways Agency roads	16
2.1.2 Local Highway Authority roads	16
2.2 Public transport services	18
2.2.1 Introduction	18
2.2.2 Passenger rail services	19
2.2.3 Rail patronage	21
2.3 Bus services	25
2.3.1 Local services	25
2.3.2 Inter-urban services	26
2.4 Coach services	26
2.6 Light rail	28
2.7 Air passenger services	30
2.7.1 East Midlands Airport	30
2.7.2 Airports in neighbouring regions	31
2.8 Freight movements	32
2.8.1 Road freight	32
2.8.2 Rail freight	33
2.9 Waterways and ports	34
2.9.1 Inland waterways	34
2.9.2 Ports	34
2.9.3 Pipelines	35
2.9.4 Air freight	35

3.	Regional policy context	36
3.1	Introduction	36
3.2	Integrated Regional Strategy	36
3.3	East Midlands Regional Plan	37
3.4	Regional Economic Strategy	38
3.5	Regional Funding Allocation Major Scheme Programme	39
3.5.1	Introduction	39
4.	Regional transport conditions and issues	42
4.1	Challenge EM1: Minimising existing and future traffic congestion and rail crowding on strategic links and in urban areas	42
4.1.1	Existing traffic flows and congestion/delays	42
4.1.2	Observed congestion	45
4.1.3	The economic costs of congestion	49
4.1.4	6Cs Congestion Management Study	50
4.2.1	Rail crowding	53
4.2.2	Rail punctuality	53
4.2.3	Bus punctuality	55
4.3	Challenge EM2: Enabling growth and dealing with the additional demand for travel brought about mainly by regeneration and growth	56
4.3.1	Planned growth in population and employment	56
4.3.2	Forecast growth in travel	62
4.3.3	Forecast traffic flows and congestion	66
4.3.4	Forecast rail use and crowding	69
4.4	Challenge EM3: Overcoming gaps and weaknesses in the existing transport networks, and maintaining accessibility	73
4.4.1	Key travel movements and patterns	73
4.4.2	Accessibility	75
4.4.3	Gaps in network provision	79
4.5	Challenge EM4: Minimising the effects of non-recurrent delays on the transport networks	80
4.5.1	Introduction	80
4.5.2	Non-recurrent delays on the highway network	80
4.5.3	Non-recurrent delays on the rail network	80
4.6	Challenge EM5: Overcoming the lack of awareness of (benefits of) sustainable travel options and inertia of individuals and businesses to change behaviour	82
4.6.1	Overall cost of travel	82
4.6.2	Car ownership	82
4.6.3	Modal share of journeys	85
4.6.4	Behavioural change measures	87
4.7	Challenge EM6: Identifying measures to reduce further the number of deaths and injury accidents, particularly on roads	89
4.7.1	Road accidents	89
4.8	Challenge EM8: Minimising noise, severance, vibration, local air quality and other issues affecting local communities	95
4.8.1	Traffic levels on main roads	95
4.8.2	Heavy goods vehicle flows	95
4.8.3	Air quality	97
4.8.4	Noise	101

4.9	Challenge EM9: Minimising the negative effects of travel and new transport infrastructure on the natural environment	103
4.9.1	Current and forecast road transport carbon dioxide emissions	103
4.9.2	Fuel consumption	106
4.9.3	Conservation Areas and natural assets	110
4.10	Challenge EM10: Minimising barriers to use of sustainable modes such as disability, ill health, fear of crime and cost	112
4.10.1	Ageing population	112
4.10.2	Obesity levels	114
4.10.3	Walking and cycling	117
4.10.4	Long-term limiting illness	119
4.10.5	IoMD Crime	121
5.	Derby HMA	123
5.1	Introduction	123
5.2	HMA transport networks	123
5.2.1	Highway network	123
5.2.2	Public transport services	124
5.2.3	Walking and cycling	124
5.3	Challenge EM1: Minimising existing and future traffic congestion and rail crowding on strategic links and in urban areas	127
5.3.1	Congestion and traffic growth	127
5.4	Challenge EM2: Enabling growth and dealing with the additional demand for travel brought about mainly by regeneration and growth	127
5.4.1	Planned growth in population	127
5.5	Challenge EM3: Overcoming gaps and weaknesses in the existing transport networks and maintaining accessibility	128
5.5.1	Key travel movements and patterns	128
5.5.2	Accessibility	128
5.5.3	Gaps in network provision	129
5.6	Challenge EM4: Minimising the effects of non-recurrent delays on the transport networks.	129
5.7	Challenge EM5: Overcoming lack of awareness of (benefits of) sustainable travel options and inertia of individuals and businesses to change behaviour	129
5.7.1	Potential for behavioural change	129
5.8	Challenge EM6: Identifying measures to reduce further the number of deaths and injury accidents, particularly on roads	129
5.8.1	Road accidents	129
5.9	Challenge EM8: Minimising noise, severance, vibration, local air quality and other issues affecting local communities	130
5.9.1	Air quality	130
5.9.2	Community impacts	130
5.9.3	CO ₂ emissions	130
6.	Leicester and Leicestershire HMA	132
6.1	Introduction	132
6.2	HMA transport networks	132
6.2.1	Highway network	132
6.2.2	Public transport services	133
6.2.3	Walking and cycling	133

6.3	Challenge EM1: Minimising existing and future traffic congestion and rail crowding on strategic links and in urban areas	136
6.3.1	Congestion and traffic growth	136
6.4	Challenge EM2: Enabling growth and dealing with the additional demand for travel brought about mainly by regeneration and growth	136
6.4.1	Planned growth in population	136
6.5	Challenge EM3: Overcoming gaps and weaknesses in the existing transport networks and maintaining accessibility	137
6.5.1	Key travel movements and patterns	137
6.5.2	Accessibility	137
6.5.3	Gaps in network provision	138
6.6	Challenge EM4: Minimising the effects of non-recurrent delays on the transport networks	138
6.7	Challenge EM5: Overcoming lack of awareness of (benefits of) sustainable travel options and inertia of individuals and businesses to change behaviour	139
6.7.1	Potential for behavioural change	139
6.8	Challenge EM6: Identifying measures to reduce further the number of deaths and injury accidents, particularly on roads	139
6.8.1	Road accidents	139
6.9	Challenge EM8: Minimising noise, severance, vibration, local air quality and other issues affecting local communities	140
6.9.1	Air quality	140
6.9.2	Community impacts	140
6.9.3	CO ₂ emissions	140
7.	Nottingham Core HMA	142
7.1	Introduction	142
7.2	HMA transport networks	142
7.2.1	Highway network	142
7.2.2	Public transport services	143
7.2.3	Walking and cycling	143
7.3	Challenge EM1: Minimising existing and future traffic congestion and rail crowding on strategic links and in urban areas	145
7.3.1	Congestion and traffic growth	145
7.4	Challenge EM2: Enabling growth and dealing with the additional demand for travel brought about mainly by regeneration and growth	145
7.4.1	Planned growth in population	145
7.5	Challenge EM3: Overcoming gaps and weaknesses in the existing transport networks and maintaining accessibility	146
7.5.1	Key travel movements and patterns	146
7.5.2	Accessibility	147
7.5.3	Gaps in network provision	147
7.6	Challenge EM4: Minimising the effects of non-recurrent delays on the transport networks	147
7.7	Challenge EM5: Overcoming lack of awareness of (benefits of) sustainable travel options and inertia of individuals and businesses to change behaviour	148
7.7.1	Potential for behavioural change	148
7.8	Challenge EM6: Identifying measures to reduce further the number of deaths and injury accidents, particularly on roads	148
7.8.1	Road accidents	148
7.9	Challenge EM8: Minimising noise, severance, vibration, local air quality and other issues affecting local communities	149

7.9.1	Air quality	149
7.9.2	CO ₂ emissions	149
8.	Central Lincolnshire HMA	151
8.1	Introduction	151
8.2	HMA transport networks	151
8.2.1	Highway network	151
8.2.2	Public transport services	152
8.2.3	Walking and cycling	152
8.3	Challenge EM1: Minimising existing and future traffic congestion and rail crowding on strategic links and in urban areas	155
8.3.1	Congestion and traffic growth	155
8.4	Challenge EM2: Enabling growth and dealing with the additional demand for travel brought about mainly by regeneration and growth	155
8.4.1	Planned growth in population	155
8.5	Challenge EM3: Overcoming gaps and weaknesses in the existing transport networks and maintaining accessibility	156
8.5.1	Key travel movements and patterns	156
8.5.2	Accessibility	156
8.5.3	Gaps in network provision	157
8.6	Challenge EM4: Minimising the effects of non-recurrent delays on the transport networks	157
8.7	Challenge EM5: Overcoming lack of awareness of (benefits of) sustainable travel options and inertia of individuals and businesses to change behaviour	157
8.7.1	Potential for behavioural change	157
8.8	Challenge EM6: Identifying measures to reduce further the number of deaths and injury accidents, particularly on roads	158
8.8.1	Road accidents	158
8.9	Challenge EM8: Minimising noise, severance, vibration, local air quality and other issues affecting local communities	158
8.9.1	Air quality	158
8.9.2	Community impacts	158
8.9.3	CO ₂ emissions	158
9.	Coastal Lincolnshire HMA	160
9.1	Introduction	160
9.2	HMA transport networks	160
9.2.1	Highway network	160
9.2.2	Public transport services	160
9.2.3	Walking and cycling	163
9.3	Challenge EM1: Minimising existing and future traffic congestion and rail crowding on strategic links and in urban areas	163
9.3.1	Congestion and traffic growth	163
9.4	Challenge EM2: Enabling growth and dealing with the additional demand for travel brought about mainly by regeneration and growth	163
9.4.1	Planned growth in population	163
9.5	Challenge EM3: Overcoming gaps and weaknesses in the existing transport networks and maintaining accessibility	164
9.5.1	Key travel movements and patterns	164
9.5.2	Accessibility	165
9.5.3	Gaps in network provision	165

9.6	Challenge EM4: Minimising the effects of non-recurrent delays on the transport networks	166
9.7	Challenge EM5: Overcoming lack of awareness of (benefits of) sustainable travel options and inertia of individuals and businesses to change behaviour	166
9.7.1	Potential for behavioural change	166
9.8	Challenge EM6: Identifying measures to reduce further the number of deaths and injury accidents, particularly on roads	166
9.8.1	Road accidents	166
9.9	Challenge EM8: Minimising noise, severance, vibration, local air quality and other issues affecting local communities	166
9.9.1	Air quality	166
9.9.2	CO ₂ emissions	167
10.	Peterborough Partial HMA	169
10.1	Introduction	169
10.2	HMA transport networks	169
10.2.1	Highway network	169
10.2.2	Public transport services	169
10.2.3	Walking and cycling	170
10.3	Challenge EM1: Minimising existing and future traffic congestion and rail crowding on strategic links and in urban areas	171
10.3.1	Congestion and traffic growth	171
10.4	Challenge EM2: Enabling growth and dealing with the additional demand for travel brought about mainly by regeneration and growth	172
10.4.1	Planned growth in population	172
10.5	Challenge EM3: Overcoming gaps and weaknesses in the existing transport networks and maintaining accessibility	172
10.5.1	Key travel movements and patterns	172
10.5.2	Accessibility	173
10.5.3	Gaps in network provision	173
10.6	Challenge EM4: Minimising the effects of non-recurrent delays on the transport networks	173
10.7	Challenge EM5: Overcoming lack of awareness of (benefits of) sustainable travel options and inertia of individuals and businesses to change behaviour	174
10.7.1	Potential for behavioural change	174
10.8	Challenge EM6: Identifying measures to reduce further the number of deaths and injury accidents, particularly on roads	174
10.8.1	Road accidents	174
10.9	Challenge EM8: Minimising noise, severance, vibration, local air quality and other issues affecting local communities	174
10.9.1	Air quality	174
10.9.2	CO ₂ emissions	175
11.	Nottingham Outer HMA	177
11.1	Introduction	177
11.2	HMA transport networks	177
11.2.1	Highway network	177
11.2.2	Public transport services	177
11.2.3	Walking and cycling	179
11.3	Challenge EM1: Minimising existing and future traffic congestion and rail crowding on strategic links and in urban areas	179
11.3.1	Congestion and traffic growth	179

11.4	Challenge EM2: Enabling growth and dealing with the additional demand for travel brought about mainly by regeneration and growth	180
11.4.1	Planned growth in population	180
11.5	Challenge EM3: Overcoming gaps and weaknesses in the existing transport networks and maintaining accessibility	180
11.5.1	Key travel movements and patterns	180
11.5.2	Accessibility	181
11.5.3	Gaps in network provision	181
11.6	Challenge EM4: Minimising the effects of non-recurrent delays on the transport networks	181
11.7	Challenge EM5: Overcoming lack of awareness of (benefits of) sustainable travel options and inertia of individuals and businesses to change behaviour	182
11.7.1	Potential for behavioural change	182
11.8	Challenge EM6: Identifying measures to reduce further the number of deaths and injury accidents, particularly on roads	182
11.8.1	Road accidents	182
11.9	Challenge EM8: Minimising noise, severance, vibration, local air quality and other issues affecting local communities	182
11.9.1	Air quality	182
11.9.2	CO ₂ emissions	183
12.	Northern HMA	185
12.1	Introduction	185
12.2	HMA transport networks	185
12.2.1	Highway network	185
12.2.2	Public transport services	185
12.2.3	Walking and cycling	187
12.3	Challenge EM1: Minimising existing and future traffic congestion and rail crowding on strategic links and in urban areas	187
12.3.1	Congestion and traffic growth	187
12.4	Challenge EM2: Enabling growth and dealing with the additional demand for travel brought about mainly by regeneration and growth	188
12.4.1	Planned growth in population	188
12.5	Challenge EM3: Overcoming gaps and weaknesses in the existing transport networks and maintaining accessibility	188
12.5.1	Key travel movements and patterns	188
12.5.2	Accessibility	189
12.5.3	Gaps in network provision	189
12.6	Challenge EM4: Minimising the effects of non-recurrent delays on the transport networks	189
12.7	Challenge EM5: Overcoming lack of awareness of (benefits of) sustainable travel options and inertia of individuals and businesses to change behaviour	190
12.7.1	Potential for behavioural change	190
12.8	Challenge EM6: Identifying measures to reduce further the number of deaths and injury accidents, particularly on roads	190
12.8.1	Road accidents	190
12.9	Challenge EM8: Minimising noise, severance, vibration, local air quality and other issues affecting local communities	190
12.9.1	Air quality	190
12.9.2	Community impacts	190
12.9.3	CO ₂ emissions	191

13.	Peak Dales and Park HMA	192
13.1	Introduction	192
13.2	HMA transport networks	192
13.2.1	Highway network	192
13.2.2	Public transport services	193
13.2.3	Walking and cycling	194
13.3	Challenge EM1: Minimising existing and future traffic congestion and rail crowding on strategic links and in urban areas	195
13.3.1	Congestion and traffic growth	195
13.4	Challenge EM2: Enabling growth and dealing with the additional demand for travel brought about mainly by regeneration and growth	196
13.4.1	Planned growth in population	196
13.5	Challenge EM3: Overcoming gaps and weaknesses in the existing transport networks and maintaining accessibility	197
13.5.1	Key travel movements and patterns	197
13.5.2	Accessibility	197
13.5.3	Gaps in network provision	197
13.6	Challenge EM4: Minimising the effects of non-recurrent delays on the transport networks	198
13.7	Challenge EM5: Overcoming lack of awareness of (benefits of) sustainable travel options and inertia of individuals and businesses to change behaviour	198
13.7.1	Potential for behavioural change	198
13.8	Challenge EM6: Identifying measures to reduce further the number of deaths and injury accidents, particularly on roads	198
13.8.1	Road accidents	198
13.9	Challenge EM8: Minimising noise, severance, vibration, local air quality and other issues affecting local communities	199
13.9.1	Air quality	199
13.9.2	Community impacts	199
13.9.3	CO ₂ emissions	199
14.	North Northamptonshire HMA	201
14.1	Introduction	201
14.2	HMA transport networks	201
14.2.1	Highway network	201
14.2.2	Public transport services	202
14.2.3	Walking and cycling	204
14.3	Challenge EM1: Minimising existing and future traffic congestion and rail crowding on strategic links and in urban areas	205
14.3.1	Congestion and traffic growth	205
14.4	Challenge EM2: Enabling growth and dealing with the additional demand for travel brought about mainly by regeneration and growth	205
14.4.1	Planned growth in population	205
14.5	Challenge EM3: Overcoming gaps and weaknesses in the existing transport networks and maintaining accessibility	206
14.5.1	Key travel movements and patterns	206
14.5.2	Accessibility	206
14.5.3	Gaps in network provision	207
14.6	Challenge EM4: Minimising the effects of non-recurrent delays on the transport networks	207
14.7	Challenge EM5: Overcoming lack of awareness of (benefits of) sustainable travel options and inertia of individuals and businesses to change behaviour	208

14.7.1	Potential for behavioural change	208
14.8	Challenge EM6: Identifying measures to reduce further the number of deaths and injury accidents, particularly on roads	208
14.8.1	Road safety	208
14.9	Challenge EM8: Minimising noise, severance, vibration, local air quality and other issues affecting local communities	209
14.9.1	Air quality	209
14.9.2	Community impacts	209
14.9.3	CO ₂ emissions	209
15.	West Northamptonshire	211
15.1	Introduction	211
15.2	HMA transport networks	211
15.2.1	Highway network	211
15.2.2	Public transport services	211
15.2.3	Walking and cycling	213
15.3	Challenge EM1: Minimising existing and future traffic congestion and rail crowding on strategic links and in urban areas	214
15.3.1	Congestion and traffic growth	214
15.4	Challenge EM2: Enabling growth and dealing with the additional demand for travel brought about mainly by regeneration and growth	214
15.4.1	Planned growth in population	214
15.5	Challenge EM3: Overcoming gaps and weaknesses in the existing transport networks and maintaining accessibility	215
15.5.1	Key travel movements and patterns	215
15.5.2	Accessibility	215
15.5.3	Gaps in network provision	216
15.6	Challenge EM4: Minimising the effects of non-recurrent delays on the transport networks	216
15.7	Challenge EM5: Overcoming lack of awareness of (benefits of) sustainable travel options and inertia of individuals and businesses to change behaviour	216
15.7.1	Potential for behavioural change	216
15.8	Challenge EM6: Identifying measures to reduce further the number of deaths and injury accidents, particularly on roads	217
15.8.1	Road accidents	217
15.9	Challenge EM8: Minimising noise, severance, vibration, local air quality and other issues affecting local communities	217
15.9.1	Air quality	217
15.9.2	Community impacts	217
15.9.3	CO ₂ emissions	217

List of Tables

Table 1.1 - Districts comprising each Housing Market Area	3
Table 1.2 - Population (thousands) and project growth by Housing Market Area	6
Table 1.3 - Regional travel outcomes (goals) and challenges	12
Table 2.1 - Journeys within the East Midlands, and to/from London (2006/07)	22
Table 2.2 - Journeys to stations outside the East Midlands boundary (2006/07)	23
Table 2.3 - Estimated annual bus patronage 2007	26
Table 2.4 - NET Annual passenger journeys (millions)	28
Table 2.5 - East Midlands Airport passengers (actual/forecast) millions per annum	31
Table 3.1 - East Midlands RFA programme 2010/11-2018/19	41
Table 4.1 - CSR07 sample routes	49
Table 4.2 - Economic costs of congestion per annum	50
Table 4.3 - Summary of delays per mile, morning peak hour (seconds)	52
Table 4.4 - Local bus service punctuality	55
Table 4.5 - Regional Housing Provision by HMA	56
Table 4.6 - Forecast rail freight growth	63
Table 4.7 - East Midlands Commuting patterns by HMA	73
Table 4.8 - Proportion of East Midlands households within 250m walk of a bus stop	75
Table 4.9 - Average cars/vans per household (% of households)	83
Table 4.10 - People killed or seriously injured per annum per 100,000 residents (2005-2007)	89
Table 4.11 - Severity of accidents by HMA (2003-2007)	91
Table 4.12 - Location of transport-related AQMAs	100
Table 4.13 - Road Transport CO ₂ by HMA and road type (kT) (2006)	105
Table 4.14 - Fuel consumption by HMA (2007)	106
Table 4.15 - Walking and cycling levels for journeys to work	117
Table 4.16 - Percentage of population with limiting long-term illness by HMA (2001)	119
Table 5.1 - Derby HMA - Access to the bus network	129
Table 6.1 - Leicester and Leicestershire HMA - Access to the bus network	138
Table 7.1 - Nottingham Core HMA – Access to bus network	147
Table 8.1 - Central Lincolnshire HMA – Access to the bus network	157
Table 9.1 - Coastal Lincolnshire HMA - Access to the bus network	165
Table 10.1 - Peterborough Partial HMA – Access to the bus network	173
Table 11.1 - Nottingham Outer HMA – Access to the bus network	181
Table 12.1 - Northern HMA – Access to the bus network	189
Table 13.1 - Peak Dales and Park HMA – Access to the bus network	197
Table 14.1 - North Northamptonshire HMA – Access to the bus network	207
Table 15.1- West Northamptonshire HMA – Access to the bus network	216

List of Figures

Figure 1.1 - Housing Market Areas	4
Figure 1.2 - Percentage Population Increase 2006 – 2031 by English Region (ONS)	5
Figure 1.3 - Percentage population Increase 2006 – 2031 by HMA	7
Figure 1.4 - Net average migration 2001-05 from the English regions into the East Midlands HMAs	7
Figure 1.5 - Overall Index of Multiple Deprivation 2007	9
Figure 1.6 - IoMD 2007 - Barriers to Housing and Services	10
Figure 2.1 - East Midlands Primary Route Network	17
Figure 2.2 - East Midlands principal public transport network (as of spring 2009)	18
Figure 2.3 - East Midlands Passenger Rail Network and Main Stations	19
Figure 2.4 - Passenger demand to, from, through and within the RUS area (2007/08)	21
Figure 2.5 - Destinations of journeys from the 20 busiest stations in region	24
Figure 2.6 - Growth in East Midlands rail patronage 1995/96-2006/07	25
Figure 2.7 - High frequency inter-urban bus network	27
Figure 2.8 - Nottingham Express Transit – current and proposed lines	29
Figure 2.9 - Existing and proposed public transport access to East Midlands Airport (2008)	30
Figure 2.10 - Location of East Midlands Airport and those in neighbouring regions	32
Figure 2.11 - Rail freight corridors and terminals	34
Figure 3.1 - East Midlands RFA programme 2010/11-2018/19	40
Figure 4.1 - Road traffic in Great Britain (all class types)	42
Figure 4.2 - Road traffic in Great Britain by road class: (Motorways)	43
Figure 4.3 - All vehicle traffic flows (2007 AADT)	44
Figure 4.4 - Observed total delay per vehicle on the SRN (2006)	46
Figure 4.5 - Observed stress on the SRN (2006)	48
Figure 4.6 - Congestion in the 6Cs areas	51
Figure 4.7 - Reactionary delay in the East Midlands RUS area	54
Figure 4.8 - Forecast % growth in population between 2006 to 2026	57
Figure 4.9 - Forecast % growth in employment between 2006 to 2026	58
Figure 4.10 - Regional Housing Allocations, Growth Areas and Eco Towns	61
Figure 4.11 - Number of Freight trains on the East Midlands RUS area network	64
Figure 4.12 - Forecast percentage growth in trips between 2006-2026	65
Figure 4.13 - Traffic increase on major roads by region 1997-2007	66
Figure 4.14 - Peak delay per km, 2025, 2015 roads	67
Figure 4.15 - Forecast daily stress 2026	68
Figure 4.16 - East Midlands Rail Patronage 1995/6 to 2006/7	69
Figure 4.17 - Forecast passenger growth by key market 2009/10 to 2019/20	70
Figure 4.18 – Forecast peak Passenger growth for all flows excluding London, 2009/10 to 2019/20	70
Figure 4.19 - Top 50 two way journey to work movements, 2001	74
Figure 4.20 - Access to hospital by public transport	76
Figure 4.21 - Access to further education by public transport	77
Figure 4.22 - Access to a bus service within 250 metres (by morning peak service frequency)	78
Figure 4.23 - Non-recurrent delays on the Strategic Road Network in 2005	81
Figure 4.24 - Changes in the relative cost of transport 1997-2009	82
Figure 4.25 - Average number of cars per household	84
Figure 4.26 - Mode share for journeys to work terminating in each district in 2001	86
Figure 4.27 - Locations with most potential for behavioural change	88
Figure 4.28 - KSI rate compared to national average (2005-2007)	90
Figure 4.29 - % Reduction in the number of Killed and Seriously Injured Casualties (1994-1998 and 2006-2008) 3 year average	92

Figure 4.30 - EuroRAP risk rating of primary road network 2006	93
Figure 4.31 - Fatal HGV accident hotspots	94
Figure 4.32 - OGV volumes in morning peak three hours Flows	96
Figure 4.33 - Level of PM 10 Annual Mean (2009)	98
Figure 4.34 - Air Quality Management Areas in East Midlands by HMA	99
Figure 4.35 - Ambient noise levels caused by road traffic (24 hr dB)	102
Figure 4.36 - Road transport CO ₂ emissions (kT) (2006)	104
Figure 4.37 - Road Transport fuel consumption by HMA (2007)	107
Figure 4.38 - End user road transport CO ₂ emissions per capita	108
Figure 4.39 - CO ₂ emissions per kilometre of road (2006)	109
Figure 4.40 - Biodiversity, conservation and enhancement areas	110
Figure 4.41 - Natural Assets	111
Figure 4.42 - Population projection 2031 - % aged over 65 by district	113
Figure 4.43 - Prevalence of adult obesity – comparison with national levels	115
Figure 4.44 - Prevalence of childhood obesity - comparison with national levels	116
Figure 4.45 - East Midlands Strategic Cycle network	118
Figure 4.46 - Percentage of the population with a long-term limiting illness	120
Figure 4.47 - IoMD Crime (2007)	122
Figure 5.1 - Derby HMA principal highway network	125
Figure 5.2 - Derby HMA principal bus and rail network	126
Figure 6.1 - Leicester and Leicestershire HMA principal highway network	134
Figure 6.2 - Leicester and Leicestershire HMA principal rail and bus network	135
Figure 7.1 - Nottingham Core HMA principal highway network	144
Figure 7.2 - Nottingham Core HMA principal rail and bus network	144
Figure 8.1 - Central Lincolnshire HMA principal highway network	153
Figure 8.2 - Central Lincolnshire HMA principal bus and rail network	154
Figure 9.1 - Coastal Lincolnshire HMA principal highway network	161
Figure 9.2 - Coastal Lincolnshire HMA principal rail and bus network	162
Figure 10.1 - Peterborough Partial HMA principal highway network	170
Figure 10.2 - Peterborough Partial HMA principal bus and rail network	171
Figure 11.1 - Nottingham Outer HMA principal highway network	178
Figure 11.2 - Nottingham Outer HMA principal rail and bus network	179
Figure 12.1 - Northern (Sheffield/Rotherham) HMA principal highway network	186
Figure 12.2 - Northern (Sheffield/Rotherham) HMA principal rail and bus network	187
Figure 13.1 - Peak Dales and Park HMA principal highway network	194
Figure 13.2 - Peak Dales and Park HMA principal bus and rail network	195
Figure 14.1 - North Northamptonshire HMA principal highway network	203
Figure 14.2 - North Northamptonshire HMA principal bus and rail network	204
Figure 15.1 - West Northamptonshire HMA principal highway network	212
Figure 15.2 - West Northamptonshire HMA principal bus and rail network	213

1. Introduction

1.1 Background

In June 2008, Atkins was commissioned by the East Midlands Regional Assembly (EMRA) to prepare a regional 'Statement of Transport Conditions and Issues' to act as an up to date evidence base to support revision of the Regional Transport Strategy (RTS). The report was published as a supporting document for the consultation on the Draft Project Plan and Statement of Public Participation in October 2008.

This document represents an update to the October 2008 report to support public consultation on a partial review of the Regional Plan¹ in spring 2010. The update incorporates new data and information made available since the original report, including the outcome of the Regional Funding Allocation (RFA2) process and the new Department for Transport (DfT) policy 'Delivering a Sustainable Transport System' (DaSTS) work. Where we are aware that more current data is available, but it has not been possible to reflect this in the document, this is highlighted.

1.2 The East Midlands region

1.2.1 Context

The East Midlands region, as defined by Government Office East Midlands (GOEM), is home to 4.4 million people². It is the fastest growing region in England, with a projected population of 4.8 million in 2016 and 5.5 million by 2031 (Office for National Statistics (ONS) 2006).

The East Midlands is a large and diverse region with a polycentric settlement structure based on the three cities of Derby, Leicester and Nottingham and the growing regional centres of Lincoln and Northampton. These cities and their hinterlands are the economic powerhouse of the region.

A large proportion of the region's land area (88%) is rural, with 30% of the region's population living in towns and villages of less than 10,000 people.

Whilst there is no single dominant city, the 'Three Cities' sub-region of Nottingham, Derby and Leicester is of national significance in terms of size and potential. The region is vital to delivery of the national strategy of plan-led growth under the Sustainable Communities Plan, as part of a wider growth area that includes the South East and East of England. The county of Northamptonshire is included within the Milton Keynes South Midlands (MKSM) Growth Area and northern parts of the East Midlands are part of the Sheffield City Region Development Plan which is being taken forward under the Northern Way initiative. There are also important functional links with parts of the West Midlands, including Burton-on-Trent, Nuneaton and Rugby.

1.2.2 The Economy of the East Midlands

GVA per capita in the East Midlands is 96.9% of the English average. The East Midlands Development Agencies (*emda's*) base forecast predicts economic growth in the East Midlands at an average 2.6 per annum over the period 2004 – 14, in line with the UK average.

The service sector has been a major factor in the region's strong economic growth in recent years, and now accounts for 77% of the region's employment. This sector has been affected more adversely by recent economic problems, and business and consumer confidence has declined.

¹ East Midlands Regional Plan (Regional Spatial Strategy), March 2009

² Office for National Statistics, 2008 mid year estimate

The manufacturing sector remains an important part of the regional economy outperforming the service sector. The sector accounts for 16% of the region's employment compared to 11% nationally, 23% of regional GDP and over 95% of the region's exports.

Small firms form a large proportion of the business-base compared to other regions, and are particularly vulnerable because of the challenges in securing affordable access to finance.

The region is aspiring to generate more knowledge-based businesses. The designation of Nottingham as a 'Science City' supports this aspiration by promoting international science and technology innovation in research and business. However the opportunities for innovation apply across all sectors.

The Regional Economic Strategy³ (RES) sets out the Region's ambition to become a knowledge-led, high skilled economy, which requires a move away from a low skilled employment base. There are a number of structural weaknesses which the region needs to tackle to achieve this ambition. These issues include:

- the need to tackle the persistent 'low pay low skill equilibrium';
- the need to increase the resilience of the region's businesses to change;
- the challenge of increasing levels of innovation and research and development by businesses;
- the importance of increasing levels of business enterprise, start-ups, growth and survival;
- tackling areas of deprivation and worklessness, which currently hold back the region's economic performance, and promoting economic inclusion;
- improving the quality of the business environment, as well as the wider quality of places to make them more attractive for investment;
- realising the economic opportunities associated with the plan-led growth in the region; and
- developing a more resource efficient, low carbon economy able to adapt to changing international supply chains (for energy and resources) and the implications of climate change.

The economic downturn

In keeping with the rest of the country, the crisis that initially affected financial services, property and construction is now impacting on all parts of the economy. Whilst some sectors and businesses continue to perform well, economic output as a whole is falling, unemployment rising, and business confidence is low. Small to medium sized businesses are particularly vulnerable. It is unclear how deep or long the downturn will be.

The region's large manufacturing sector is now feeling the effects of the downturn, as finance becomes more difficult and expensive to access, and consumer markets contract. The reduced value of Sterling offers benefits to exporters and in-bound tourism businesses, but these benefits are in part off-set by the global nature of the downturn. Small and medium-sized firms, which account for a disproportionately high proportion of the region's economy, are finding it increasingly difficult to secure loans for working capital or expansion.

There are major concerns that the downturn will affect the region's long-term competitive position. The failure of businesses and the redundancies of workers could result in a reduction in the region's skills and knowledge base in some sectors that will be difficult to reverse. There is a risk that in response to short term pressures businesses will cut investment in innovation, research

³ 'A flourishing region' Regional Economic Strategy for the East Midlands 2006 – 2020
/East Midlands Transport Conditions & Issues 2010 Update FINAL
- 1 March10.docx

and development, and skills development, which would affect adversely the region's long term competitiveness.

1.2.3 East Midlands Housing Market Areas

Housing Market Areas (HMAs) were defined in the East Midlands with the primary purpose being to contribute to the process of sub-regional planning and encouraging joint working on housing and planning and transport issues at the sub-regional level. They are geographical areas defined by household demand and preferences for housing and reflect the key functional linkages between places where people live and work. A total of eleven HMAs cover the entire region, each comprising a number of constituent districts (as shown in Table 1.1). A map of the HMAs is provided as Figure 1.1.

As HMAs are the basis of sub-regional planning, where possible, the evidence of transport conditions and issues at a sub-regional level (see chapters 5 to 15) is presented in this report by HMA rather than by local transport authority, county or district or county level.

Table 1.1 - Districts comprising each Housing Market Area

Housing Market Area	Constituent districts
Central Lincolnshire	Lincoln, North Kesteven, West Lindsey
Coastal Lincolnshire	Boston, East Lindsey
Derby HMA	Derby, Amber Valley, South Derbyshire
Leicester & Leicestershire	Leicester, Blaby, Charnwood, Harborough, Hinckley & Bosworth, Melton, NW Leicestershire, Oadby & Wigston
North Northamptonshire	Corby, Kettering, Wellingborough, East Northamptonshire
Northern (Sheffield/Rotherham)	Bolsover, Chesterfield, NE Derbyshire, Bassetlaw
Nottingham Core	Erewash, Nottingham, Broxtowe, Gedling, Rushcliffe
Nottingham Outer	Ashfield, Mansfield, Newark & Sherwood
Peak Dales and Park	Derbyshire Dales, High Peak, PDNPA
Peterborough Partial	Rutland, South Holland, South Kesteven
West Northamptonshire	Northampton, Daventry, South Northamptonshire

Figure 1.1 - Housing Market Areas



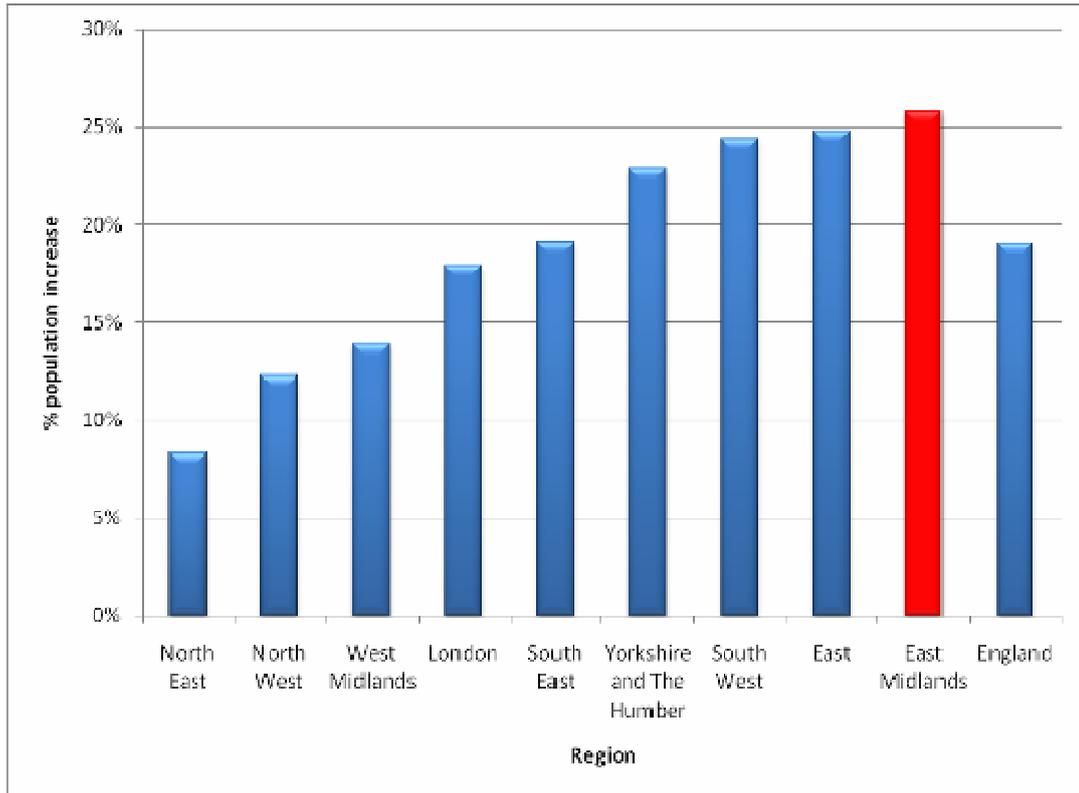
Source: East Midlands Regional Plan (July 2009)

1.3 Regional demographic profile

1.3.1 Population

The population of the East Midlands in 2008 has been estimated at 4.4 million in 2008⁴. As shown in Figure 1.2, the population is forecast to grow by over 25% between 2006 and 2031 making the East Midlands the fastest-growing English Region over that period. This growth would result in an additional 1.1 million residents over the period⁵.

Figure 1.2 - Percentage Population Increase 2006 – 2031 by English Region (ONS)



Source: ONS

Table 1.3 shows the current estimated population of each HMA and the projected population growth from 2006 to 2031. Figure 1.3 shows the percentage increases in graphical form. The HMAs with the highest projected percentage increases are Central Lincolnshire, Coastal Lincolnshire, North Northamptonshire and West Northamptonshire. By comparison, the largest *absolute* increases in population are expected in Leicester and Leicestershire and Nottingham Core HMAs.

⁴ ONS, mid-year estimate

⁵ ONS, 2006 population projections

/East Midlands Transport Conditions & Issues 2010 Update FINAL

- 1 March10.docx

Table 1.2 - Population (thousands) and project growth by Housing Market Area

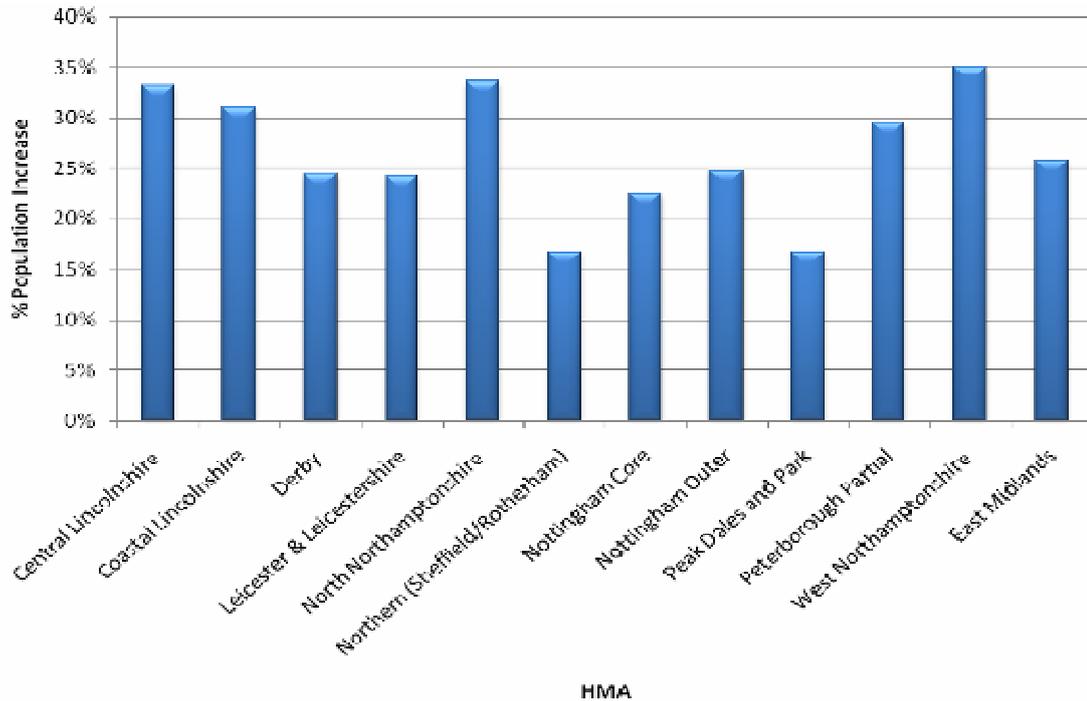
Housing market area	Population (mid 2008 estimate)	Proportion of regional population	Projected population increase 2006 – 2031	Projected population increase 2006 - 2031 (%)	Projected population 2031
Central Lincolnshire	283	6%	89	32%	369
Coastal Lincolnshire	199	5%	59	30%	258
Derby	453	10%	106	24%	555
Leicester & Leicestershire	940	21%	216	23%	1,149
North Northamptonshire	309	7%	98	32%	404
Northern (Sheffield/Rotherham)	386	9%	63	16%	448
Nottingham Core	738	17%	160	22%	891
Nottingham Outer	330	7%	80	24%	408
Peak Dales and Park	164	4%	26	16%	189
Peterborough Partial	255	6%	72	29%	325
West Northamptonshire	376	8%	124	33%	496
TOTAL East Midlands	4,433	100%	1,091	26%	5,491

Source: ONS

It is estimated that approximately one third of the projected population growth in the region will be due to natural population growth (fuelled by higher birth rates and longer life expectancy) and the remaining two thirds a result of in-migration from elsewhere in the UK, particularly from London and the South East, and from overseas⁶. The Peterborough Partial and Coastal and Central Lincolnshire HMAs are particularly attractive retirement destinations meaning that in-migration of retirement age people contributes to an increase in the proportion of over-65 residents in these areas. Figure 1.4 shows some of the main net in-migration flows from other regions to the East Midlands HMAs between 2001 and 2005.

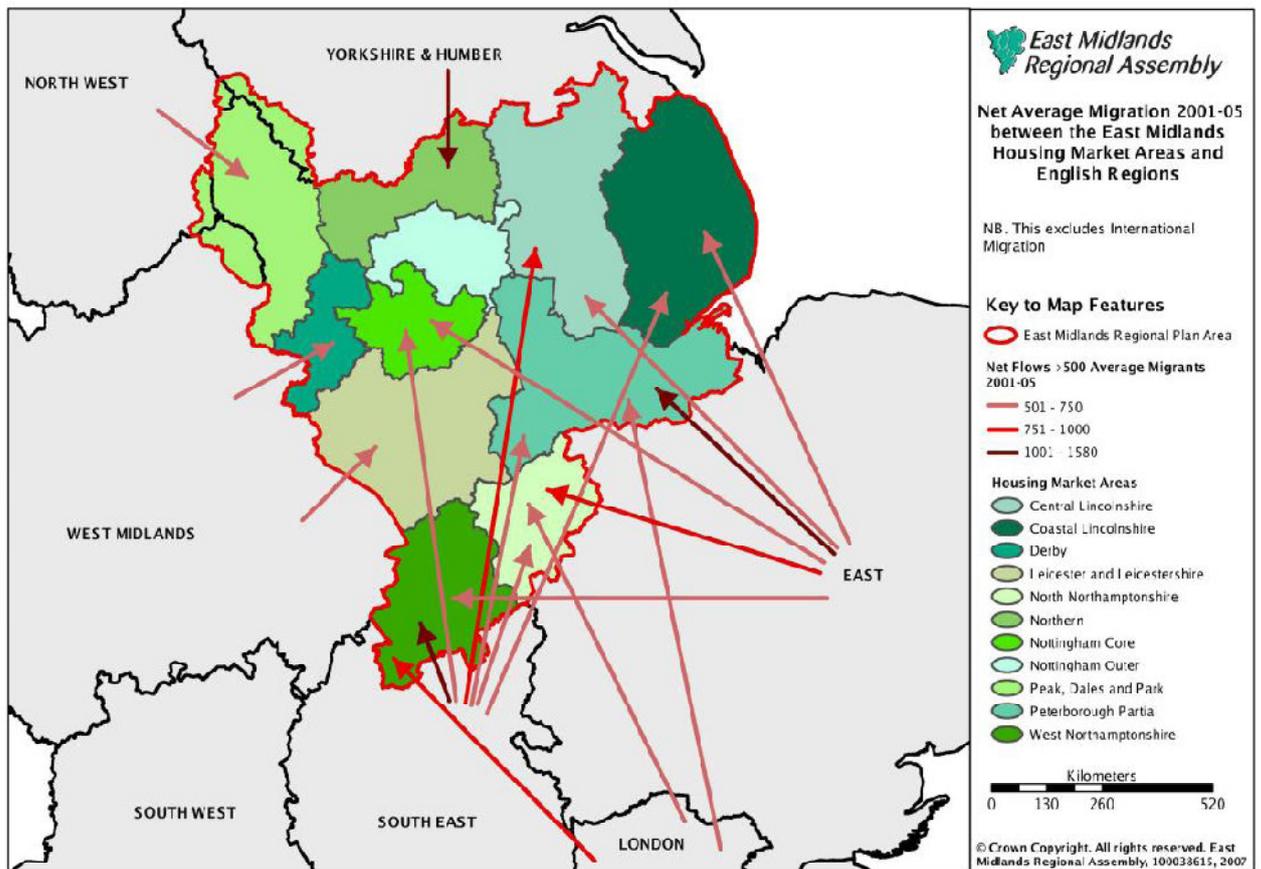
⁶ The East Midlands Regional Housing Strategy, EMRA 2008
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- 1 March10.docx

Figure 1.3 - Percentage population Increase 2006 – 2031 by HMA



Source: ONS

Figure 1.4 - Net average migration 2001-05 from the English regions into the East Midlands HMAs



Source : EMRA 2008

The East Midlands has some of the most densely populated and least densely populated areas in England. For example, Leicester City (unitary authority) has a population density of 38 people per hectare, the highest district/unitary in the region whilst the Lincolnshire districts of East Lindsey and West Lindsey have the lowest population densities with 0.74 and 0.69 people per hectare respectively⁷.

1.3.2 Levels of deprivation

The Index of Multiple Deprivation (IoMD) is used to calculate deprivation at a Super Output Area (SOA) level. SOAs are geographic areas used to report small area statistics in England and Wales and contain an average population of 1,500. Each SOA is ranked according to its IoMD score for a number of categories including health, education, income, employment, barriers to housing and services, crime and living environment.

Below, IoMD has been mapped for the following categories:

- overall IoMD;
- crime IoMD; and
- barriers to housing and services IoMD.

Overall IoMD

Overall IoMD shows those areas that are most deprived in the region. Overall IoMD by SOA is shown in Figure 1.5. The map shows that those SOAs with the worst deprivation (shown in red) are generally located in the urban areas of the three cities. Coastal Lincolnshire and the Northern HMAs also have significant levels of deprivation, as does Corby.

Crime IoMD

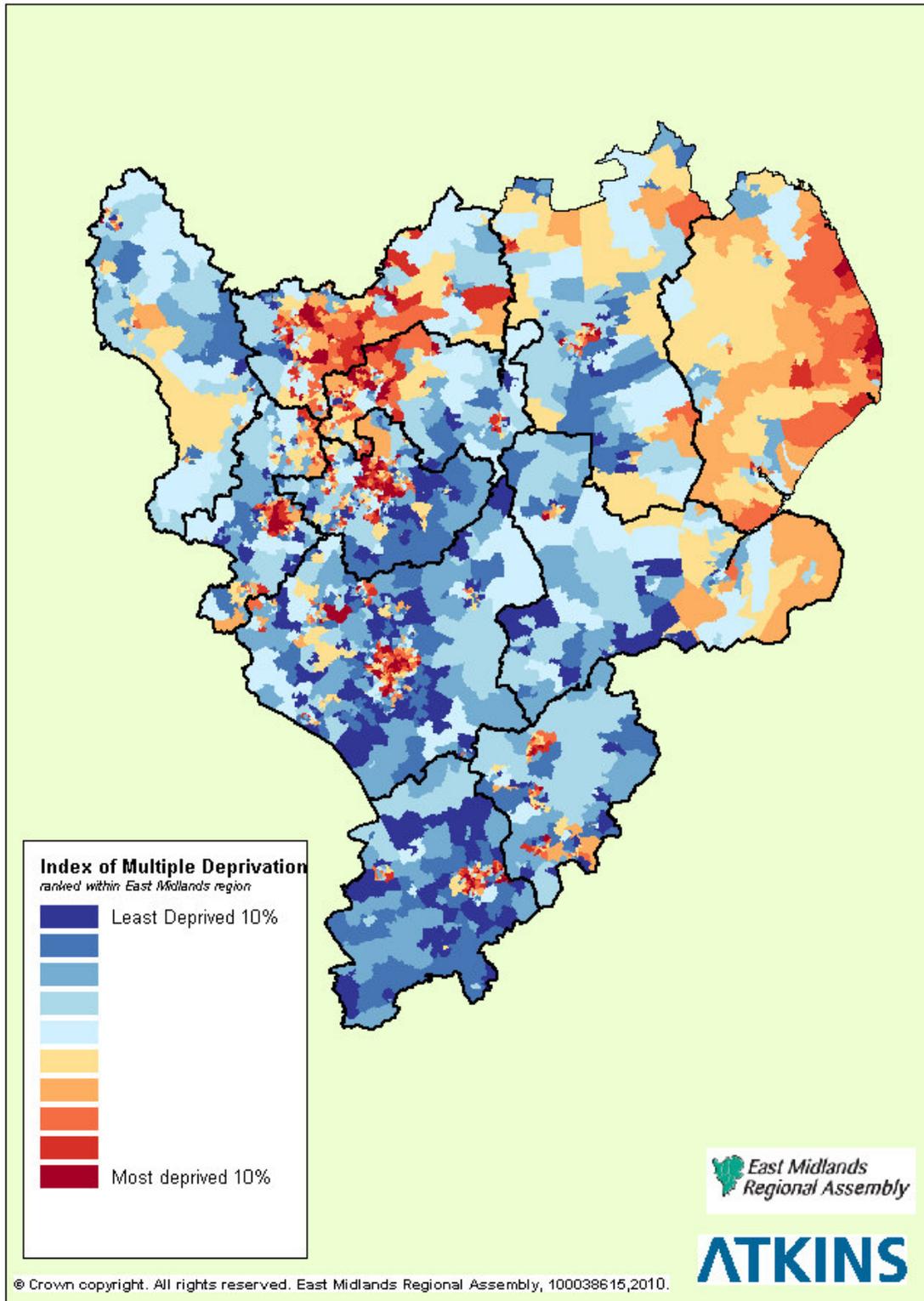
Nottingham Core HMA has many of the worst ranking SOAs in terms of crime deprivation in the region. Other areas of high crime deprivation in the region include Derby, Leicester, Northampton, Corby, parts of the Northern HMA and East Lindsey district in Coastal Lincolnshire. Crime or the fear of crime can be a barrier to travel and in particular travel by sustainable and public transport. Crime (overall crime, not just transport related incidents) as an IoMD has been considered in more detail in Chapter 4.

Barriers to housing and services

This IoMD classification measures barriers to housing and services including ability to afford housing within the area. Figure 1.6 shows the ranking for IoMD for barriers to housing and services for each SOA within the region. It shows that the most deprived SOAs are predominantly in rural areas, particularly Coastal Lincolnshire, Peterborough Partial and the southern area of the Peak Dales and Park HMA, where public transport services are poorest and services less accessible. There are also pockets of deprivation in the large urban areas, where homelessness and overcrowding can be issues.

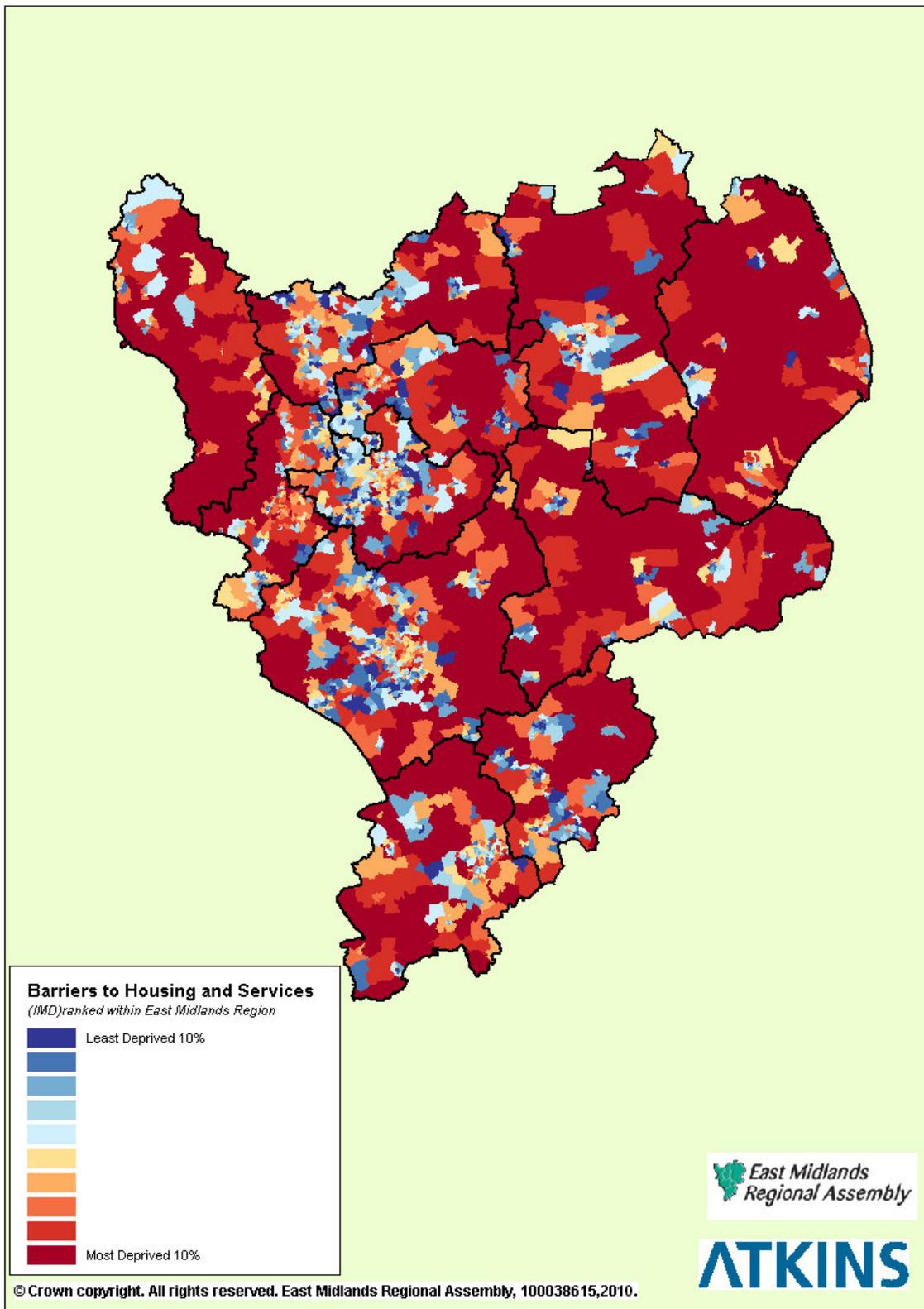
⁷ Office for National Statistics, Population Density based on 2001 census
/East Midlands Transport Conditions & Issues 2010 Update FINAL
- 1 March10.docx

Figure 1.5 - Overall Index of Multiple Deprivation 2007



Source: ONS

Figure 1.6 - IoMD 2007 - Barriers to Housing and Services



Source: ONS

1.3.3 Income and employment

In the second quarter of 2008 the employment rate in the East Midlands was 75.7%. This was slightly higher than the national rate of 74.7%. However, as of April 2009, the median gross weekly earnings for full-time employees on adult rates in the East Midlands was £500 for males and £389 for females⁸. These wage levels are 6 and 8% respectively below the UK levels.

Gross value added (GVA) per head in the East Midlands in 2008 was £18,000 compared with £20,500 for the UK as a whole⁹.

The average house price in the East Midlands is £166,000 roughly 25% below the English average of £218,000¹⁰. Based on these figures, average house prices in the East Midlands are higher than those in the North East, North West and Yorkshire & The Humber, but lower than in the other English regions.

1.4 National Policy Context

1.4.1 Delivering a Sustainable Transport System (DaSTS)

In October 2007 the Department for Transport (DfT) published 'Towards a Sustainable Transport System' (TaSTS). The document set out the DfT's goals for transport and the approach it intended to take in planning measures to help deliver those goals from 2014. TaSTS represented the Government's response to the findings of research into the links between transport and economic productivity (led by Rod Eddington) and the potential impacts of climate change (led by Sir Nicholas Stern). Further information on these reports is provided in the text boxes overleaf. At the end of 2009 the DfT crystallised the ideas set out in TaSTS in "Delivering a Sustainable Transport System (DaSTS)".

DaSTS is an evidence-based, objective-led approach to transport planning based around achievement of five 'goals' which the DfT has identified as being the underlying purpose of transport investment. The five DfT goals are:

- to support national economic competitiveness and growth, by delivering reliable and efficient transport networks;
- to reduce transports emissions of carbon dioxide and other greenhouse gases, with the desired outcome of tackling climate change;
- to contribute to better safety, security and health and longer life expectancy by reducing the risk of death, injury or illness arising from transport, and by promoting travel modes that are beneficial to health;
- to promote greater equality of opportunity for all citizens with the desired outcome of achieving a fairer society; and
- to improve quality of life for transport users and non transport users, and to promote a healthy natural environment.

DaSTS is not a solution, but a framework for developing transport plans that support a more prosperous, secure, fair and environmentally sustainable future.

At the same time as the DfT published the DaSTS report, it invited each of the English regions to identify challenges and mitigation measures on their city and regional networks through a four stage process. In the first stage, each region identified how the goals and challenges manifested

⁸ ONS Statistical Bulletin: Annual Survey of Hours and Earnings, 2009

⁹ ONS, 2008

¹⁰ Department for Communities and Local Government, Mixed adjusted prices, all dwellings, 2008 /East Midlands Transport Conditions & Issues 2010 Update FINAL

themselves locally and identified work programmes to better understand the challenges and identify a programme of transport investment to overcome them.

Like the other regions, the East Midlands submitted its report to government in June 2009. The report identified nine prioritised desired travel outcomes (goals) and eleven challenges (barriers to achieving those travel outcomes) for the region as a whole. These are shown in Table 1.3. The goals and challenges were set within the context of the five DfT goals described above and were determined through a process policy review, collation of available evidence and contributions from stakeholders.

In identifying the goals and challenges during the first stage of the DaSTS process, substantial effort was made to collate the available evidence relating to the eleven regional challenges and the associated problems. The original version of this document was a key source of information for that process. The evidence base and challenges were presented both at a regional and sub-regional level using the Housing Market Area definitions. To maintain consistency with the regional DaSTS work to date, and ongoing regional planning activities, the evidence presented in this report has also been structured at a regional and HMA level. As can be seen, there is currently less evidence relating to some of the challenges than others. In time, it is anticipated that these gaps in understanding begin to be closed and that any future versions of this document will be able to incorporate this additional evidence.

Table 1.3 - Regional travel outcomes (goals) and challenges

Travel outcomes	Related challenges
<p>Minimised traffic levels (through modal shift of people and goods to more sustainable modes), particularly at peak times and in sensitive locations. This includes freight haulage in the drinks, manufacturing, retail, quarrying, aggregates and freight/distribution sectors.</p>	<p>Overcoming gaps and weaknesses in the existing transport networks and maintaining accessibility (EM3). Minimising barriers to use of sustainable modes such as disability, ill health, fear of crime and cost (EM10). Overcoming lack of awareness of (benefits of) sustainable travel options and inertia of individuals and businesses to change behaviour (EM5). Reversing long-standing travel behaviour and dependency on travel, particularly by private car in a post-industrial society (EM11).</p>
<p>Reduced congestion and overcrowding on transport networks in the three cities, PUAs, sensitive locations and on key regional links.</p>	<p>Minimising existing and future traffic congestion and rail crowding on strategic links and in urban areas (EM1). Enabling growth and dealing with the additional demand for travel brought about mainly by regeneration and growth (EM2). EM3 (see above) Minimising the effects of non-recurrent delays on the transport networks (EM4).</p>
<p>Reducing the negative impacts of travel and transport on people and the natural environment.</p>	<p>Minimising noise, severance, vibration, local air quality and other issues affecting local communities (EM8). Minimising the negative effects of travel and new transport infrastructure on the natural environment (EM9). EM1 (see above) EM2 (see above) EM3 (see above) EM4 (see above)</p>

Table 3.1 continued

Travel outcomes	Related challenges
Quicker, more convenient journeys to and from the main areas of employment and economic activity within (e.g. three cities, PUAs) and beyond the region (e.g. Birmingham, Manchester, London, Leeds, Sheffield).	EM1 (see above) EM2 (see above) EM3 (see above) EM4 (see above)
Quicker, more convenient journeys to and from regeneration areas (e.g. the northern coalfields), growth points (e.g. PUAs, MKSM, SRCs) and rural communities (e.g. E Lincs. Peak NP).	EM1 (see above) EM2 (see above) EM3 (see above) EM4 (see above)
Improved road safety.	Identifying measures to reduce further the number of deaths and injury accidents, particularly on roads (EM6).
Quicker, more convenient journeys to and from international gateways within (e.g. EMA, E. Coast ports) and beyond the region (e.g. Felixstowe, Immingham, Grimsby, Harwich, RH, Luton and Birmingham Airports), especially for freight.	EM1 (see above) EM2 (see above) EM3 (see above) EM4 (see above)
Quicker, shorter and more convenient journeys to and from health, cultural, leisure and recreational facilities and services, esp. by sustainable modes.	EM3 (see above) EM5 (see above)
Maximised energy efficiency within the transport sector.	Identification and implementation of mechanisms to improve energy efficiency at a regional level (EM7).

Reproduced from East Midlands Stage 1 DaSTS submission (June 2009)

The Eddington Study, 2006

In December 2006 a review by Sir Rod Eddington on the relationship between transport and the economy was published. The report provides perhaps the most comprehensive overview of the links between transport and economic performance. It provides a detailed review of the historical role of transport networks in supporting economic growth and analyses in detail the characteristics and performance of the UK's transport network.

One of the primary conclusions was that transport infrastructure does not create economic potential. Improving transport networks only develops economic potential where labour and capital are available to drive economic output. However, tackling transport problems can contribute to reduced costs and improved business efficiency, together with further microeconomic drivers of business productivity.

The major conclusion reached by the report was that in mature economies like the UK, the main focus should be on improving the performance of the existing transport network, particularly where there is evidence of congestion and journey time unreliability.

The study highlighted that transport can support structural change in the economy, for example by enabling people to access work in growing industries by supporting commuter travel. In addition, transport helps to improve wider measures of quality of life, by increasing the products that are available and creating new lifestyle choices, and also creating wider welfare benefits, which are not captured through measures of productivity, such as environmental impacts and leisure time.

The study demonstrated that, where the transport network approaches capacity and the underlying economic drivers are strong, economic growth can actually be constrained. It suggested that the potential business benefits of eliminating congestion on the UK's transport network could total some £7-8 billion per annum.

The Stern Review, 2006

The Stern Review on the Economics of Climate Change concluded that global climate change is a serious threat to the future of the whole planet and that concerted action is required from every individual and organisation to address this.

Stern went on to say, crucially, that whilst the short term economic and financial costs of taking action to stabilise climate change are significant, they are much less than the longer term cost of doing nothing.

The most quoted statistic in the report is that action to stabilise the world's climate will cost around 1% of the world's Gross Domestic Product (GDP). Whilst in contrast, the consequences of doing nothing could cost up to 5% of GDP.

The overriding messages from the policy changes are that options for intervention will need to be demonstrably linked to current and future problems and objectives, and must also reflect policy at local, regional and national levels.

1.5 Study approach

As part of the original report an intensive data collection exercise undertaken in which secondary data was collated from a number of sources including:

- the Government Office for the East Midlands;
- emda (the regional development agency);
- all nine local transport authorities;
- the Highways Agency;
- Network Rail;
- the Confederation of Passenger Transport;
- the Freight Transport Association; and
- local public transport operators.

Data was collected through a combination of face to face meetings, email and telephone correspondence.

A number of other sources were used to obtain data and these include:

- 2001 national Census data (ONS);
- Census mid year estimates, 2008;
- Index of Multiple Deprivation 2007;
- the Public Health Observatory; and
- Local Transport Plans.

To inform the update of this report, a review was undertaken of the data used in the original December 2008 report and those sections for which new datasets were available were highlighted. In some instances, sections were not updated even though more recent data is available where it is considered that the new data would only marginally affect the information presented or, where data required a high level of analysis for which there was insufficient resources. These instances are clearly identified in the document and include road traffic accident data from local authorities, journey to work movements and heavy goods vehicle flows.

1.6 Report structure

Following on from this introduction this report comprises the following chapters:

- **Chapter 2:** a description of the transport networks in the East Midlands and their usage;
- **Chapter 3:** a summary of relevant regional policy;
- **Chapter 4:** presentation of evidence on transport conditions and issues at a regional level; and
- **Chapters 5 to 15:** presentation of evidence on transport conditions and issues at a sub-regional (HMA) level.

2. The East Midlands transport networks

2.1 Highway network

The region's highway network consists of major national and strategic roads and a dense network of urban and rural local highway authority roads. The East Midlands main highway network is shown in Figure 2.1. The national and regional networks are focused on the M1 and A1 corridors and the main urban areas.

2.1.1 Highways Agency roads

The major roads with the region, the motorways and trunk roads (main 'A' roads) are administered by the Highways Agency and are generally referred to as the Strategic Road Network (SRN). In the East Midlands there are 177 kilometres of motorway, 512 kilometres of rural trunk roads and 42 kilometres of urban trunk roads. The primary role of the SRN is clearly therefore to provide for inter-urban travel.

As part of the DaSTS process, the Department for Transport (DfT) has recently defined a sub-set of the SRN as being of particular national importance. Within the East Midlands, the following roads have been designed:

- the M1 from Junction 30 near Chesterfield to south of Junction 15 near Northampton providing links to London, Scotland and the north of the country (widening of 23 km of the M1 between Junctions 25 and 28 is currently underway and proposals for Managed Motorway enhancement are being considered between Junctions 21 and 25 and Junctions 28 and 30);
- the A1/A1(M) running from London to east of Leeds, Newcastle and Scotland via the East Midlands (Stamford-Bawtry), along with the M1 a key north-south highway asset;
- the A14 between the M1 south of Lutterworth and Thrapston, providing a vital link from the region to the east of the country and in particular the ports on the east coast.; and
- the A42 between the West Midlands and the M1 at East Midlands Airport;

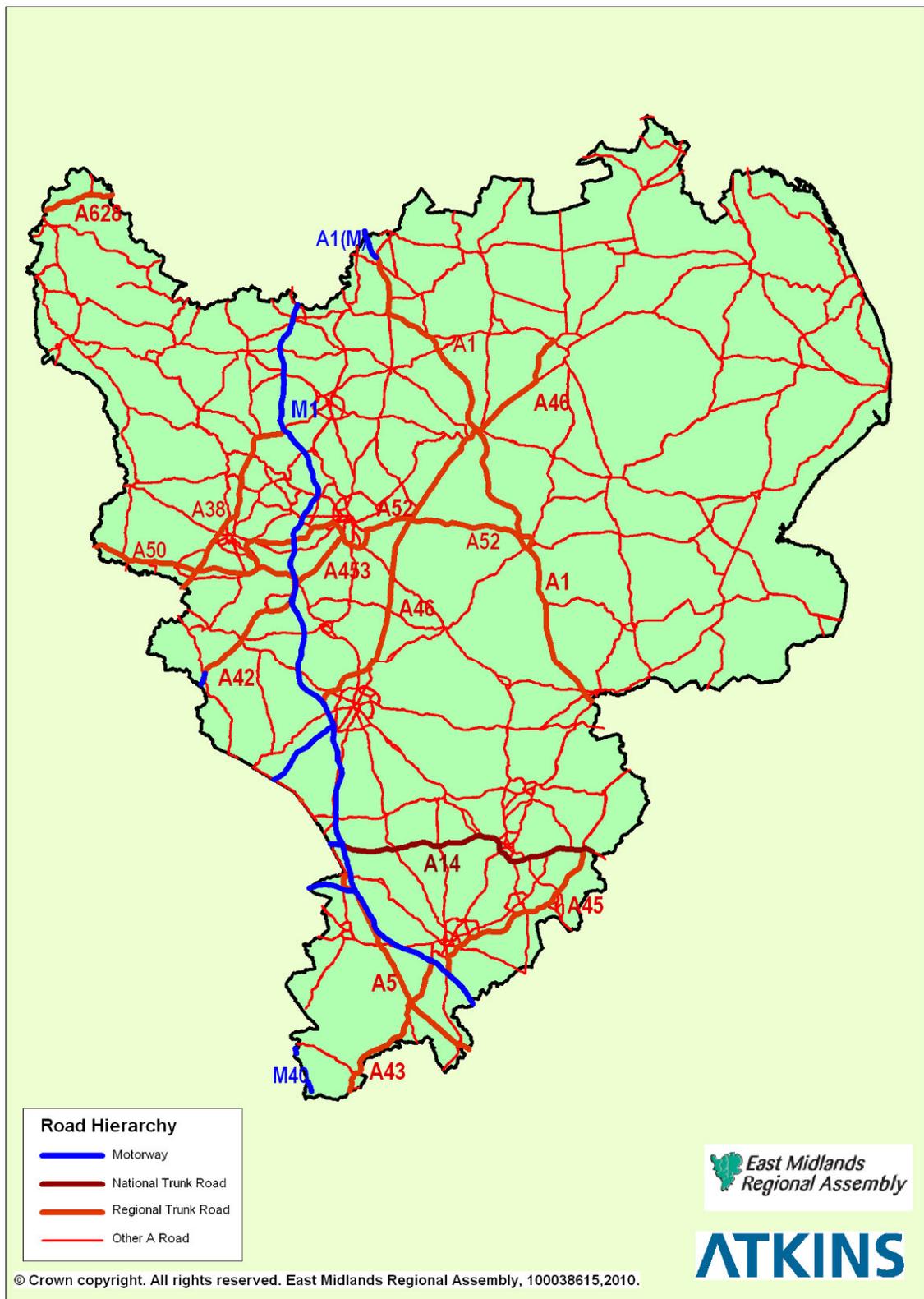
Other elements of the SRN include the M69. Enhancements to the most important elements of the SRN are funded centrally by the DfT through the National Roads Programme whilst funding for enhancements to the remainder of the SRN is provided through the Regional Funding Allocation (RFA).

2.1.2 Local Highway Authority roads

The remainder of the roads within the region are the responsibility of the nine local highway authorities (the county and unitary authorities). These roads comprise a mixture of important urban and rural routes (which, with the SRN make up what is known as the 'Primary Route Network') and smaller local roads.

The major roads for which the local highway authorities are responsible include the A38 to the West Midlands, the A628 link between Sheffield and Manchester. East-west links are through the M69 between Leicester and Coventry, the A46 through Lincoln, Newark and Leicester, the A50 and the A52 from Derby to the North West, and the A17 route between Newark and King's Lynn.

Figure 2.1 - East Midlands Primary Route Network

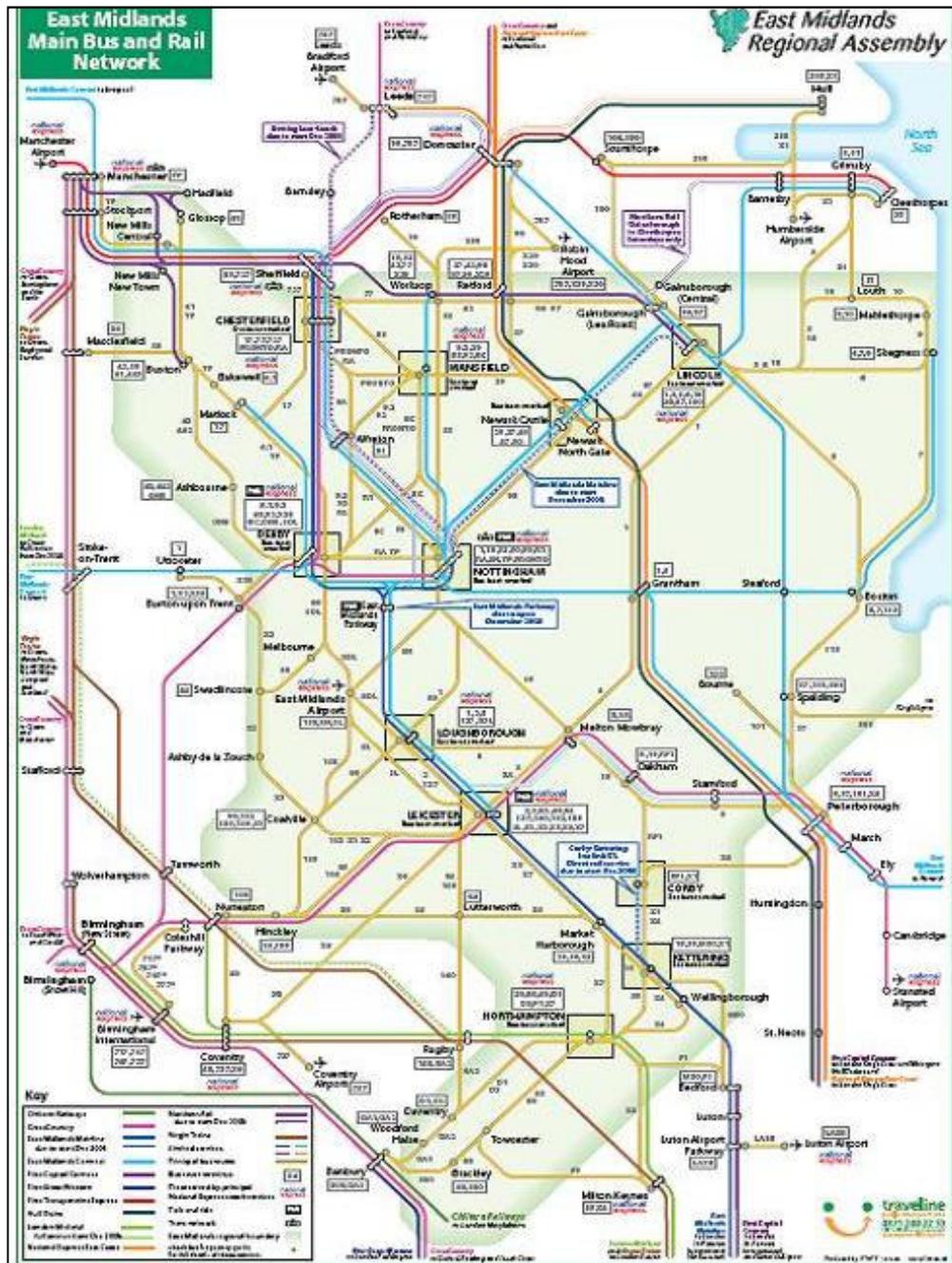


2.2 Public transport services

2.2.1 Introduction

The principal public transport network within the East Midlands is shown in Figure 2.2. National and local rail services and principal bus routes link most of the region's towns and cities as well as other important destinations outside of the region such as Sheffield, the West Midlands and London. The only tram service in the region is Nottingham Express Transit which opened in 2004 linking Nottingham Railway Station with Phoenix Park and Hucknall.

Figure 2.2 - East Midlands principal public transport network (as of spring 2009)



Source: EMRA 2009

2.2.2 Passenger rail services

As shown in Figure 2.3, the East Midlands is relatively well-served by a network of passenger rail lines over which operate a mixture of high speed long distance and regional rail services provided by several different train operating companies.

Figure 2.3 - East Midlands Passenger Rail Network and Main Stations



Midland Main Line (MML)

The MML runs from Leeds/Sheffield to London St Pancras via the East Midlands urban areas of Chesterfield, Nottingham, Derby, Loughborough, Leicester, Market Harborough, Wellingborough and Kettering. The main destination from most of the stations on this route is London St Pancras, although rail travel between the three cities of Derby, Leicester and Nottingham is also high. The route also provides the opportunity for interchange at London St Pancras for direct international services using Eurostar.

East Midlands Parkway station opened in January 2009 and provides a park and ride alternative to car journeys along the M1 and to the Three Cities. In addition, the new station at Corby which opened in February 2009 offers direct train services to London St Pancras.

East Coast Main Line (ECML)

The ECML links London King's Cross with Yorkshire, the North East and Scotland. It serves stations in the East Midlands at Grantham, Newark and Retford. Trains also serve Peterborough station providing important links for the surrounding HMAs of Peterborough Partial and North Northamptonshire. Doncaster is also an important station for those living in Central Lincolnshire and Northern HMA areas of the region. The upcoming December 2010 timetable enhancement will result in a direct service between London and Lincoln every two hours.

West Coast Main Line (WCML)

The WCML links London to the West Midlands, North West and western Scotland with high speed services. Regional services, including those operating between London and Northampton, and between Northampton and Birmingham, are provided by London Midland.

Birmingham to Stansted Airport Line

Two services per hour per direction are operated by Central Trains between Birmingham New Street and Leicester. Of these, one train per hour continues via Melton Mowbray, Oakham, Peterborough and Cambridge to Stansted Airport.

Regional services network via Derby

Derby is an important hub in the UK regional rail services network of services linking Scotland with the South West and South East of England. The South West to Scotland route also serves stations in the North East as well as Sheffield, York and Birmingham and within the East Midlands Region serves Derby and Chesterfield. Services between Nottingham and Birmingham (and onwards to Cardiff) also operate through Derby station.

Liverpool to Norwich line

Services linking Liverpool with Norwich also pass through the Region, with intermediate stations in the East Midlands including Grantham and Nottingham.

Chiltern Line

The Chiltern Line services connect Birmingham to London and serve the East Midlands through Kings Sutton station on the edge of the Region in West Northamptonshire as well as Banbury station which is located just outside of the East Midlands boundary.

Other services

In addition to the main rail networks there are also a number of smaller local services that provide links to the key urban areas of the region including:

- Robin Hood Line - This route links Nottingham with Worksop, with intermediate stations including Mansfield;
- Lincoln – Sheffield - Manchester;

- Grimsby – Nottingham/Lincoln; and
- Services between Leicester, Nottingham with Lincoln, and Nottingham with Skegness.

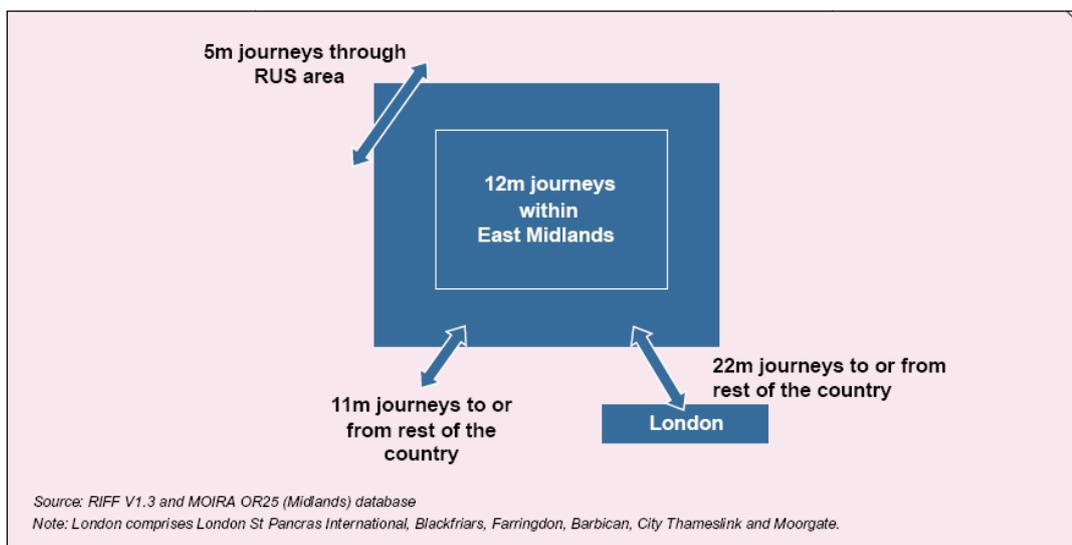
2.2.3 Rail patronage

Rail station usage data shows that Nottingham is the busiest station in the region with 5.9 million entries/exits a year and 360,000 interchanges (6.25 million passengers in all) ¹¹. Leicester is the second busiest with 5.3 million passengers followed by Derby (3.5 million, of which over half a million are interchanges), Northampton (2.3 million), Loughborough (1.4 million) and Lincoln Central (1.3 million). There is a clear trend of increasing patronage – entries/exits up 3% from 06/07 and increases of over 10% not uncommon.

The latest available data on origin-destination patterns relates not to the East Midlands region, but to Network Rail's Strategic Route 19 as used for the East Midlands Route Utilisation Strategy (RUS) ¹². The key difference between the two is that the RUS area includes the Midland Mainline; however for the purposes of this analysis, this is the best available source.

According to the RUS nearly 50 million journeys were made to, from or through the RUS area in 2007/08 as shown in Figure 2.4 (comparable data for the East Midlands region is 34 million journeys). Of these, approximately 25% had both origin and destination station in the study area, low by comparison to other regions. Some 33 million journeys were made to locations outside the RUS area (NB in the figure 'London' comprises London St. Pancras, Blackfriars, Farringdon, Barbican, City Thameslink and Moorgate only – other London stations are included in the 'rest of the country' category).

Figure 2.4 - Passenger demand to, from, through and within the RUS area (2007/08)



Source: Network Rail *Draft East Midlands Route Utilisation Strategy, Draft for Consultation (2009)*

Slightly older data, for 2006/07, gives a more detailed picture of trip patterns. For example, the main journeys to/from Derby, Leicester and Nottingham each of the Three Cities from outside the region are shown in Table 2.1.

¹¹ DfT (2009) *Rail Station Usage Data 2007/08*

¹² Network Rail (2009), *East Midlands Route Utilisation Strategy, Draft for Consultation (final version due late February 2010)*

Table 2.1 - Journeys within the East Midlands, and to/from London (2006/07)

Station	Nottingham		Derby		Leicester	
	Jnys	Rank	Jnys	Rank	Jnys	Rank
London BR	1,030,000	1	565,000	1	970,000	1
Leicester	570,000	2	210,000	3		
Nottingham			240,000	2	570,000	2
Derby	240,000	3			210,000	4
Loughboro Leics	205,000	4	40,000	8	360,000	3
Newark BR	205,000	5			5,000	25
Long Eaton	195,000	6	65,000	6	45,000	15
Grantham	175,000	7				
Mansfield Town	150,000	8				
Beeston	100,000	9	35,000	9	45,000	14
Hucknall	95,000	10				
Chesterfield	60,000	15	65,000	5	25,000	19
Burton On Trent	50,000	16	85,000	4	10,000	23
Kettering	30,000	20	10,000	15	145,000	6
Market Harboro	30,000	21	5,000	19	185,000	5
Narborough	15,000	34			100,000	8
Syston	10,000	35			90,000	10
Hinckley Leics	10,000	39			90,000	9
Matlock	5,000	48	45,000	7		
Melton Mowbray					125,000	7
Belper			30,000	10		

Source: Network Rail (2008) *East Midlands RUS Baseline Information Spring 2008*

This shows the largest station-to-station movements within the region as being:

- Leicester to Nottingham;
- Nottingham to Leicester;
- Loughborough to Leicester;
- Long Eaton to Nottingham; and
- Market Harborough to Leicester.

Of the journeys extending beyond the region, the largest flows to/from Derby, Leicester and Nottingham are shown in Table 2.2. Of these, the most significant are (also showing current trains per direction per hour):

- Leicester and Birmingham (430,000 pa, 2tph);
- Derby and Birmingham (300,000 pa, 4tph);
- Nottingham and Birmingham (260,000 pa, 2tph);
- Nottingham and Sheffield (170,000 pa, 1tph); and
- Derby and Sheffield (150,000 pa, 3tph) ¹³.

¹³ Network Rail (2008) *East Midlands RUS Baseline Information Spring 2008*
/East Midlands Transport Conditions & Issues 2010 Update FINAL
- 1 March10.docx

Table 2.2 - Journeys to stations outside the East Midlands boundary (2006/07)

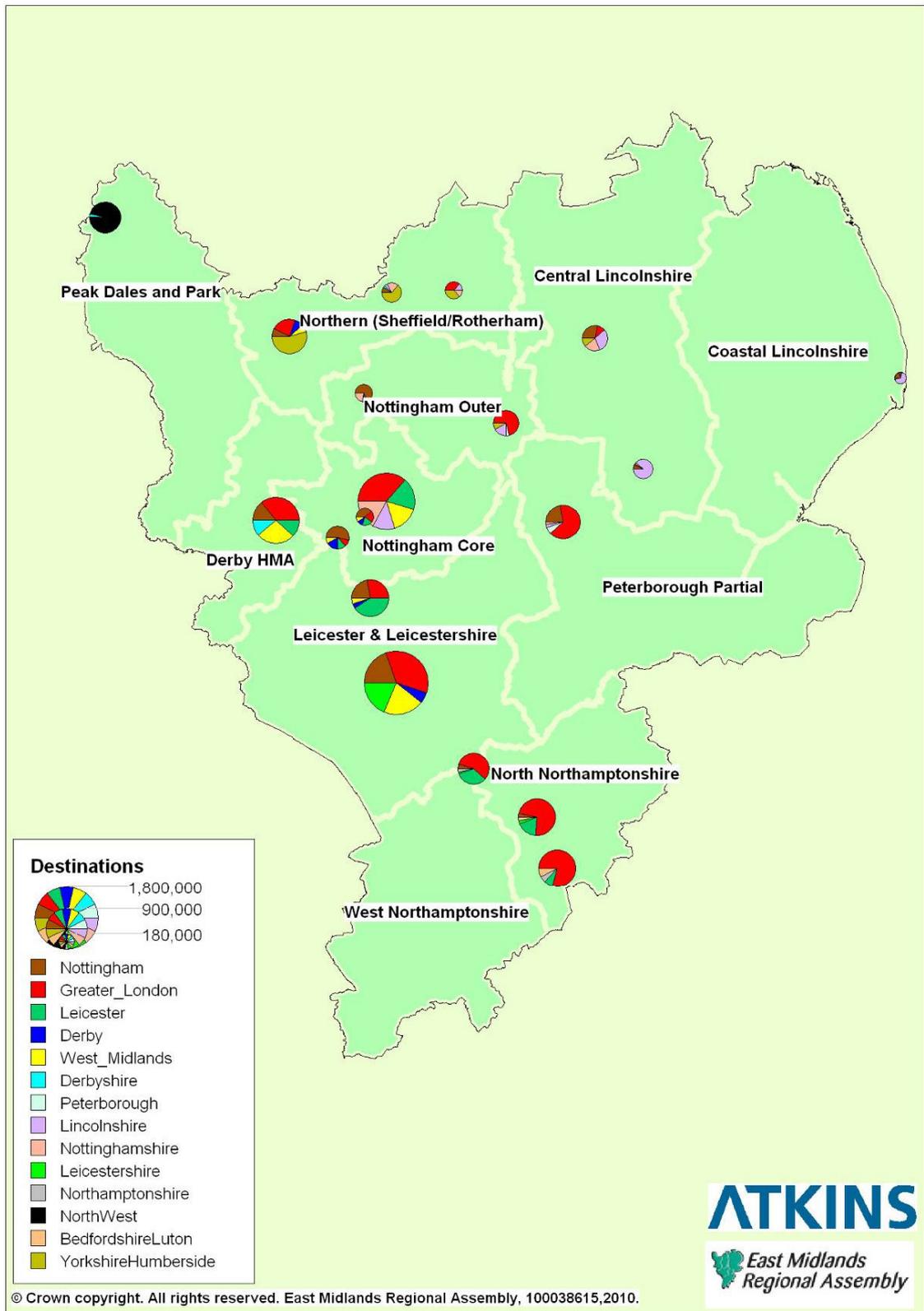
Station	Nottingham		Derby		Leicester	
	Jnys	Rank	Jnys	Rank	Jnys	Rank
Birmingham BR	255,000	1	295,000	1	430,000	1
Lincoln Central	170,000	2	10,000	16	25,000	9
Sheffield	170,000	3	145,000	2	95,000	2
Manchester BR	135,000	4	40,000	5	55,000	5
Peterborough	55,000	5	10,000	24	60,000	4
Leeds	50,000	6	55,000	3	30,000	7
Liverpool BR	35,000	7	5,000	30	15,000	12
York	30,000	8	45,000	4	15,000	15
Norwich	25,000	9			10,000	18
Coventry	25,000	10	20,000	10	35,000	6
Newcastle	25,000	11	30,000	7	15,000	14
Stoke On Trent	25,000	12	35,000	6	10,000	24
Tamworth	25,000	13	25,000	8	5,000	38
Birmingham Intl	20,000	16	25,000	9	25,000	10
Wolverhampton	15,000	19	15,000	14	25,000	8
Nuneaton	10,000	22			70,000	3

Figure 2.5 shows graphically the number of passengers boarding at each of the 20 busiest stations station (represented by the size of the pie chart) and the main destinations of passengers using the stations. This excludes Northampton station as passenger data was unavailable for this station as part of this study.

No official passenger figures are available for the new station at East Midlands Parkway, however a press release from East Midlands Trains states that 256,000 passengers have used the station and that 24% of passengers interviewed stated that they would have made the journey by car if the station did not exist¹⁴.

¹⁴ East Midlands Trains, Press release 26.01.2010
/East Midlands Transport Conditions & Issues 2010 Update FINAL
- 1 March10.docx

Figure 2.5 - Destinations of journeys from the 20 busiest stations in region

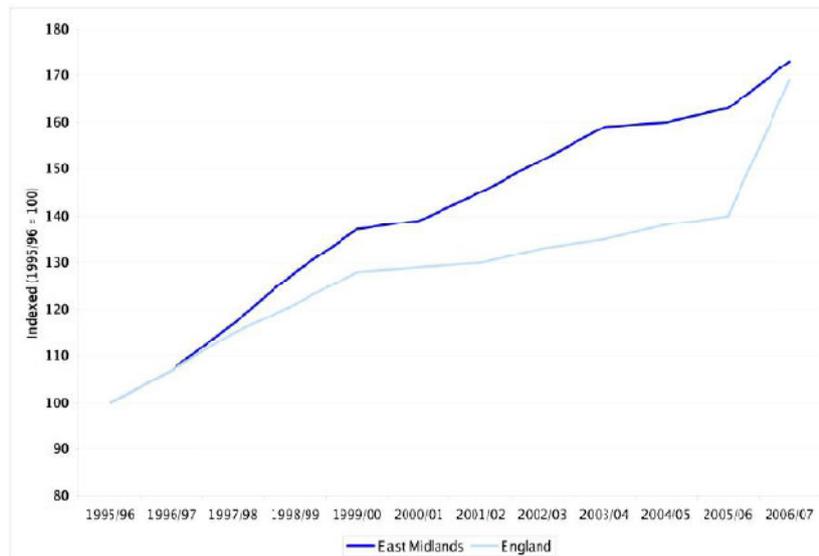


Source: Lennon passenger data 2007 (does not include Northampton rail station data)

Growth in rail patronage

Rail patronage has grown significantly in the last ten years. Within the East Midlands, patronage has grown by over 70% and growth is slightly above that for England as a whole (see Figure 2.6).

Figure 2.6 - Growth in East Midlands rail patronage 1995/96-2006/07



East Midlands State of the Region Report 2009 Figure 4.10

2.3 Bus services

2.3.1 Local services

Dense networks of local bus services serve each of the main urban areas in the region. Smaller market towns tend to be served by less frequent town services often extending beyond into the rural hinterland.

Bus patronage figures by HMA are shown in Table 2.3. These figures have been estimated using annual bus patronage figures (2007) at a county wide level and disaggregated to HMA level based on information from the 2001 Census about mode share of bus travel for journeys to work.

Bus patronage is particularly high in Nottingham Core HMA where there is an extensive and comprehensive high frequency bus network. The average number of bus trips per person is lowest in Peterborough Partial and Coastal Lincolnshire HMAs where public transport networks are more limited and there is a stronger dependency on other modes, especially private vehicles.

Overall bus patronage has increased over the last 10 years in most HMAs, which is against the national trend outside of London. Increased bus patronage is likely to be a result, at least in part, to the introduction of free travel schemes for the elderly and disabled in April 2006. The more recent introduction of the national free travel scheme for the elderly and disabled in April 2008 will potentially result in a further increase in bus patronage, but this likely to be small due to already free travel experienced.

Bus passenger numbers obtained for the Greater Nottingham Area for 2008/09 show a small drop in passenger numbers from 2007/08, which may be related to the impact of the recession, and is likely to be a similar picture across the rest of the East Midlands. It is not expected that the overall distribution of bus patronage over the East Midlands has changed significantly since 2007.

Bus passenger satisfaction is higher than the national average in terms of overall service, reliability, value for money and information provided at bus stops¹⁵. These figures have seen a steady increase year on year from 2004 on all bus indicators.

2.3.2 Inter-urban services

A network of longer distance bus services link the principal towns and cities in the East Midlands and to nearby cities outside the region such as Sheffield. Figure 2.2 and Figure 2.7 show the high frequency inter-urban bus network which is focused on the larger towns and cities in the East Midlands.

Table 2.3 - Estimated annual bus patronage 2007

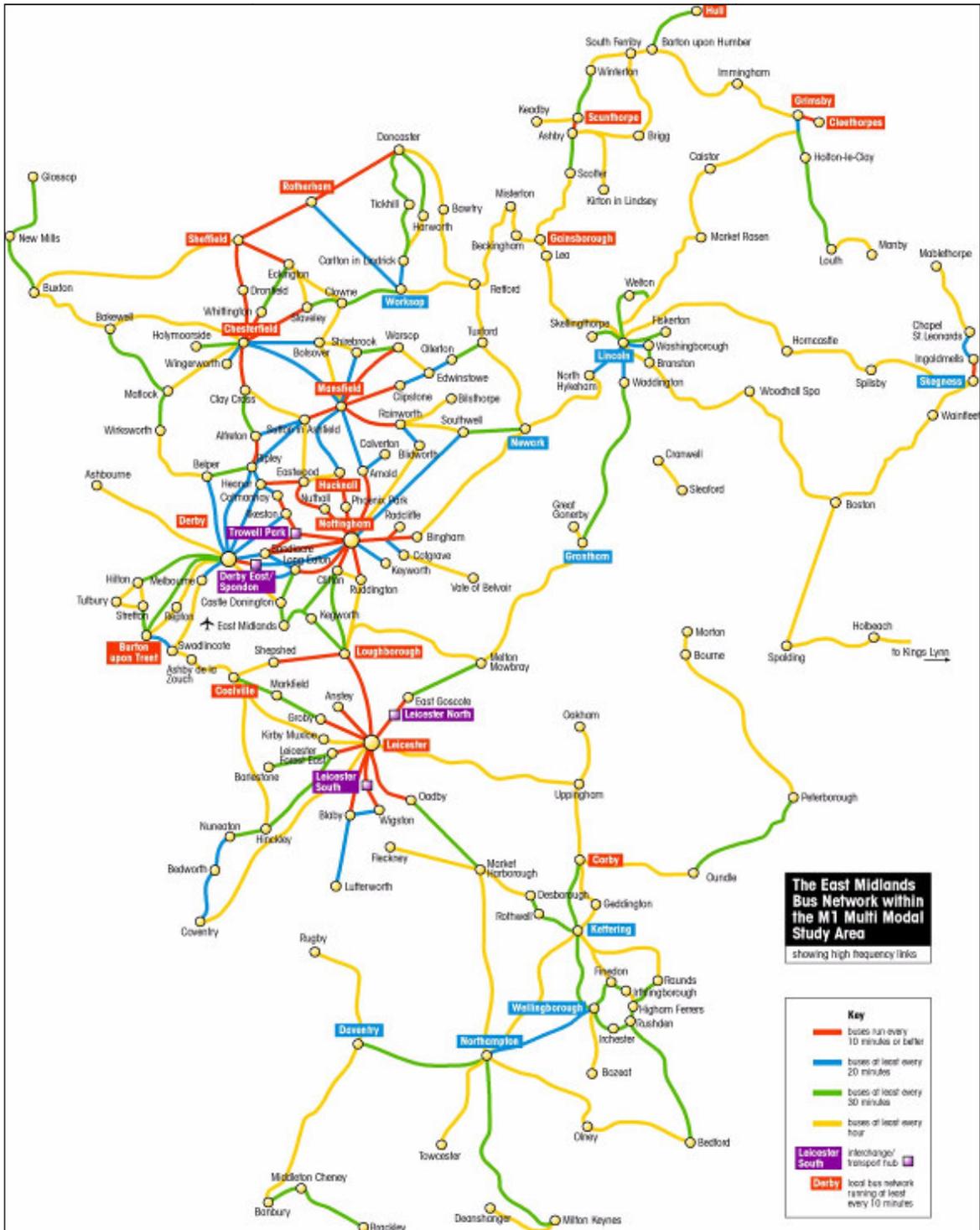
Housing Market Area	Patronage (millions)	As a percentage of East Midlands total	Bus trips per capita
Central Lincolnshire	10.2	5%	36.8
Coastal Lincolnshire	2.7	1%	13.7
Derby HMA	22.7	10%	50.9
Leicester & Leicestershire	57.8	27%	62.5
North Northamptonshire	8.5	4%	28.1
Northern (Sheffield/Rotherham)	16.8	8%	43.8
Nottingham Core	66.2	31%	91.0
Nottingham Outer	10.0	5%	30.6
Peak Dales and Park	4.3	2%	26.6
Peterborough Partial	4.9	2%	19.6
West Northamptonshire	12.2	6%	33.2
East Midlands Total	216.5	100%	49.6
England (excluding London)	2,468.0		48.6

2.4 Coach services

The national coach network serves a large number of destinations in the region, but tend to operate at a lower frequency and with a longer journey time than comparable rail services. Although fares are often lower than rail services, pre-booking makes travelling by coach a less flexible option. National Express coaches also offer direct links to airports across the country often throughout a 24 hour period offering a public transport alternative to the private car for accessing air passenger services. SkyLink bus and coach services also operate to East Midlands Airport from Derby, Leicester, Nottingham and Loughborough.

¹⁵ *Regional Transport Statistics, 2009*
/East Midlands Transport Conditions & Issues 2010 Update FINAL
- 1 March10.docx

Figure 2.7 - High frequency inter-urban bus network



Source: EMRA 2006

2.6 Light rail

The only light rail system operating in the region is the Nottingham Express Transit (NET) which opened in 2004. Line One runs for 14 kilometres alongside the Robin Hood railway line from Hucknall to the north of Nottingham, through to the city centre, terminating at Nottingham railway station. There are five Park and Ride sites at stations along the route at Hucknall, Moor Bridge, Willenson Street, The Forest and Phoenix Park near the M1.

There are 24 stops along the line as shown in Figure 2.8, three of which are shared with national rail services at Hucknall, Bulwell and Nottingham providing integration with other transport modes on the local network.

There were 9.8 million passenger journey made by NET in 2008/2009, which is a slight decrease from the previous year. This represents a growth of 1.3 million since the service first opened in 2004 and a 13% share of all non-rail public transport journeys made in the Nottingham Core HMA.

Annual passenger journeys are shown in Table 2.4 for each year since 2004.

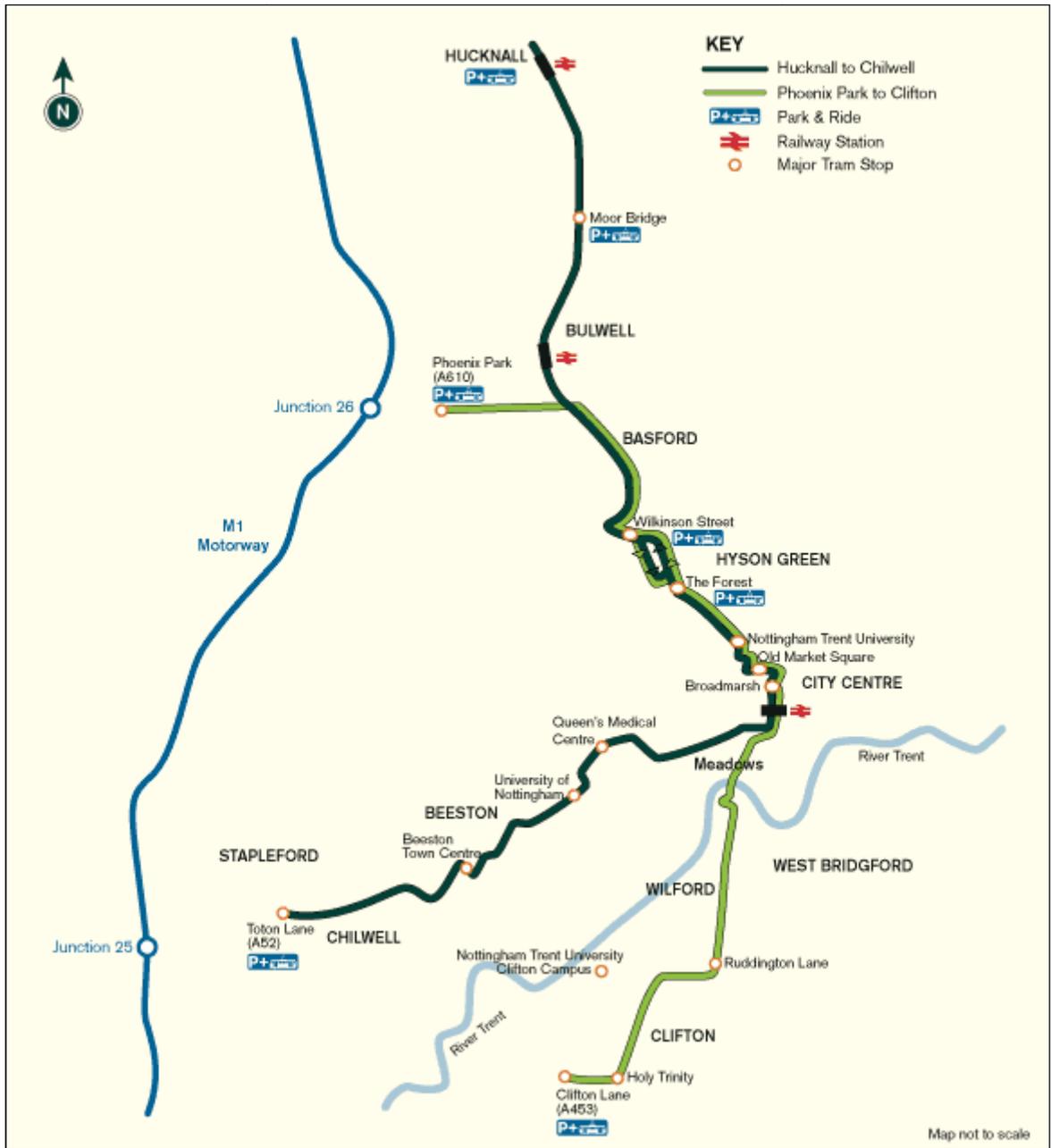
Table 2.4 - NET Annual passenger journeys (millions)

Year	NET Passenger journeys
2003/04 (Q4 only)	0.4
2004/05	8.5
2005/06	9.8
2006/07	10.1
2007/08	10.2
2008/09	9.8

There are two extensions of the NET system proposed as shown in Figure 2.8:

- Chilwell via Queens Medical Centre (QMC); and
- Clifton via Wilford.

Figure 2.8 - Nottingham Express Transit – current and proposed lines



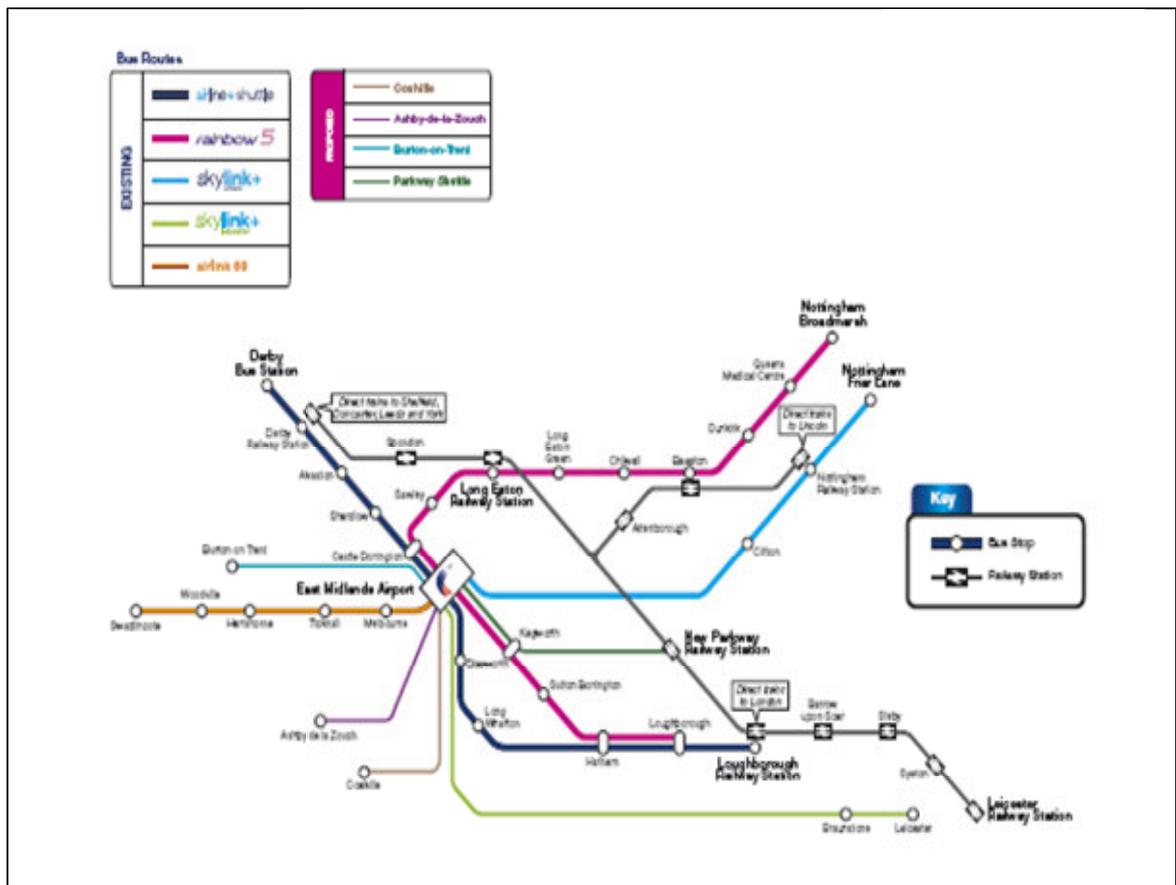
2.7 Air passenger services

2.7.1 East Midlands Airport

East Midlands Airport (EMA), is located near Castle Donington in Leicestershire broadly equidistant between Derby, Nottingham and Leicester. SkyLink, Airlink and Indigo express bus services currently operate to the airport from Nottingham, Derby, Leicester, Loughborough and Coalville, as shown in Figure 2.9.

In 2009, East Midlands Parkway station opened on the Midland Mainline approximately two miles east of the airport. The station is currently served by two trains per hour in each direction operating between London and Nottingham and Sheffield (although the two services call only a few minutes apart). A dedicated Railink bus service links the station to the airport.

Figure 2.9 - Existing and proposed public transport access to East Midlands Airport (2008)



In 2009 4.7 million passengers passed through the airport to over 90 domestic and European destinations. Table 2.5 shows the actual passenger numbers for 2009 and projections for 2010 and 2016. Since the onset of the recession, passenger numbers at the airport have fallen by up to 20%, and are unlikely to meet the current 2010 projection. Revised passenger projections are due to be released in late 2010 when an updated Airport Masterplan is completed.

Should the number of passengers double in this period as originally predicted, and the airport continue to strengthen its role as a leading freight handler, there are implications in terms of increased levels of traffic growth on the road network around the airport and particularly the A42 and A50.

Table 2.5 - East Midlands Airport passengers (actual/forecast) millions per annum

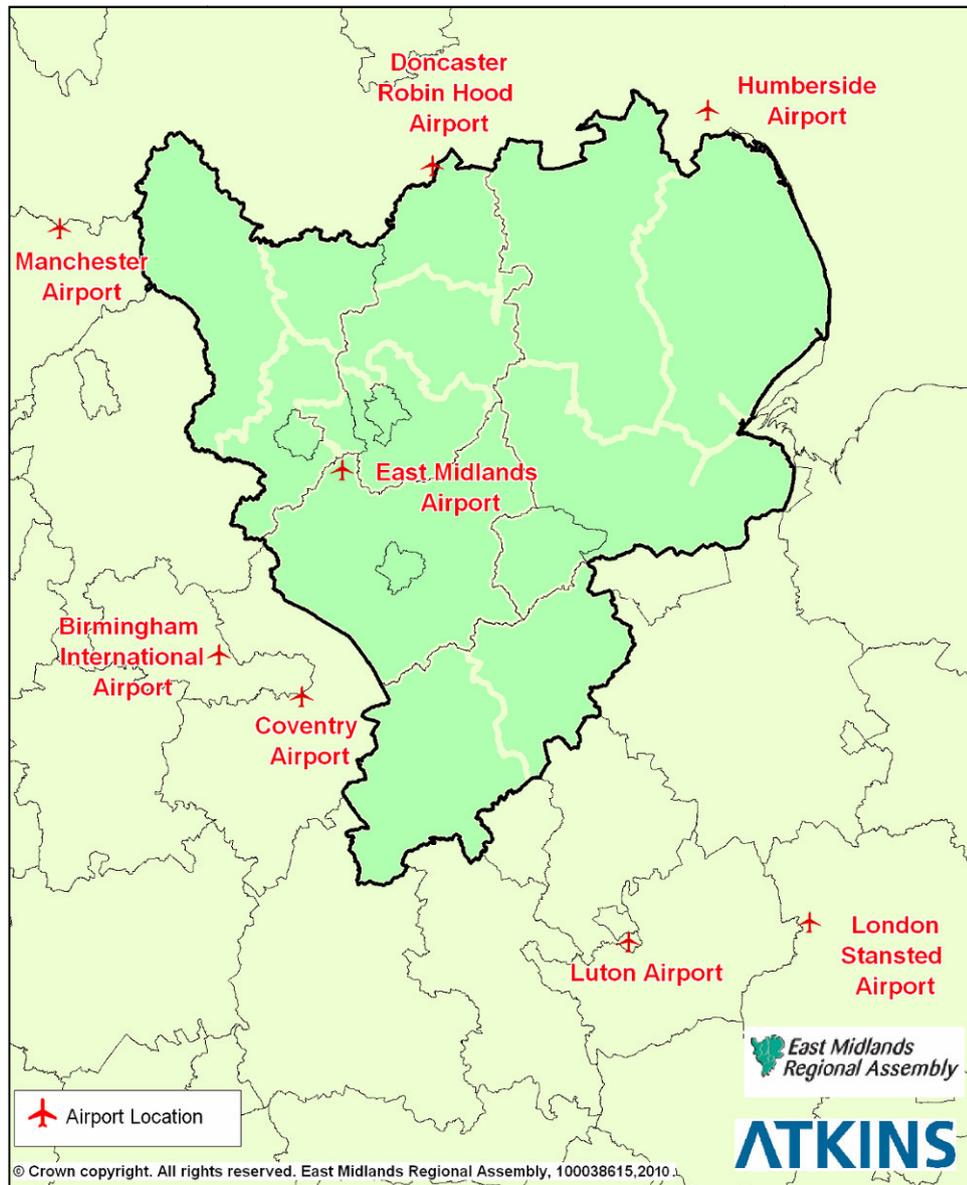
Type of flight	2009 (Actual)	2010 (forecast)	2016 (forecast)
Domestic	0.64	0.85	0.9
Short-haul scheduled	2.85	3.86	5.21
Short-haul charter	1.13	1.85	2.21
Long-haul scheduled	0.00	0.05	0.15
Long-haul charter	0.05	0.32	0.75
Total	4.67	6.93	9.22

2.7.2 Airports in neighbouring regions

The East Midlands is also served by a number of other airports located outside of the region such as Birmingham International, Manchester International, Doncaster Robin Hood, London Luton, Humberside and London Stansted. Figure 2.10 shows the locations of these airports in relation to the East Midlands.

London Stansted and London Luton Airports are accessible from the region by direct rail services. Others, such as Liverpool John Lennon Airport, Manchester International Airport and Birmingham International Airport require an additional bus connection. National Express coach services also provide links to the majority of these airports with the exceptions of Doncaster Robin Hood Airport and Humberside Airport.

Figure 2.10 - Location of East Midlands Airport and those in neighbouring regions



Source: EMRA

2.8 Freight movements

2.8.1 Road freight

The East Midlands is located in a strategically important position for the transportation of road freight and inter-regional freight movements across the country. The M1 provides a valuable link to transport freight from south to north and the region's central position means that east – west travel through the area is important for access to the east coast ports. Demand for large retail distribution centres has arisen as a consequence of these transport links especially in places such as Northamptonshire and the Northern HMA which are in close proximity to the M1.

Road freight also makes a significant contribution to carbon emissions and PM₁₀ levels in the area and the consequential air quality problems. However freight operators are increasingly upgrading their fleets to more environmentally friendly vehicles meeting EURO standards.

2.8.2 Rail freight

There are nineteen rail freight terminals within the region, primarily handling coal, minerals and aggregates traffic, and two intermodal terminals, Daventry International Rail Freight Terminal (DIRFT), on the Northampton loop of the WCML and Burton upon Trent which is just outside the region boundary. The locations of the terminals and freight types are illustrated in Figure 2.11.

It is apparent therefore that a number of different flows are either generated within the region or pass through non-stop. An example of the latter is the petroleum flows from Immingham to Kingsbury & Westerleigh. Similarly metal flows pass through on route from the North East to the West Midlands and South Wales.

Network Rail's Freight Route Utilisation Strategy (RUS) was published in March 2007 establishes identifies "the key strategic issues facing the future of rail freight and identifies a strategy for accommodating growth and changes in current demand on the network".

The West Coast Mainline carries the bulk of north-south rail freight movements in the UK, carrying over fifty trains per day¹⁶. This compares to a range of between five and twenty trains on most sections of the Midland Main Line, East Coast Main Line and cross-country routes. The East Coast Mainline through the East Midlands carries between 10 and 20 freight trains per day¹⁷.

A key freight route through the East Midlands is the Midland Main Line from the London area north through Wellingborough and Kettering to Leicester and onwards to Chesterfield.

The Erewash Valley route between Trent Junction (Nottingham) and Clay Cross Junction provides an important link for freight between the Midland Main Line and the North East, avoiding Derby. This route serves the freight centre at Toton and is used for regular flows of various freight commodities especially coal and aggregates.

Another important route is the cross country route from Peterborough to Leicester and onwards to Nuneaton and the West Midlands primarily carrying aggregates products as well as the cross country line from the West Midlands north through Burton on Trent to Derby and Chesterfield, which carries steel-related products, intermodal, aggregates and coal.

The key routes for traffic passing through the region mirror those for traffic generated within the region. The busiest rail freight movements are those from the West Midlands to the North East via Derby and Chesterfield, continuing past Sheffield and linking into Yorkshire and the East Coast Main Line.

The RUS illustrates the usage of the network by identifying the average number of trains (in one direction) on each Thursday throughout the year. The figures are based on movements in 2004/2005. Particularly notable are the high freight tonnages into the Region from the West Midlands (in excess of 12 million tonnes gross tonnage) on the route between Birmingham and Derby, and high flows between Chesterfield and South Yorkshire/North-East England.

The factors which will influence future rail freight demand are expected to be sustained coal consumption, increasing volumes of aggregates, a reduction in movements of metals on the South West – North East corridor and high growth in the number of intermodal trains.

On the rail freight network, gauge enhancement to allow larger 9' 6" containers which are increasingly favoured by shipping companies to be transported on conventional wagons on the Peterborough to Felixstowe route will take place partially funded by the east coast ports (during Control Period 4: 2009/10 to 2013/14).

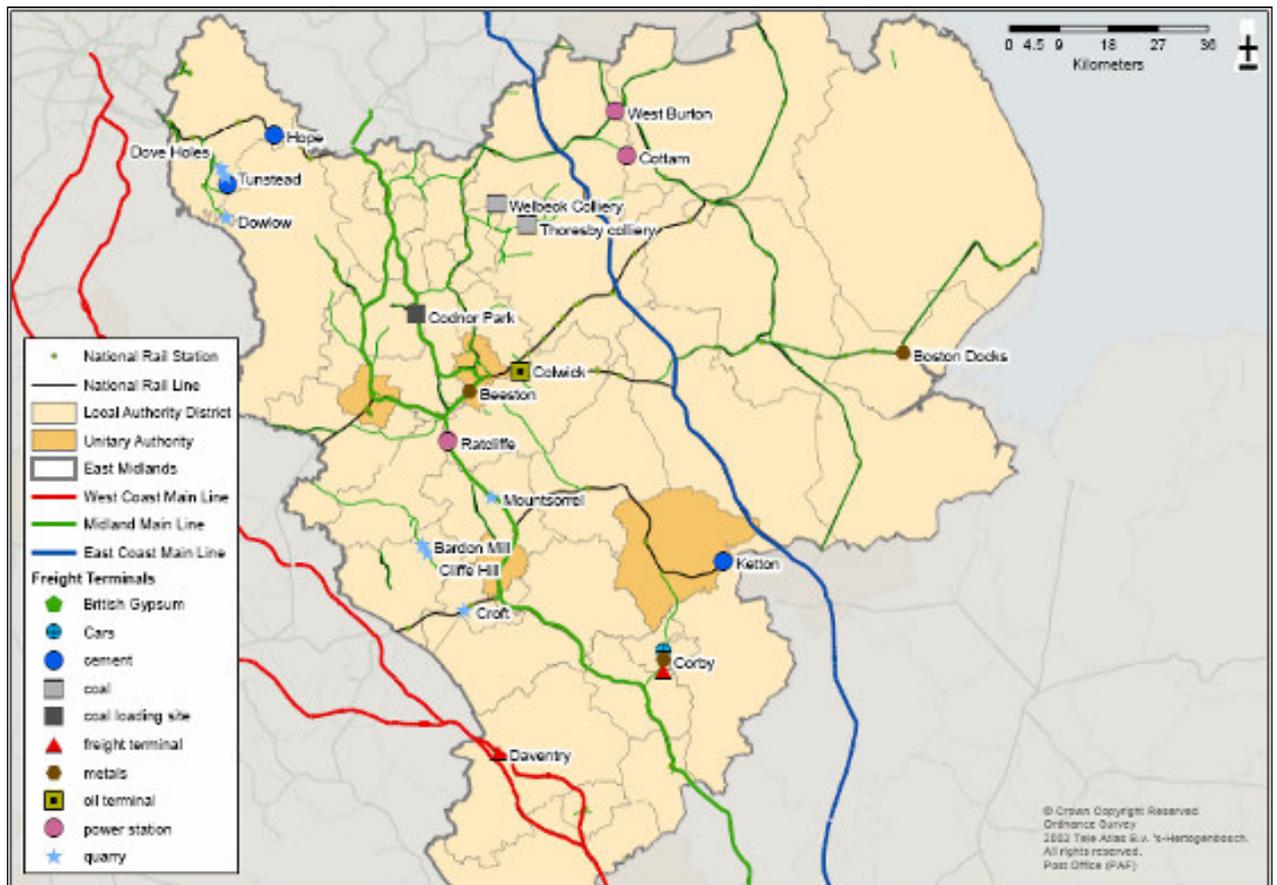
¹⁶ Network Rail, *East Midlands Freight Route Utilisation Strategy, Draft 2009*

¹⁷ Network Rail, *East Coast Mainline Route Utilisation Strategy, 2008*

/East Midlands Transport Conditions & Issues 2010 Update FINAL

- 1 March10.docx

Figure 2.11 - Rail freight corridors and terminals



Source: East Midlands Regional Planning Assessment for the Railway, DfT 2007 (Burton upon Trent rail freight terminal added)

2.9 Waterways and ports

2.9.1 Inland waterways

The River Trent is an important legally-designated commercial inland waterway and the longest within the region. Approximately 250,000 tonnes of freight are carried on the river each year. The River Nene carries 50,000 tonnes per year from the port of Sutton Bridge¹⁸. Both of these waterways have capacity to carry further freight reducing road freight. A study in 2009 identified that there was potential to double the amount of freight using the River Trent, although to enable this would require considerable investment along the route to provide appropriate infrastructure¹⁹.

2.9.2 Ports

There are three main ports located within the Region at Boston, Sutton Bridge and Gainsborough. Between them, the three ports carry two million tonnes of freight per year, the main cargoes being bulk products, grain and steel²⁰.

The major North Sea ports at Humberside and Immingham, in Yorkshire & Humber and the Haven Ports of Harwich and Felixstowe are also important to the region's economy, albeit located outside the region.

¹⁸ East Midlands RSS March 2009

¹⁹ British Waterways, River Trent Water Freight Feasibility Study, January 2009

²⁰ East Midlands RSS, March 2009

2.9.3 Pipelines

Pipelines in the East Midlands make a positive contribution to modal shift away from less sustainable modes for movement of liquid freight. Current research on the potential for cargo pipelines may identify a role for these in the region in the future. Pipelines have a valuable sustainable role in the region, albeit for movement of specific liquid and gas products and therefore are included within the Regional Freight Strategy²¹.

Pipelines are operated by a number of agencies across the Region. There is spare capacity on the Oil and Pipeline Agency lines for commercial use. North Sea gas is carried by an extensive, separate network throughout the country.

2.9.4 Air freight

East Midlands Airport is the most important airport in the UK outside of London in terms of handling freight. The airport:

- is the largest 'pure freight' airport in the UK, carrying around 300,000 tonnes every year;
- is the UK's main airport for express freight carried in freight only aircraft; and
- is Royal Mail's largest UK hub for flown mail and the main centre of UK operations for DHL and UPS as well as a significant hub for Lufthansa Cargo services and TNT.

The airport also has one of the largest catchment areas of any airport in the UK with 10.6 million people within 90 minutes drive. This has implication for further growth in both passenger and freight traffic passing through the airport.

The airport has five airside cargo terminals offering over 650,000 square feet of undercover cargo processing area.

²¹ EMRA, *Regional Freight Strategy July 2005*
/East Midlands Transport Conditions & Issues 2010 Update FINAL
- 1 March10.docx

3. Regional policy context

3.1 Introduction

The regional policy for the East Midlands is set out through the following main documents:

- the Integrated Regional Strategy (IRS) is the overarching sustainable development framework covering environmental, social, economic and spatial issues;
- the Regional Spatial Strategy (RSS) has recently been published by the Secretary of State incorporating the Regional Transport Strategy, and which is currently subject to a Partial Review of climate change and transport;
- the Regional Economic Strategy (RES) was finalised in 2006 and provides the framework for economic development in the region (a review of the RES evidence base is currently underway);
- the Regional Housing Strategy 2008-16 was published in November 2008, and sets out the main objectives, policies and investment priorities for delivering and improving housing in the region;
- the East Midlands Urban Action Plan produced in 2005 by the regional Urban Partnership Group provides the strategic framework for urban renaissance in the region;
- the East Midlands Rural Action Plan 2007-13 sets out the vision, priorities, and actions for rural development; and
- the high-level policy priorities for skills are set out in the RES, and the Employment, Skills and Productivity (ESP) Partnership Plan sets out specific priorities for action.

These strategies are high level documents and do not include detailed or specific investment programmes. Therefore the relevant implementation documents have been examined to specify the framework for investment in the short term, in transport, housing and regeneration, and economic development. For example, Growth Area and Point Programmes, and Local Transport Plans.

The first three of these policy documents are described in detail below.

3.2 Integrated Regional Strategy

The East Midlands Integrated Regional Strategy (IRS) – ‘Our Sustainable Development Framework’ draws together the key issues and challenges for the East Midlands, providing the overarching picture of what is happening in the Region.

It has four themes:

- environment;
- social;
- economic; and
- spatial.

It identifies seventeen sustainable development objectives for the preparation of all strategies in the East Midlands. These include the need to promote sustainable patterns of development and to improve accessibility to jobs and services by increasing the use of public transport, cycling and walking, and reducing traffic growth and congestion.

3.3 East Midlands Regional Plan

The Regional Plan, or Regional Spatial Strategy (RSS), incorporates the Regional Transport Strategy (RTS) and guides spatial development for the region. It identifies the scale and distribution of new housing and priorities for environment, transport, infrastructure, economic development, agriculture, energy, minerals, waste treatment and disposal. It provides the framework for Local Development Frameworks (LDFs) and Local Transport Plans (LTPs) and the longer term planning framework for the Regional Economic Strategy (RES).

Policy 1 of the Regional Plan sets eleven Regional Core Objectives. These are:

- a) To ensure that the existing housing stock and new affordable and market housing address need and extend choice in all communities in the Region;
- b) To reduce social exclusion through:
 - The regeneration of disadvantaged areas;
 - The reduction of inequalities in the location and distribution of employment, housing, health and other community facilities and services, and by;
 - Responding positively to the diverse needs of different communities.
- c) To protect and enhance the environmental quality of urban and rural settlements to make them safe, attractive, clean and crime-free places to live, work and invest in, through the:
 - Promotion of 'green infrastructure';
 - Enhancement of the 'urban fringe';
 - Involvement of the crime and disorder reduction partnerships; and
 - Promotion of high quality design which reflects local distinctiveness.
- d) To improve the health and mental, physical and spiritual well-being of the Region's residents through improvements in:
 - Air quality;
 - 'Affordable warmth';
 - The availability of good quality housing; and
 - Access to health, cultural, leisure and recreation facilities and services.
- e) To improve economic prosperity, employment opportunities and regional competitiveness through:
 - The improvement of access to labour and markets; and
 - Ensuring that sufficient good quality land and premises are available to support economic activity in sectors targeted for growth by the Regional Economic Strategy.
- f) To improve accessibility to jobs, homes and services through the:
 - Promotion and integration of opportunities for walking and cycling;
 - Promotion of the use of high quality public transport; and
 - Encouragement of patterns of new development that reduce the need to travel especially by car.
- g) To protect and enhance the environment through the:

- Protection, enhancement, sensitive use and management of the Region's natural cultural and historic resources, giving particular attention to designated sites of international importance;
 - Avoidance of significant harm and securing adequate mitigation or compensation for any unavoidable damage;
 - Reducing the amount of waste produced and increasing the amount recycled or otherwise beneficially managed; and
 - Recognition of the limits to the capacity of the environment to accept further development without irreversible damage.
- h) To achieve a 'step change' increase in the level of the Region's biodiversity through:
- The management and extension of habitats, both to secure net gains in biodiversity and to facilitate species migration to allow the biosphere to adapt to climate change; and
 - Ensuring that no net loss of priority habitats or species is allowed to occur.
- i) To reduce the causes of climate change by minimising emissions of CO₂ in order to meet the national target through:
- Maximising 'resource efficiency' and the level of renewable energy generation;
 - Making best use of existing infrastructure;
 - Promoting sustainable design and construction; and
 - Ensuring that new development, particularly major traffic generating uses, is located so as to reduce the need to travel, especially by private car.
- j) To reduce the impacts of climate change, in particular the risk of damage to life and property from flooding and sea level change and the decline in water quality and resources. This will be achieved through the location, design and construction of new development in ways that include:
- Reducing the build up of heat island effects in urban areas;
 - Providing carbon sinks; and
 - Providing sustainable drainage and managing flood water.
- k) To minimise adverse environmental impacts of new development and promote optimum social and economic benefits through the promotion of sustainable design and construction techniques.

3.4 Regional Economic Strategy

The East Midlands Regional Economic Strategy (RES) – 'A Flourishing Region' sets out the framework for ensuring the long term sustainable economic growth of the region with the overall objectives of improving economic performance and enhancing the region's competitiveness.

The vision is:

"By 2020, the East Midlands will be a flourishing Region. Increasingly prosperous and productive, we will enjoy levels of economic well-being and a quality of life higher than the European average and comparable with the best in the world."

It is supported by three underpinning themes; raising productivity, ensuring sustainability and achieving equality. These objectives are to be achieved through ten strategic priorities which include recognition of the need to improve transport connectivity and accessibility.

In order to deliver on these priorities, the RES emphasises, the following actions to be promoted by regional partners:

- improve inter and intra-regional connectivity;
- improve international accessibility;
- support regional regeneration and growth; and
- contribute to environmental, quality of life, and well being indicators.

The RES also sets out the main strategic challenges for the Region's economy, and the main issues for the Region's sub-areas, including the transport interventions and future priorities for investment.

3.5 Regional Funding Allocation Major Scheme Programme

3.5.1 Introduction

The region funds capital investment in major transport projects and block funding to local transport authorities through the Regional Funding Allocation (RFA). The RFA is currently divided as follows:

- major transport schemes (typically over £5 million capital cost): £80 million per annum;
- local transport authority Integrated Transport Block: £60 million per annum; and
- local transport authority Structural Highway Maintenance Block: £90 million per annum.

The region has the scope to alter the distribution of funds between these activities, and/or between the local transport authorities but has, to date, chosen to retain the allocation calculated by the DfT.

The region also provides advice to the DfT on the projects which it wishes to prioritise for major scheme funding over a ten year period. The second round of this process, for funding in the period 2010/11 to 2018/19, was completed in June 2009 with the publication of a list of prioritised schemes and their estimated funding requirements (known as the 'RFA programme'). To gain funding, each scheme must still fulfil all of the DfT's major scheme funding criteria, including a full business case, and until receipt of Full Approval status, cannot be considered as being committed.

The location of the schemes in the RFA programme are listed in Table 3.1 and shown in Figure 3.1, categorised into those that are underway and those in the planning stage.

Figure 3.1 - East Midlands RFA programme 2010/11-2018/19

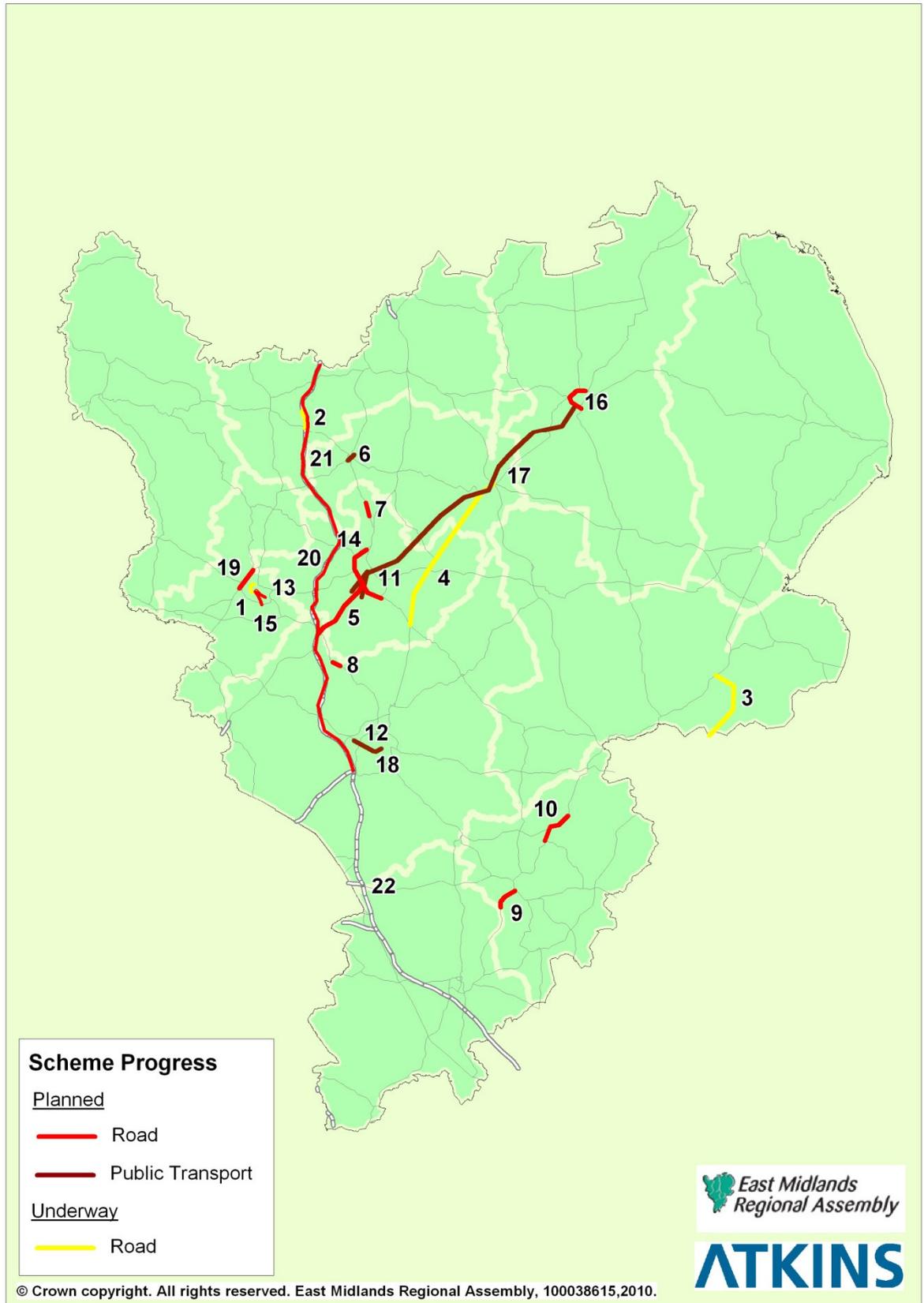


Table 3.1 - East Midlands RFA programme 2010/11-2018/19

Ref No Figure	Scheme	Current status
1	Connecting Derby Phases 2 and 3	Underway
2	Markham Vale (M1 J29 & Northern Loop), Derbyshire	Underway
3	A1073 Spalding to Eye Improvement	Underway
4	A46 Widening Newark to Widmerpool	Underway
5	A453 Widening (M1 J24 to A52 Nottingham)	Planned
6	Mansfield Integrated Transport Interchange, Nottinghamshire	Planned
7	Hucknall Town Centre Improvements, Notts	Planned
8	Loughborough Town Centre Transport Scheme, Leicestershire	Planned
9	A509 Isham Bypass, Northamptonshire	Planned
10	A43 Corby Link Road, Northamptonshire	Planned
11	Nottingham Express Transit Lines 2 & 3	Planned
12	Glenfield Park & Ride, Leicester	Planned
13	London Road Rail Bridge & SITS Corridor, Derby	Planned
14	Nottingham Ring Road	Planned
15	Osmaston Road SITS Corridor, Derby	Planned
16	Lincoln Eastern Bypass	Planned
17	Nottingham to Lincoln Line Speed Improvements	Planned
18	Leicester City Centre Bus Termini & Routings	Planned
19	A38 Derby Junctions	Planned
20	M1 Junction 25-28 widening (national scheme)	Underway
21	M1 Junctions 21-31 managed motorways (national scheme)	Planned
22	M1 Junction 19 (M1, A14, M6) junction improvement	Planned

A number of schemes of national importance are also either planned or underway on routes through the East Midlands and are included in the table. These are:

- major widening improvements are currently being made to the M1 between junction 25 and 28 which are due to be completed in late 2010;
- hard shoulder running is also due to be implemented along several sections of the M1 between junction 21 and junction 31, although is not due to start until 2012 at the earliest;
- M1 junction 19 (M1, A14, M6) junction improvement.

4. Regional transport conditions and issues

4.1 Challenge EM1: Minimising existing and future traffic congestion and rail crowding on strategic links and in urban areas

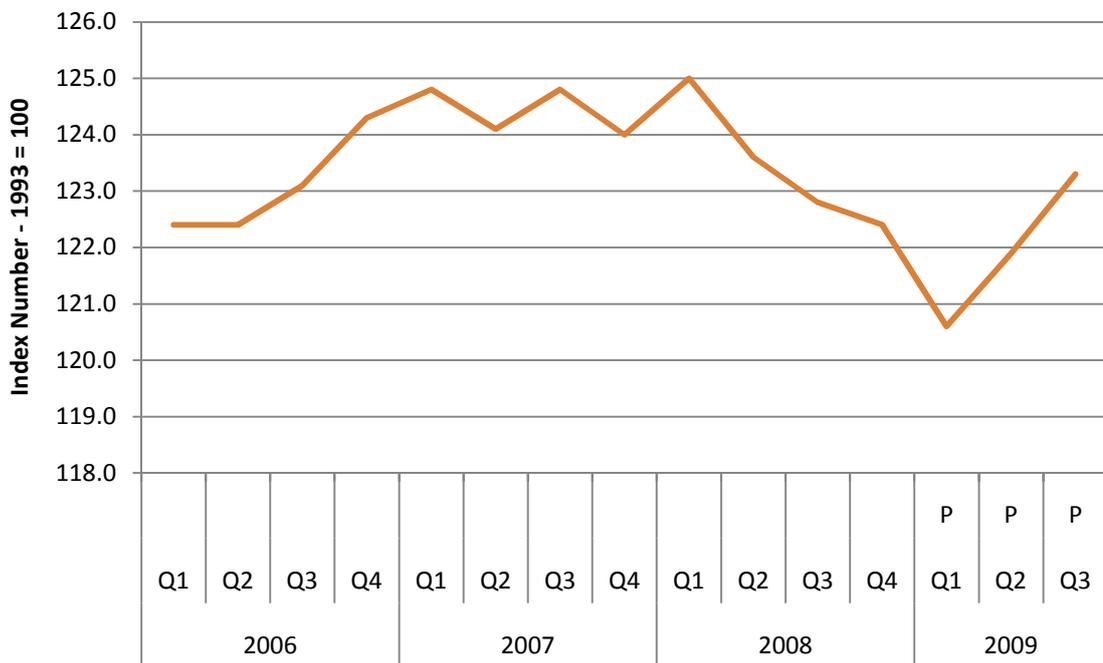
4.1.1 Existing traffic flows and congestion/delays

The traffic data in this section of the report relates predominantly to 2007. Whilst at first sight this may appear to be out of date given the recession, the analysis below demonstrates that current traffic and congestion levels are broadly at the same level as they were in 2007. For that reason, the information presented in this section remains valid.

Recent trends in traffic

Throughout 2008, and into 2009, the UK experienced recession. This had a knock on effect on total traffic using the roads, and therefore led to a reduction in levels of congestion. Figure 4.1 shows the change in road traffic volumes in Great Britain across all road types during 2006-2009. The graph shows that traffic levels reached a peak in Q1 2008. This peak was followed by four quarters of falling traffic levels although provisional figures for Q2 and Q3 2009 suggest a return to positive growth.

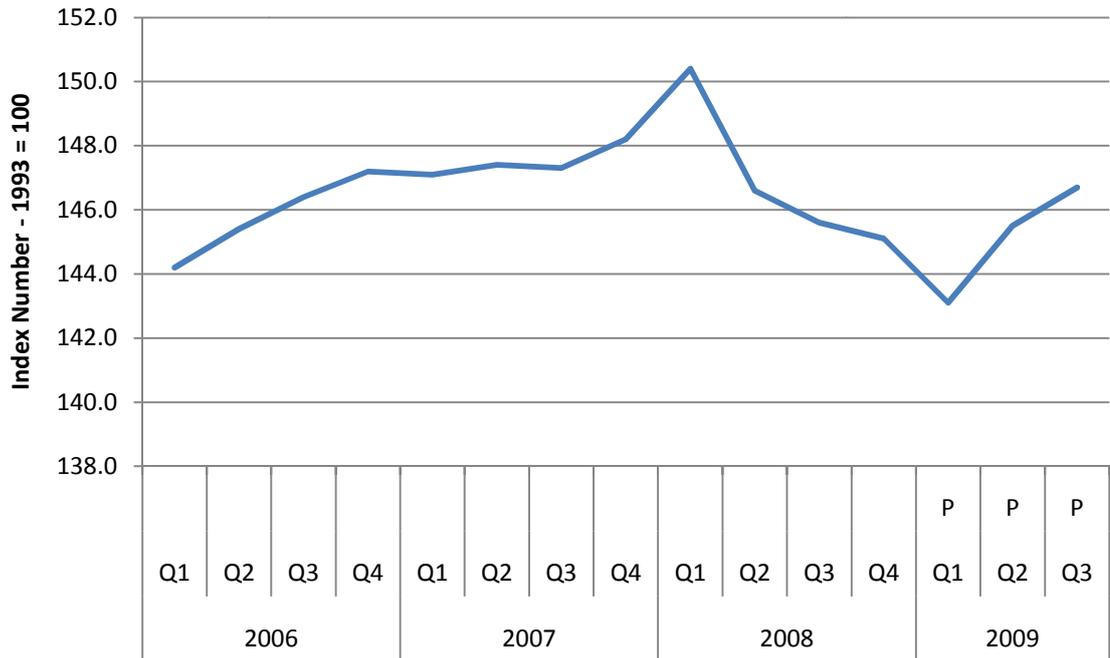
Figure 4.1 - Road traffic in Great Britain (all class types)



Source: DfT, Road Traffic and Congestion in Great Britain, Q3 2009

Figure 4.2 shows the effects of the recession on motorway traffic. As with the data for all road types shown above, motorway traffic reached a peak in Q1 of 2008, followed by four quarters of decline. The provisional motorway figures for Q2 and Q3 2009 suggest a return to positive growth, although both graphs indicate that current traffic volumes are currently below 2006 levels.

Figure 4.2 - Road traffic in Great Britain by road class: (Motorways)



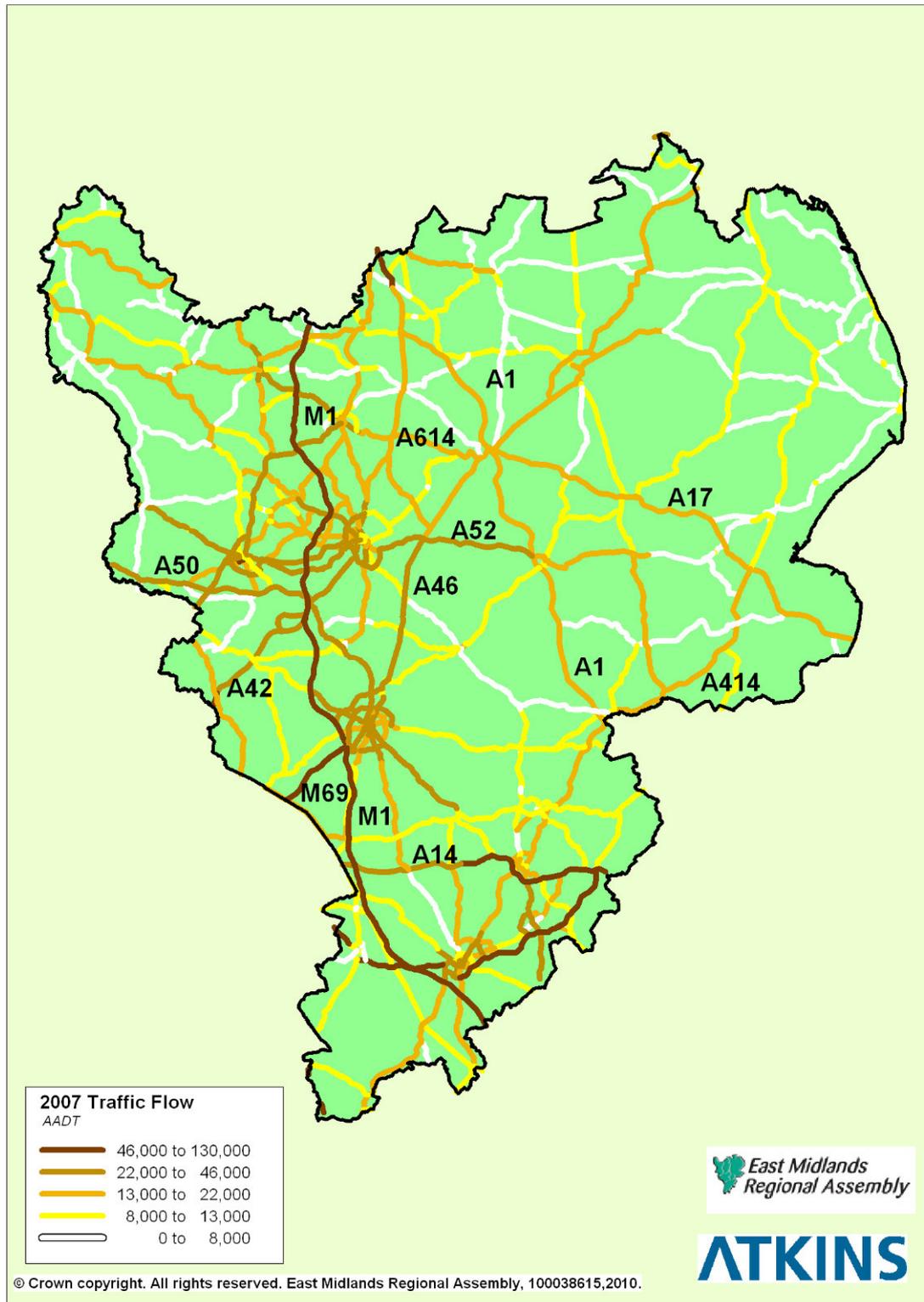
Source: DfT, Road Traffic and Congestion in Great Britain, Q3 2009

Regional traffic levels

Traffic flows in the region vary significantly across the principal road network (PRN). The traffic flow levels presented are estimates of the Annual Average Daily Traffic (AADT) in each direction on each link in 2007. These estimates are derived from automatic and manual traffic counts. AADT flows for 2007 are shown in Figure 4.3.

The figure shows that the heaviest traffic flows can be found on the M1 and the main strategic roads linking with the M1 such as the A14 and A45 in Northamptonshire and the A50 in Derby. The A1 also has significantly high levels of traffic particularly in the northern section between Worksop and Newark on Trent, but traffic on the A1 is notably lower than on the M1.

Figure 4.3 - All vehicle traffic flows (2007 AADT)



4.1.2 Observed congestion

Highways Agency data

Congestion provides an economic burden on the economy of the region effecting the efficiency and reliability of transport networks as well as contributing to the environmental impact of air pollutants.

The Highways Agency has analysed observed delays in 2006 on the Strategic Road Network (SRN)²². The analysis led the Highways Agency to identify “particular locations where regular high levels of stress lead to economic costs” as follows:

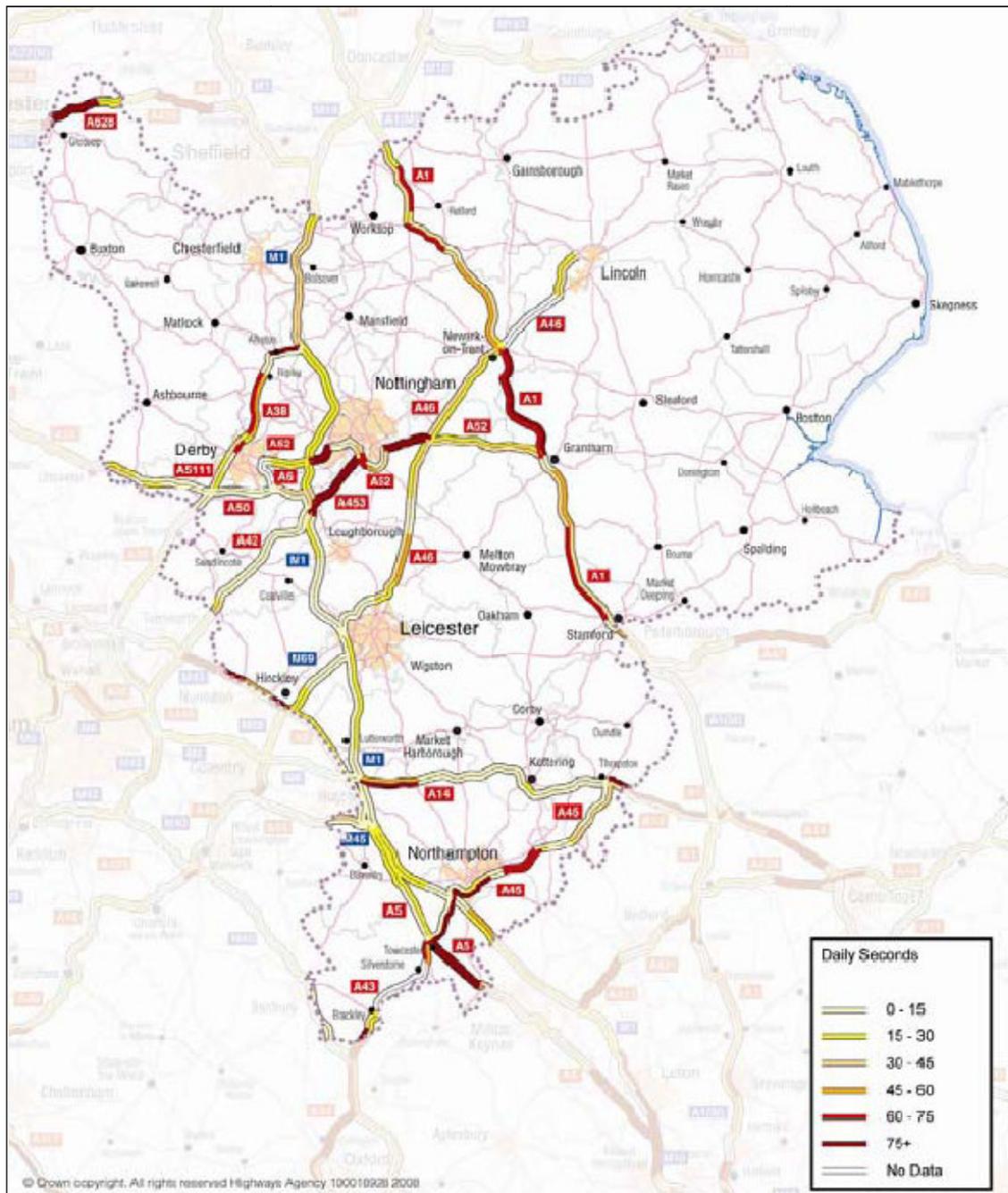
- M1 at various locations between Junctions 15 to 19;
- M1 southbound to Junction 21;
- M1 Junctions 24 to 30 inclusive;
- A1 at-grade junctions;
- A38 at grade-junctions in Derby;
- A38 approaching M1 Junction 28;
- A45 Northampton to Wellingborough;
- A453 between the M1 and Nottingham;
- A52 at various junctions between the M1 and Bingham;
- A628 north of Glossop; and
- A46 between Newark and A606 (Widmerpool).

Figure 4.4 shows the level of delay per vehicle in seconds on the SRN, although most of the solutions have been implemented, or are in the planning stages for most of the problem areas. Roads identified as having the biggest delay per vehicle include;

- A453 between Nottingham and the M1;
- A52 east and west of Nottingham;
- A38 north of Derby;
- A628 at Glossop;
- A1, particularly Newark –Grantham;
- A14 westbound approaching the M1;
- A45 Towcester-Northampton-Wellingborough; and
- A5 south of Towcester.

²² Highways Agency, *Regional Network Report 2008*
/East Midlands Transport Conditions & Issues 2010 Update FINAL
- 1 March10.docx

Figure 4.4 - Observed total delay per vehicle on the SRN (2006)



Source: Highways Agency (2008) East Midlands Regional Network Report

Peak hour vehicle delay per vehicle is most serious at the following locations:

- A453 between Nottingham and the M1;
- A52 east and west of Nottingham;
- A38 north of Derby;
- A628 at Glossop;
- A1, especially Newark-Grantham;
- A14 westbound approaching the M1;

- A14 eastbound at Thrapston;
- A45 Towcester-Northampton-Wellingborough; and
- A5 south of Towcester.

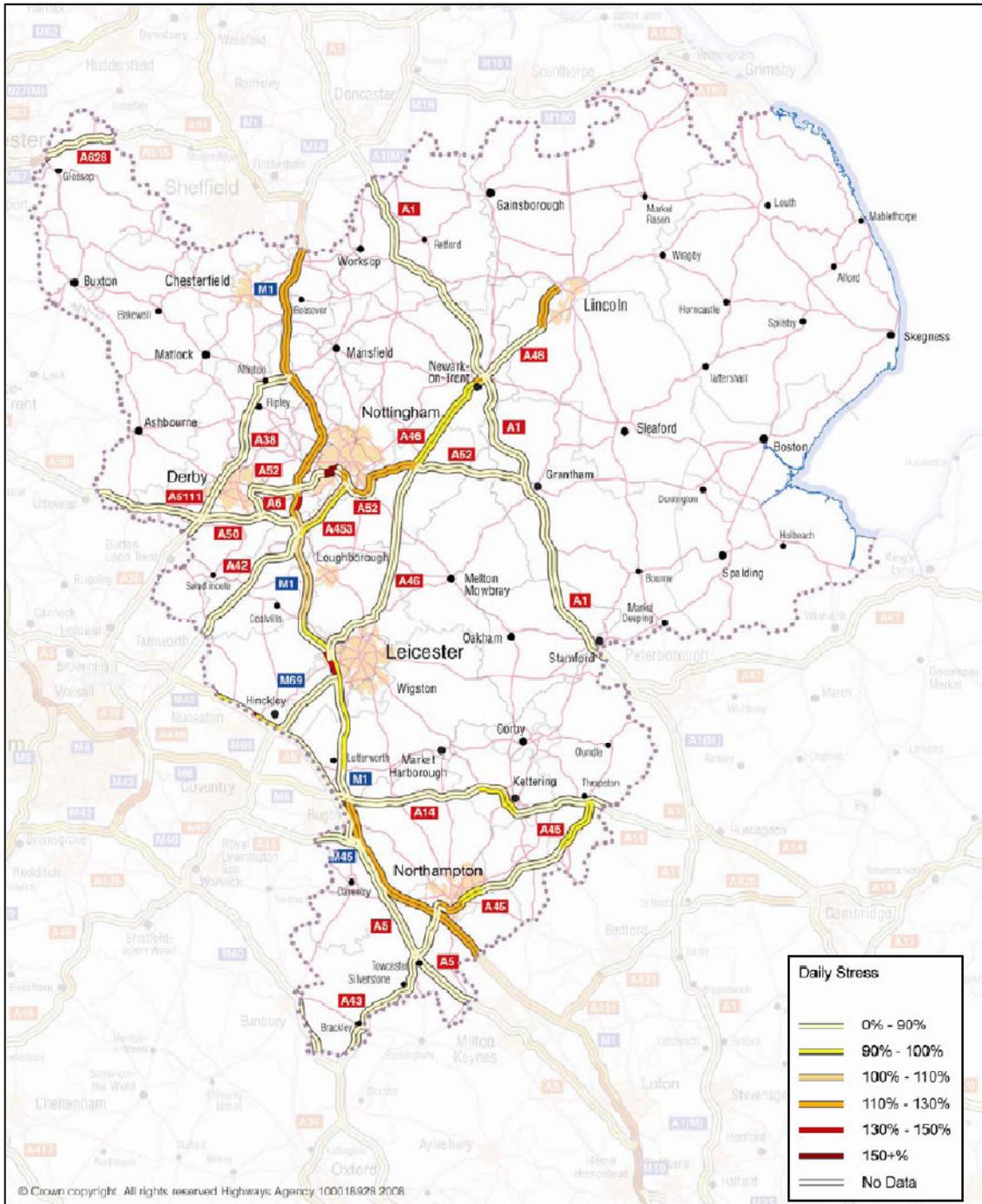
The HA defines “stress” as the daily flow divided by the daily capacity. As the levels of traffic vary throughout the day, the daily capacity of a road is best determined by the maximum sustainable traffic flow in the peak hour. Some roads are congested for longer than just the morning and evening peak hour. In these cases, stress levels can be described as being “more than 100%”. What this brings out better than any other measure is the ‘ambiance’ of the journey experience and the ‘reliability’ of particular routes; mainly because the occurrence of incidents is clearly related to a route’s stress levels

For the East Midlands, the road-lengths on the SRN with high daily stress levels in 2006 as identified by the HA were:

- M1 between junctions 15 and 19;
- M1 between junctions 21 and 21a;
- M1 between junctions 22 and 31;
- A45 at Northampton;
- A45 near Thrapston (A14);
- A453 between the M1 and Nottingham;
- A46 between Saxondale (A52) and Newark;
- A5 at Atherstone; and
- A52 between Wheatcroft roundabout (A606) and Saxondale (A46).

These are shown in Figure 4.5 overleaf.

Figure 4.5 - Observed stress on the SRN (2006)



Source: Highways Agency (2008) East Midlands Regional Network Report

Current delay on inter-urban highways (CSR07)

The DfT monitors reliability on routes by measuring the average vehicle delay on the slowest 10% of journeys on the SRN. National core indicator CSR07 is the Public Service Agreement (PSA) indicator for delays on the inter-urban road network. It is calculated based on a national sample of the SRN. The routes within the sample in the East Midlands are shown in Table 4.2 below.

Table 4.1 - CSR07 sample routes

Journey route	Start	End
A46	Leicester	Lincoln
A52/A5111/A6	A5111 Derby	A52 Grantham
A453	Kegworth	Nottingham
A38	Birmingham	M1 (J28) Mansfield
A43	M40 (J10) Bicester	Northampton
A50/A500	M1 (J24A) Castle Donington	M6 (J16) Stoke
A1/A1(M)	Peterborough	M1 (J48) Leeds
A5	M1 (J9) Luton	M1 (J18) Rugby
A5	M1 (J18) Rugby	A38 Lichfield
A14	M6 Rugby	A1 Huntingdon
M1	J13 Milton Keynes	J19 Rugby
M1	J19 Rugby	J32 Rotherham

Reproduced from of Highways Agency (2008) *Regional Network Report for the East Midlands* Table 6.1

Surveys to year ending March 2008 identified total and average delays on the slowest 10% of journeys and all journeys on each route, in each direction. In relation to average vehicle delay to all journeys, the worst section of SRN nationally was the A453 from Kegworth to Nottingham with an average delay of 4.21 minutes per 10 vehicle miles. The next worse sections (with national ranking out of 190) in the region were:

- A453 Nottingham to Kegworth (13th);
- A43 M40 Bicester to Northampton (17th);
- A5 M1 J18 Rugby to M1 J9 Luton (23rd); and
- A5 M1 J18 Rugby to A38 Lichfield (25th).

All have average delays of over two minutes per 10 vehicle miles.

4.1.3 The economic costs of congestion

The *emda* commissioned a study in 2007 to identify the economic costs of congestion to the East Midlands Region²³. The study quantified both the 'direct' and indirect' cost of congestion. The report recognised that high levels of congestion result in a major cost to the regional economy with direct and indirect costs amounting to approximately £935 million per year. Table 4.2 shows the estimated direct costs of congestion for each of the individual HMAs on non trunk roads.

²³ *Economic Costs of Congestion* Atkins 2007
/East Midlands Transport Conditions & Issues 2010 Update FINAL
- 1 March10.docx

Table 4.2 - Economic costs of congestion per annum

Housing market area	Total (millions)	Per capita
Central Lincolnshire	£19	£69
Coastal Lincolnshire	£2	£11
Derby	£46	£103
Leicester and Leicestershire	£154	£167
North Northamptonshire	£16	£55
Northern Sheffield/Rotherham	£10	£26
Nottingham Core	£152	£209
Nottingham Outer	£3	£12
Peak Dales and Park	£5	£30
Peterborough Partial	£3	£10
West Northamptonshire	£60	£166

Source: *Economic Costs of Congestion Study 2007*

Analysis of congestion was undertaken for both the strategic (motorway and trunk road) network (SRN) and for urban areas in the region. Analysis for the SRN identified:

- total delays costs are greatest on the A1 and M1 - a reflection of their combined national and regional strategic importance, including length and high volumes of traffic;
- substantial total delay costs are also experienced on the A14, A38, A43, A46 and A52 – potential due to their shorter length; and
- smaller total levels of delay costs on the A453 and A628 – due to their relatively short length, despite having relatively long delays.

For local authority roads within urban areas:

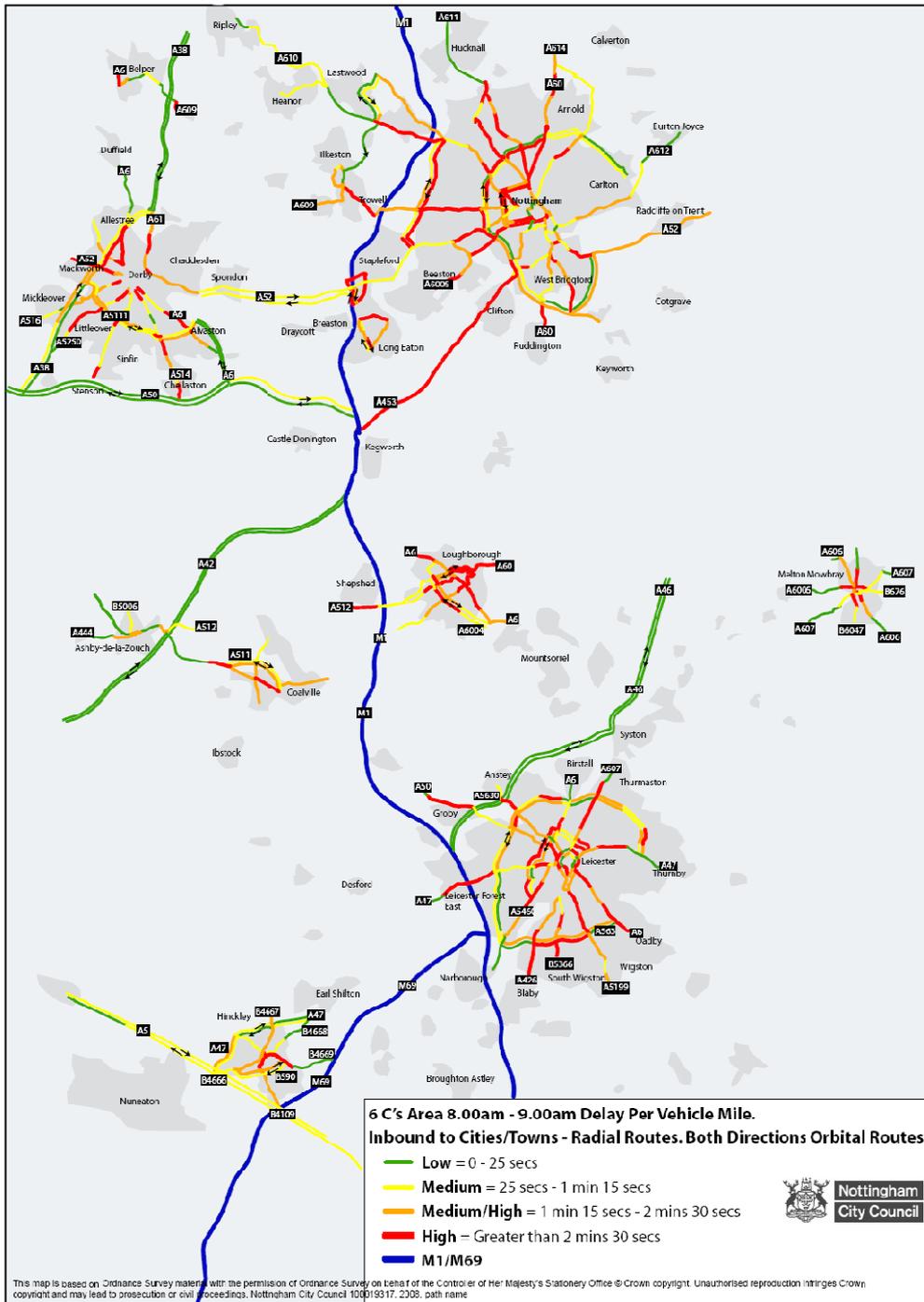
- the total delays are highest in the two largest urban areas of Greater Nottingham and Central Leicestershire;
- delays are somewhat lower, but still significant in Derby and Northampton;
- Lincoln has the lowest levels of total delay of the five Principal Urban Areas (PUA) within the Region - this reflects its relatively small size and comparatively low levels of congestion;
- congestion in Mansfield is a quarter of that in Loughborough, which is a similar size; and
- as would be expected, congestion in the smaller towns is much less than in larger towns.

4.1.4 6Cs Congestion Management Study

In 2008, a major study reported on the patterns of congestion in the '6Cs area' comprising the local transport authority areas of Derby, Derbyshire, Leicester, Leicestershire, Nottingham and Nottinghamshire²⁴. The results of the congestion survey for the morning peak hour (8am to 9am) are shown in Figure 4.6 which illustrates the delay per mile on each of the routes surveyed.

²⁴ *The 6Cs Congestion Management Study, 2008*
/East Midlands Transport Conditions & Issues 2010 Update FINAL
- 1 March10.docx

Figure 4.6 - Congestion in the 6Cs areas



Source: 6 Cs Congestion Management Study 2008

The data shows significant morning peak congestion inbound on many of the radial routes into the Three Cities as well as Melton Mowbray, Loughborough and Coalville. More detailed maps are available in the 6Cs Congestion Study Traffic Congestion Data Survey Results report of January 2008. Average delay per mile from the surveys is shown in Table EM1.2.

Table 4.3 - Summary of delays per mile, morning peak hour (seconds)

Conurbation	Routes	Average delay per mile
Derby	All	126
	Radial	138
	Orbital	88
Leicester	All	127
	Radial	160
	Orbital	101
Nottingham	All	124
	Radial	125
	Orbital	122

Reproduced from Table 4.1 of 6Cs Congestion Management Study (2008)

The route sections with a delay/mile between 08:00-09:00 of over three minutes are as follows:

- B3566: South Wigston to A563 Ring Road (Leicester) – 752 secs;
- A426: Blaby to A563 Ring Road (Leicester) – 436 secs;
- A607: Thurmaston to A563 Ring Road (Leicester) – 372 secs;
- A6 (North): Ring Road to city centre (Derby) – 329 secs;
- A52 (West): Ring Road to city centre (Derby) – 296 secs;
- A6 (South): Oadby to A563 Ring Road (Leicester) - 286 secs;
- A47 (West): Leicester Forest East to A563 Ring Road (Leicester) - 238 secs;
- A610: Gregory Boulevard to city centre (Nottingham) – 227 secs;
- A52 (West): Mackworth to Ring Road (Derby) – 226 secs;
- A60 (South): Ruddington to Ring Road (Nottingham) – 216 secs;
- Kedleston Road: Ring Road to city centre (Derby) – 212 secs;
- A6 (South): A563 Ring Road to city centre (Leicester) - 202 secs;
- A60 (North): Ring Road to Gregory Boulevard (Nottingham) – 208 secs;
- A426: A563 Ring Road to city centre (Leicester) – 184 secs; and
- A5199: A563 Ring Road to city centre (Leicester) – 181 secs.

4.2.1 Rail crowding

There is currently limited information available on the performance of the rail network in terms of passenger load factors. The DfT is currently undertaking load factor forecasts of the national networks using the Network Modelling Framework (NMF) and this work is expected imminently.

The East Midlands Route Utilisation Strategy (RUS) Draft for Consultation²⁵ identifies overcrowding on peak services serving London, Nottingham and Leicester and crowding all day on services on the following corridors:

- Norwich – Liverpool (on the section between Nottingham and Liverpool);
- Birmingham - Stansted Airport (particularly at Birmingham, Leicester and Cambridge); and
- Birmingham - Derby – Sheffield.

On the long-distance high speed services to London, average weekday seated load factors²⁶ on services arriving into London, during the morning peak period, increase as trains approach London. In the East Midlands region, load factors are below 50%, but increase to 95% approaching London St. Pancras. Indeed, according to the RUS, there are standing passengers on seven of the 12 trains arriving in the capital between 07:00 and 10:00²⁷.

The RUS also concludes that there is broadly sufficient capacity on services departing Leicester and Nottingham in the evening peak, with the exception of a small number of services.

A final version of the RUS is due for publication at the end of February 2010.

4.2.2 Rail punctuality

The RUS uses the Public Performance Measure (PPM) to report the punctuality of an operator's service against the published timetable. It states that the overall PPM for train operators in the East Midlands RUS area (including the Midland Mainline to London) in March 2009 was recorded as 97.2%, an improvement from the March 2007 figure of 91%.

The RUS also states that reactionary delay (i.e. delay to trains caused by other delayed trains) is shown to be a problem in Derby, Nottingham, the Leicester area and sections between Bedford Flitwick, as well as St Albans to Luton.

Lines which operate at or near capacity such as the route between Chesterfield and Birmingham, via Derby are more likely to suffer from problems caused by reactionary delay. Figure 4.7 shows the sites which experience the most reactionary delay. These include the main stations of Derby, Leicester and Nottingham, although delay is also experienced at junctions in the line.

²⁵ Network Rail, East Midlands RUS, Draft 2009

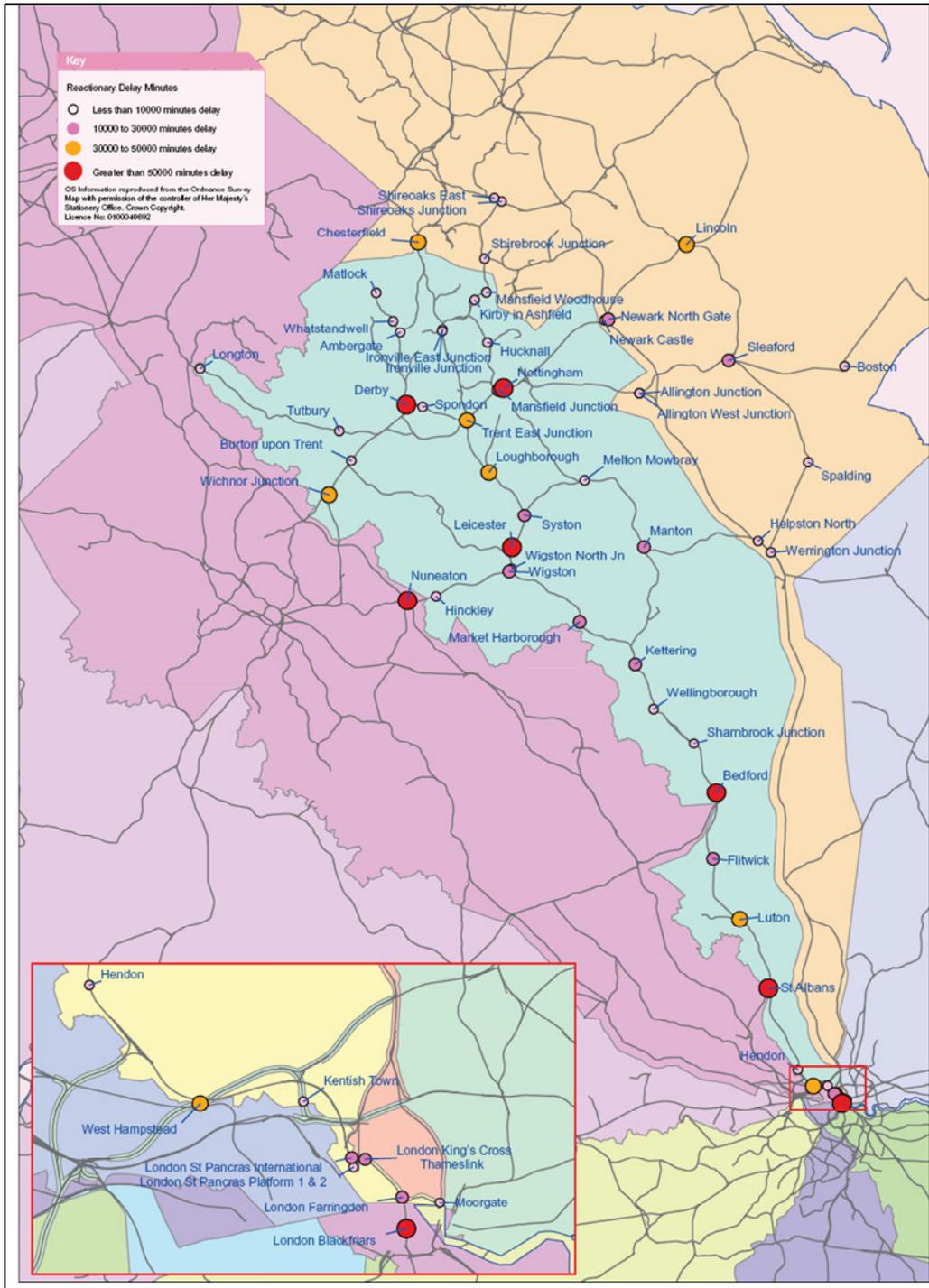
²⁶ Total passengers as a proportion of the number of seats in standard class

²⁷ East Midlands Trains, December 2008

/East Midlands Transport Conditions & Issues 2010 Update FINAL

- 1 March10.docx

Figure 4.7 - Reactionary delay in the East Midlands RUS area



Source: Network Rail, East Midlands Route Utilisation Strategy, Draft 2009, Figure 3.25

4.2.3 Bus punctuality

As part of the ongoing LTP monitoring process, local transport authorities are required to collect data on bus punctuality under mandatory indicator NI 178. The data is collected differently across the authorities so direct comparison is problematic.

The latest available bus punctuality data for each LTP area is shown in Table 4.4 along with some national comparisons. The table shows that Northamptonshire and Greater Nottingham have the highest bus punctuality across the Region, with Lincolnshire showing a bus service with the longest waiting times, and the lowest punctuality level in the Region.

Table 4.4 - Local bus service punctuality

LTA/LTP	Year	Punctuality at starting points (non-freq) NI 178a	Punctuality at intermediate points (non-freq) NI 178b	Excess waiting time (freq) NI 178d
Joint Derbyshire LTP	08/09	87%	82%	N/A
Derbyshire LTP				
Central Leicestershire LTP*	2008	79%	62%	93 secs
Leicestershire LTP	07/08	85%	75%	N/A
Lincolnshire LTA	08/09	77%	61%	224 secs
Northamptonshire LTA	08/09	97%	84%	43 secs
Greater Nottingham LTP	07/08	94%	82%	38 secs
North Nottinghamshire LTP2	07/08	87%	77%	61 secs
Rutland LTA	05/06	75%		N/A
GB (excluding London)	2007	84%	73%	92 secs
GB mixed area authorities	2007	85%	77%	68 secs
GB rural authorities	2007	84%	76%	94 secs
Northern/Midland regions	2007	82%	71%	102 secs

Source: Local Transport Authorities and DfT 2007 bus punctuality statistics

*the starting point sample size is 16% of observations against the DfT guidance figure of 25%. This will be corrected in the 2009 surveys, but means that the 2008 surveys almost certainly understate actual levels of bus punctuality in Central Leicestershire.

The table indicates that Northamptonshire and Great Nottingham have better bus punctuality than other Midland/Northern regions, however Central Leicestershire, Lincolnshire and Rutland are shown to have lower bus punctuality than other authorities in the Northern/Midland regions or compared to other rural authorities in Britain.

4.3 Challenge EM2: Enabling growth and dealing with the additional demand for travel brought about mainly by regeneration and growth

4.3.1 Planned growth in population and employment

TEMPRO²⁸ 6.1 predicted a 21.1% increase in the East Midlands population between 2006 and 2026 (from 4.4 million to 5.3 million)²⁹. This is the highest growth in any region and compares to an English average of 15.6% over the same period. Households over the same period are forecast to rise by 24.8%. This growth is shown in Figure 4.10.

TEMPRO 6.1 also forecast an increase in employment of 6.5% between 2006 and 2026 (from 2.2 million to 2.3 million jobs). This is slightly above the English average predicted, but notably a much lower growth than population. This growth is shown in Figure 4.9.

The highest percentage growth in population is expected in Lincolnshire, south Leicestershire and North Northamptonshire. The highest percentage growth in employment is predicted predominantly in the districts of Newark & Sherwood and South Northamptonshire.

The population forecasts for each HMA given in Table 4.5 were derived by ONS and used in the Regional Plan.

Table 4.5 - Regional Housing Provision by HMA

Housing market area	2006 population (000s)	Projected population increase (000s)	2031 projected population (000s)	Housing allocation 2006-2026 *
Central Lincolnshire	281	89	369	40,600
Coastal Lincolnshire	199	59	258	8,700
Derby	450	106	555	36,600
Leicester & Leicestershire	933	216	1,149	80,400
North Northamptonshire	306	98	404	66,075
Northern	385	63	448	30,200
Nottingham Core	731	160	891	57,000
Nottingham Outer	329	80	408	36,600
Peak Dales & Park	163	26	189	7,000
Peterborough partial	252	72	325	24,000
West Northamptonshire	372	124	496	62,125
East Midlands Total	4,399	1,091	5,491	449,300

Source: ONS and East Midlands Regional Plan Policy 13a
* 2001-2026 for West and North Northamptonshire HMAs

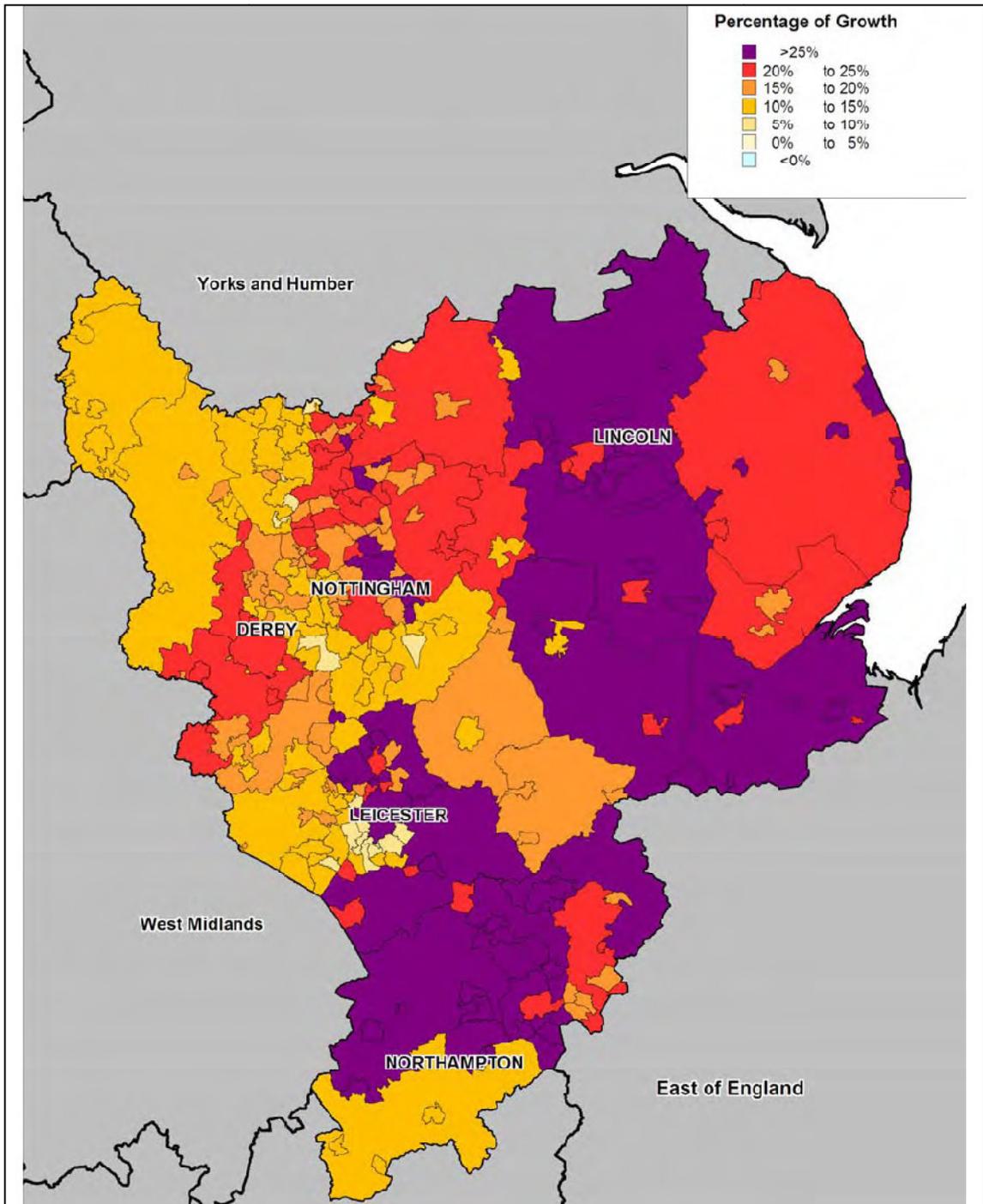
²⁸ TEMPRO software is an Integrated Transport and Economics and Appraisal tool developed by the DfT which provides summaries of National Trip End Model (NTEM) forecast data for transport planning purposes. The forecasts include population, employment, households by car ownership and trip ends

²⁹ DfT (2009) *City & Regional Network Data Book* Annex 5

/East Midlands Transport Conditions & Issues 2010 Update FINAL

The current housing allocation for the East Midlands underpinning this expected growth would see 21,500 homes built in the region annually between 2006 and 2026³⁰. The largest percentage increases in the number of dwellings which this would represent will be seen in Central Lincolnshire HMA (44%) although the highest absolute increases are in the urban areas of Leicester & Leicestershire HMA, Nottingham Core HMA and North Northamptonshire HMA.

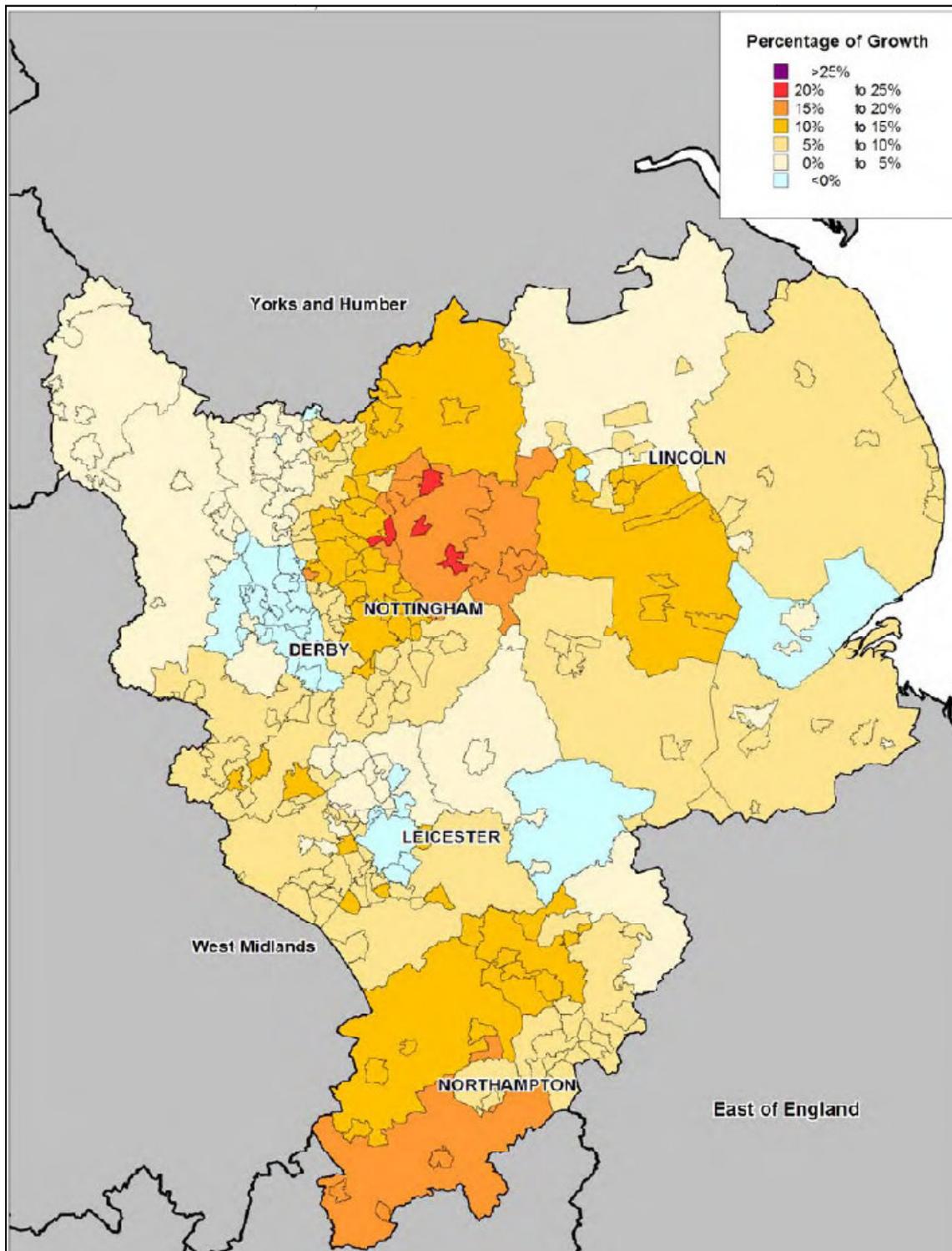
Figure 4.8 - Forecast % growth in population between 2006 to 2026



Source: NTEM 5.4 (DfT DaSTS data book)

³⁰ East Midlands Regional Plan Appendix 1
 /East Midlands Transport Conditions & Issues 2010 Update FINAL
 - 1 March10.docx

Figure 4.9 - Forecast % growth in employment between 2006 to 2026



Source: NTEM 5.4 (DfT DaSTS data book)

Milton Keynes South Midlands Growth Area

Milton Keynes South Midlands (MKSM) is a designated Growth Area spanning parts of the East Midlands, East of England and South East Regions. The county of Northamptonshire lies within the MKSM area.

The MKSM Sub-Regional Strategy (2005) is a statutory planning document, forming part of the Regional Plans of the three constituent regions. Within Northamptonshire, new development is planned to be concentrated around and within Northampton, Corby, Kettering and Wellingborough. Further development will also be focused on smaller settlements in the area as well as rural service centres. It is not envisaged that any major development should take place outside of these settlements and emphasis should be on meeting local needs and retaining basic services and facilities.

The plan envisages 30,000 new homes in Northampton between 2005 and 2021 and a further 34,100 in Corby, Wellingborough and Kettering.

New Growth Points

As a result of the Barker review³¹ which highlighted the shortfall between housing supply and current and future demand, in December 2005 the Government announced the New Growth Points initiative designed to provide support to local communities who wish to pursue large scale and sustainable growth, including new housing, through a partnership with Government.

The Government invited local authorities to submit strategic growth proposals which were sustainable, acceptable environmentally and realistic in terms of infrastructure to be assessed by Government and its agencies. Applications needed to include an average rate of new house building at least 20% higher than set in plans in October 2003, and delivering at least 500 new houses per year.

The Housing Green Paper – “Homes for the Future; More Affordable, More Sustainable “– was published on 23 July 2007, setting out the Government’s vision for the supply of housing over the next 10 years, and setting out its proposals to:

- Increase the supply of housing;
- Provide better designed and green homes;
- More affordable homes; and
- Finance the provision of the infrastructure needed to support new housing. It encourages the use of Brownfield sites for the majority of new developments.

The paper highlights the Government’s commitment to increasing housing supply year on year, and the current target is to build 240,000 new homes per year through to 2016. Some of these homes are already planned for delivery as part of existing RSS policies, however, the increase will be delivered through updated RSS’s, development in Growth Points, and new Eco town proposals.

The paper considers the regional roles in housing provision to be crucial, as working at the spatial level provides the opportunity to shape priorities in a strategic way. In addition it states that the RSS preparation should be informed by a robust evidence base including evidence of housing demand and land availability.

The paper stated that the four existing Growth Areas, including the MKSM Growth Area and the four New Growth Points in the East Midlands, have the potential to deliver 1.1 million homes by 2016. Of these 300,000 homes will be additional to previously planned levels.

³¹ *Review of Housing Supply, Kate Barker, 2004*
/East Midlands Transport Conditions & Issues 2010 Update FINAL
- 1 March10.docx

Figure 4.10 shows the Growth Areas and Growth Points in the East Midlands, which are:

- **MKSM** – an additional 153,000 new homes across the sub-region, with Corby Kettering and Wellingborough identified as Growth Towns in the MKSM Sub Regional Strategy;
- **The Three Cities** - an additional 81,500 homes by 2016, of which around 9,800 will be in Derby, 18,400 in Nottingham and 17,800 in Leicester;
- **Lincoln** – covering City of Lincoln Council, North Kesteven District Council and West Lindsey District Council aims is to build at least 16,500 homes by 2016 of which 9,500 will be in Lincoln;
- **Grantham** - South Kesteven District Council's aim is to build around 6,300 an additional by 2016 of which around 2,750 will be in Grantham;
- **Newark** - Newark and Sherwood District Council's aim is to build around 6,000 homes by 2016 of which 5000 will be in Newark on Trent; and
- **Gainsborough** – identified as a second round growth point subject to testing through the review of the RSS.

New Growth Point status is not a statutory designation, but is about a relationship between central government and local partners. It is built on four principles:

- early delivery of housing as part of the growth plans;
- supporting local partners to achieve sustainable growth;
- working with local partners to ensure that infrastructure and service provision keep pace with growth; and
- ensuring effective delivery.

Levels of growth will be subject to comprehensive testing and public consultation through the regional and local planning processes to ensure that individual proposals are sustainable, acceptable environmentally and realistic in terms of infrastructure.

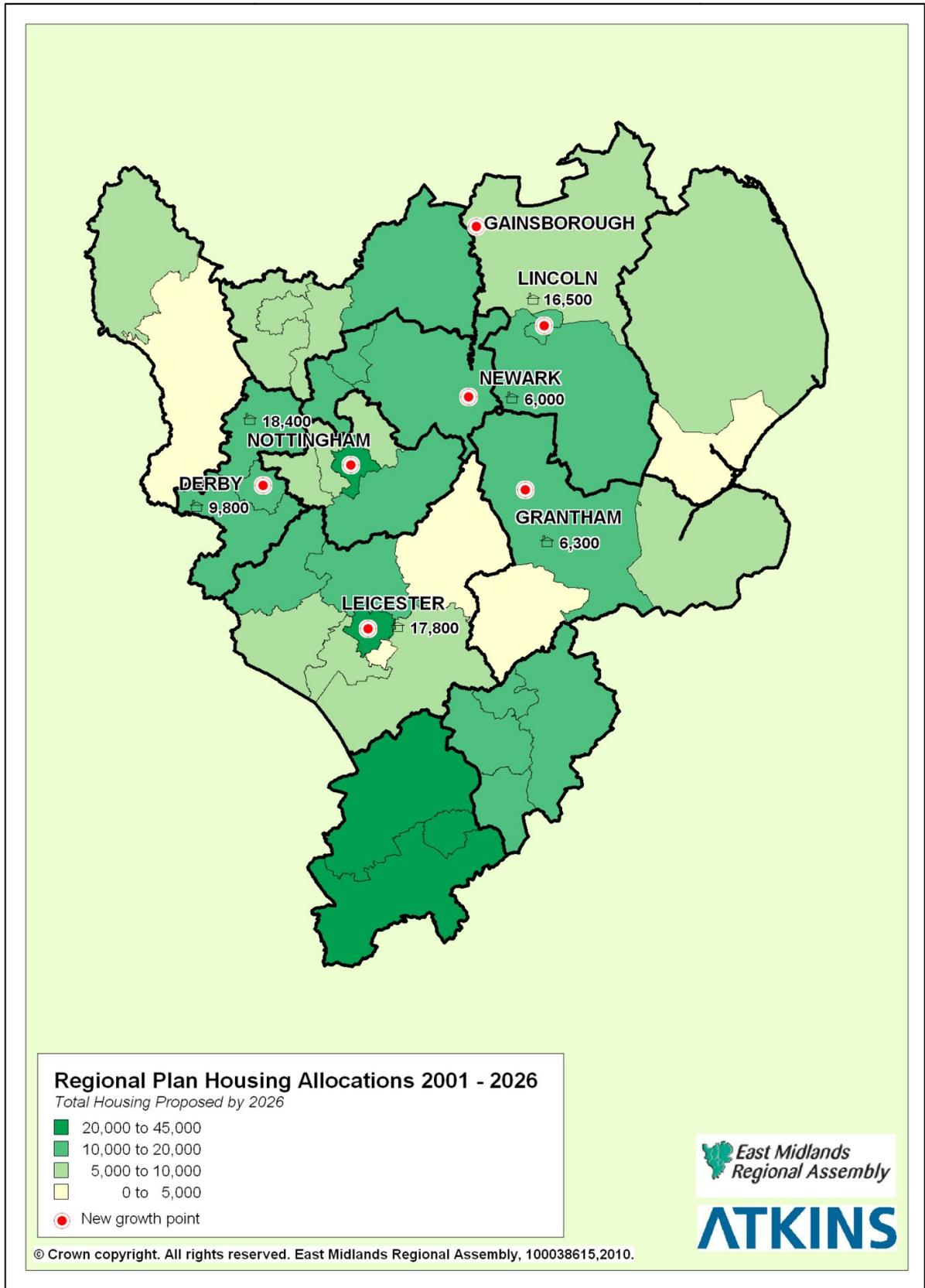
The Green Paper particularly highlights the need for mini reviews of regional plans to be set up to increase regional and local housing targets, and ensure that the Eco towns and Growth Points are properly identified and planned for.

Eco-towns

Two eco-town proposals in the East Midlands were put forward in the first wave of eco town applications and initially shortlisted in April 2008. However, neither Pennbury in Leicestershire, nor Rushcliffe in Nottinghamshire were included in the final shortlist of four 'first wave' eco-towns announced in July 2009. The plans for Manby in Lincolnshire were abandoned prior to the final submission.

In July 2009, a 'second wave' of eco town proposals were outlined by the government and the Lincoln (Lincoln area and Gainsborough) eco town has been shortlisted to receive funding to develop their proposals, although these plans are in their infancy.

Figure 4.10 - Regional Housing Allocations, Growth Areas and Eco Towns



Source: East Midlands Regional Plan (2009)

4.3.2 Forecast growth in travel

Person trips

National travel and car ownership forecasts are derived by the DfT through its National Trip End Model (NTEM) and presented in summary format through TEMPRO³² (forecasts are often referred to as 'TEMPRO forecasts').

Current forecasts anticipate an increase in the number of vehicles in the East Midlands to increase by approximately 680,000, or 32% between 2006 and 2026, the second highest percentage increase of any region. Trip making by car is also anticipated to increase by around 20%, the highest increase of any region by some margin³³.

Figure 4.12 shows that the highest percentage growth in travel is anticipated in Northamptonshire and south Leicestershire, Lincolnshire and east Nottinghamshire, although the highest absolute growth is in the main urban areas

The NTEM model is regularly updated with revised assumptions about housing, population and the economy. New TEMPRO forecasts have recently been released for consultation, but are to be treated as illustrative only until finalised in April 2010³⁴. The updated forecasts show an increase in the number of vehicles of approximately 653,000, or 30% between 2006-2026, and are still the second highest increase of any region. The revised trip making estimates show a slightly revised increase of around 17%, again the highest of any region.

Road freight

The East Midlands is located in a geographically strategically important position for the transportation of road freight and inter-regional freight movements across the country. The M1 provides a valuable link to transport freight from south to north and the regions central position means that east –west travel through the area is important for access to the east coast ports.

The DfT and the Highways Agency use the National Transport Model to forecast traffic levels. This is mainly a passenger / public transport model, but freight forecasts are brought into the equation via the GB Freight Model (GBFM), which is based on forecasts of commodity movements and origins and destinations of freight traffic.

It is worth noting that the National Transport Model forecasts growth in HGV traffic to be 14% between 2003 and 2025, whereas the Green Logistics study forecasts growth of 21% between 2007 and 2020³⁵. The NTM regional forecast suggests that HGV growth in the East Midlands would be in line with the national average. The NTM approach is based on detailed transport modelling whereas the Green Logistics study is based on a survey of freight transport decision-makers and experts.

The GB Freight Model has been refined and revised and is expected to produce new forecasts early in 2010.

Rail freight

The current rail freight usage of the network in the East Midlands is shown in Figure 4.11 and highlights the high levels of freight travelling both through and within the East Midlands.

The Freight RUS³⁶ highlights that rail freight has grown rapidly and forecasts a further growth of up to 30%, which is the equivalent to an extra 240 freight trains a day over the 10 year plan

³² Trip End Model Presentation Program

³³ DfT 2009 City and Regional Networks Data Book, Annex 5, and Map A10 (based on TEMPRO 6.1 forecasts)

³⁴ TEMPRO 6.2

³⁵ Environmental Impact of Road Freight Transport in 2020, M.I. Piecyk and A.C. McKinnon

³⁶ Network Rail, Freight RUS, 2007

/East Midlands Transport Conditions & Issues 2010 Update FINAL

- 1 March10.docx

period. It states that this additional 30% growth is the equivalent of around 1.5 million lorry journeys on the road each year.

The Network Rail Freight Utilisation Strategy, on which the East Midlands RUS forecasts likely volumes of freight handled by rail in 2014/15 and the resulting percentage change between base year (2005/06) for each main market sector (see Table 4.6). For bulk freight, the picture is mixed: coal, waste and ore are forecast to decline while metals and petroleum show modest growth and for construction more substantial growth is expected. For non-bulk freight, much more substantial growth is forecast – of several orders of magnitude over the ten year period – although for the domestic intermodal and Channel Tunnel sectors, this comes from a very small base both in terms of market share and volume.

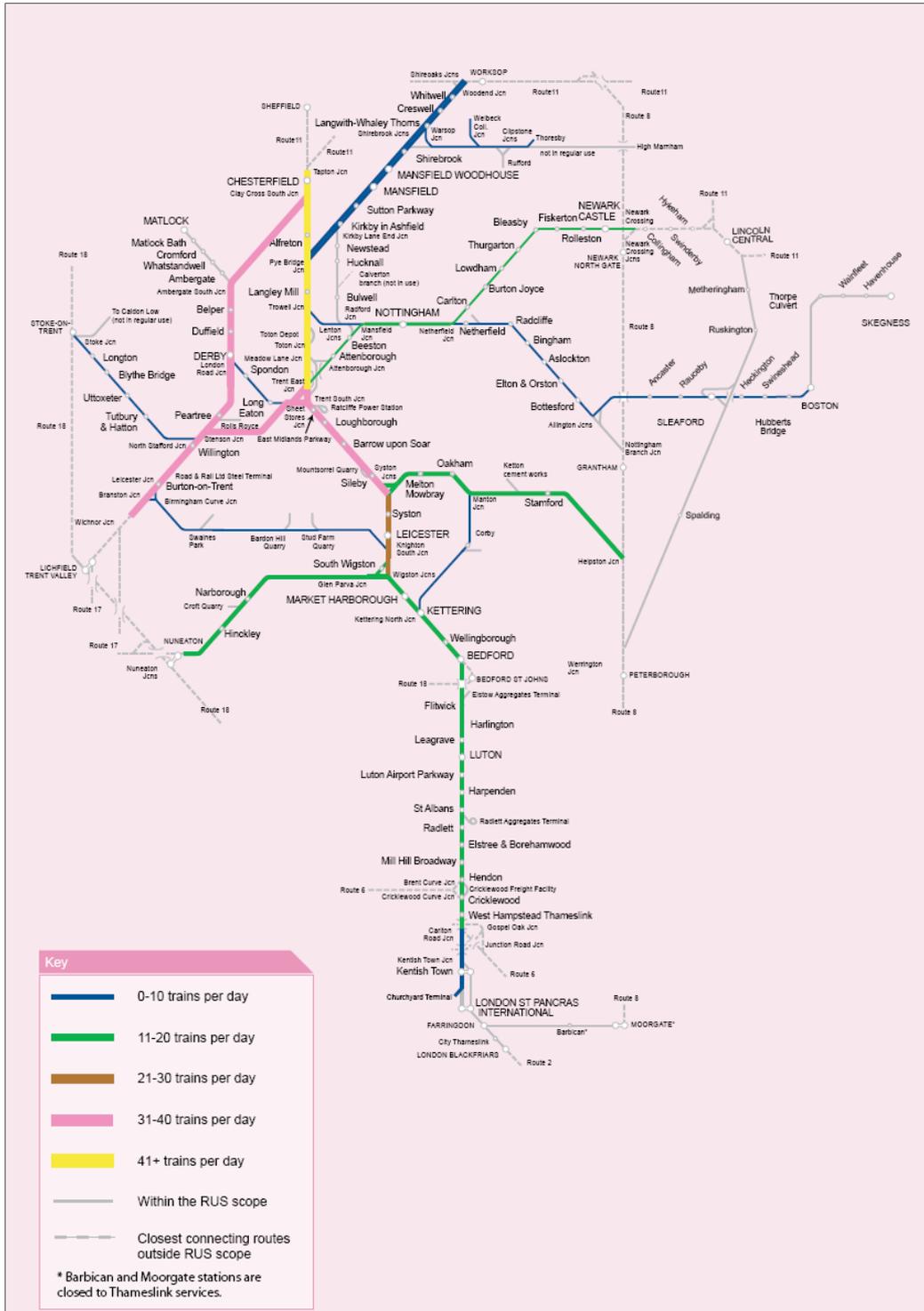
Since the publication of the Freight RUS, the economic recession has caused rail freight volumes to fall in most market sectors – but in the short- to medium-term it seems likely that a recovery will take place. In the case of any sector where volume is unlikely to recover, the analysis below will address this issue. In spite of the inevitable discrepancy between current freight volumes and those of the base year, we believe that the FRUS continues to provide the best view of the future of UK rail freight and its impact on the region's rail network.

Table 4.6 - Forecast rail freight growth

Commodity	Bottom up Forecast 2014/15 mt	Top down forecast 2014/15 mt	Approximate growth over industry 2004/05 base
Coal	50.5	43.1	8% to +9%
Metals	14.6	11.8	+12% to +39%
Ore	5.9	6.0	-3% to -5%
Construction	23.6	31.5	+20% to +45%
Waste	1.8	2.3	-9% to +14%
Petroleum and Chemicals	7.1	7.0	+4% to +5%
Channel Tunnel	6.0	6.5	+200% to +266%
Domestic Intermodal	2.5	6.5	+177% to +838% (from low present base)
Maritime Containers	20.3	18.8	+42% to +83%
Auto	0.5	0.6	25% to +76%
Total	132.8	134.1	+26% to +28%

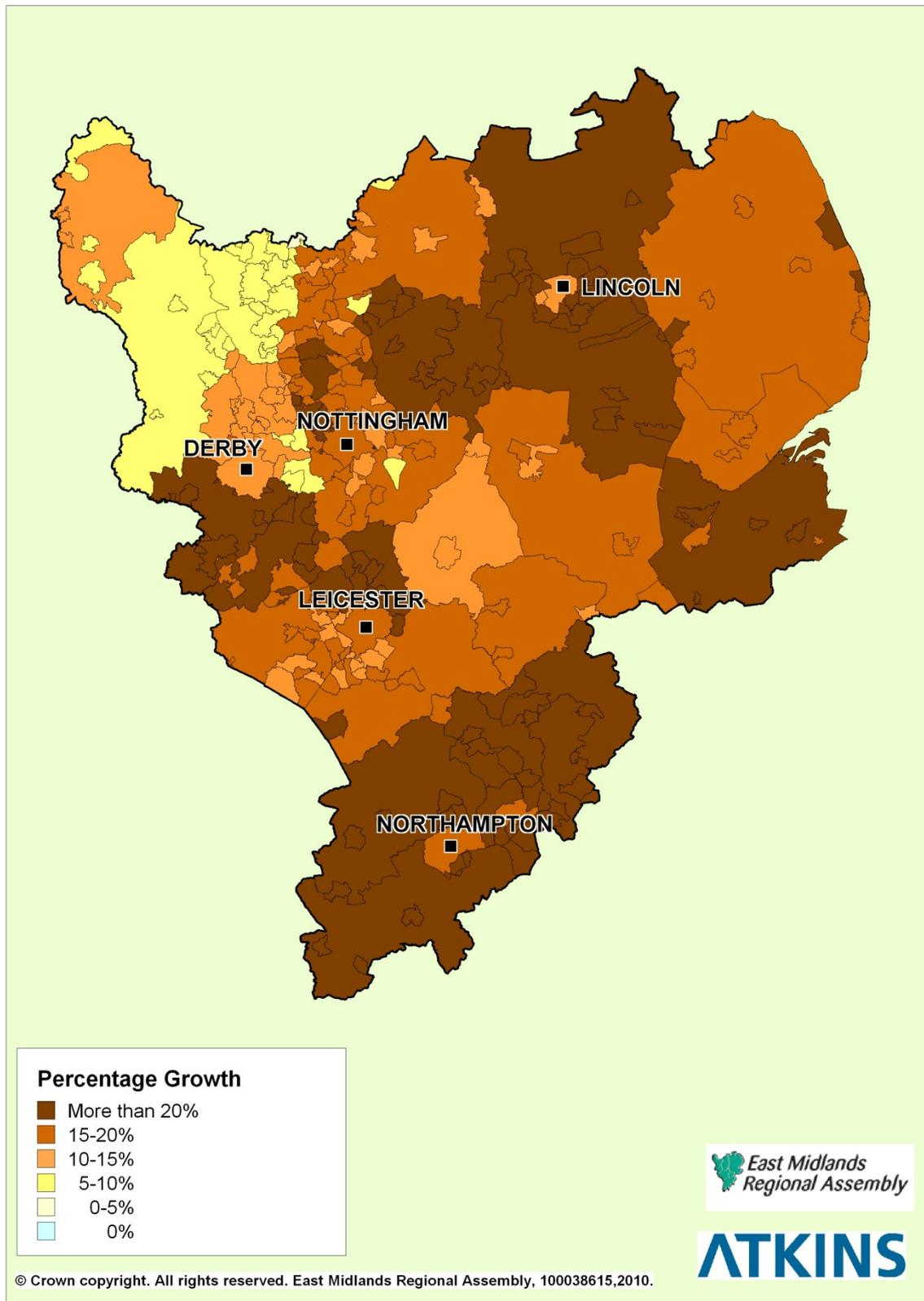
Reproduced from PBA (2010) State of Freight in the East Midlands Table 2

Figure 4.11 - Number of Freight trains on the East Midlands RUS area network³⁷



³⁷ Network Rail, East Midlands RUS, Draft 2009, fig 3.20
 /East Midlands Transport Conditions & Issues 2010 Update FINAL
 - 1 March10.docx

Figure 4.12 - Forecast percentage growth in trips between 2006-2026



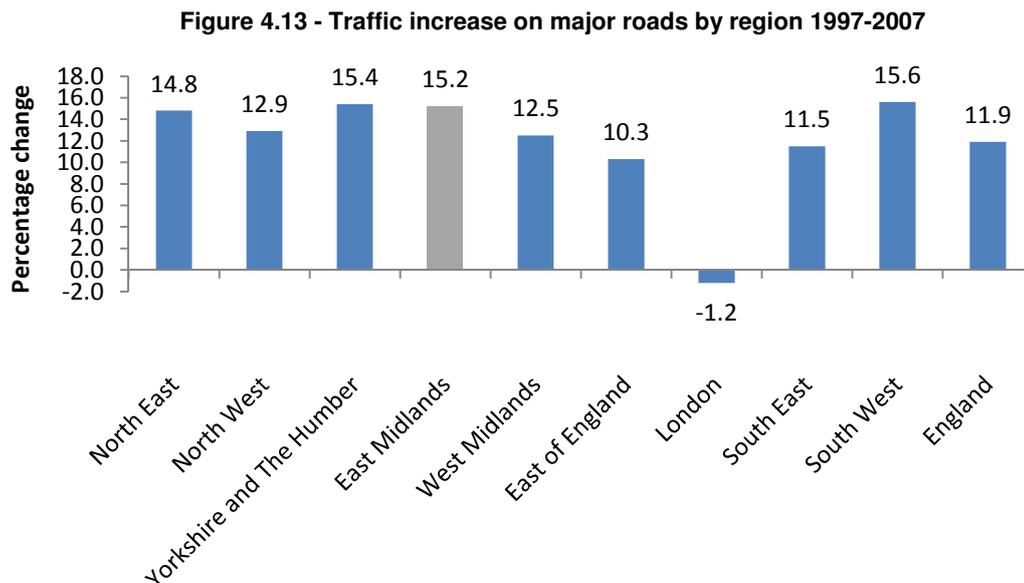
Source: DfT TEMPRO V6.2

4.3.3 Forecast traffic flows and congestion

Introduction

As shown in Figure 4.13, between 1997 and 2007, traffic on major roads grew by 15.2% compared to the English average of 11.9%. This was the third-highest regional growth rate behind the South West and Yorkshire & The Humber.

The additional housing allocations in the Regional Plan, increasing car ownership and development patterns which encourage longer-distance trips, all suggest that traffic levels will continue to grow.



Source: DfT Road Transport Survey, 2008

It should be noted that most of the traffic forecasts presented here are based on 2007 traffic flows. Since 2007, the economic downturn has resulted in a fall in traffic levels although, as shown in Figure 4.1, traffic levels in late 2009 were returning to close to the 2007 levels, therefore the forecast trends are still likely to be similar.

Forecast peak delay forecasts on national road network

The Department for Transport has recently prepared forecasts of delays on the National Road Network using the National Traffic Model (NTM). The National Network, as defined in the recent response to consultation on DaSTS, comprises the most important links between urban areas and international gateways and as such is a subset of the Strategic Road Network. The National Network in the East Midlands comprises:

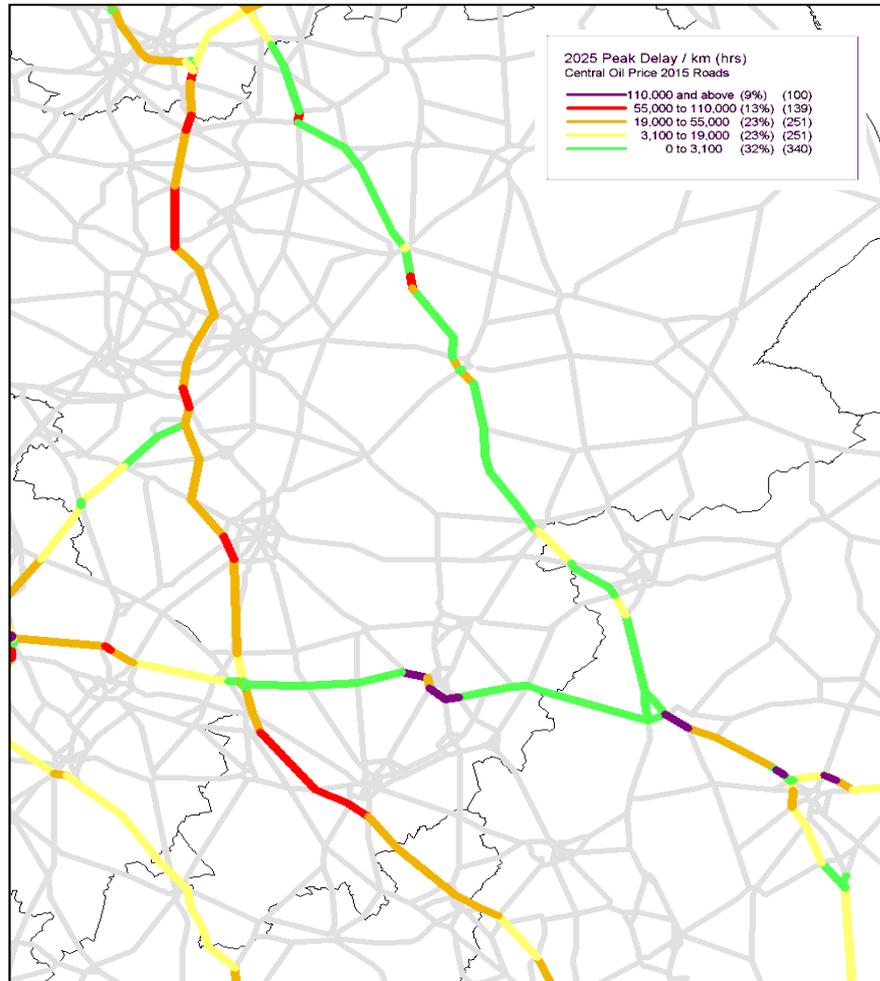
- M1 (Northampton-Chesterfield);
- A1/A1(M) (Stamford-Bawtry);
- A14 (M1-Thrapston); and
- A38 (Coalville-East Midlands Airport/M1).

Forecasts were prepared for 2010 and 2025 under three planning scenarios:

- Do nothing (beyond schemes currently on site) aka '2009 roads';
- 1st tranche road programme aka '2015 roads'; and
- Residual road programme schemes aka '2025 roads'.

The forecasts, as shown in Figure 4.15, show that the worst delays in the region are forecast on the A14 in both directions around Kettering (junctions 4 to 7). By 2025, without additional investment beyond the 1st tranche road programme delays equivalent to the worst 10% of the network in 2010 are forecast additionally on many sections of the M1 (especially around the cities) and on the A1 south of Newark.

Figure 4.14 - Peak delay per km, 2025, 2015 roads

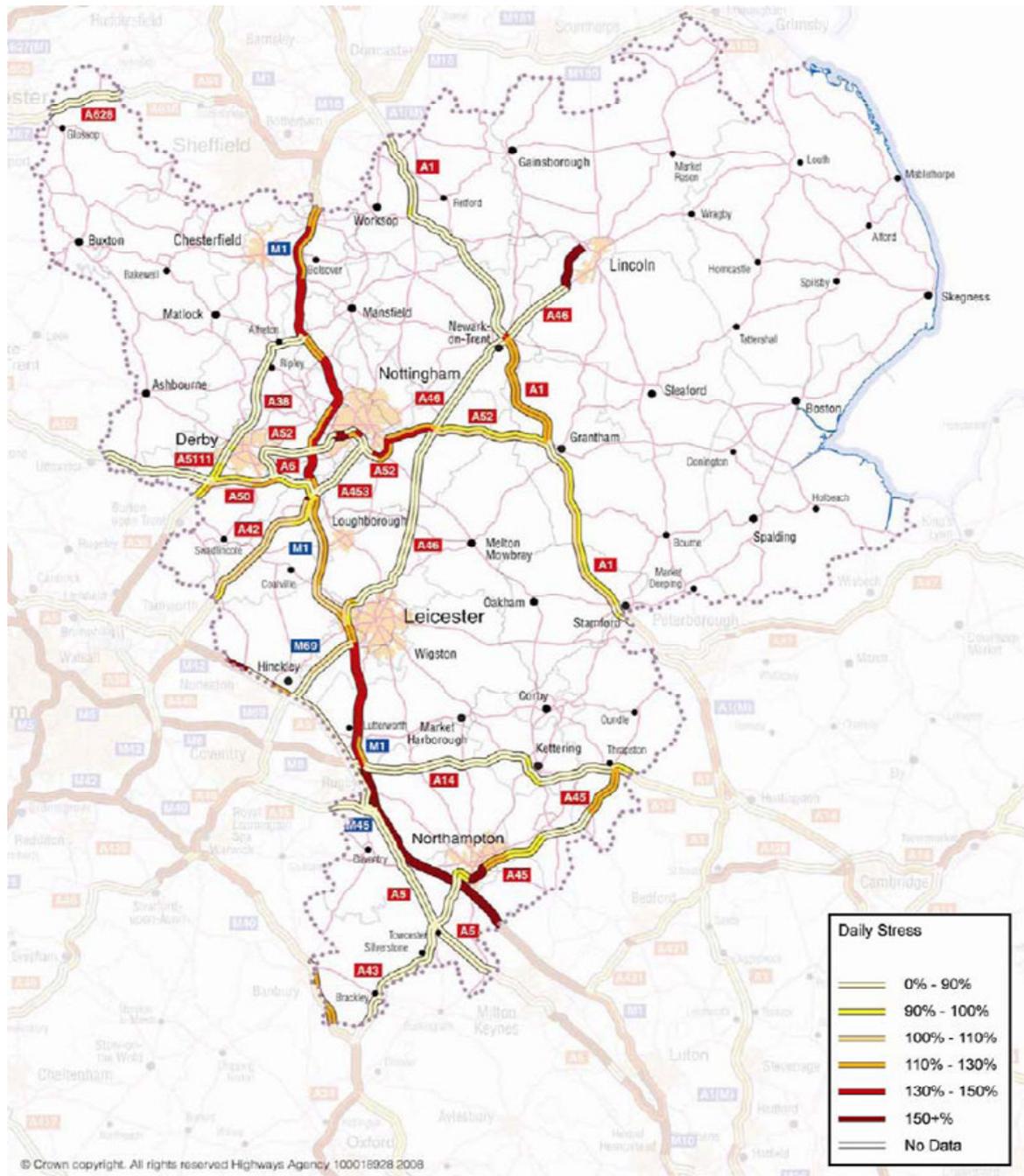


Source: DfT National Networks 'Hotspots Analysis' Presentation 07/05/2009

Highways Agency forecast 'stress' on Strategic Road Network

The Highways Agency has prepared forecasts of stress on the SRN using an in house model which derives growth from TEMPRO but allows for the inclusion of proposed development assumptions and also includes committed road schemes. Forecast stress on the main Highways Agency Road network (the 'Strategic Road Network') is shown in Figure 4.15.

Figure 4.15 - Forecast daily stress 2026



Source: Highways Agency, East Midlands Regional Network Report 2008

From this analysis, the Highways Agency concluded that by 2026, a large number of roads in the region would start to show increased stress, including:

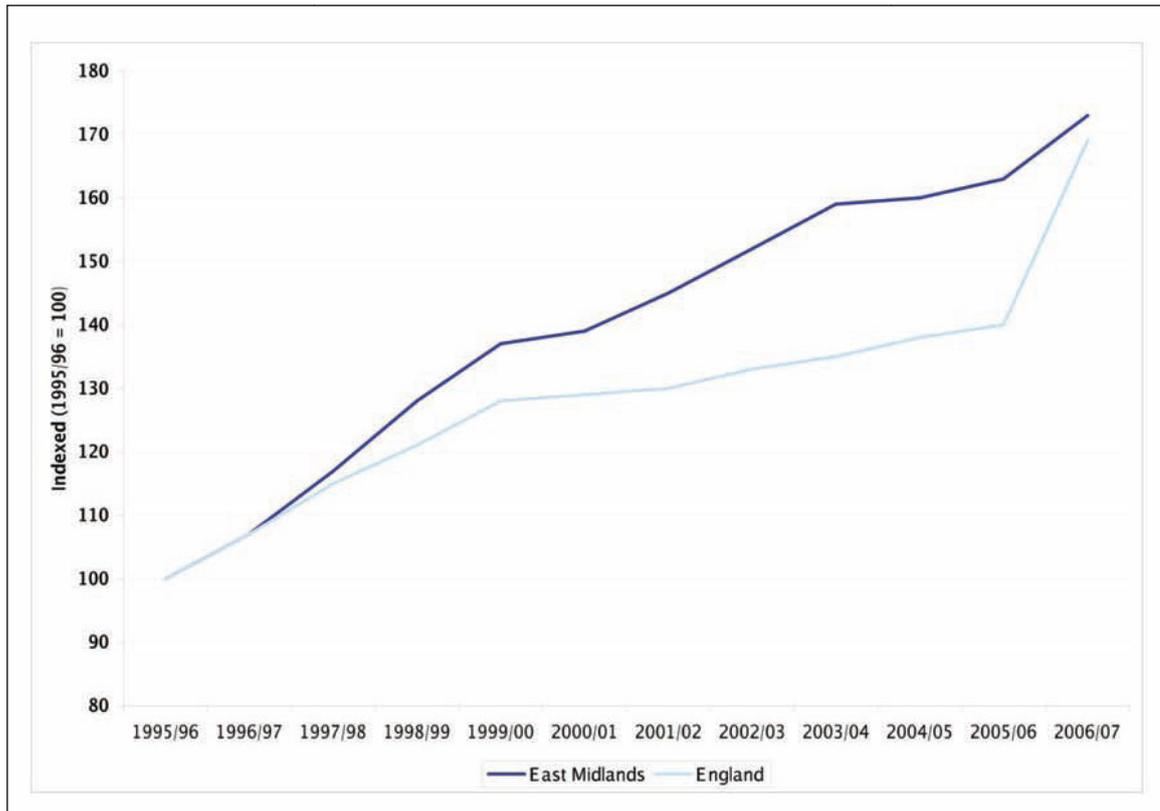
- the M1 between Junctions 19 and 21;
- the M1 between Junctions 24 and 27;
- the M1 between Junctions 28 and 30;
- the A52 at Gamston; and
- the A50 at Derby.

4.3.4 Forecast rail use and crowding

Forecast growth in rail use

Rail patronage in the East Midlands has grown significantly since the mid 1990s. Figure 4.16 shows that patronage grew by over 70% between 1995/96 and 2006/07, above the English average which is strongly weighted towards commuting trips into London.

Figure 4.16 - East Midlands Rail Patronage 1995/6 to 2006/7



Source: EMRA East Midlands State of the Region Report, 2009

Summer 2008 forecasts predicted an average growth of 28% in passenger demand within the East Midlands Route Utilisation Strategy area over the 10 years to 2019, and that flows to/from some destinations may be even higher, as demonstrated by Figure 4.17³⁸. Demand between Nottingham and Birmingham may increase by 40% over the same period, with flows between Derby and Birmingham and between Leicester and Birmingham forecast to increase by similar amounts. Figure 4.18 shows the peak passenger growth in the region, and indicates that patronage to/from Leicester is expected to grow the most; however both Nottingham and Derby are also expected to increase.

The RUS acknowledges that the summer 2008 forecasts, which went somewhat towards accounting for the recession, underestimate the effects of the recession and that, whilst the anticipated growth is still expected, but perhaps a number of years later than reported.

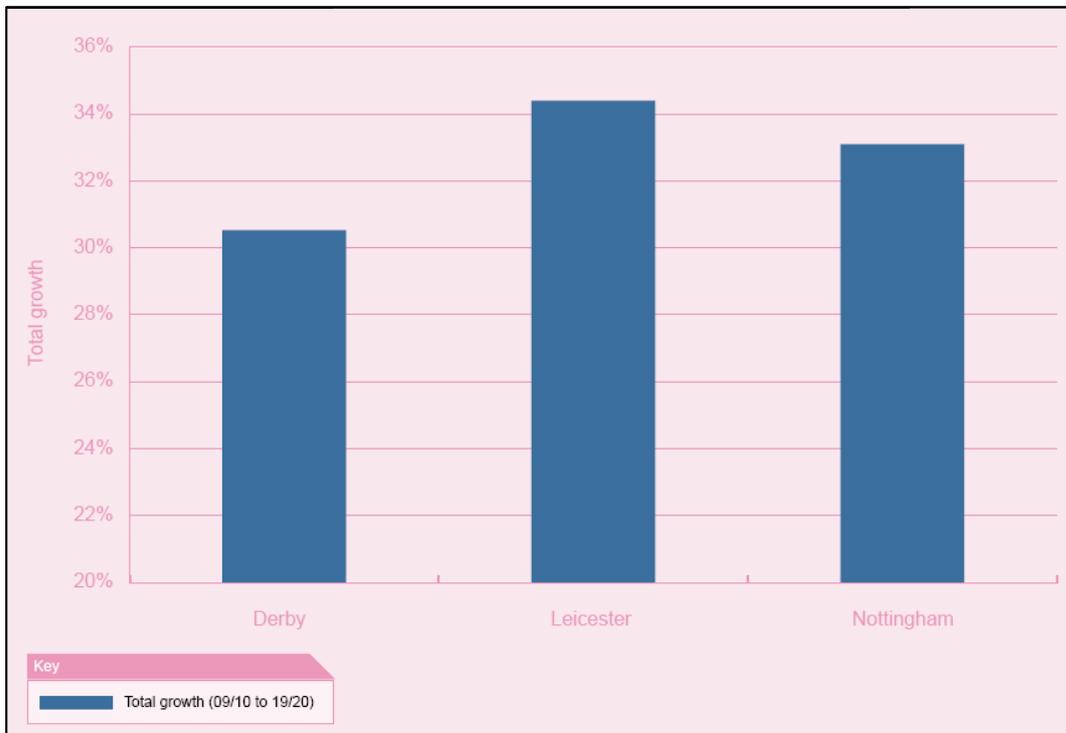
³⁸ Network Rail (2009) East Midlands Route Utilisation Strategy Draft for Consultation /East Midlands Transport Conditions & Issues 2010 Update FINAL
- 1 March10.docx

Figure 4.17 - Forecast passenger growth by key market 2009/10 to 2019/20



Source: Network Rail (2009) East Midlands RUS Draft for Consultation

Figure 4.18 – Forecast peak Passenger growth for all flows excluding London, 2009/10 to 2019/20



Source: Network Rail (2009) East Midlands RUS Draft for Consultation

In addition, the Network RUS has included forecasts of patronage of long-distance rail services in 2036 under a range of planning scenarios. For the Midland corridor, it predicts that total long-distance (>50 miles) trips will rise by between 36% and 77% between 2007 and 2036 depending on the planning scenario. The growth in the corridor is below average other than in the 'decentralisation' scenario where the corridor has the second highest percentage growth of the eight long-distance corridors. Trips between London and Leicester are forecast to increase by 44-75%.

Long-distance trips on the Cross Country corridor via Derby are forecast to grow by between 43% and 95% depending on planning scenario. Long distance movements between Birmingham and Sheffield are forecast to increase by 32%-58% between 2007 and 2036.

Forecast rail crowding

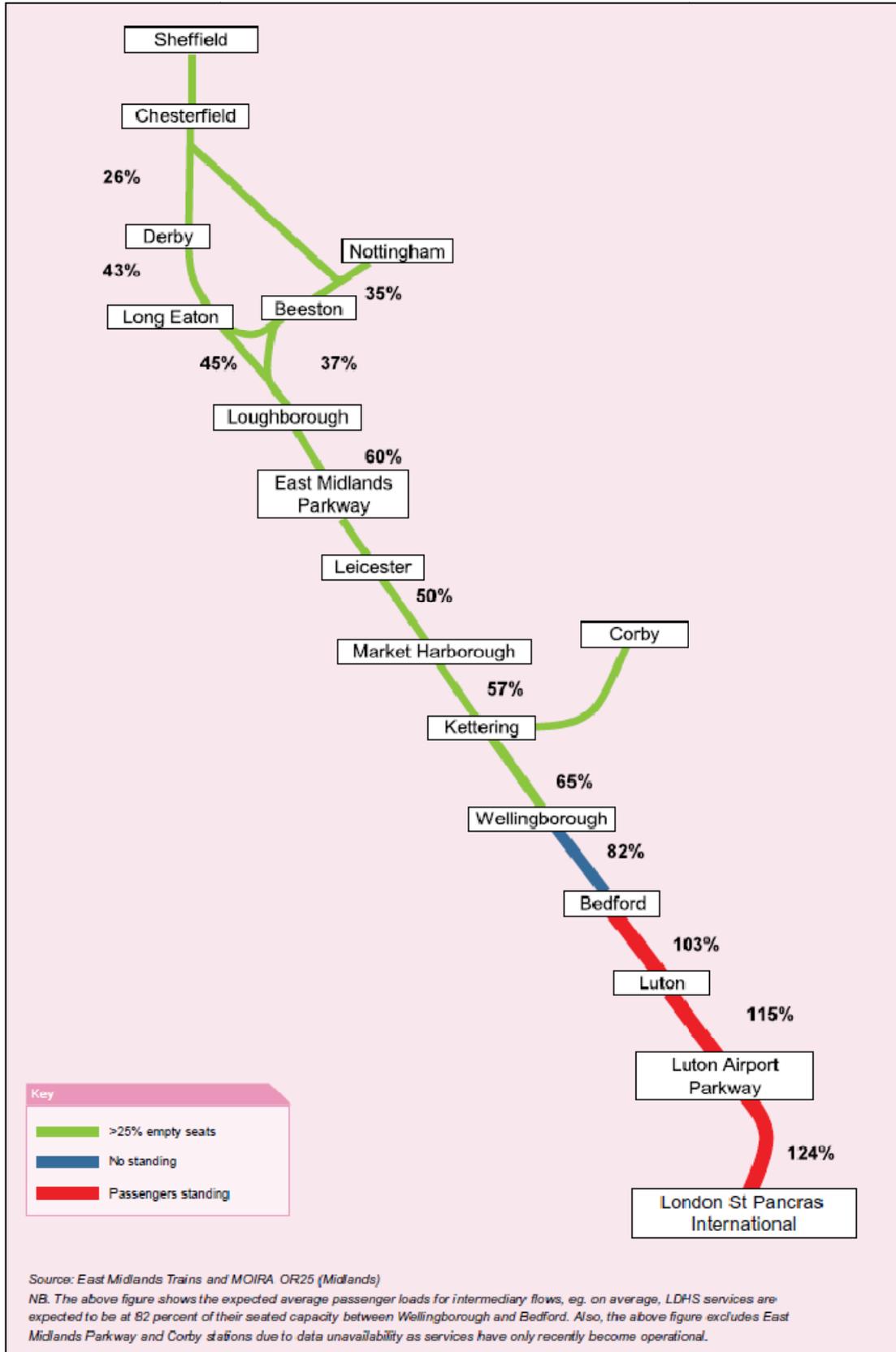
Based on the estimates of growth described above, the RUS predicts a notable increase in the number of trains affected by overcrowding and the levels of overcrowding. In particular, it is noted that the predicted 28% increase in demand for services arriving into St. Pancras in the morning peak between 2009/10 and 2019/20 will mean that standing may be expected from as far north as Bedford and that almost one in four passengers will be standing on arrival into London (based on current capacity) – see Figure 4.11.

Also, that peak period growth at Leicester Derby and Nottingham in excess of 30% over the same period will *"have implications for the ability of the rolling stock and infrastructure to accommodate future passenger numbers for the entire RUS area"* including:

- severe peak crowding on the Leicester – Derby corridor and increasing crowding between Leicester and Birmingham, Stansted Airport and Nottingham by 2019;
- crowding on most corridors from Nottingham in the evening peak (with the exception of the Nottingham-Lincoln corridor);
- severe crowding on many Liverpool-Norwich services between Liverpool and Nottingham by 2019; and
- significantly worsening crowding on Birmingham-Stansted Airport services in both the peak periods around Leicester, Cambridge and Birmingham, and off-peak along the entire route.

A final version of the RUS is due for publication after this report at the end of February 2010 although changes to the baseline data are not anticipated.

Figure 4.11- Forecast average seated load factors (standard class) on trains arriving St. Pancras in the morning peak 3 hours in 2019/20



Source: Network Rail East Midlands RUS Draft for Consultation

4.4 Challenge EM3: Overcoming gaps and weaknesses in the existing transport networks, and maintaining accessibility

4.4.1 Key travel movements and patterns

In 2008, 77% of the East Midlands population travelled to work by car³⁹. The rural nature of the region means that dependency on the car is high and, without alternatives or policy changes, then increases in car ownership and usage will continue.

Patterns of travel to work by mode, distance, origin and destination have been extracted from 2001 Census 2001 data⁴⁰. Commuting patterns in the region are broadly polycentric – focussed on the main urban areas within the region, but are also influenced by major employment areas in other surrounding regions such as Milton Keynes and Peterborough. Figure 4.19 shows the 50 largest journey to work movements in the region.

Commuting patterns are summarised in Table 4.7.

Commuting patterns are summarised in the table below which shows that levels of commuting to the urban areas of the Region are highest with net gains of workplace population in West Northamptonshire, Leicester and Leicestershire, Derby and Nottingham Core.

Table 4.7 - East Midlands Commuting patterns by HMA

Housing market area	Total number of people employed within HMA (000s)	% of regional work-force	Total number of residents of employable age in HMA (000s)	% of regional work-force	Net change in HMA workplace population (000s)
Central Lincolnshire	107	6%	107	6%	0
Coastal Lincolnshire	70	4%	72	4%	-2
Derby	176	10%	173	10%	+3
Leicester & Leicestershire	395	23%	385	22%	+9
North Northamptonshire	116	7%	124	7%	-8
Northern (Sheffield/Rotherham)	129	7%	135	8%	-6
Nottingham Core	309	18%	300	17%	+8
Nottingham Outer	117	7%	132	8%	-15
Peak Dales and Park	58	3%	57	3%	+1
Peterborough Partial	93	5%	93	5%	0
West Northamptonshire	152	9%	142	8%	+10
East Midlands total	1,721		1,721		

Source: 2001 Census Commuting Data, Office for National Statistics

Numbers may not add due to rounding

³⁹ Regional Transport Statistics 2008 Edition – National Statistics and Department for Transport.

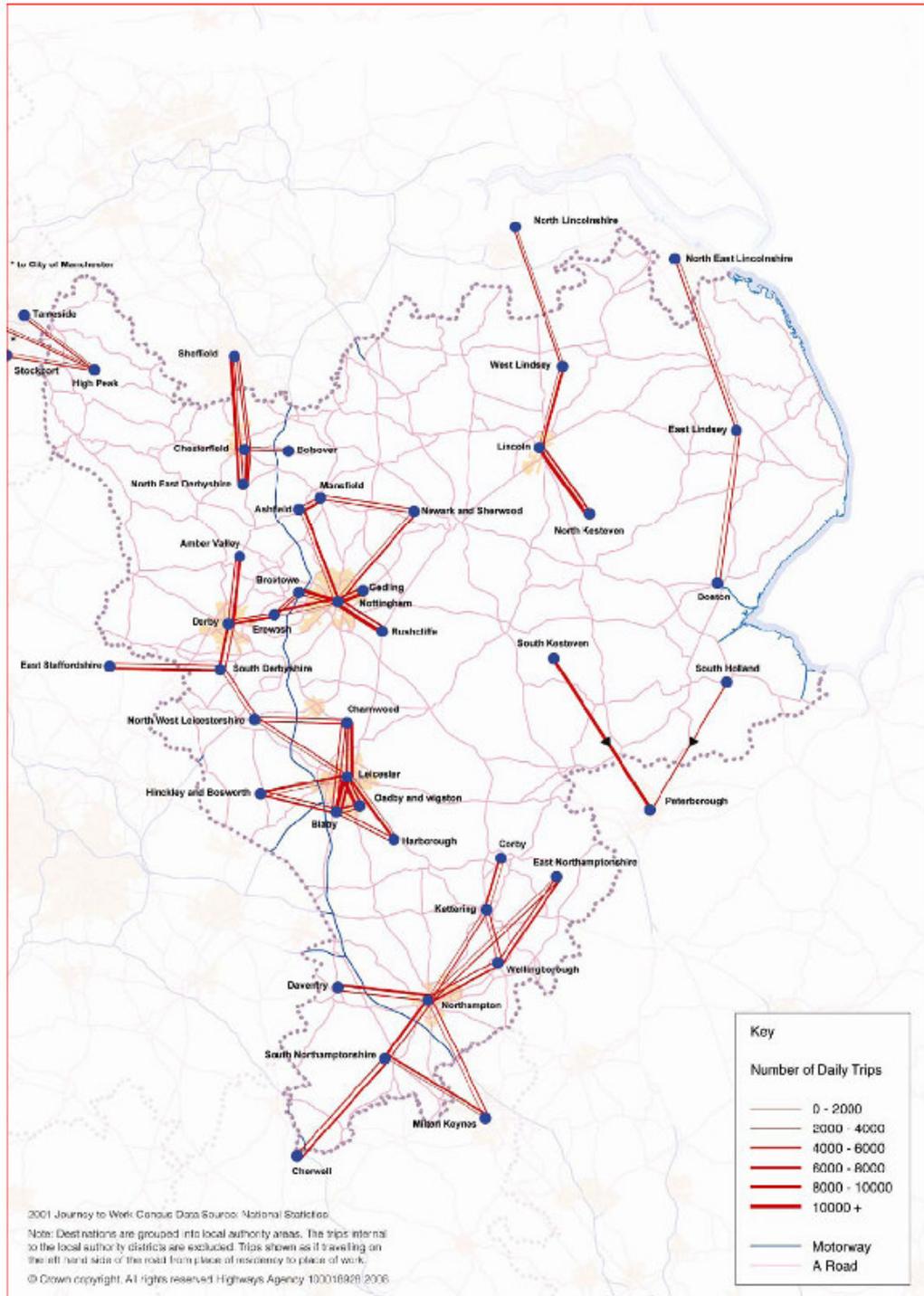
⁴⁰ Analysis has relied on 2001 Census Data. This data is now relatively old, and where there has been significant growth in areas such as the Milton Keynes South Midlands Sub-Area changes especially may not fully reflect current travel patterns. This is however the most up to date information available on travel to work patterns and provides a good indication of the travel patterns in the Region.

There is also however a net gain of employees commuting to the Peak Dales and Park area which is possibly a consequence of the large numbers of hospitality and seasonal employment jobs that are taken up by people living outside of the area.

The highest levels of commuting out of HMA areas are from Nottingham Outer and North Northamptonshire due to their proximity to urban centres such as Nottingham, Northampton and Peterborough.

For information on modal share of journeys, see section 4.6.3.

Figure 4.19 - Top 50 two way journey to work movements, 2001



Source: Highways Agency Regional Network Report for East Midlands, 2008.

4.4.2 Accessibility

Good access to employment and education opportunities and to services, such as healthcare, leisure services and retail, raises social mobility and reduces social exclusion. The DfT prepares a series of Core Accessibility Indicators to measure access to a number of key services at an Output Area level.

There are some question marks over the robustness of the national Core Accessibility Indicators. However, they offer the only current way of comparing public transport accessibility to employment and services on a consistent basis across the UK. Analysis of the data on access by public transport at a district level identifies the following districts as having particular accessibility issues:

- access to employment: Harborough, Daventry;
- access to a GP surgery: South Northamptonshire, Rushcliffe, Chesterfield;
- access to a hospital: South Derbyshire, NE Derbyshire, North Kesteven, High Peak, South Holland, West Lindsey, South Northamptonshire, Newark & Sherwood (see Figure 4.20);
- access to a primary school: Rutland UA, East Northamptonshire, North Kesteven;
- access to a secondary school: Daventry, South Northamptonshire, Rutland UA, South Holland, Derbyshire Dales, Northampton, North Kesteven, Melton;
- access to further education: Rutland UA, Daventry, South Holland, Harborough, South Northamptonshire, East Lindsey, Melton (see Figure 4.21); and
- access to a supermarket: Rutland UA, Melton, Daventry.

The more rural eastern and western parts of the region tend to have poorer access to employment and services which tend to be located in the larger urban areas.

Table 4.8 shows the proportion of East Midlands households that have access to a bus stop with hourly, half-hourly and ten minute service frequencies in the morning peak⁴¹. The table shows that only 14% of the region's residents live within a reasonable walk of a bus service with a morning peak service frequency of 10 minutes or better (i.e. six buses per hour per direction). Half the population live within walking distance of a half-hourly or better service whilst two-thirds live within walking distance of an hourly or better service. The remaining third either are within walking distance of a less frequent service, or are not within walking distance of any bus service.

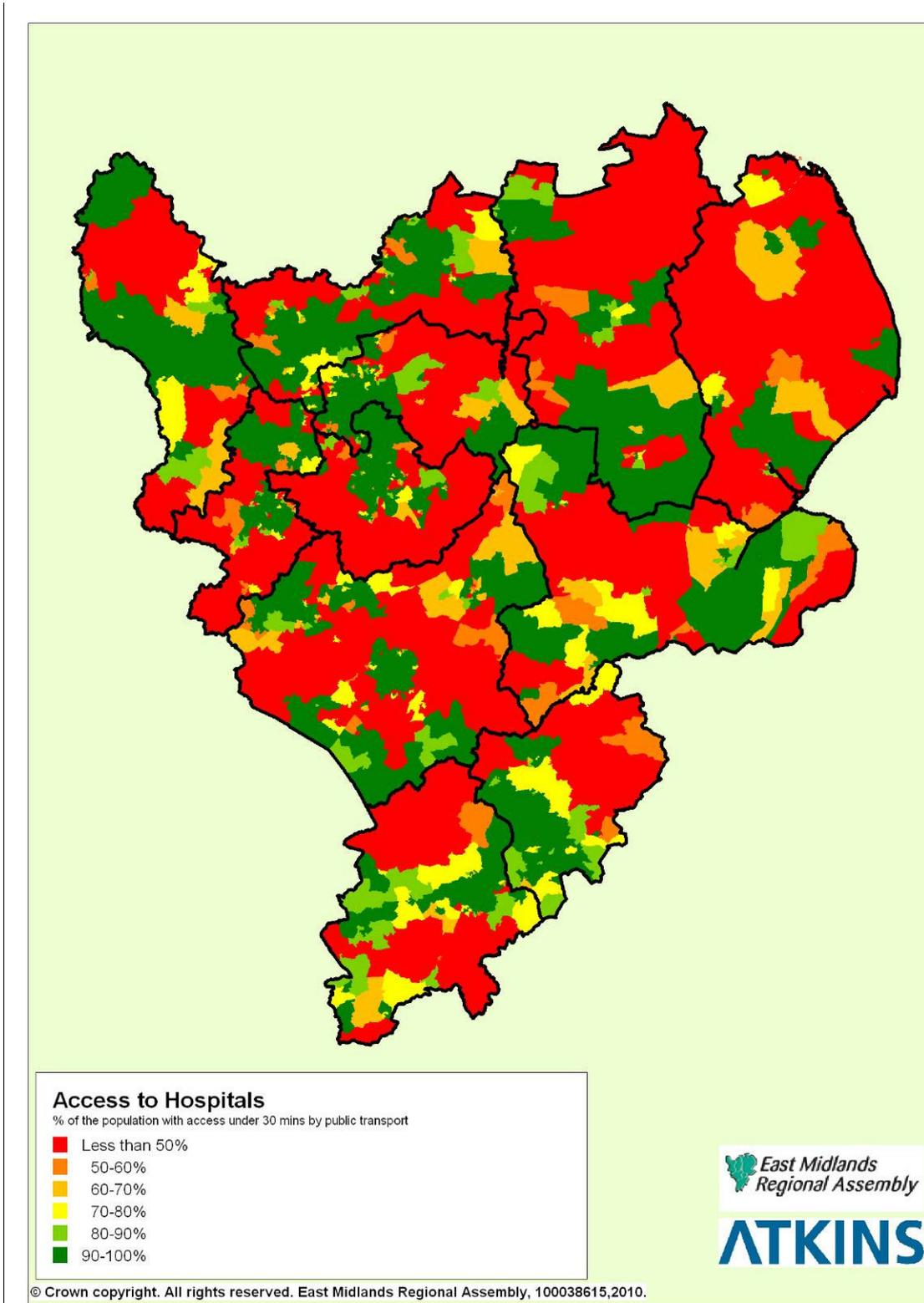
Table 4.8 - Proportion of East Midlands households within 250m walk of a bus stop

Morning peak period bus service frequency of at least	% of East Midlands Households
Six buses per hour (10 minute frequency)	14%
Two buses per hour (30 minute frequency)	50%
One bus per hour (60 minute frequency)	66%

Figure 4.22 shows the geographic pattern of access to bus services, albeit using a more disaggregated set of service frequencies. There is clearly a large disparity between accessibility to bus services in the main urban centres and the most rural parts of the region, especially the Peterborough Partial HMA.

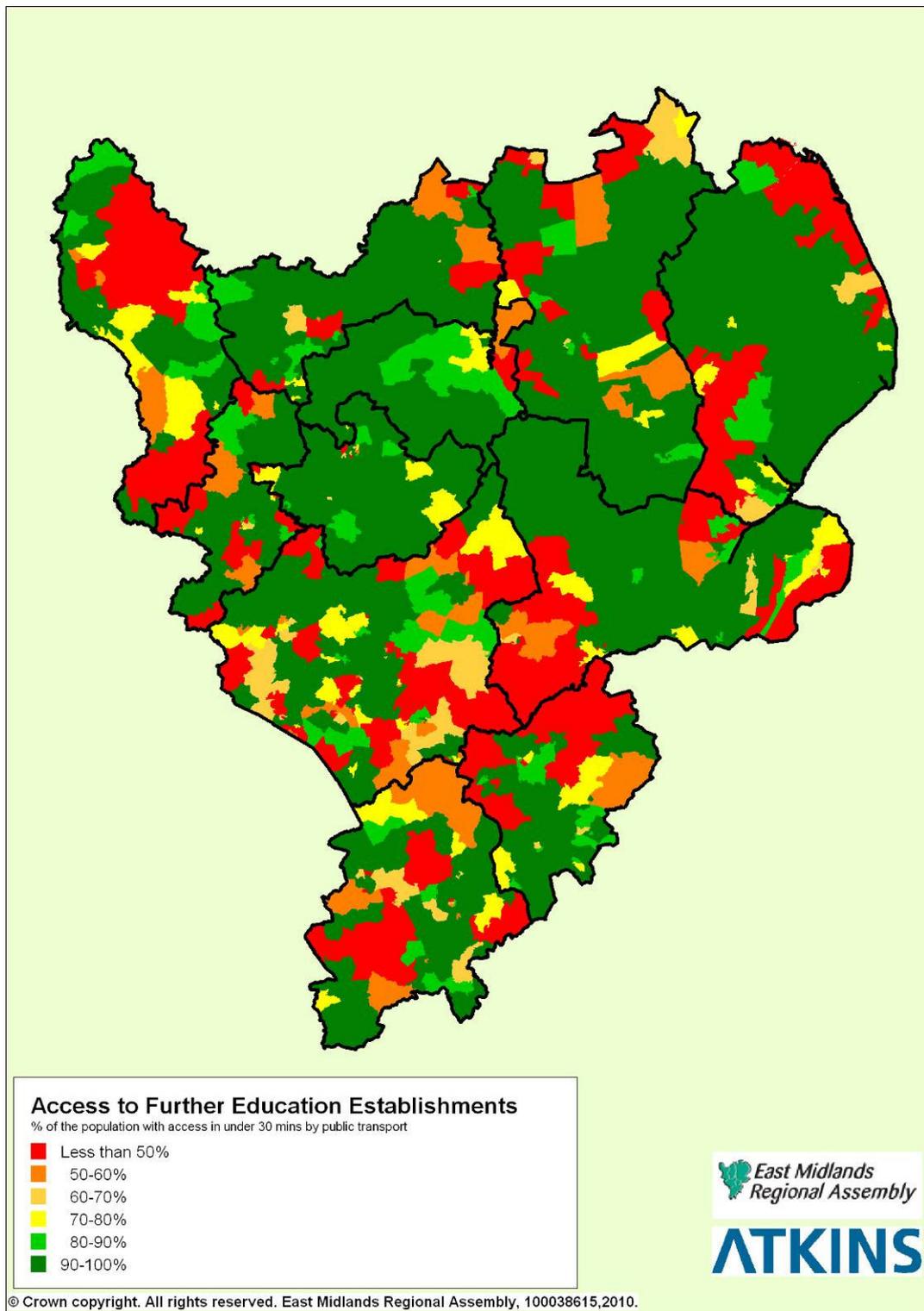
⁴¹ 06:00 to 09:00
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- 1 March10.docx

Figure 4.20 - Access to hospital by public transport



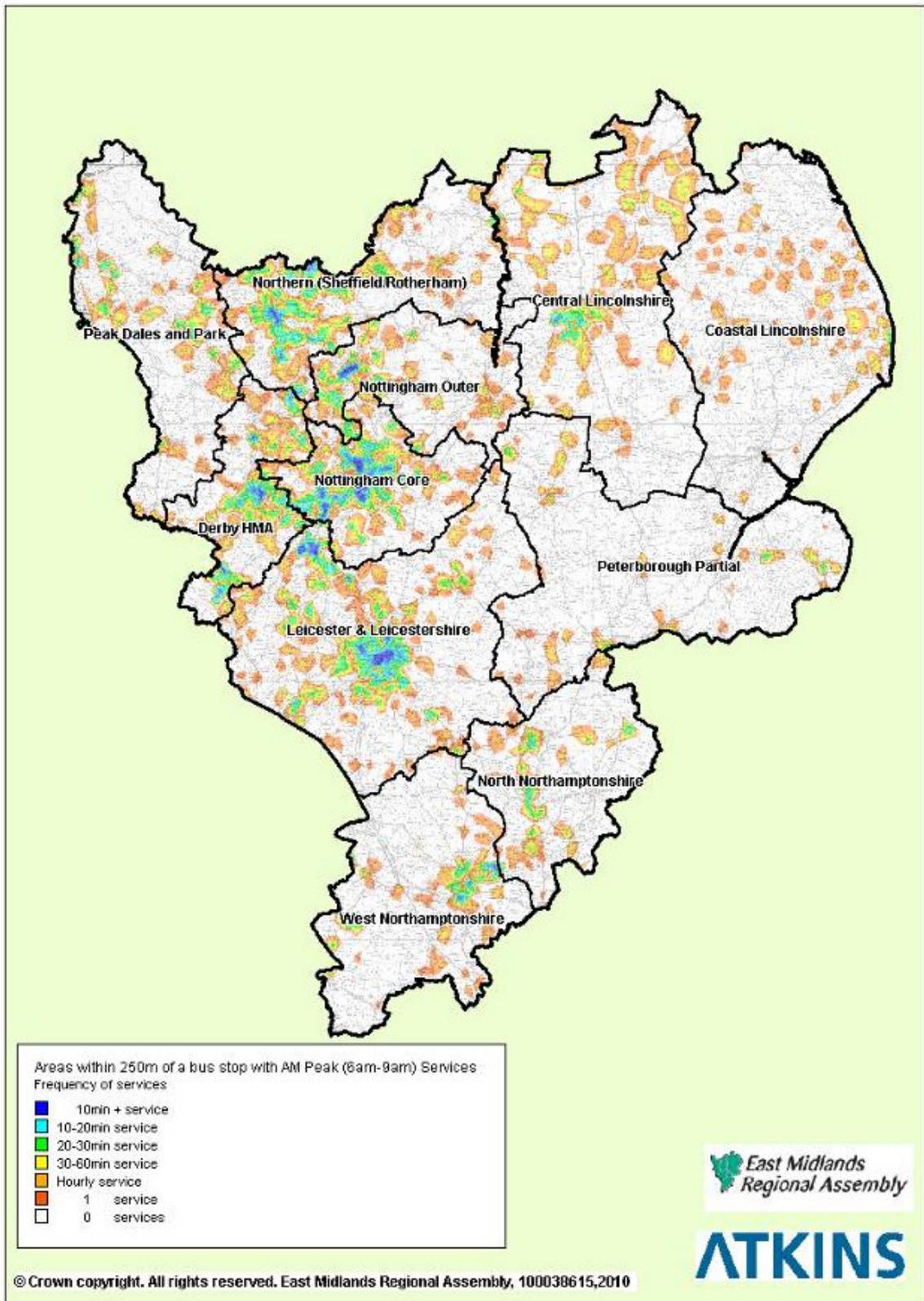
Source: National Core Accessibility Indicators, 2007 (all households)

Figure 4.21 - Access to further education by public transport



Source: National Core Accessibility Indicators, 2007 (all households)

Figure 4.22 - Access to a bus service within 250 metres (by morning peak service frequency)



Source: NAPLAN 2009

4.4.3 Gaps in network provision

The schemes included in the RFA Programme (see Table 3.1) give an indication of the most significant gaps in the regional transport networks.

Similarly, the Highways Agency's national roads programme and Network Rail's Control Period 4 programme of enhancements indicate where investment is most needed to remove bottlenecks or provide additional capacity.

Gaps in the network have a particular impact on economic efficiency (as they may result in longer journeys and journey times), access to jobs, training and services, and on local residents (due to the negative impacts of inappropriate levels or types of traffic). The ongoing regional and national DaSTS studies, due to report in late 2010 to spring 2011, are considering the most appropriate approaches to overcoming the priority challenges identified by the region, including those relating to economic growth, quality of life and equality of opportunity, as well as tackling climate change and safety. In accordance with Eddington's recommendations, they will be seeking to focus constrained capital investment on those particular pinch points or gaps in the network which, once overcome, can release benefits to the widest range of users and non-users of the transport networks.

4.5 Challenge EM4: Minimising the effects of non-recurrent delays on the transport networks

4.5.1 Introduction

Non-recurrent delays on the road and rail networks can have significant adverse impacts on businesses and individuals due to disruption to journeys such as increased travel time, diversionary routes and cancellations.

Non-recurrent delays are considered to be those which occur randomly, and hence are difficult to predict. They can be caused, for example by accidents, security incidents and vandalism; or extreme climatic conditions. The purpose of identifying and understanding non-recurrent delays is to enable planning of suitable responses from the relevant authorities.

There is limited information about the patterns of non-recurrent delays but what is currently available is presented below.

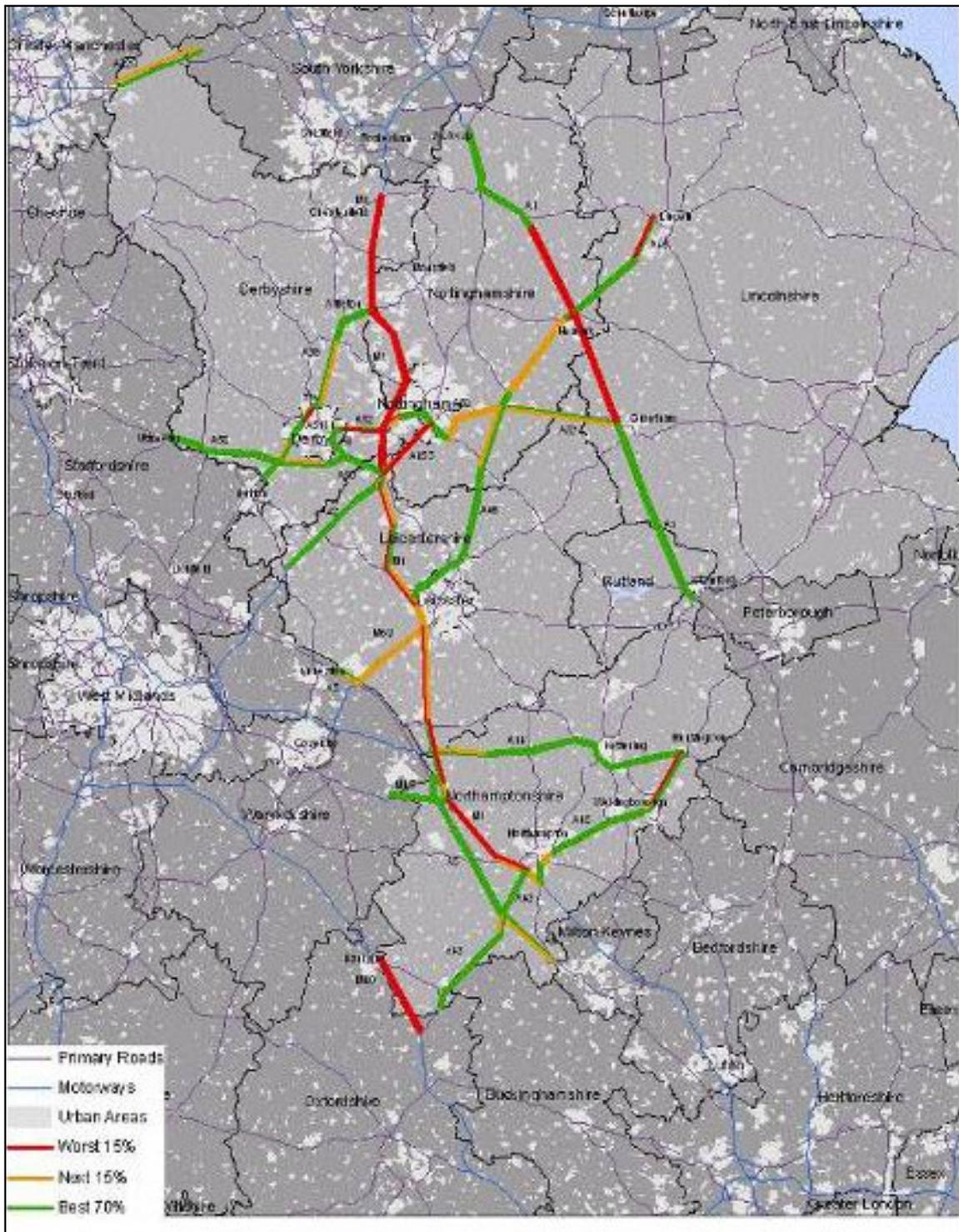
4.5.2 Non-recurrent delays on the highway network

Data (from 2005) presented in Figure 4.23 identifies the locations of non-recurrent delays on the SRN. The most common cause of these delays is accidents. There are particular problems with the M1 north of Loughborough, the A1 around Newark and the A46 Lincoln Western Bypass. All three sections of highway commonly operate at or close to capacity, meaning that small incidents can cause significant disruption. Implementation of Managed Motorway measures on the M1 should ameliorate this issue (see section 3.5 for further information).

4.5.3 Non-recurrent delays on the rail network

See section 4.2.2 (rail punctuality).

Figure 4.23 - Non-recurrent delays on the Strategic Road Network in 2005



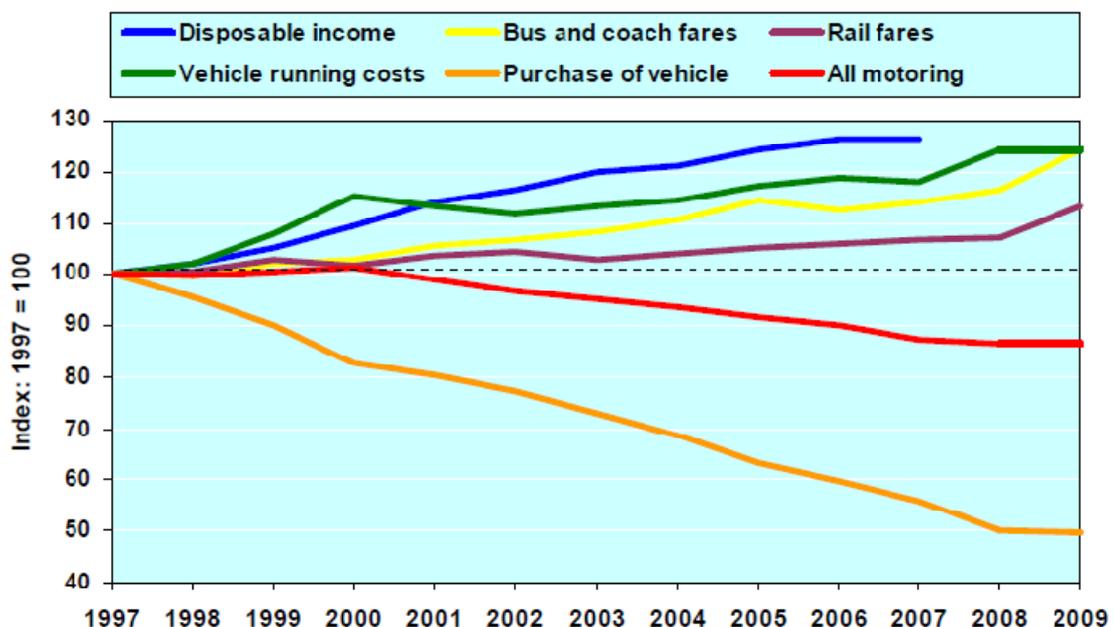
Reproduced from Highways Agency (2005) *Regional Network Report for the East Midlands* Figure 2.5

4.6 Challenge EM5: Overcoming the lack of awareness of (benefits of) sustainable travel options and inertia of individuals and businesses to change behaviour

4.6.1 Overall cost of travel

Figure 4.24 shows the changes in the real cost of transport compared to income between 1997 and 2009. The growth in car travel and car ownership shown throughout this section can be shown to be accompanied by the reduction in vehicle running costs compared to a rise in bus and rail fares in real terms. According to Figure 4.24, the average disposable income increased by more than a quarter in real terms, and therefore transport by any mode has become more affordable, with car transport increasing in affordability more than that of public transport. The cost of travel is key in trying to encourage people to travel on public transport rather than in an individual car, and the relative change in cost of transport shown below does not help to support sustainable travel modes.

Figure 4.24 - Changes in the relative cost of transport 1997-2009



Source: DfT Transport Trends 2009 edition, Figure 2.6a

4.6.2 Car ownership

Data on car ownership was collected as part of the 2001 Census although more recent ONS data shows a further increase in car ownership levels since 2001. In addition a number of city centre areas have experienced regeneration meaning that areas of low car ownership in 2001 now have potentially higher levels of car ownership due to the changing socio-economic status of some inner city areas across the country, including cities such as Nottingham. However, the 2001 Census data remains the most accurate and complete dataset available on car ownership.

Car ownership is increasing as the relative cost of owning a car has decreased in comparison to increasing public transport costs and planning policies have led to developments which are only accessible by private car. Car ownership by HMA is shown in Table 4.9 and Figure 4.25.

Table 4.9 - Average cars/vans per household (% of households)

Housing market area	Cars/vans per household					Average cars/vans
	0	1	2	3	3+	
Central Lincolnshire	22%	47%	25%	4.5%	1.3%	1.2
Coastal Lincolnshire	20%	50%	24%	4.8%	1.6%	1.2
Derby	26%	45%	24%	4.3%	1.2%	1.1
Leicester & Leicestershire	24%	44%	26%	4.9%	1.4%	1.2
North Northamptonshire	22%	44%	28%	5.2%	1.6%	1.2
Northern	26%	44%	24%	4.5%	1.3%	1.1
Nottingham Core	21%	46%	27%	4.6%	1.3%	1.2
Nottingham Outer	26%	45%	23%	4.0%	1.2%	1.1
Peak Dales and Park	20%	44%	29%	5.8%	1.8%	1.3
Peterborough Partial	33%	43%	19%	3.5%	1.1%	1.0
West Northamptonshire	20%	42%	31%	6.2%	1.9%	1.3
East Midlands	24%	44%	25%	4.7%	1.2%	1.2
England	27%	44%	24%	4.5%	1.4%	1.1

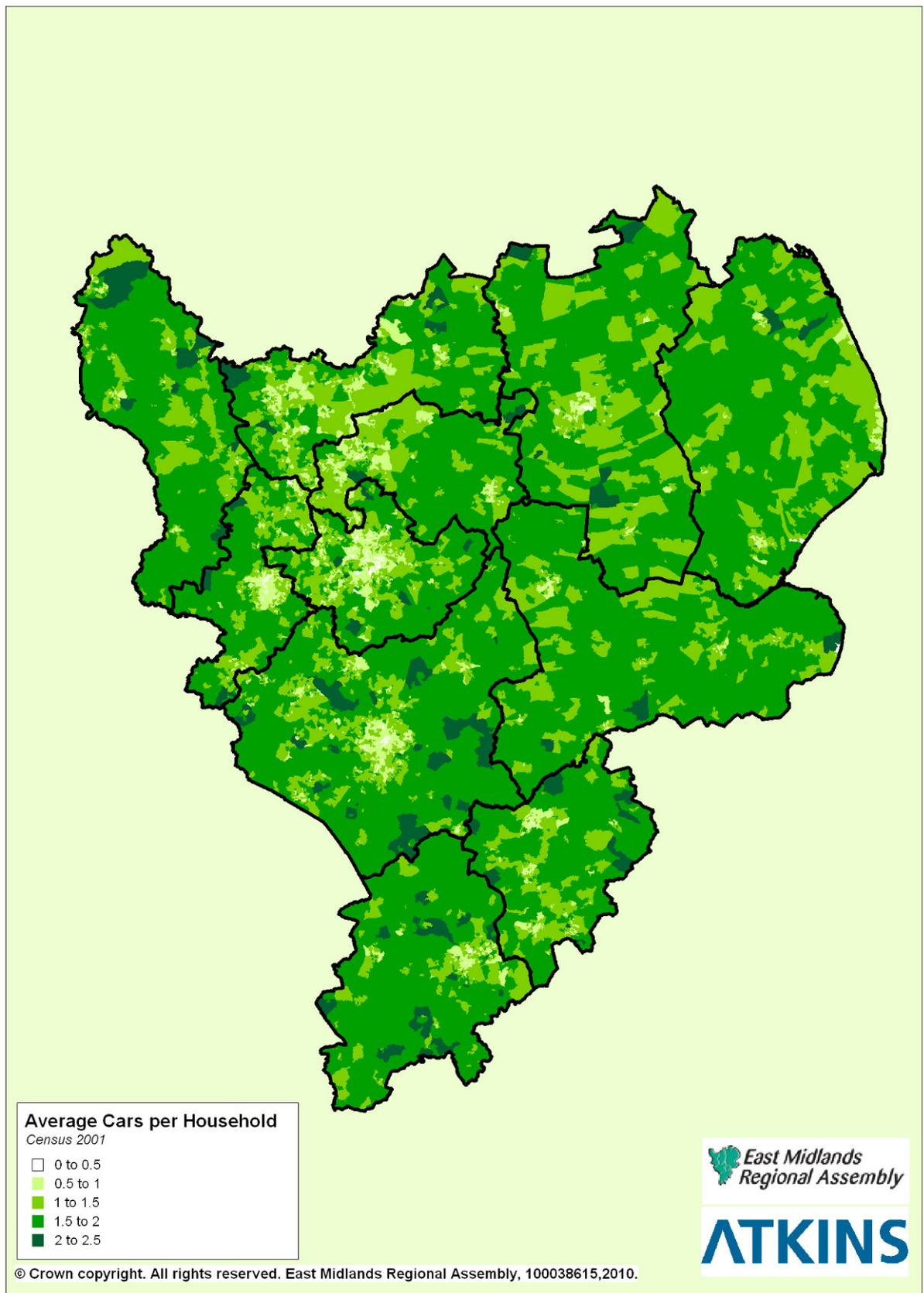
Source: 2001 Census

The data shows that the lowest rates of car ownership are within the densely urban areas where public transport services are more frequent and available and deprivation is often higher, although there are also pockets of rural deprivation (see section 1.3.2). The exception to this is Peterborough Partial, which is largely rural in nature but has the highest proportion of no-car households in the region. Overall, car ownership in the region is above the English average.

In 2007, 81% of households in the East Midlands owned at least one car compared to 76% in 2001⁴². This increase has implications for further traffic growth and fuel consumption levels and the potential to exacerbate the accessibility problems of non-car households in rural areas due to the reduced demand for alternative transport services. West Northamptonshire in particular has significantly higher proportions of two, three and four car households and if this trend continues will add to the pressures of traffic flow on the HMA's road network.

⁴² Regional Transport Statistics (DfT 2009) Live tables, Table 1.15
/East Midlands Transport Conditions & Issues 2010 Update FINAL
- 1 March10.docx

Figure 4.25 - Average number of cars per household



Source: 2001 Census

4.6.3 Modal share of journeys

All journeys

National Travel Survey statistics show that the average car mode share (driver and passenger) for all journeys during 2007-2008 in the East Midlands was 69%⁴³. This compares to 67.1% for England outside London and is lower than in the West Midlands and East of England, and very similar to the South East and South West.

Commuting

In the last 3 months of 2008, 77% of commuters in the East Midlands travelled to work by car, compared to 70% across Great Britain and second only to the West Midlands⁴⁴. Walking is the next most popular mode, at 11% in the region, which is equal to the national average. In the East Midlands, 5% travelled to work by bus, with only 1% travelling to work by train, which is well below the national average of 15% of people using public transport to travel to work.

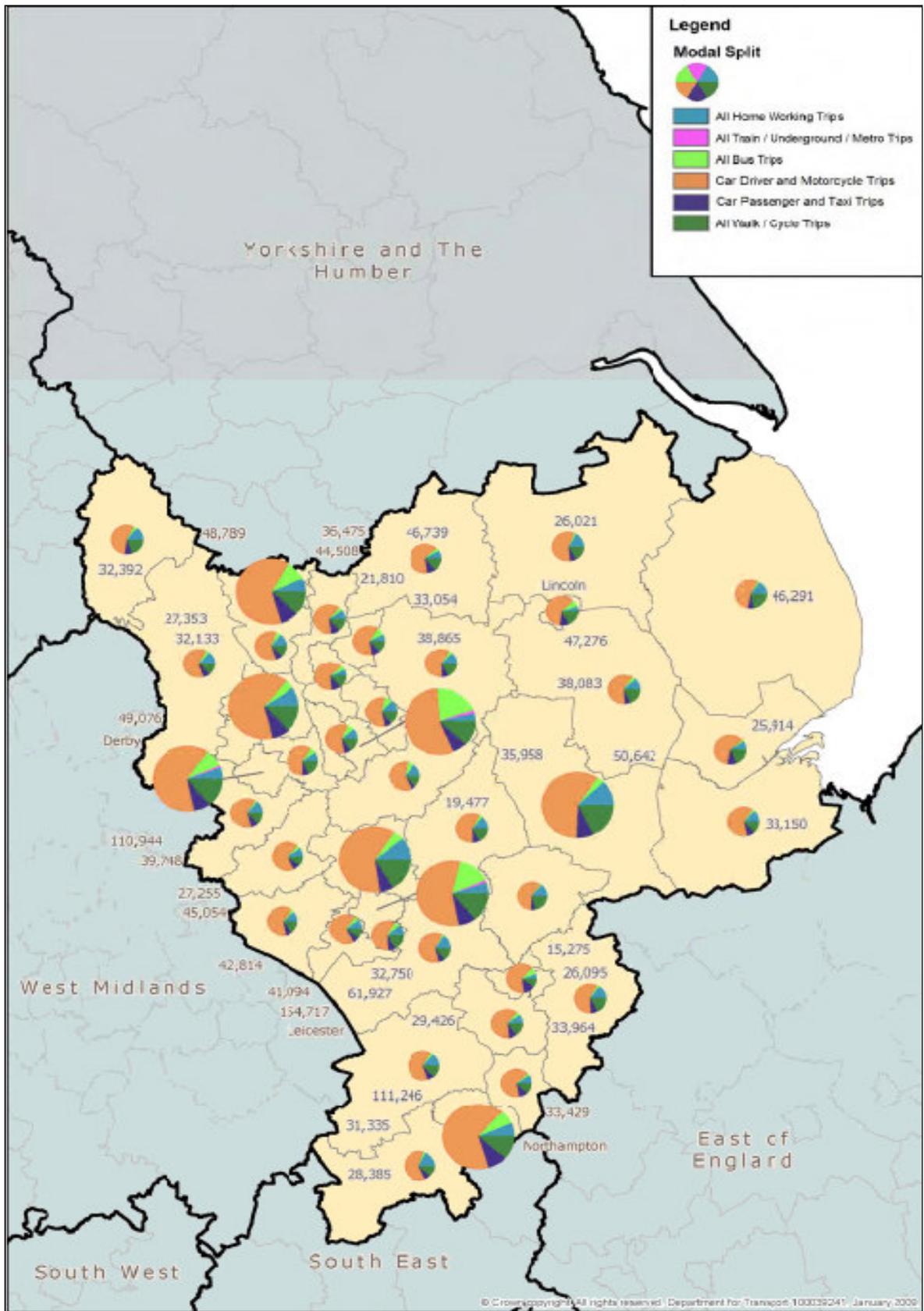
Figure 4.26 shows the mode share for journey to work trips by district, based on 2001 Census data⁴⁵. Car use for commuting trips is generally highest in more rural areas (the top three districts being 83% in NW Leicestershire, 81% South Northamptonshire, 81% Blaby); and lowest in the urban areas (63% in Nottingham, 66% in Leicester and 70% in Lincoln being the lowest three districts).

⁴³ *The Regional Transport Statistics (Live Tables)*

⁴⁴ *The Regional Transport Statistics (Live Tables)*

⁴⁵ *DfT DaSTS City and Regional Network Data Book 2009, Map A4.4*
/East Midlands Transport Conditions & Issues 2010 Update FINAL

Figure 4.26 - Mode share for journeys to work terminating in each district in 2001



Source: 2001 Census

4.6.4 Behavioural change measures

Behavioural change measures, or smarter choices measures, are a range of interventions intended to support sustainable travel by reducing dependency on the car. These types of measure have been used to assist transport policy for many years, but have more recently been termed 'Smarter Choices' by the DfT⁴⁶. The report provides examples of how local authorities and partners can contribute to a reduction in congestion, promote social inclusiveness, accessibility and well being, and enhance local air quality. Behavioural change or smarter choices measures include:

- travel plans - school, workplace, residential, event and tourism;
- personalised travel planning;
- public transport information and marketing;
- travel awareness campaigns;
- car sharing and car clubs;
- tele-working and tele-conferencing;
- home shopping; and
- cycling and walking promotion.

It is however difficult to show evidence of a direct link between the introduction of smarter choice measures and changes in travel habits.

The 2004 DfT report examines the impacts of behavioural change measures on reducing traffic levels. It estimated that the implementation of high quality behavioural change measures such as travel plans, marketing campaigns and personalised journey planning can reduce traffic flows by up to 10%⁴⁷. Although a number of successful measures have been implemented across the Region especially within Nottingham, further measures could help to stem the rapidly increasing growth in traffic.

The findings of the research suggest that a targeted approach to introducing behavioural change measures is more effective than a blanket approach⁴⁸. However current research is limited on how to define target groups of travellers in order to most effectively ensure modal shift.

An example of a targeted sustainable transport marketing campaign by Merseyside 'TravelWise' uses a segmentation approach based on a number of demographic characteristics. This identifying those likely to be more susceptible to behavioural change measures as having the following characteristics:

- being aged 25-44;
- travelling under five kilometres to work;
- educated to degree or A-level;
- employed full-time; and
- living in an urban area.

Another factor when looking at potential target areas for behavioural change was considered to be close proximity to a high frequency public transport network and those that do not travel through inner city urban areas.

⁴⁶ See 'Smarter Choices - Changing The Way We Travel' (2004)

⁴⁷ Smarter Choices – Changing the Way We Travel, DfT 2004

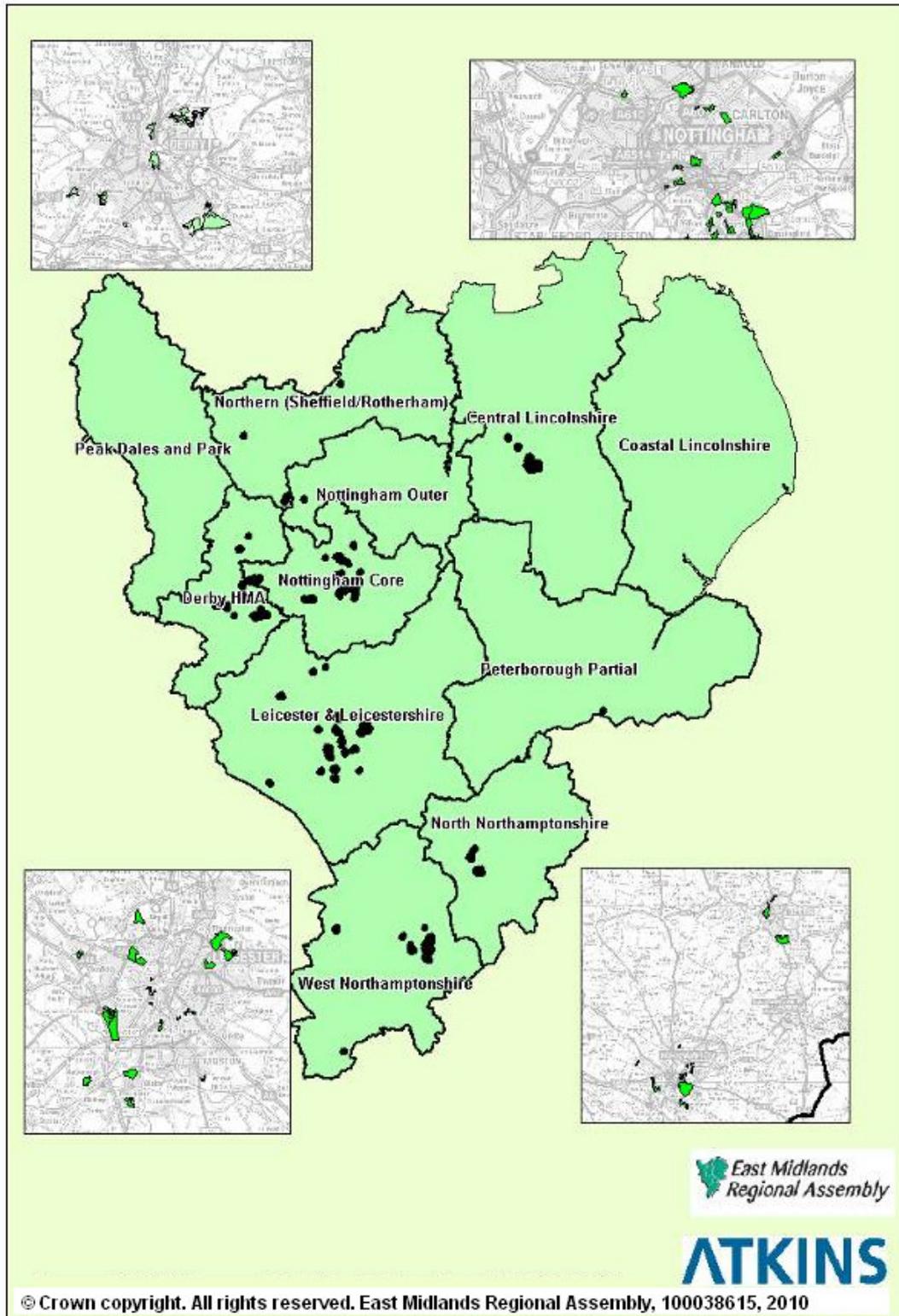
⁴⁸ A review of public attitudes to climate change and transport, DfT, 2006

/East Midlands Transport Conditions & Issues 2010 Update FINAL

- 1 March10.docx

These characteristics have been used to produce a map (see Figure 4.27) showing the main areas within the East Midlands with high concentrations of people who are potentially susceptible to changing travel behaviour, and as such potential target audience for smarter choice campaigns in the Region. The main locations identified were in the urban areas of Derby, Nottingham, Leicester, Loughborough, Lincoln and Northampton.

Figure 4.27 - Locations with most potential for behavioural change



4.7 Challenge EM6: Identifying measures to reduce further the number of deaths and injury accidents, particularly on roads

4.7.1 Road accidents

There is a rich seam of evidence on the number, user mode and severity of road accidents based on data collected by the police and local authorities. The police data also includes an indication of the factors contributing to each accident. In 2007 there were just over 19,000 road accident casualties in the region of which 2,550 (13%) were killed or seriously injured.⁴⁹ Overall, road accidents have been declining in the East Midlands, as they have nationally – total casualties fell by 21% between 1997 and 2007 and deaths and serious injuries by 37% (compared to an English average of 34% and the third-highest reduction of all the regions).

At 60.45 people per 100,000 resident population, the number of people killed or seriously injured on the region's roads is significantly above the national average of 54.3 and higher than all other English regions other than the East of England⁵⁰. The pattern shows that rates are typically higher in more rural counties (and regions) due to the lower population and higher speed limits. The number and rate of people killed or seriously injured are shown in Table 4.10. This shows that, although Leicester and Leicestershire have the second highest number of KSIs, it has the lowest rate. Peak Dales and Park HMA has a low number of KSIs, but the highest rate.

Table 4.10 - People killed or seriously injured per annum per 100,000 residents (2005-2007)

HMA	KSIs (number)	KSI per 100,000 population	Rank (1= highest rate)
Central Lincolnshire	166	60.59	8
Coastal Lincolnshire	127	64.77	6
Derby	233	52.67	10
Leicester & Leicestershire	374	40.82	11
North Northamptonshire	210	70.39	4
Northern (Sheffield/Rotherham)	248	64.80	5
Nottingham Core	437	60.38	9
Nottingham Outer	246	75.65	2
Peak Dales and Park	162	100.72	1
Peterborough Partial	152	61.44	7
West Northamptonshire	261	72.26	3
East Midlands	2,616	60.45	-
England	27,389	54.27	-

Source: East Midlands Public Health Observatory Health Profile 2009

⁴⁹ DfT (2008) *Regional Transport Statistics* 2008 Edition Tables 6.1 and 6.2

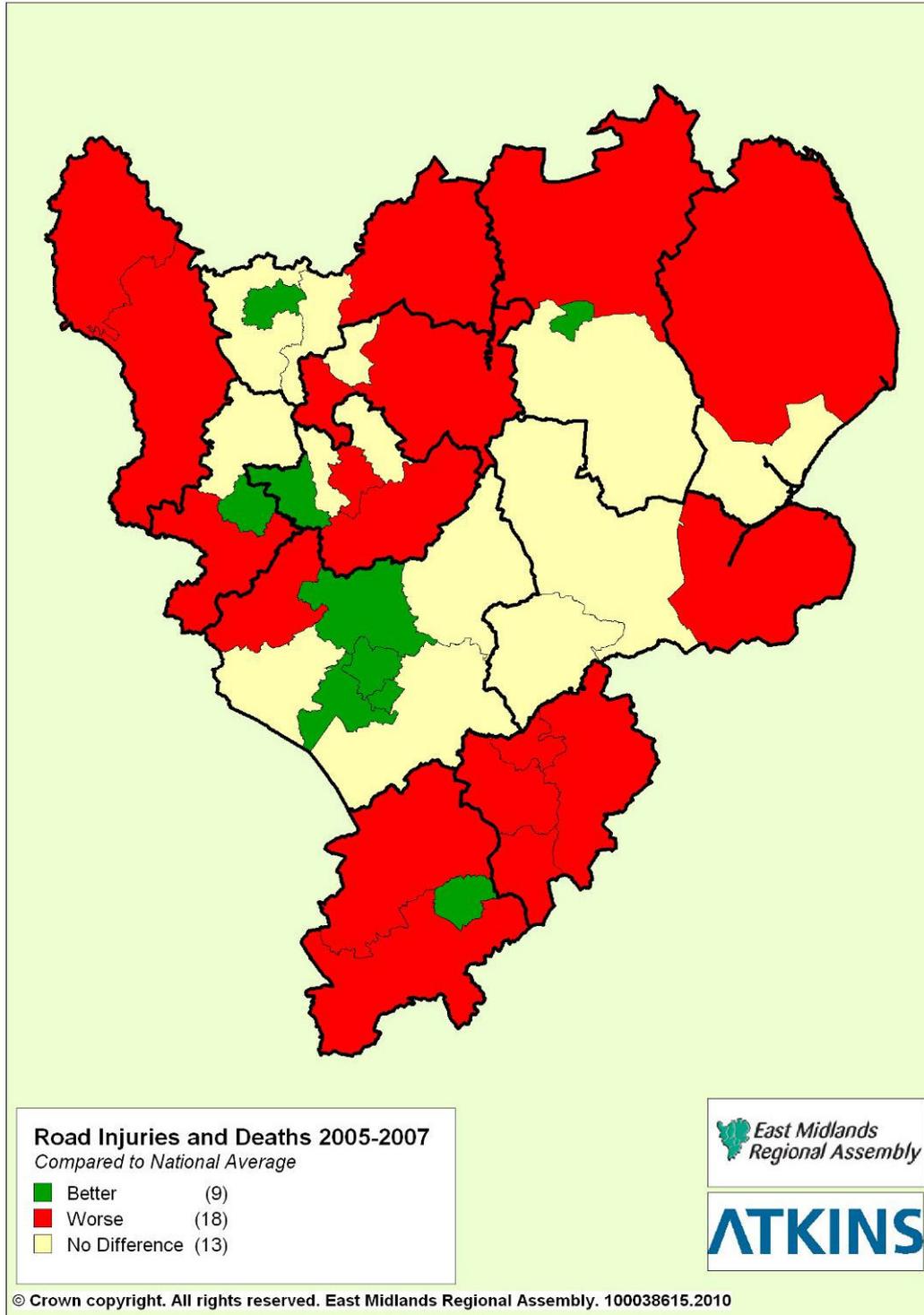
⁵⁰ East Midlands Public Health Observatory Health Profile 2009 (based on accident data for 2005 to 2007)

/East Midlands Transport Conditions & Issues 2010 Update FINAL

- 1 March10.docx

Figure 4.28 shows the number of KSIs in relation to the national average for each HMA. This reinforces the picture of lower rates per capita in the urban areas, such as Derby, Chesterfield, Lincoln, Leicester, Loughborough and Northampton, and higher rates in rural areas.

Figure 4.28 - KSI rate compared to national average (2005-2007)



Source: East Midlands Public Health Observatory District Health Profile 2009

Table 4.11 shows the severity of accidents by HMA. It shows that, not only are there more KSIs per capita in the rural areas, but that the proportion of injuries which are serious or fatal is also highest in rural areas. In particular Lincolnshire, Northamptonshire and Peak Dales and Park HMAs suffer high rates. Individual issues for each HMA are considered where relevant in the HMA section of this report.

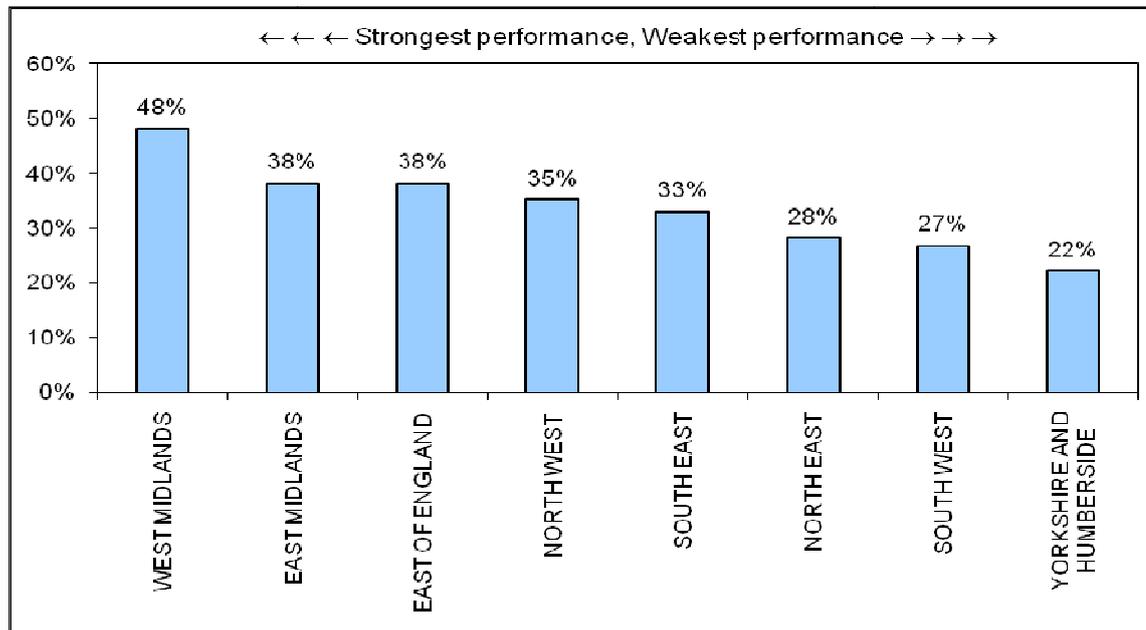
Table 4.11 - Severity of accidents by HMA (2003-2007)

HMA	Severity of Accident		
	Slight	Serious	Fatal
Central Lincolnshire	87%	10.9%	2.5%
Coastal Lincolnshire	86%	11.6%	2.3%
Derby HMA	85%	13.4%	1.2%
Leicester & Leicestershire	90%	8.6%	1.7%
North Northamptonshire	79%	18.8%	2.4%
Northern (Sheffield/Rotherham)	84%	14.2%	1.5%
Nottingham Core	82%	16.5%	1.4%
Nottingham Outer	81%	17.5%	1.9%
Peak Dales and Park	78%	19.5%	2.7%
Peterborough Partial	84%	12.9%	3.1%
West Northamptonshire	80%	17.5%	2.1%
East Midlands	85%	13.6%	1.9%

Source: Local Authority STATS19 data

Figure 4.29 shows that the East Midlands has been the 2nd strongest performing region in terms of reducing the number of killed and seriously injured casualties in accidents. When the average number of KSIs between 1994 and 1998 are compared to the average number of KSIs between 2006 and 2008, the East Midlands has achieved a 38% reduction.

Figure 4.29 - % Reduction in the number of Killed and Seriously Injured Casualties (1994-1998 and 2006-2008) 3 year average



Source: "DfT Road Casualty Statistics 2004 (www.dft.gov.uk) for 1994-98 data; National Indicator 47 data for data covering 2001-2003 to 2006-2008, as provided by DfT).

EuroRAP road classification

The PRN the East Midlands (motorways, other trunk roads and other main roads which have more than local importance) has been classified under the European Road Assessment Programme (EuroRAP). The classification is based on a formulaic assessment of the physical nature of each section of road, historic accident rates and traffic levels.

Figure 4.30 illustrates the risk categories on roads in the East Midlands. The assessment, from 2006 shows that there are few 'high risk' routes in the region, the A5012 between Friden and Cromford in the Peak District National Park being an exception. There are several sections of medium-high risk routes including:

- the A6075 between Ollerton and the A1;
- the A608 between Langley Mill and Newstead;
- the A427 between Corby and Ashton; and
- the A5189 between the A14 and Northampton.

Figure 4.30 - EuroRAP risk rating of primary road network 2006



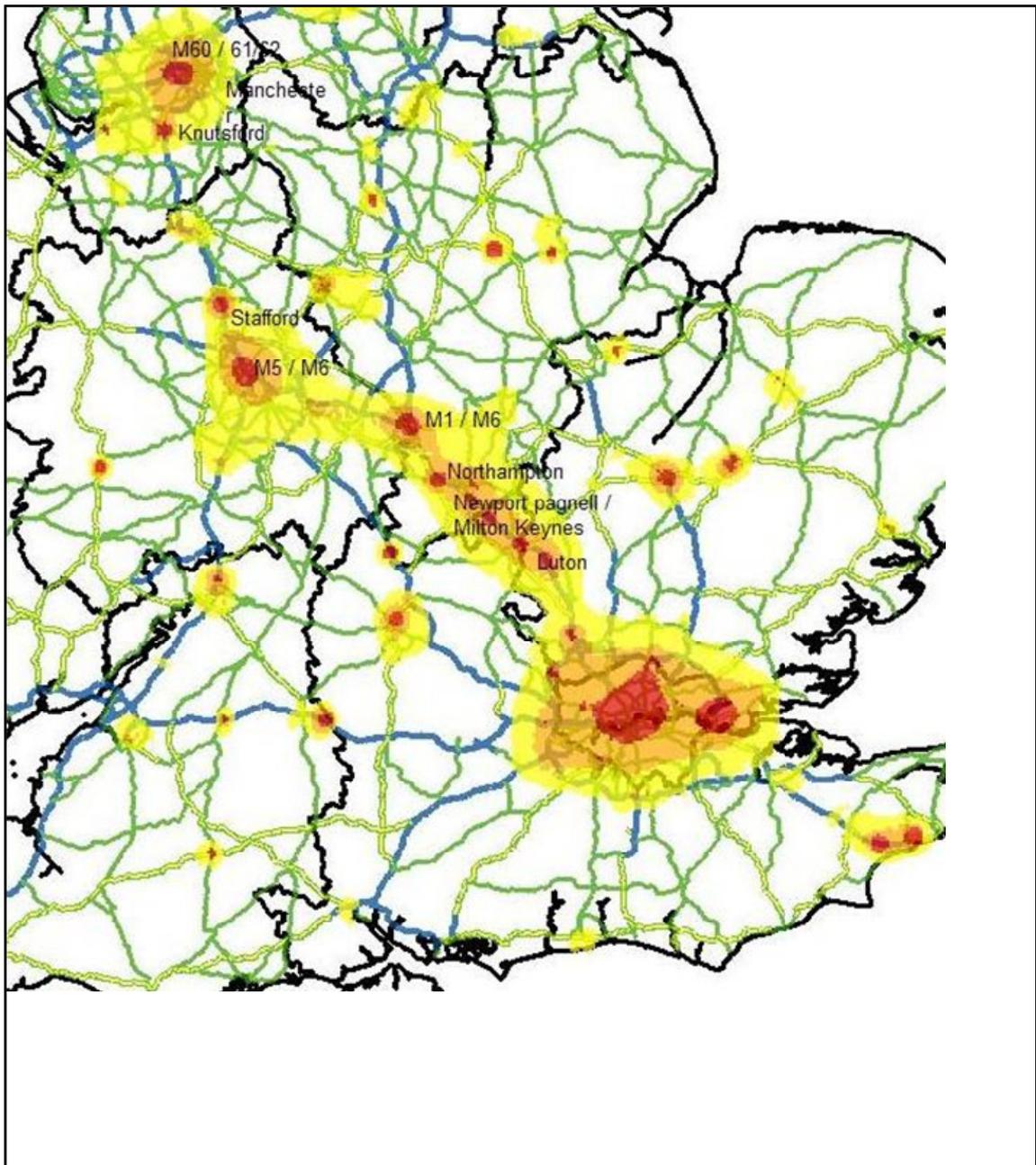
Source: www.eurorap.org.

HGV Accident black spots

DfT has published data on the number of fatal accidents on the motorways and A roads involving HGVs. Figure 4.31 highlights a number of regional hotspots, including;

- A14/M1 junction;
- M1 around Northampton;
- A38 North of Ripley; and
- A52 East and West of Grantham.

Figure 4.31 - Fatal HGV accident hotspots



Reproduced from DfT Developing the National Networks: Hotspot Analysis Presentation of the 7 May 2009, slide 14

4.8 Challenge EM8: Minimising noise, severance, vibration, local air quality and other issues affecting local communities

4.8.1 Traffic levels on main roads

The severity of issues affecting local communities are strongly influenced by the volume of traffic and in particular the number of HGVs (amongst other local topographic factors). All other things being equal, the most effected communities would be expected to be found on the busiest roads. However it is worth noting that the number of people affected is important, not simply the scale of the impact and in this context, this issue may be most acute in urban areas.

The heaviest traffic flows can be found on the M1 and the main strategic roads linking with the M1 such as the A14 and A45 in Northamptonshire and the A50 in Derby. The A1 also has significantly high levels of traffic particularly in the northern section between Worksop and Newark on Trent. Figure 4.3 illustrates the busiest routes in the region.

4.8.2 Heavy goods vehicle flows

Road freight also makes a significant contribution to carbon emissions and PM₁₀ levels in the area and the consequential air quality problems. However freight operators are increasingly upgrading their fleets to more environmentally friendly vehicles meeting EURO standards.

Traffic volumes vary considerably across the main network, and unsurprisingly the largest volumes are carried on the motorways and trunk dual carriageways, with the M1 carrying 126,000 vehicles per day (AADT) around Nottingham, while the A14 carries 67,000 (AADT) in the vicinity of Kettering. The A1 is lightly trafficked by comparison with 37,000 (AADT) between Grantham and Newark. Away from the Strategic road network the A17 carries 14,000 (AADT) in the vicinity of Boston and Spalding, while the A15 carries 13,000 (AADT) north of Newark.

Figure 4.32 illustrates the volume of goods vehicle traffic on the major roads in the region. In absolute terms, the M1 stands out with 6,300 PCU⁵¹ in the morning peak three hours. Other roads seeing heavy volumes of freight are the A14, M6, and A1 / A1(M). However, the absolute volumes hide some useful information – it is only to be expected that major roads will carry more freight than minor roads. Looking at the amount of HGV traffic in relation to the theoretical capacity of the road gives an indication of roads where HGV traffic is likely to be heavier than might be expected on average. Again, the M1 stands out and clearly illustrates this road's major role for strategic freight traffic. Other roads carrying apparently high volumes of HGV traffic for their size include:

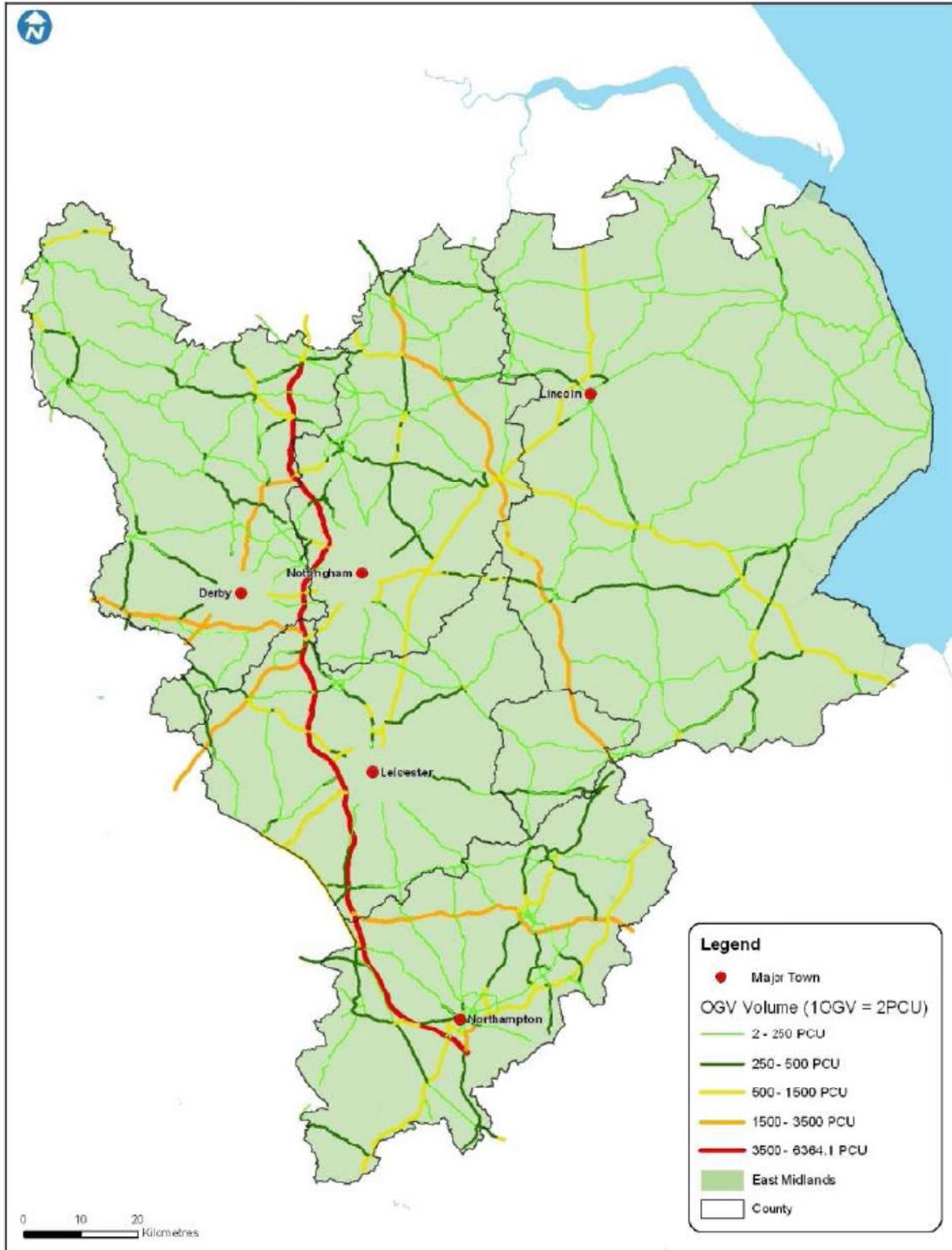
- the A17 (in particular);
- the A15;
- the A14;
- the A605;
- the A1 / A1(M);
- the A46;
- the A42 / M42; and
- the A50.

⁵¹ Passenger Car Unit. One HGV = 2 PCUs
/East Midlands Transport Conditions & Issues 2010 Update FINAL
- 1 March10.docx

Of these, the A17 and the A15 are of particular interest as they are carrying HGV flows comparable to some of the dual carriageways despite being single carriageway throughout, and in the case of the A17 not directly serving many centres of population. In the case of the A17, the percentage OGV capacity utilisation in the vicinity of Sutton Bridge compares with some parts of the M1, although obviously both the capacity and the traffic figures are significantly lower. This reflects the areas' status as a net food producer.

Further details about freight movements in the region can be found in Section 2.

Figure 4.32 - OGV volumes in morning peak three hours Flows



Reproduced from PBA (2010) State of Freight in the East Midlands Table 2 Figure 13. One HGV = 2 PCUs

4.8.3 Air quality

Figure 4.33 shows levels of PM₁₀⁵² across the region based on 2009 data. PM₁₀ was designed as a standard to identify particles that were likely to be inhaled by humans and as such have the most impact in terms of health.

Road transport is one of the main sources of PM₁₀ and levels of particles have been measured by the National Atmospheric Emissions Inventory (NAEI)⁵³ using grid points at every 100m. The points have been ranked within the Region to identify the worst areas at a regional level and within each of the HMAs. This shows the worst polluted areas to be along the M1 and surrounding the urban areas of Derby, Nottingham, Leicester and Northampton. There are also high levels of PM10 surrounding Grantham, Boston and towns within North Northamptonshire.

Air Quality Management Area (AQMAS)

Since 1997 local authorities in the UK have been carrying out a review and assessment of air quality in their area. The aim of the review is to assist authorities in carrying out their statutory duty under the Environment Act 1995, to work towards meeting the national air quality objectives, which have been put in place to protect people's health and the environment. This involves measuring air pollution and trying to predict how it will change in the next few years.

If a local authority finds any places where the objectives - which relate to the accepted levels of a number of pollutants, several of which, including Nitrogen Dioxide (NO₂) and Particulate Matter PM₁₀ relating to road traffic are not likely to be achieved, it must declare an Air Quality Management Area (AQMA), the local authority must then put together a plan to improve the air quality – known as an Local Air Quality Action Plan.

The area could relate to just one or two streets, or it could be much bigger and could relate to the SRN or the local road network. Figure 4.34 shows the AQMAs within the Region that relate to road transport and Table 4.12 gives a description of each AQMA together with their reference number on.

⁵² Particulate matter below 10µm

⁵³ National Atmospheric Emissions Inventory 2005

Figure 4.33 - Level of PM 10 Annual Mean (2009)

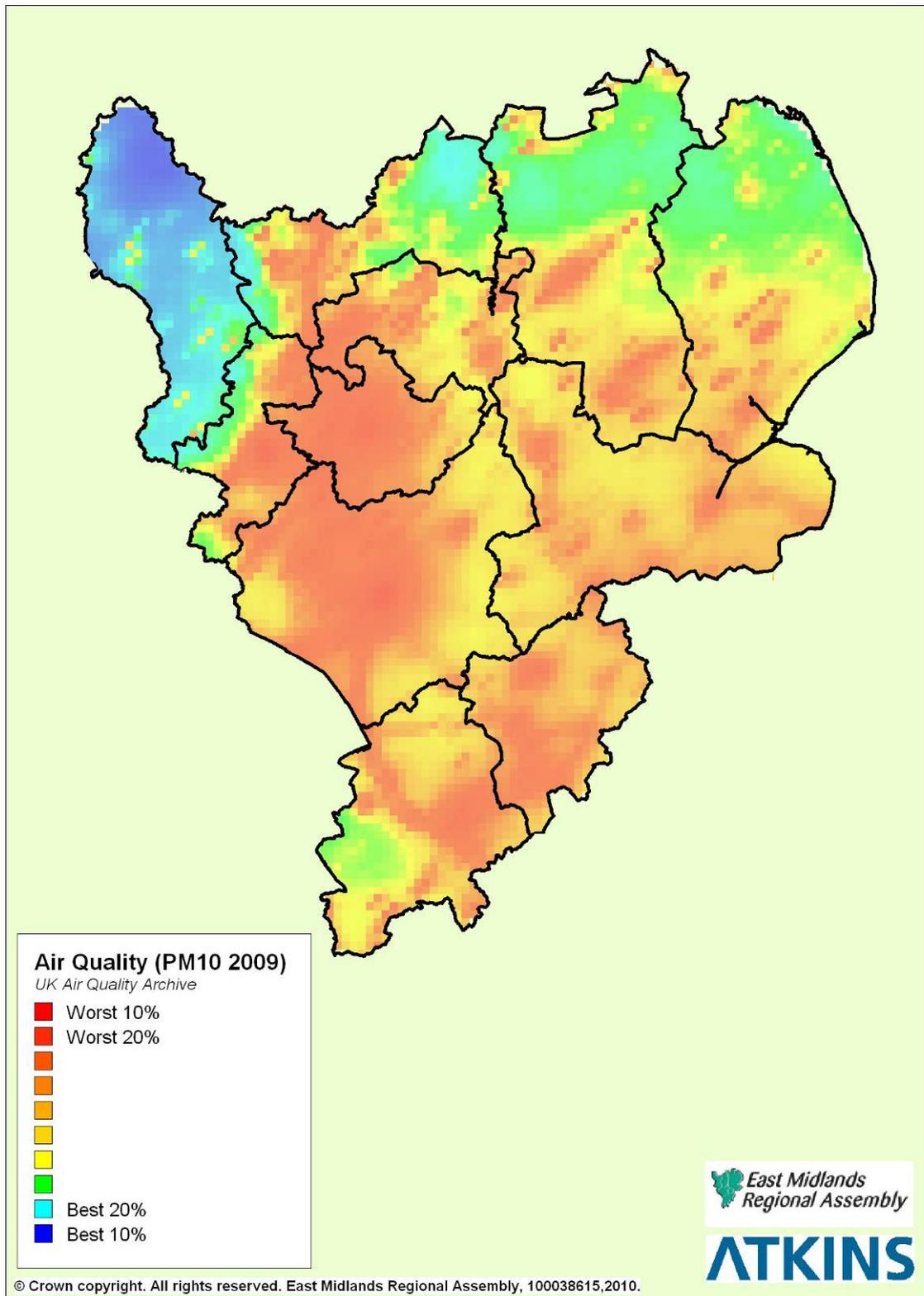


Figure 4.34 - Air Quality Management Areas in East Midlands by HMA

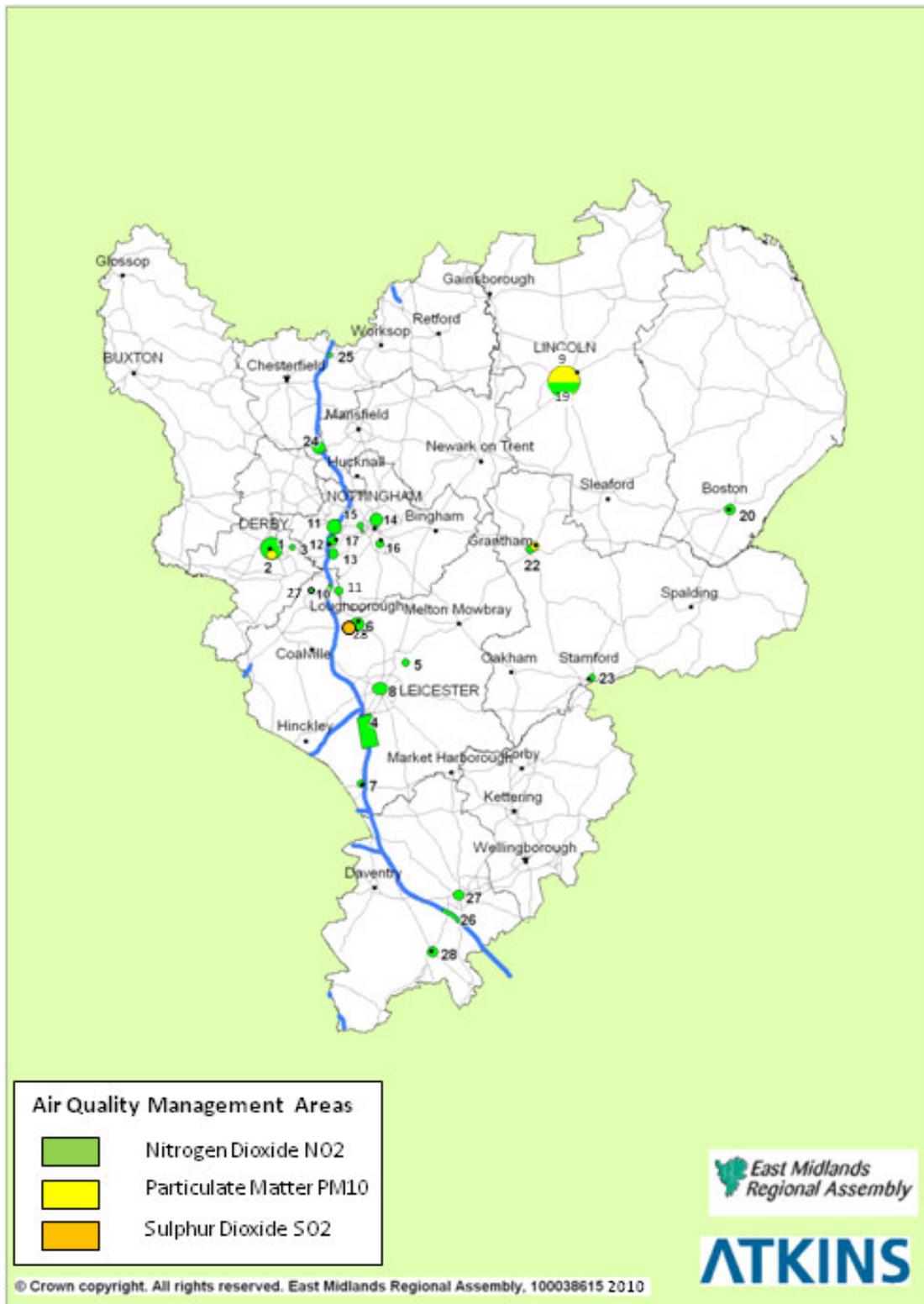


Table 4.12 - Location of transport-related AQMAs

Map Ref.	Location and Description of AQMA areas	Pollutant
Derby HMA		
1	Encompassing Inner & Outer Ring-Roads in the city, as well as some sections of radial roads in Derby	NO ₂
2	54 dwellings at the southern end of Victory Road, adjacent to the former QDF foundry site in Derby	PM10
3	Sections of the A52, Derby Road and Nottingham Road in Spondon, Derby	NO ₂
27	An area encompassing the High street area of Castle Donington	NO ₂
Leicester and Leicestershire HMA		
4	Five areas around Junction 21 M1, Blaby and Groby	NO ₂
5	Residential properties along the main road through Syston	NO ₂
6	Area encompassing the whole of Loughborough	NO ₂
7	The junction of the A427, George Street and Market Street in Lutterworth, including the boundaries of a number of nearby properties.	NO ₂
8	A large section of Leicester City Centre and along a number of radial roads and sections of the ring road	NO ₂
28	An area encompassing a number of properties in the vicinity of the Great Central Railway locomotive engineering shed in Loughborough.	SO ₂
10	Residential properties within Kegworth	NO ₂
11	M1 Junction 23a to 24 at Kegworth	NO ₂
Nottingham Core HMA		
12	Four separate areas encompassing residential properties near the M1 Junction 26 in Trowell	NO ₂
13	Area of land to the east of the M1 motorway, either side of Derby Road Sandiacre to the north of junction 25	NO ₂
14	Area of land immediately to the east of the M1 motorway encompassing approximately situated to the south of junction 25 in Long Eaton	NO ₂
15	A horseshoe shaped area in Nottingham City Centre from Broadmarsh to the bus depot and along the A6008 to Upper Parliament Street.	NO ₂
16	Around & including the Queen's Medical Centre and the A52(T) between its junctions with the A6200 and A6005 in Nottingham	NO ₂
17	Encompassing the Lady Bay Bridge/Radcliffe Road junction, the Trent Bridge/Loughborough Road/Radcliffe Road junction and the Wilford lane/Loughborough Road/Melton Road junction in West Bridgford.	NO ₂
18	Encompassing A52 southern ring road between the Borough boundary & eastern side of Nottingham Knight Roundabout	NO ₂
Central Lincolnshire HMA		
19	An area encompassing the whole borough of Lincoln	PM10
9	The major road network in the City Centre and arterial routes in Lincoln	NO ₂

Coastal Lincolnshire HMA		
20	The A16 trunk road through the centre of town and An area from Bargate roundabout extending east in to the top part of Spilsby Road in Boston	NO ₂
Peterborough Partial HMA		
21	An area of land including residential dwellings in Grantham, Lincolnshire	PM10/ NO ₂
22	Two AQMAs in areas of land including residential properties in Grantham, adjacent to the A1	NO ₂
23	An area of land including residential dwellings in Stamford	NO ₂
Northern HMA		
24	Encompassing properties on the east side of the M1 Motorway in Bolsover at junction 28.	NO ₂
25	AQMAs within Barlborough, Bolsover near M1 Junction 30	NO ₂
West Northamptonshire HMA		
26	The area of land alongside the southbound carriageway of the M1 Junction 15 near Northampton	NO ₂
27	Nine small areas within Northampton centre	NO ₂
28	AQMA around A5 in Central Towcester	NO ₂

Source: National Air Quality Archive, Accessed January 2010

4.8.4 Noise

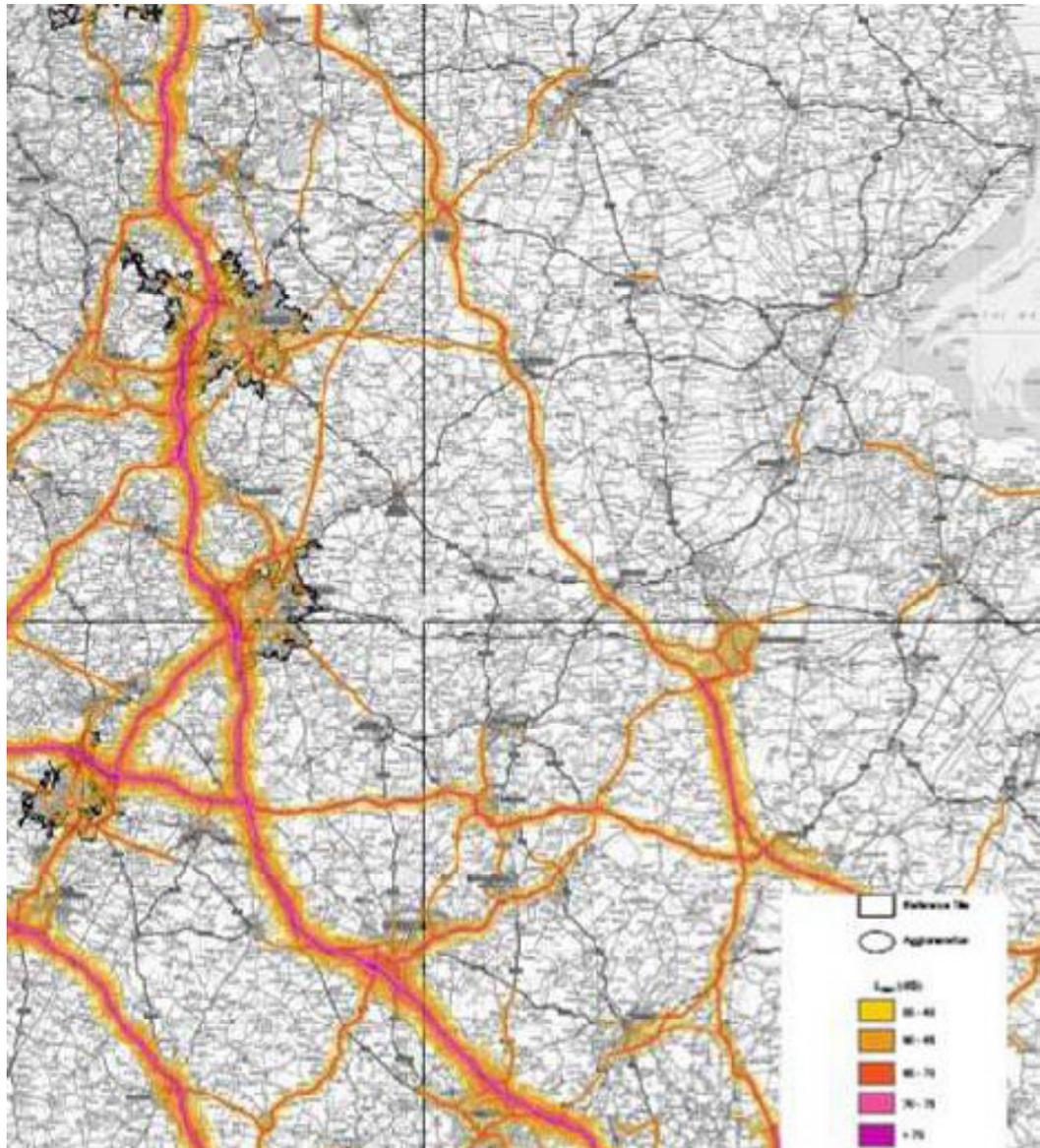
The majority of local authorities have not analysed the level or impacts of traffic related noise. However, in accordance with the Environmental Noise (England) Regulations 2006, strategic noise maps for England are being produced on behalf of the Secretary of State estimating noise levels from the following sources:

- major roads - roads with more than 6 million vehicle passages annually;
- major railways - railways with more than 60,000 train passages annually;
- major airports - airports with more than 50,000 aircraft movements annually (except for training on light aircraft); and
- First Round Agglomerations - urban areas (with populations greater than 250,000 and a certain population density), taking into account the above sources and additionally other roads, railways, aircraft movements and industrial premises.

The Department for the Environment, Food and Rural Affairs (Defra) is currently in the pilot stage of this noise mapping study which includes Leicester and Nottingham. The format of this is interactive mapping on the Defra website which allows data to be viewed at the individual postcode level but is not yet available for the wider area. However as the noise data sets are broken down by noise from road, rail, industry and air it will be useful to add to the statement of transport conditions and issues when the study is complete and data becomes obtainable.

Figure 4.35 shows the ambient noise levels caused by road traffic. The highest levels (over 75dB shown in purple) are experienced adjacent to the motorway corridors.

Figure 4.35 - Ambient noise levels caused by road traffic (24 hr dB)



Source: Defra noise mapping

4.9 Challenge EM9: Minimising the negative effects of travel and new transport infrastructure on the natural environment

4.9.1 Current and forecast road transport carbon dioxide emissions

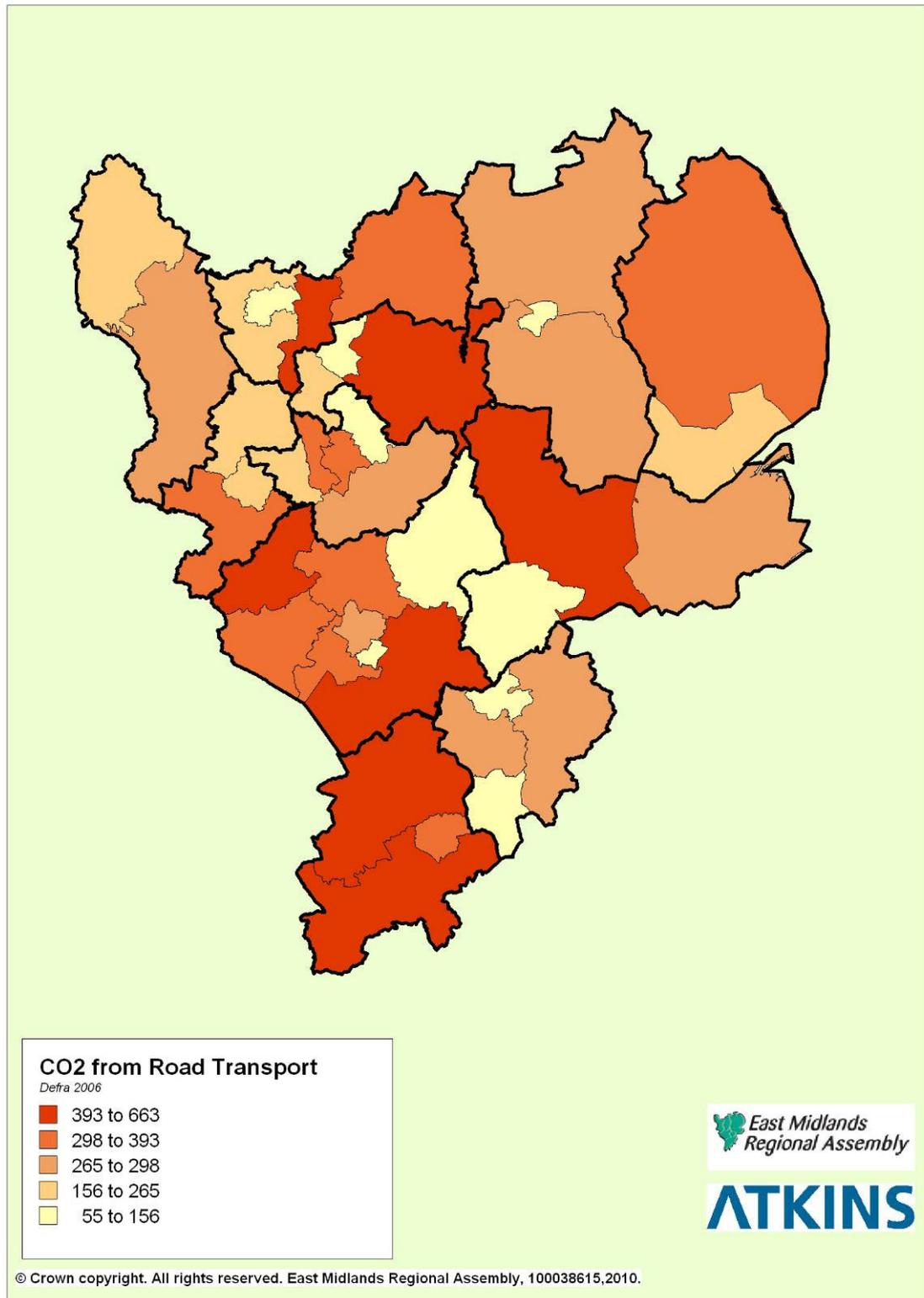
The main human influence on global climate is emissions of the key greenhouse gases - carbon dioxide (CO₂), methane and nitrous oxide. The accumulation of these gases in the atmosphere strengthens the greenhouse effect. Over seven billion tonnes of CO₂ is emitted globally each year through fossil fuel use, and an additional 1.6 billion tonnes are emitted by land use change, largely by deforestation. The concentrations of these gases in the atmosphere have now reached levels unprecedented for tens of thousands of years.

Carbon emissions are considered to be the main pollutants responsible for the process of climate change. Carbon emissions estimates data from the Defra website are available at a district level and provides a breakdown of the level of CO₂ by different sources⁵⁴. Road transport CO₂ emissions measured in tonnes are shown in Figure 4.36 for each district within the East Midlands. The highest levels are found in West Northamptonshire, Leicester and Leicestershire, Northern and Nottingham Core HMAs and closely follow the route of the M1 and A1 within the region.

Table 4.13 gives a breakdown of road transport CO₂ by HMA and road type and Figure 4.36 shows emissions at a district level. Leicester and Leicestershire, Northern HMA and West Northamptonshire all have around 40% of road transport CO₂ from motorway petrol and diesel sources, which is above the average for the UK, at 24%. West Northamptonshire has the highest level of CO₂ sourced from motorways. Table 4.13 also shows that West Northamptonshire has the highest level of CO₂ per resident at 4.4 tonnes; almost double the regional figure of 2.7 tonnes per person.

⁵⁴ *Local and Regional CO₂ Emissions Estimates for 2005-2006 for the UK, Defra 2008*
/East Midlands Transport Conditions & Issues 2010 Update FINAL
- 1 March10.docx

Figure 4.36 - Road transport CO2 emissions (kT) (2006)



Source: Local and Regional CO₂ Emissions Estimates for 2005-2006 for the UK, Defra 2008

Table 4.13 - Road Transport CO₂ by HMA and road type (kT) (2006)

Housing market area	A-Roads Petrol	A-Roads Diesel	Motorways Petrol	Motorways Diesel	Minor Petrol	Minor Diesel	Road Transport Other	All road transport	Total per capita (tonnes)
Central Lincolnshire	171	225	0	0	119	113	3	630	2.2
Coastal Lincolnshire	139	170	0	0	121	114	2	546	2.7
Derby	248	316	0	0	125	112	3	805	1.8
Leicester and Leicestershire	415	538	304	596	274	248	9	2,385	2.6
North Northamptonshire	236	385	0	0	86	78	3	789	2.6
Northern	178	249	138	336	156	142	4	1,204	3.1
Nottingham Core	302	307	110	224	177	157	5	1,283	1.8
Nottingham Outer	169	249	37	77	109	98	3	743	2.3
Peak Dales and Park	118	159	0	0	82	78	2	438	2.7
Peterborough Partial	208	377	0	0	124	118	3	831	3.3
West Northamptonshire	286	405	235	532	99	91	5	1,653	4.4
East Midlands	2,469	3,380	823	1,765	1,473	1,350	45	11,305	2.7
UK Total	28,162	30,752	11,798	20,369	23,090	20,242	594	135,007	-

Source: Defra (2008)

4.9.2 Fuel consumption

Road transport fuel consumption statistics are compiled on an annual basis by the Department for Energy and Climate Change. Table 4.14 shows the fuel consumption by each HMA. Across the region, 55% of fuel consumption is by cars, 28% by HGVs and 15% by light goods vehicles. It is worth noting that calculation of the fuel consumption estimates is based on traffic levels in the HMA, not production by HMA. Therefore those HMAs with high levels of through-traffic, such as those on the M1 corridor, will show high per capita consumption.

Leicester and Leicestershire has the highest consumption of fuel overall and also has a high rate per capita. West Northamptonshire has the highest consumption of 1.22 tonnes of fuel per annum per capita, although it is presumed that this heavily influenced by through traffic on the M1.

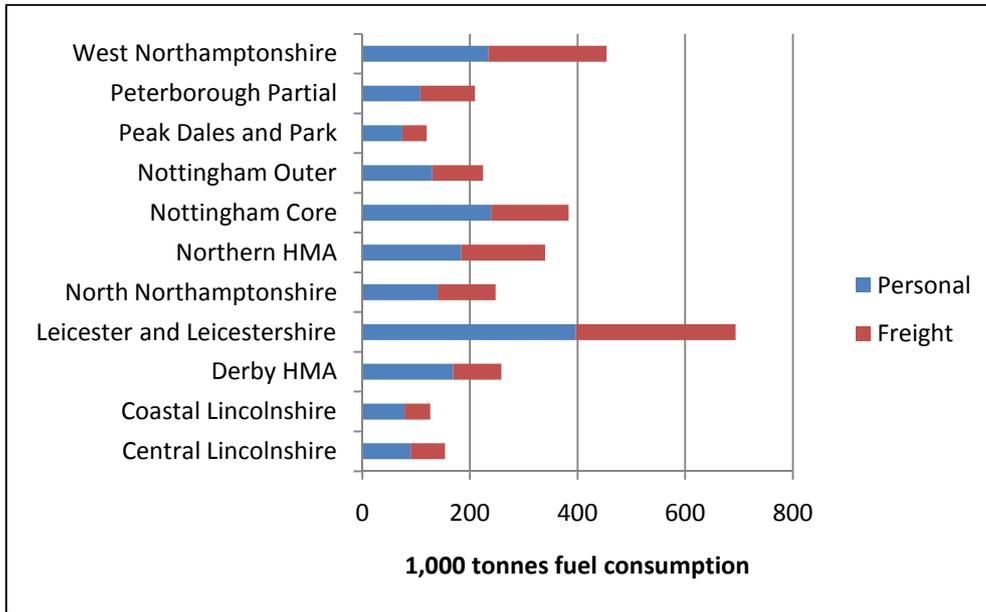
Table 4.14 - Fuel consumption by HMA (2007)

Housing market area	Tonnes of fuel	Tonnes of fuel per capita
Central Lincolnshire	153,746	0.55
Coastal Lincolnshire	126,381	0.64
Derby	258,259	0.57
Leicester and Leicestershire	693,501	0.74
North Northamptonshire	247,927	0.81
Northern	339,936	0.88
Nottingham Core	383,462	0.52
Nottingham Outer	224,128	0.68
Peak Dales and Park	119,925	0.73
Peterborough Partial	209,324	0.83
West Northamptonshire	453,626	1.22
East Midlands	3,210,214	0.74

Source: Department of Energy & Climate Change, Road transport energy consumption at regional and local authority level, compared to number of residents in HMA

Figure 4.37 shows total fuel consumption by HMA, and identifies the share generated from personal travel (including buses, diesel cars, petrol cars and motor cycles) and freight travel (including HGV, diesel LGV and petrol LGV). There is considerable variation in the personal/freight balance across the districts – Oadby & Wigston has the highest share of fuel consumption due to freight, at 76%, and Daventry the lowest, at 45%.

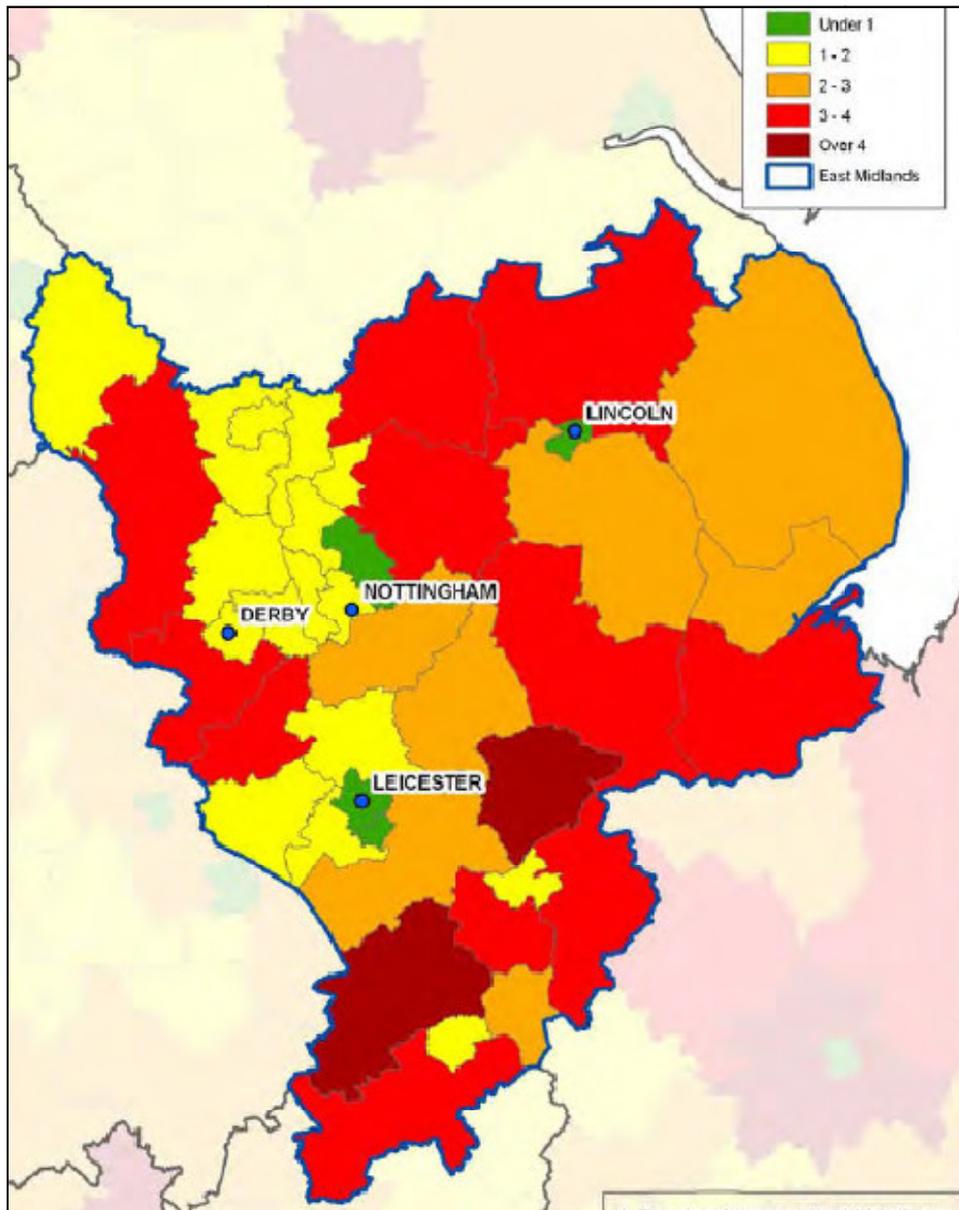
Figure 4.37 - Road Transport fuel consumption by HMA (2007)



Source: Department of Energy & Climate Change, Road transport energy consumption at regional and local authority level

Figure 4.38 shows end user emissions per capita for 2006, excluding emissions from motorway traffic and is therefore a more accurate indicator of locally-generated CO₂. It demonstrates that, per capita, it is the rural areas of the region which generate the most transport-related CO₂, presumably due to the higher dependence on the private car for travel.

Figure 4.38 - End user road transport CO₂ emissions per capita



Reproduced from DfT (2009) *DaSTS City & Regional Networks Data Book Map A17.5*

The DaSTS data book also provides estimates of CO₂ emissions per kilometre of road on a 'by source' basis as shown in Figure 4.39. Emissions are highest on the most heavily-trafficked and congested roads.

Figure 4.39 - CO₂ emissions per kilometre of road (2006)

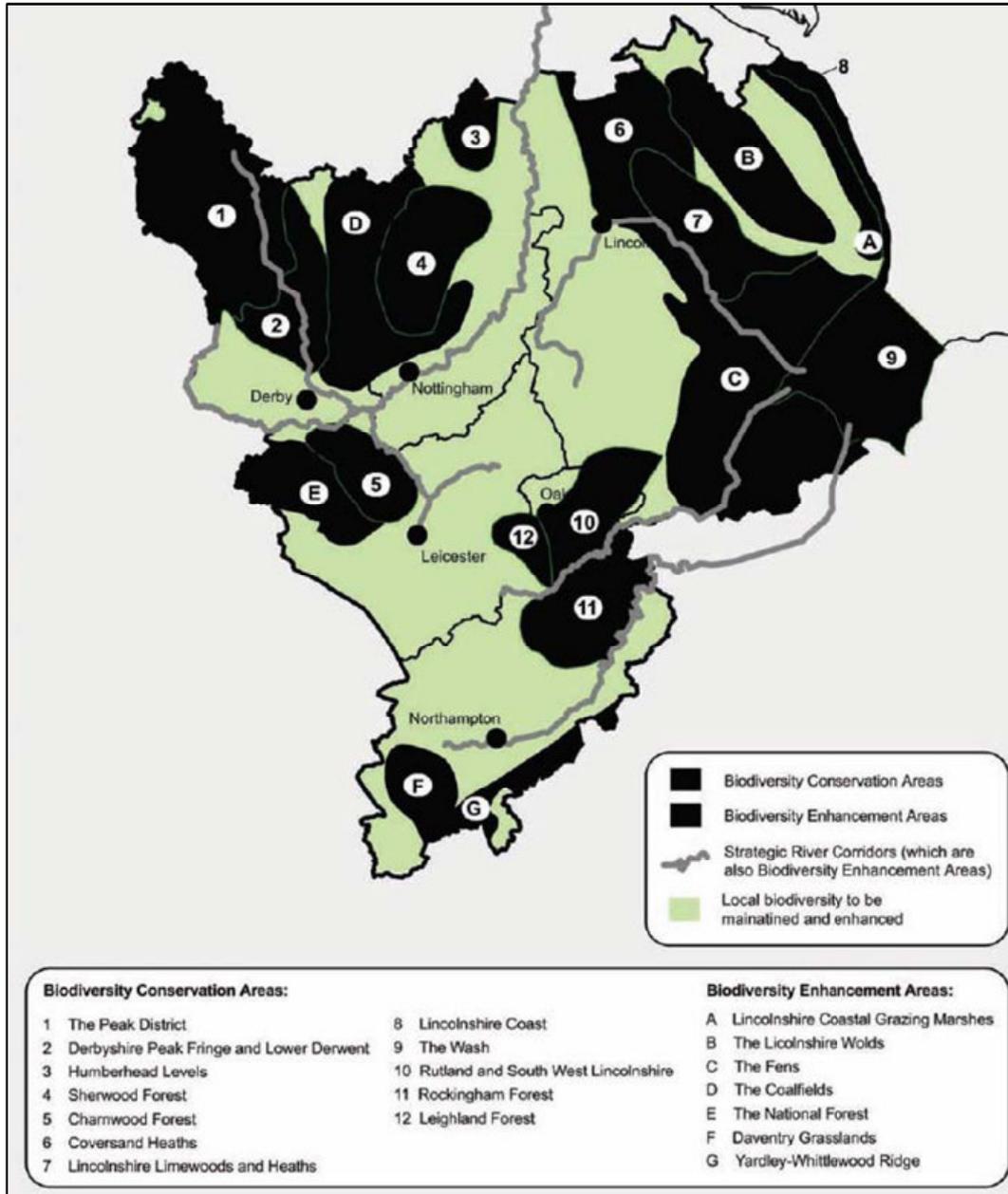


Reproduced from DfT (2009) DaSTS City & Regional Networks Data Book Map A18.5

4.9.3 Conservation Areas and natural assets

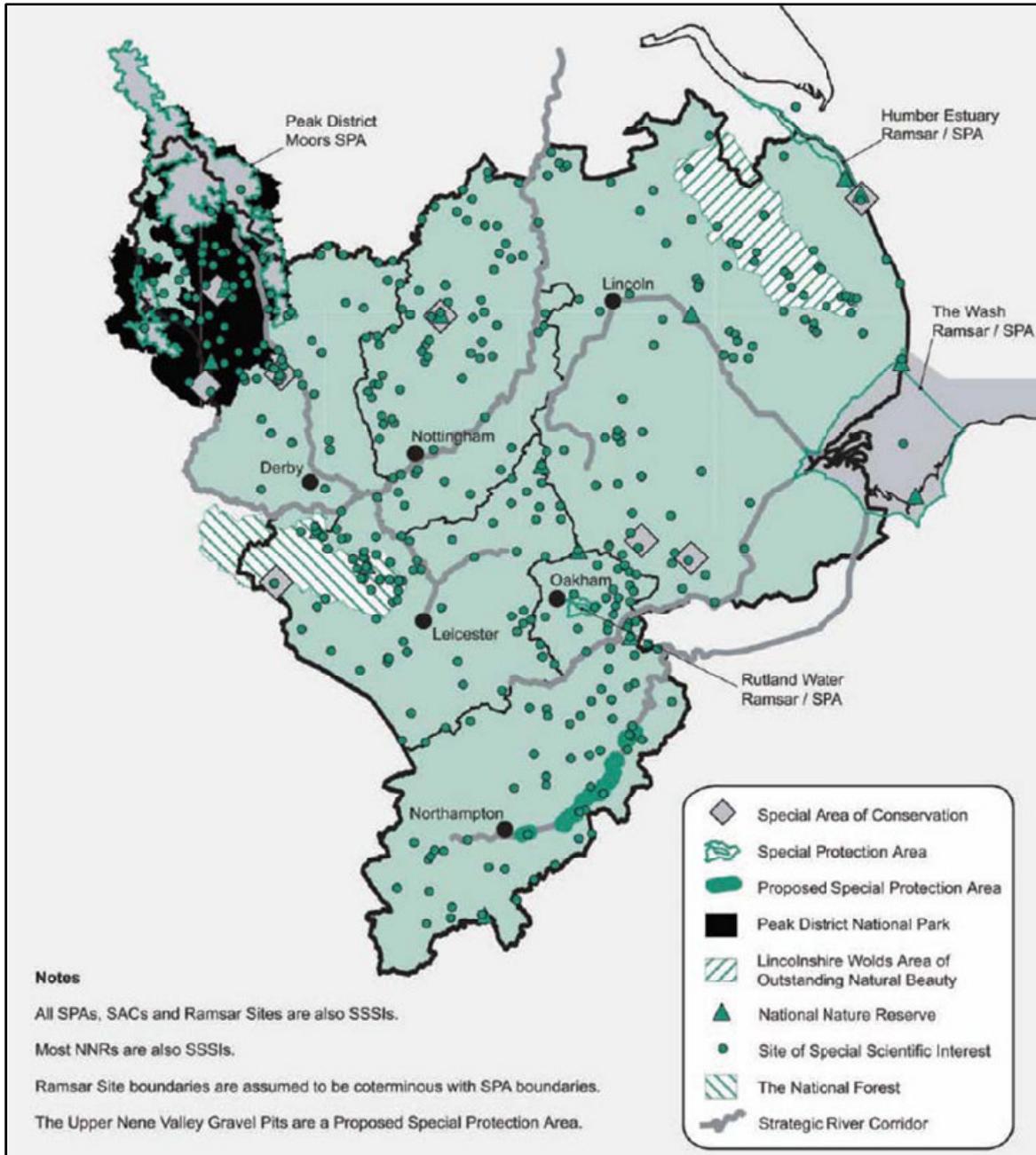
The East Midlands Region has a number of important conservation and biodiversity areas of interest, including the Peak District National Park, Lincolnshire Wolds Area of Outstanding Natural Beauty, the National Forest and several Sites of Special Scientific Interest. Figure 4.40 and Figure 4.41 illustrate the wide range of natural assets in the region.

Figure 4.40 - Biodiversity, conservation and enhancement areas



Source: East Midlands Regional Plan (2009)

Figure 4.41 - Natural Assets



Source: East Midlands Regional Plan (2009)

4.10 Challenge EM10: Minimising barriers to use of sustainable modes such as disability, ill health, fear of crime and cost

4.10.1 Ageing population

In line with national trends, the East Midlands is experiencing an ageing population as a consequence of higher standards of living and healthcare, meaning that people are living longer. Forecasts suggest that 22% of the East Midlands population will be over 65 by 2031 compared to 16% in 2006⁵⁵. Furthermore 25% of the population will be aged 65 or over by 2031 in 40% of the region's districts.

The HMAs with the highest proportion of 65 years, or over, includes Coastal Lincolnshire, Peterborough Partial and Peak Dales and Park, as shown in Figure 4.42.

It is recognised that an ageing population can have major implications for transport in the future and some of the key issues for older people include⁵⁶:

- declining driving ability and financial constraints resulting in changing driving practices or giving up their car;
- higher proportion of the population dependent on public transport services but difficulties in using these services as a consequence of mobility, affordability and safety issues; and
- accessing travel information.

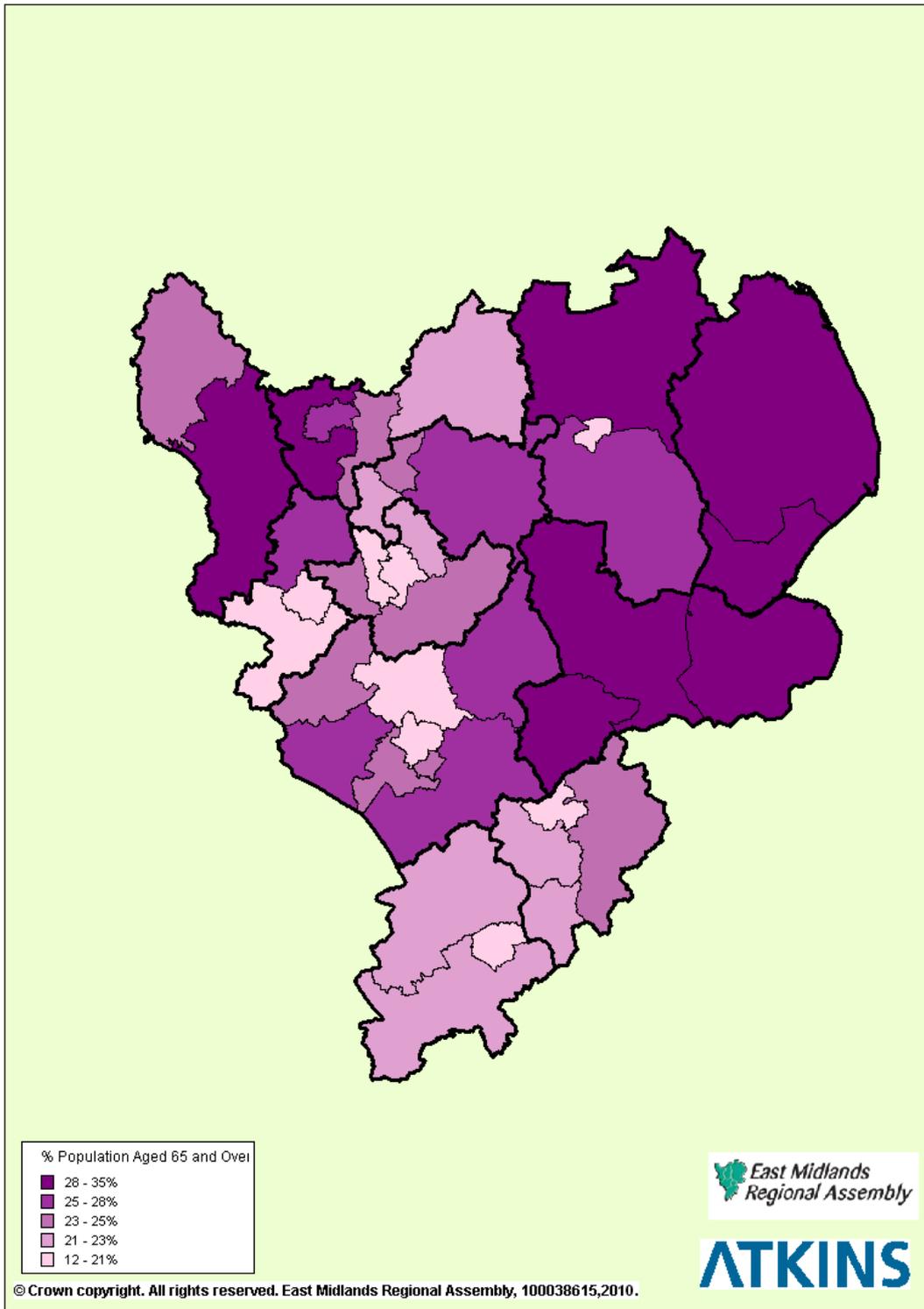
Comprehensive and appropriate transport networks can ensure that older people can remain active and have access to key facilities and services allowing them to continue to interact in society.

The rural nature of the HMAs experiencing the highest proportion of population aged 65 or over and high deprivation rates will provide challenges in ensuring affordable and accessible transport to ensure that the needs of an older population are met. This is particularly important in Coastal Lincolnshire HMA where 34% of the population are estimated to be in this age category by 2031.

⁵⁵ ONS

⁵⁶ DfT *Older People: Their Transport needs and requirements, Feb 2001*,
/East Midlands Transport Conditions & Issues 2010 Update FINAL

Figure 4.42 - Population projection 2031 - % aged over 65 by district



Source: ONS (2006)

4.10.2 Obesity levels

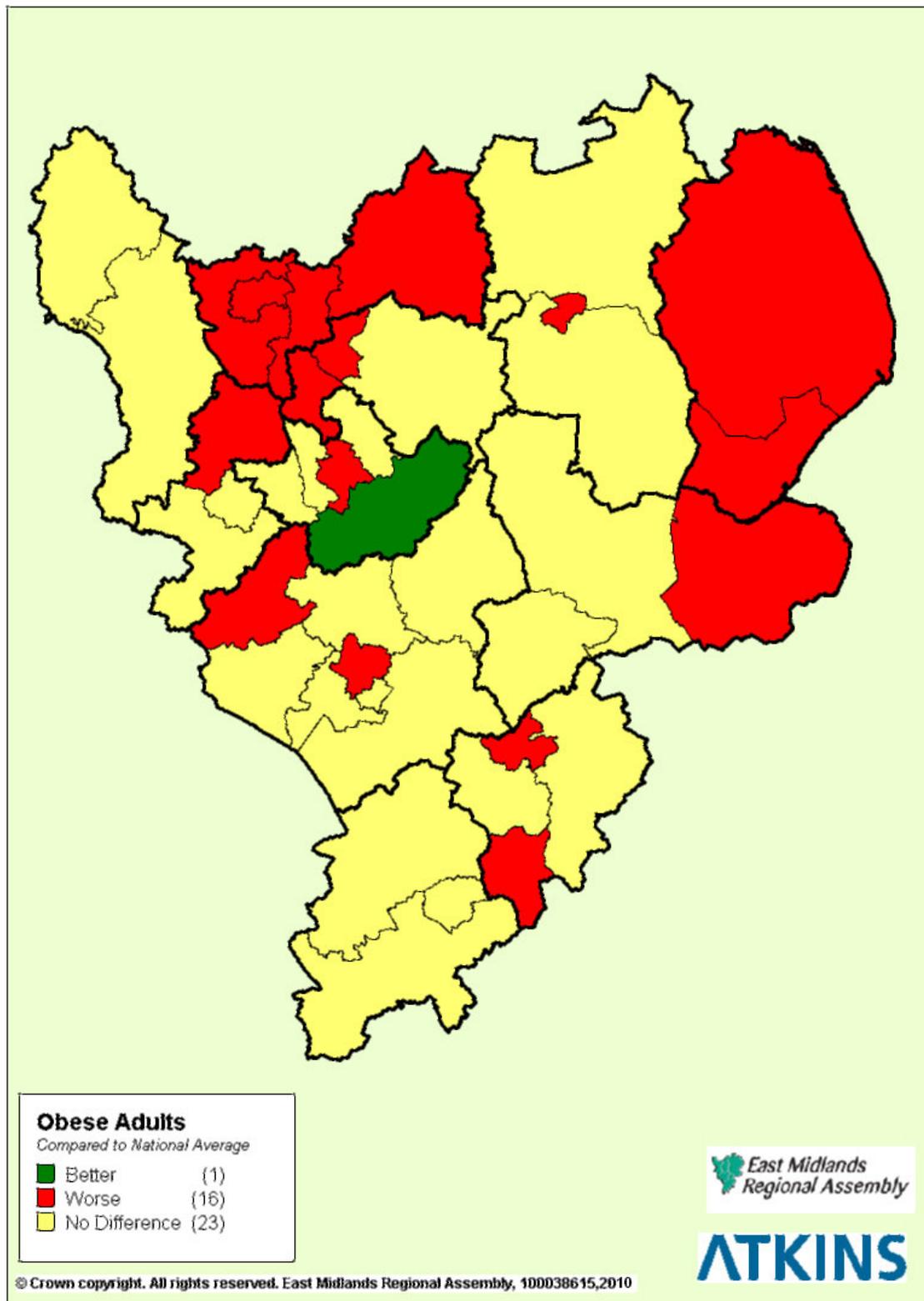
Obesity may act as a barrier to walking, cycling and use of public transport. Moreover, initiatives to encourage walking and cycling may contribute towards reducing obesity levels.

Adult obesity levels in the East Midlands are above the national average with 1 in 4 adults classified as obese. Child obesity is less prevalent, but small samples mean that this data is not as statistically robust as that for the adult dataset.

Figure 4.43 and Figure 4.44 show adult and child obesity by district compared to the national average. Districts in green have below-average levels, districts in red have above average levels. The districts with the highest adult obesity levels in 2006/07 were Corby (30%), Ashfield, Bolsover and Boston (all 29%); and South Holland and Mansfield (all 28%). Lower levels were generally found in the main urban areas and south of the region. Child obesity is highest in some of the main urban districts – Derby, Wellingborough and Nottingham (all 13%) and generally lowest in the more rural areas.

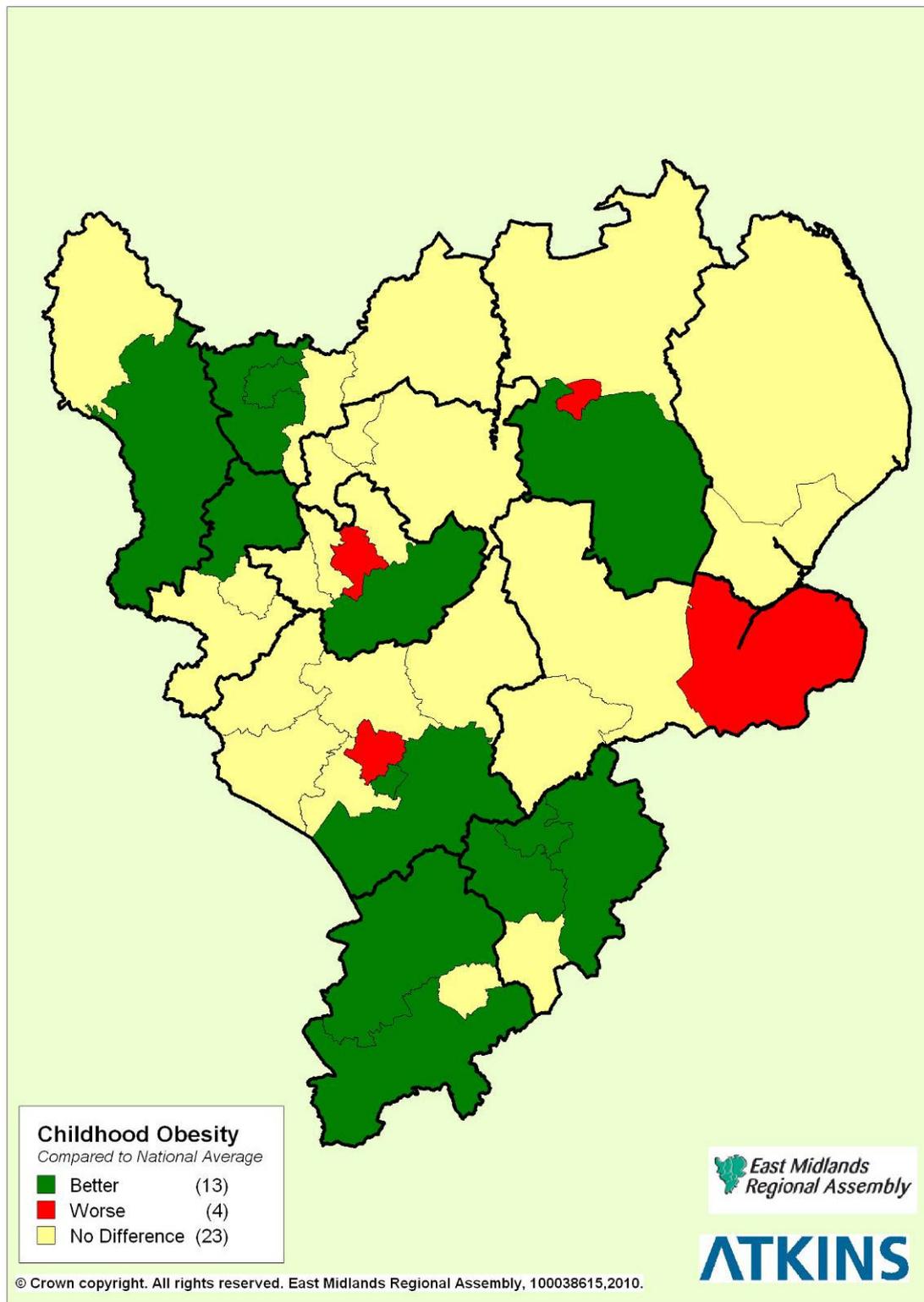
The rates of obesity for both child and adults are increasing in line with national trends. Childhood obesity levels in the East Midlands have slightly improved over the past 2 years, with four more districts ranking as better than the national average compared to figures in 2007.

Figure 4.43 - Prevalence of adult obesity – comparison with national levels



Source: East Midlands Public Health Observatory (EMPHO) (2008)

Figure 4.44 - Prevalence of childhood obesity - comparison with national levels



Source: East Midlands Public Health Observatory (EMPHO) (2008)

4.10.3 Walking and cycling

The Regional Economic Strategy (RES) has a target of 23% of the region's workforce to travel to work by public transport, walking or cycling. The current baseline used in the RES stands at 20.5%. Approximately 49% of journeys to work in the East Midlands are under 20 minutes in journey time compared to 42% of all journey to work within this time period for England overall⁵⁷. This implies that journeys to work in the Region are of a shorter distance and therefore the potential for change of travel mode to walking and cycling is high. Figure 4.45 shows the strategic cycle network in the Region.

The proportion of commuting trips made on foot or by bicycle is shown in Table 4.15. The highest proportion of trips using these modes are made in Coastal Lincolnshire and Central Lincolnshire HMAs and the lowest levels in the Northern HMA and Northamptonshire HMAs. There is little correlation between levels of cycling and walking and adult obesity – factors such as deprivation, topography and traffic levels may be more relevant.

Table 4.15 - Walking and cycling levels for journeys to work

	% of people walking to work	% of people cycling to work	% people cycling or walking to work
Central Lincolnshire	11.3%	5.3%	16.7%
Coastal Lincolnshire	12.2%	6.4%	18.6%
Derby HMA	10.4%	3.1%	13.5%
Leicester & Leicestershire	10.7%	3.4%	14.1%
North Northamptonshire	9.6%	2.2%	11.8%
Northern (Sheffield/Rotherham)	9.5%	1.9%	11.4%
Nottingham Core	10.3%	3.4%	13.7%
Nottingham Outer	9.8%	3.1%	12.9%
Peak Dales and Park	12.8%	1.1%	13.9%
Peterborough Partial	9.9%	4.6%	14.5%
West Northamptonshire	9.3%	2.3%	11.6%
East Midlands	10.4%	3.2%	13.6%
England	10.0%	2.8%	12.8%

Source: 2001 Census

⁵⁷ DfT Regional Transport Statistics, Live Tables, Table 1.13
/East Midlands Transport Conditions & Issues 2010 Update FINAL
- 1 March10.docx

Figure 4.45 - East Midlands Strategic Cycle network



4.10.4 Long-term limiting illness

Some 18% of East Midlands residents in 2001 had some form of limiting, long-term illness⁵⁸. This figure matches the English average. Within the region, there is very significant variation from 26% in Bolsover district to 13% in South Northamptonshire. The pattern is shown in Table 4.16 and Figure 4.46.

The highest levels of limiting long-term illness are in the northern industrial and former coalfield areas, a reflection of the impacts of an industrial society on its population. Levels are also high in Coastal Lincolnshire, reflecting the higher proportion of people in that area over 65 years old. The lowest levels of limiting long-term illness are found in Northamptonshire and Leicestershire.

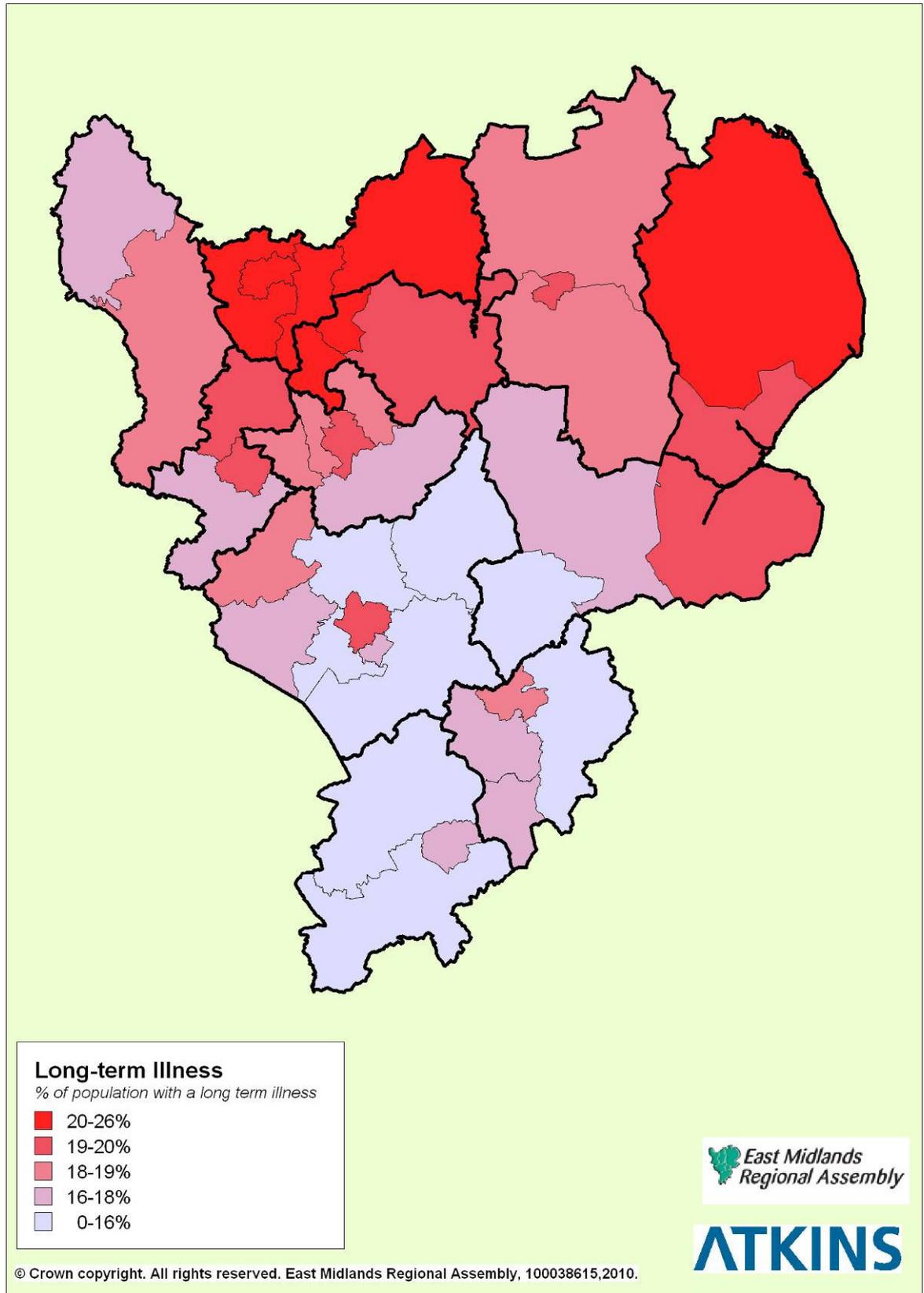
This is similar to the pattern shown throughout the UK, where coastal areas, such as Norfolk and Cornwall show high levels of long term illness, and is again likely to be related to areas popular with retirement, and links with the high levels of over 65 year olds in similar regions.

Table 4.16 - Percentage of population with limiting long-term illness by HMA (2001)

Housing Market Area	Population with LLTI	% population with LLTI	Rank (1=highest)
Central Lincolnshire	48,046	18.5%	6
Coastal Lincolnshire	42,245	22.7%	2
Derby	80,138	19.1%	4
Leicester & Leicestershire	146,671	16.5%	9
North Northamptonshire	46,779	16.5%	10
Northern	85,997	22.9%	1
Nottingham Core	130,306	18.6%	5
Nottingham Outer	69,364	22.0%	3
Peak Dales & Park	28,090	17.7%	7
Peterborough Partial	39,758	16.9%	8
West Northamptonshire	50,782	14.7%	11
East Midlands	768,266	18.4%	-

⁵⁸ 2001 Census
/East Midlands Transport Conditions & Issues 2010 Update FINAL
- 1 March10.docx

Figure 4.46 - Percentage of the population with a long-term limiting illness



Source: 2001 Census

4.10.5 IoMD Crime

Crime or the fear of crime can be a barrier to travel and in particular travel by sustainable and public transport. Although there is limited data collected on incidences of transport based crime and anti-social behaviour there has been much research carried out on the way this impacts on people's travel behaviour and perceptions of travel.

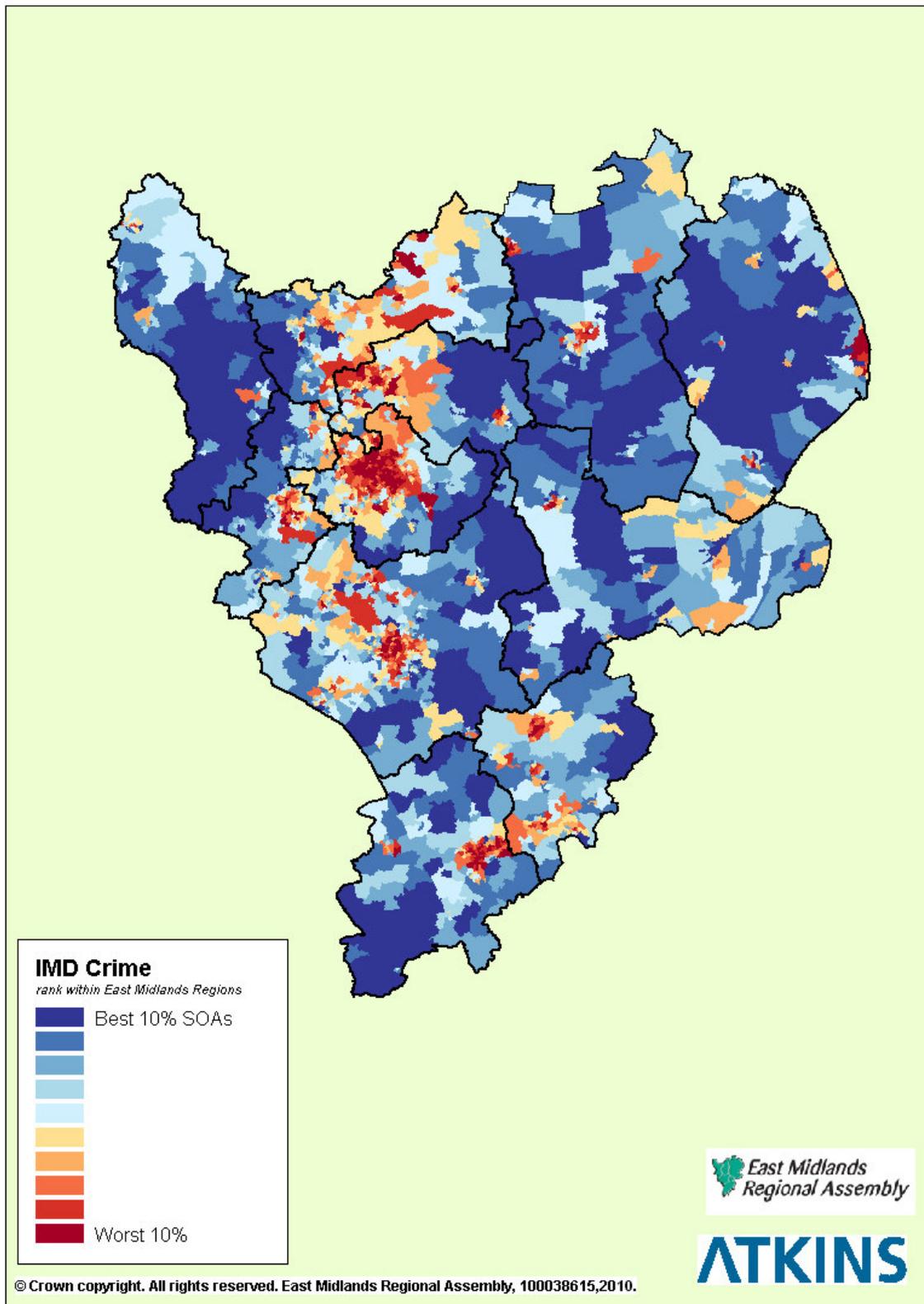
The results of a DfT study highlighted the most common reason for feeling unsafe on buses and trains was anti-social behaviour of young people; 32% of respondents were concerned about feeling unsafe on buses and 20% were concerned about feeling unsafe on trains⁵⁹. Furthermore 22% said they had been a victim of one or more incident of anti-social behaviour, or crime, whilst on public transport in the preceding year, while 76 % had witnessed anti-social behaviour or crime.

Figure 4.47 uses Index of Multiple Deprivation (IoMD) indicators of crime to identify locations experiencing highest levels of crime deprivation in the East Midlands Region. It should be noted however that this covers all crime and not just transport related incidences.

Public transport services, interchanges and other transport infrastructure should be designed to make journeys feel as safe as possible and consider security issues, especially in those areas where crime and anti-social behaviour are prominent.

⁵⁹ *Experiences and perceptions of anti-social behaviour and crime on public transport, DfT 2008*
/East Midlands Transport Conditions & Issues 2010 Update FINAL
- 1 March10.docx

Figure 4.47 - IoMD Crime (2007)



Source: ONS

5. Derby HMA

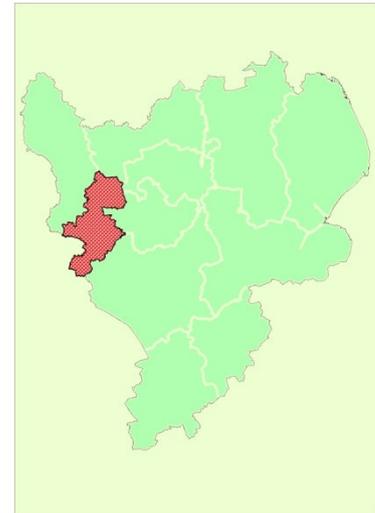
5.1 Introduction

Geographically Derby is the smallest of the Housing Market Areas (HMAs), and covers the unitary authority of Derby and the districts of Amber Valley and South Derbyshire. However, it is also one of the most populated, with a population of 450,000⁶⁰ accounting for 10% of the East Midlands population.

The HMA is predominantly urban, containing the City of Derby as well as the urban centres of Belper, Ripley, Heanor and Alfreton to the north and Swadlincote to the south.

The north east of Derby is covered by Green Belt designation, which is primarily aimed at preventing the coalescence of Derby, Nottingham and their associated towns. The HMA also includes part of the Derwent Valley Mills World Heritage Site.

The economy of the HMA is centred on Derby, although there are also close links and relationships with Nottingham and there is a high proportion of manufacturing including large firms such as Toyota at the junction of the A38 and A50 and Rolls Royce in the city. East Midlands Airport is an important employer and travel destination just outside the area in Leicestershire.



5.2 HMA transport networks

5.2.1 Highway network

Figure 5.1 shows the highway network in the Derby HMA. The A52 connects Derby and Nottingham, and the A38 connects Derby to Burton and Birmingham to the south and Mansfield and the M1 to the north. The A50 to the south of Derby links the M1 and M6 motorways. These links provide an opportunity for long distance commuting in and out of Derby, which is beneficial to accessibility, but not sustainable travel. The economy of the HMA benefits from its close proximity to the M1 and the other trunk roads nearby.

Major highway schemes are planned and under construction in the area. Connecting Derby is a major scheme to complete the inner ring road in the city to remove traffic from city centre streets and improve sustainable transport. It is currently under construction with completion expected in 2010. There are also proposals for two further major schemes on corridors to the south of the city, the A6 London road and A514 Osmaston Road. Should these proceed, they will provide traffic management improvements and the replacement of a substandard railway bridge over the Birmingham-Derby main line. These schemes are programmed into the Regional Funding Allocation (RFA) for completion by 2015.

The Highways Agency also plans to grade-separate the three A38 junctions in Derby to relieve the congestion that is caused by the existing at-grade roundabouts on this route between the M1 Junction 28 and Birmingham. It would also facilitate Growth Point development to the south of the city. The scheme is also in the RFA programme but it is a longer-term scheme, due for completion by 2020.

⁶⁰ Census mid year estimates, 2007, Office for National Statistics
/East Midlands Transport Conditions & Issues 2010 Update FINAL
- 1 March10.docx

5.2.2 Public transport services

As shown in Figure 5.1, Derby is relatively well connected in terms of public transport with coach, rail and bus services providing local, regional and national links. National and regional rail links are good, although rail services within the HMA are limited. Derby is located on the Midland Main line with direct services to London St. Pancras, where international services are available to the Continent. Derby is also served by the Cross Country services between Birmingham and the North-East and between Cardiff, Nottingham, Stoke and Crewe. There is also a local rail service between Derby and Matlock.

Derby station has recently been upgraded with new platforms and canopies. Network Rail is currently developing proposals for speed enhancements to deliver a 10 minute time saving on the Midland Main line between Sheffield and St. Pancras. Derby station is a major pinch-point on rail network capacity and it causes the largest amount of congestion-related delay in the region. The route between Birmingham and Chesterfield operates close to capacity and carries a mix of long-distance fast and stopping trains as well as freight services. This also can have a large knock-on effect on the Midland Main line services.

Derby bus station is closed for upgrading and therefore interchange facilities are currently spread across the city centre. An extensive local bus network is in place and principal routes to other towns and key destinations include the Transpeak service to Manchester via the Peak District as well as Nottingham. High frequency services run between Derby city centre and Nottingham as does the Red Arrow express coach service. Bus services also run from Derby city centre and rail station to East Midlands Airport; as well as direct to Mansfield and Chesterfield.

5.2.3 Walking and cycling

Walking and cycling levels in the Derby HMA are around the average for the region, accounting for 10.4% and 3.1% respectively of journeys to work. These levels could be increased if new development was concentrated around Derby where good walking and cycling links already exist. Derby was one of six places across the country that were selected to be in the first round of Cycle Towns and it has received substantial investment towards cycling, with the aim of increasing cycling levels. The Cycling England monitoring of the scheme shows that there was a positive trend in all of the cycling objectives from 2006 to 2009, including cycle counts, cycle parking and behaviour surveys. These results are useful in establishing the likely impacts of similar investment in the rest of the region.

Derby City has higher than average levels of child obesity therefore encouraging and promoting walking and cycling will help target this statistic.

Figure 5.1 - Derby HMA principal highway network

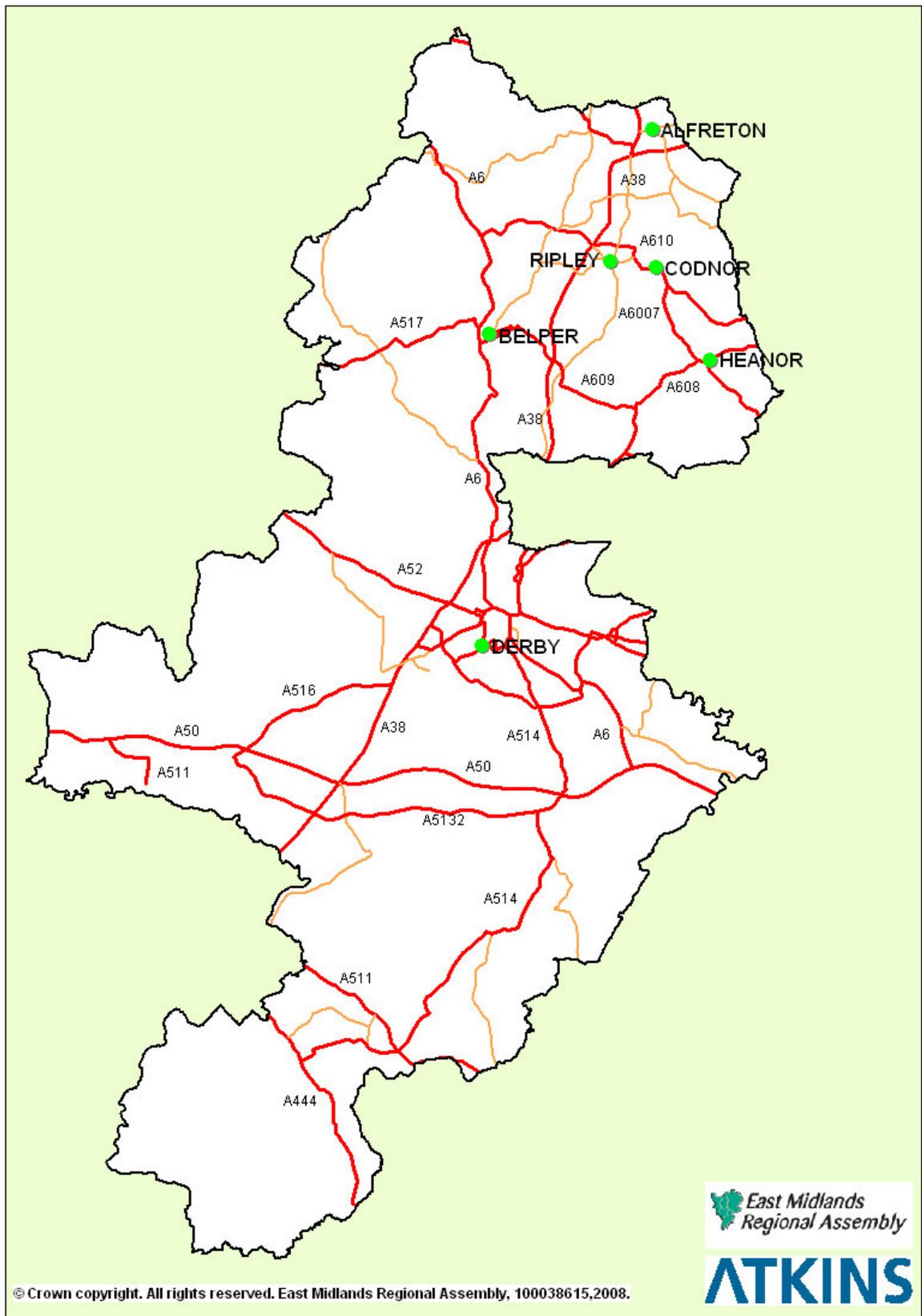
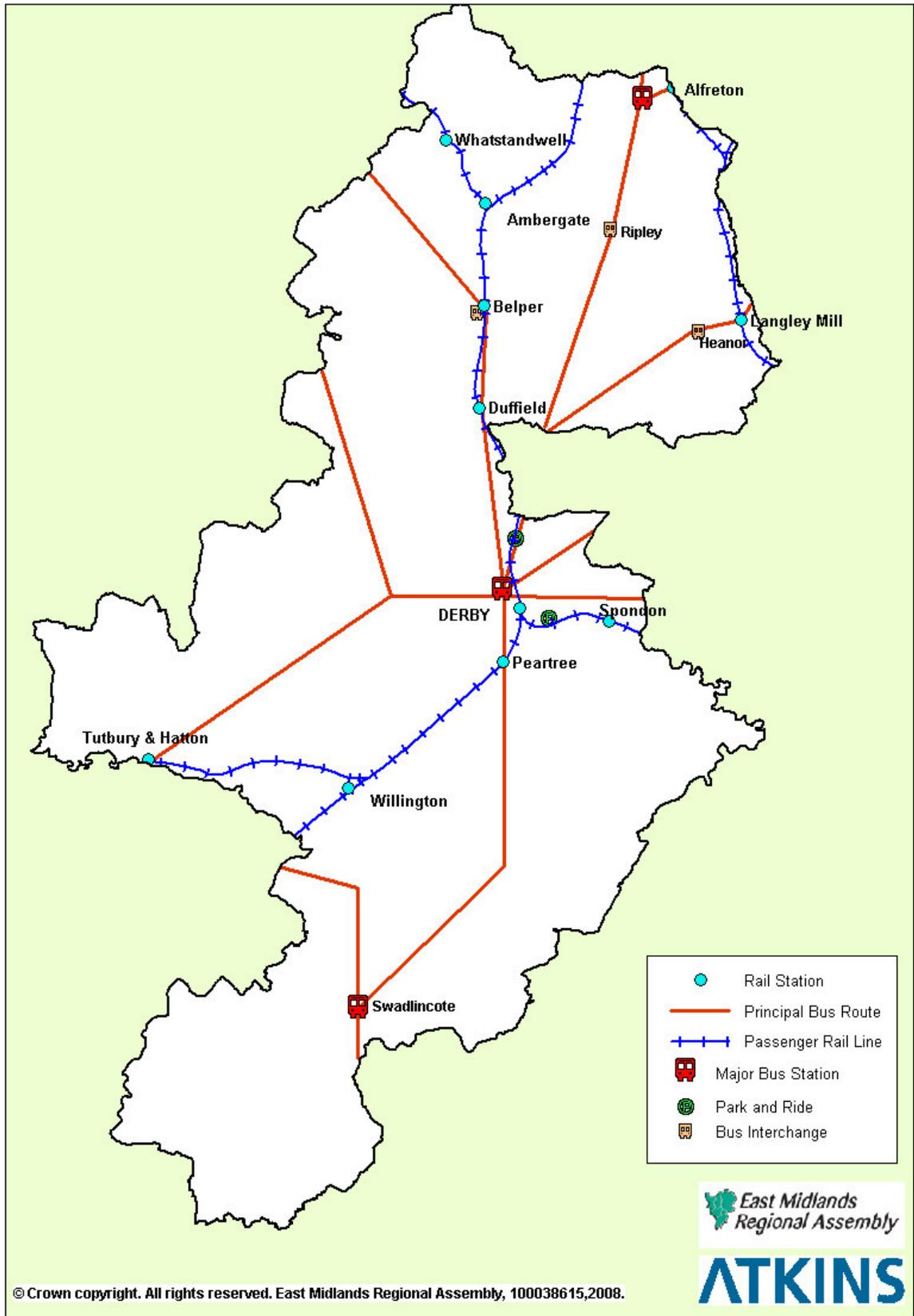


Figure 5.2 - Derby HMA principal bus and rail network



5.3 Challenge EM1: Minimising existing and future traffic congestion and rail crowding on strategic links and in urban areas

5.3.1 Congestion and traffic growth

Derby suffers from some of the worst levels of congestion in the region⁶¹. Particular congestion hotspots include Derby city centre, the junctions of the A38 in Derby, the city centre radial routes (e.g. London Road, Shardlow Road, Osmaston Road, Burton Road, Uttoxeter Road), the A38 near Alfreton and the A50 approach to the M1, the A6 and A61. In addition city centre congestion levels are high and the Connecting Derby scheme is being implemented to upgrade and complete the city's inner ring road to assist in resolving some of these issues.

The economic cost of existing congestion is high, estimated at £46 million per annum or £104 per capita.

The large number of new dwellings will require additional transport provision, particularly between the city centre and the urban extensions on the edge of the city. The development in the rest of the HMA will not suffer the same level of congestion problems as the Derby PUA, but it has less public transport accessibility and walk/cycle options.

Derby station is already a capacity constraint for both the Midland Main line and the Cross Country route. Cross Country services between Nottingham and Birmingham have higher than average load factors, as do services between Nottingham and Alfreton. The draft East Midlands Route Utilisation Strategy (RUS) proposes various solutions to overcome the existing problem and facilitate future growth. A final version of the RUS is expected at the end of February 2010.

The expansion of East Midlands Airport will further generate travel demand from Derby to the airport via the already congested A50/M1 junction or through the AQMA in Castle Donington.

5.4 Challenge EM2: Enabling growth and dealing with the additional demand for travel brought about mainly by regeneration and growth

5.4.1 Planned growth in population

The RSS Core Strategy for determining housing provision in the HMA is strengthening the role of Derby as a PUA through urban intensification and planned and sustainable urban extensions, avoiding unsustainable levels of development in smaller towns in Amber Valley and South Derbyshire and supporting the regeneration of Swadlincote, Alfreton, Belper, Heanor and Ripley⁶².

The total housing provision for the Derby HMA is 36,600 for the period 2006 to 2026, of which 21,400 should be within or adjoining the Derby PUA. Of the dwellings located in the PUA, 14,400 will be within Derby City, 6,400 in South Derbyshire and 600 in Amber Valley. The remaining provision outside the PUA will include 12,000 in South Derbyshire and 10,200 in Amber Valley, mainly in the towns of Alfreton, Belper, Heanor and Ripley.

⁶¹ *Economic Impacts of Congestion, emda/Atkins 2006*

⁶² *East Midlands Regional Plan, March 2009*

/East Midlands Transport Conditions & Issues 2010 Update FINAL

- 1 March10.docx

The HMA is part of the Three Cities Growth Point, as part of which there are plans for an additional 81,500 homes by 2016. Of these, around 9,800 would be around Derby.

5.5 Challenge EM3: Overcoming gaps and weaknesses in the existing transport networks and maintaining accessibility

5.5.1 Key travel movements and patterns

Derby is the primary source of travel demand and it attracts commuters from the rest of the HMA. There is also a high degree of interaction between the Derby and the Nottingham Core HMA, and there are good transport links between the two.

The HMA also has strong transport links with the West Midlands, particularly via the A38 and A50 corridors and rail services, and there are strong travel to work movements between Swadlincote and Burton on Trent.

Although there are no motorways in the HMA, large volumes of through traffic are carried north-south on the A38 and east-west on the A50.

Derby is a key hub on the railway network which is used by large volumes of passengers and freight on the Midland Main line and the Cross Country services between Birmingham and Yorkshire.

Freight movement

There is a high level of road freight into the centre of Derby due to its role as a major retail destination, including small delivery vehicles. The tight delivery time frames in these main centres can exacerbate existing congestion problems. The incomplete inner and outer ring roads and high levels of congestion are significant barriers to the movement of freight, although the Connecting Derby scheme will improve city centre freight access.

Although Derby is a key centre for the rail industry in terms of manufacturing and operation of services, it is not a particularly important origin or destination for rail freight. There is a large amount of through freight on the Birmingham to North East route, but there are no significant rail freight termini in the Derby HMA. Rail links in the area are very good so the potential to introduce rail freight handling exists.

5.5.2 Accessibility

The HMA is characterised by pockets of high deprivation, above national and regional averages of unemployment and high levels of no car ownership. Key accessibility issues to be addressed include improving access to East Midlands Airport beyond that already provided by the Airlink service, improving the availability of public transport information, improving access to out of hours GP surgeries, improving security around transport and working with community transport to develop service improvements.

National Core Accessibility Indicators suggest poor access to hospitals in South Derbyshire.

Table 5.1 shows the proportion of households in the HMA within a 250 metre walk of a bus stop served by hourly, half hourly and ten minute frequencies. Access to the bus network is relatively high with 76% of households having access to an hourly bus network between 6 am and 9 am.

The centre of Derby provides good access to bus services operating a 20 minute or better frequency within the city and to surrounding towns including Matlock and Ashbourne and a corridor between Derby and Nottingham providing access to services operating a 30 minute frequency service. Other areas are covered by an hourly or less bus service.

Table 5.1 - Derby HMA - Access to the bus network

Morning peak period bus service frequency of at least	% of HMA households
Six buses per hour (10 minute frequency)	17%
Two buses per hour (30 minute frequency)	64%
One bus per hour (60 minute frequency)	76%

5.5.3 Gaps in network provision

The road network is comprehensive but, except for the A50 and A38 trunk roads, the standard is relatively low. Road congestion is a problem in the city and schemes have been identified that will provide additional capacity. Rural accessibility is an issue in the west and south of the area.

Public transport links between Derby and some parts of the area are limited. Derby railway station is a constraint on rail capacity which may restrict the growth in passengers, freight and the wider economy. Rail links to the main destination of Nottingham are inferior to the links to Leicester and Birmingham and local rail links within the HMA into Derby are very limited.

5.6 Challenge EM4: Minimising the effects of non-recurrent delays on the transport networks.

No data is currently available regarding this challenge at an HMA level.

5.7 Challenge EM5: Overcoming lack of awareness of (benefits of) sustainable travel options and inertia of individuals and businesses to change behaviour

5.7.1 Potential for behavioural change

The HMA does have a high number of bus trips per head (51 per capita per annum) but this is the lowest bus use across the three cities.

Derby HMA shows a number of locations where key demographic and accessibility characteristics linked to likely behaviour change are prominent. These are mostly within Derby city and include the city centre, Oakwood, Mickleover, Littleover and Alvaston.

5.8 Challenge EM6: Identifying measures to reduce further the number of deaths and injury accidents, particularly on roads

5.8.1 Road accidents

On average, 233 people are killed or seriously injured (KSI) in the HMA each year, accounting for 9% of KSIs in the region⁶³. The most KSIs occur in Derby (broadly half of the total) with the

⁶³ 2005-2007 average

remainder broadly split between South Derbyshire and Amber Valley. The A52 and A62 are considered to be particular black spots.

Overall, the annual KSI rate per 1,000 residents, of 52.7, is slightly below the English average (of 54.3) but significantly below the regional average (of 60.5). This is one of the lowest rates in the region.

The number of total personal injury accidents (including slight injuries) is approximately 1,400 per year. Of those injured therefore, 14.6% are killed or seriously injured, was slightly lower than the regional average of 15.5%, which may reflect the more urbanised and low speed nature of the area. The proportion of fatalities was the lowest in the region at only 1.2% compared with an average of 1.9%.

The KSI rate does however vary notably between the districts. In urban Derby, there are 45.1 KSIs pre capita, compared to 56.8 and 67.3 in Amber Valley and South Derbyshire respectively. These differentials arise due to the nature of the roads in these areas; accident rates are generally higher in rural areas where the roads are higher speed and single carriageway.

5.9 Challenge EM8: Minimising noise, severance, vibration, local air quality and other issues affecting local communities

5.9.1 Air quality

In terms of air quality, levels of PM₁₀ and NO₂ are highest around the urban areas, particularly Swadlincote, Derby, Belper, Ripley, Alfreton and Heanor.

There are four Air Quality Management Areas (AQMAs) in the area. Three are in the city encompassing the Inner and Outer Ring Roads, as well as some sections of radial roads, plus one on Castle Donington high street.

5.9.2 Community impacts

There are significant quality of life impacts on local communities from through traffic in terms of safety, noise and vibration (for example in Ripley, Codnor, and Woodville/Swadlincote,)

5.9.3 CO₂ emissions

Total road transport carbon emissions are just below average in this area at 805 kT in 2006, but the per capita figure is 1.8T per person which, along with Nottingham Core, is the lowest in the region. This is probably due to the large population combined with good public transport and the lack of any motorways in the area.

Derby HMA - Summary of conditions and issues

Location of future development

Total housing provision for the Derby HMA is 36,600 new dwellings between 2006 and 2026

21,400 to be concentrated largely within or adjoining the Derby PUA

The 3 Cities Growth Point allocation for Derby is 9,800 dwellings and these are included within the housing provision total

Implications for transport

Connectivity within the HMA is relatively good. Highway links and public transport links are of a high standard

The highway network is congested at peak times within the city and on key routes within the HMA and the 3-Cities sub-area. Additional development will add to these existing pressures

The capacity of longer distance routes, such as the A38, the A52 and the A50/M1 is restricted at peak times by congestion.

Surface access to East Midlands Airport is constrained by highway capacity on the surrounding highway and public transport accessibility

Commuter rail links within the HMA are limited, although longer distance links from Derby are relatively good. The scope to increase rail patronage is limited by the number of stations in the area

Significant transport capacity improvements will be required to support development around the urban areas, both roads and public transport.

Most of the development will be within or adjoining the city so it will be essential to provide high capacity, sustainable links from these developments into the city centre

For those challenges for which there is sufficient evidence, the table below summarises the relative severity of each challenge in this HMA compared to the other HMAs in the region.

Challenge (summary wording)	Relative severity of challenge in HMA
EM1: Minimising congestion and crowding	More severe
EM2: Enabling and dealing with growth	Typical
EM3: Overcoming gaps and weaknesses	Typical
EM5: Encouraging behavioural change	More severe
EM6: Reduce death and injury	Less severe
EM8: Minimise effects on communities	More severe
EM9: Minimise effects on the environment	Typical
EM11: Overcoming travel habits	Less severe

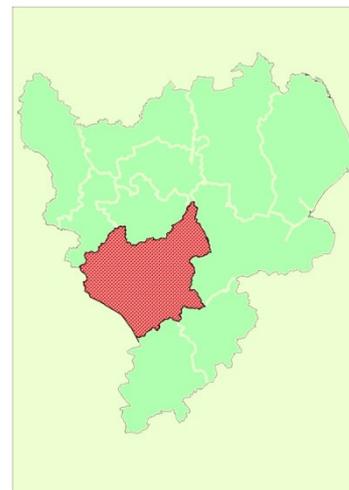
6. Leicester and Leicestershire HMA

6.1 Introduction

With a population of 933,000, Leicester & Leicestershire is the most populated of the HMAs in the region, accounting for 21% of the East Midlands population⁶⁴. The HMA consists of more districts than any other, Leicester City, Blaby, Charnwood, Harborough, Hinckley & Bosworth, Melton, NW Leicestershire and Oadby & Wigston.

The forecast population increase of 216,000 by 2031 is the largest of any HMA in the region, although in percentage terms the growth rate is fairly typical. Leicester has the highest population density in the region with 3,951 people per km².

The City of Leicester is the main urban settlement within the HMA, which also contains the towns of Loughborough, Melton Mowbray, Hinckley, Market Harborough and Ashby-de-la-Zouch. This HMA is also home to the only airport in the region, East Midland Airport, which is a major source of employment and a large generator of travel demand.



6.2 HMA transport networks

6.2.1 Highway network

As shown in Figure 6.1, the M1 runs through the area from north to south providing an important national and local strategic route and connecting the area to London and to the north of the country. The section of the M1 from Junction 21 to 31 has been identified for upgrade to Managed Motorway status, which includes Hard Shoulder Running to provide more capacity at peak times. Phase 1 of this programme has already begun. Junction 19 of the M1, where the motorway meets the M6 and A14 is also due to be re-built as a grade-separated junction, albeit without all movements, to increase capacity. The M69 provides a link to the West Midlands, and the A42 leads into the M42 to the West Midlands and the North West.

These good links and Leicester's central location has led to a significant growth in the logistics and distribution industry in the area. Its proximity to the M1 enables long distance commuting to and from Derby and Nottingham. The road network is heavily focussed on Leicester with radial routes to all of the surrounding market towns. Most of these roads are of rural, single carriageway design.

The A453 is a critical link from Nottingham to the M1 south and EMA but joins the M1 at Junction 24, which is within the Leicestershire HMA. This road is currently single carriageway, but the region has prioritised widening to dual carriageway to provide additional capacity in this corridor. It will also impact on traffic using the A6 from Loughborough and Leicester to the south. The scheme is due to be completed by 2012.

A major scheme is planned for Loughborough town centre that will displace traffic from the town on to a new link road and will provide environmental improvements, accident reductions and enable regeneration. The scheme is due for completion in 2012.

⁶⁴ Census mid year estimate, 2007, Office for National Statistics
/East Midlands Transport Conditions & Issues 2010 Update FINAL
- 1 March10.docx

6.2.2 Public transport services

Figure 4.1 shows that the main settlements in the HMA are well provided in terms of public transport services through the principal bus and rail network. North-south rail links are provided on the Midland Mainline with services to Nottingham, Derby, Loughborough and Sheffield in the north and London St. Pancras to the south. East to west connections are provided on the Birmingham – Stansted Airport line at Leicester (which also serves Melton Mowbray, Hinckley, South Wigston and Narborough stations). The public transport network is heavily focussed towards Leicester and Loughborough.

The new East Midlands Parkway station, which opened on the Midland Mainline in 2009, has improved public transport links to East Midlands Airport with a shuttle bus service from the station to the airport. It has also improved access to train services on Midland Mainline by providing a park and ride facility. The station is served by over 100 trains per day and the patronage after the first year of operation has exceeded the forecast.

The bus network is heavily focussed on the city centre where the bus network, stations and frequencies are very high quality. All of the significant towns in the HMA are linked to the city centre by bus and the larger towns have their own bus stations or interchanges.

A new 1,000-space Park & Ride site opened at Enderby close to M1 Junction 21 in November 2009. A third permanent, site is planned in Glenfield and is expected to open by 2013. A major project to construct one or more new bus termini in the city centre has also been included in the RFA programme, although funding is not yet secured. This will provide sufficient additional capacity for buses in the city centre to accommodate the forecast growth in patronage. It will also raise the quality of bus facilities in the city centre to encourage modal shift.

6.2.3 Walking and cycling

Walking and cycling levels are similar to the regional average at 10.7% and 3.4% of journeys to work respectively. These levels could be increased further if development was concentrated further around the PUA of Leicester.

Figure 6.1 - Leicester and Leicestershire HMA principal highway network

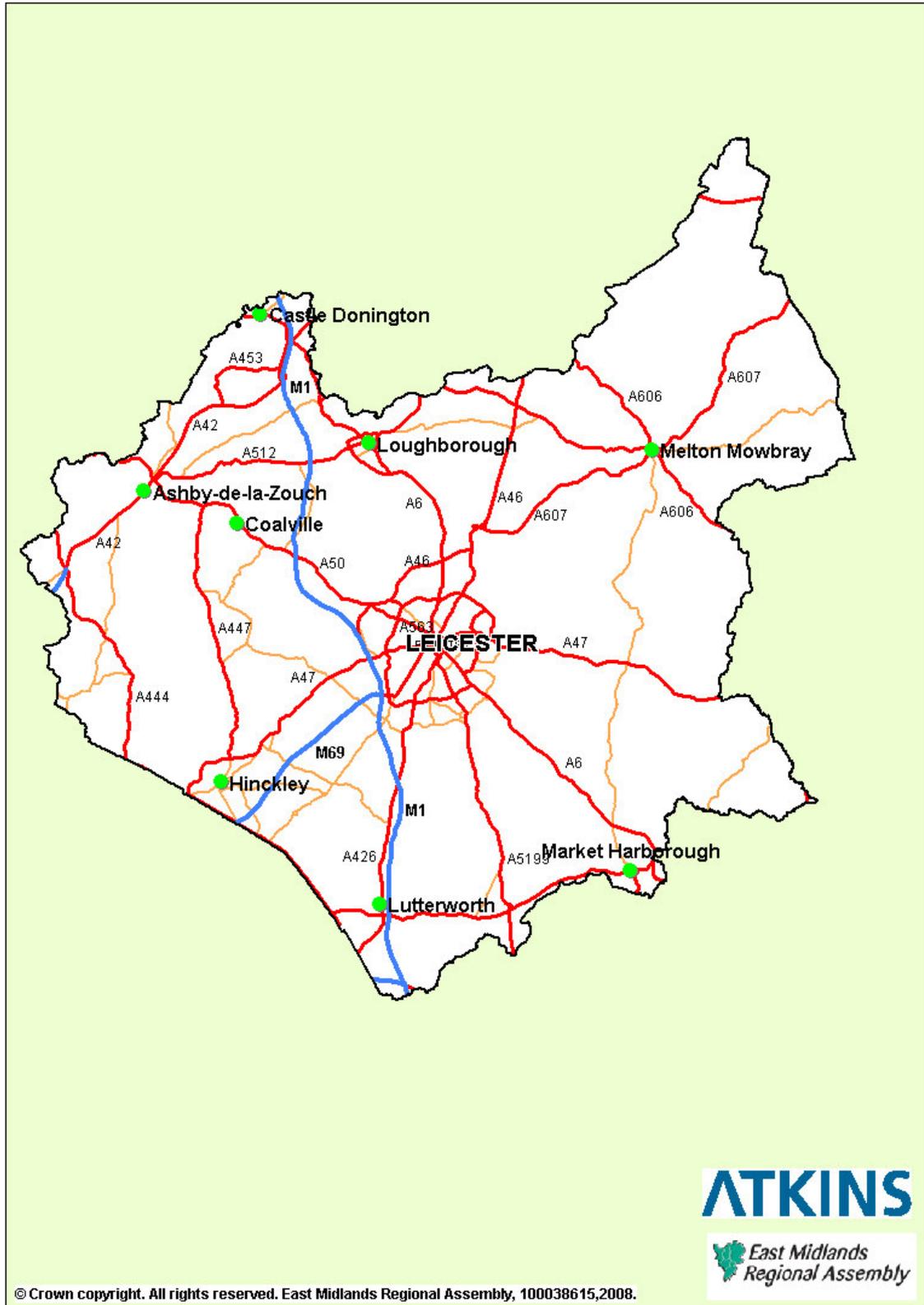
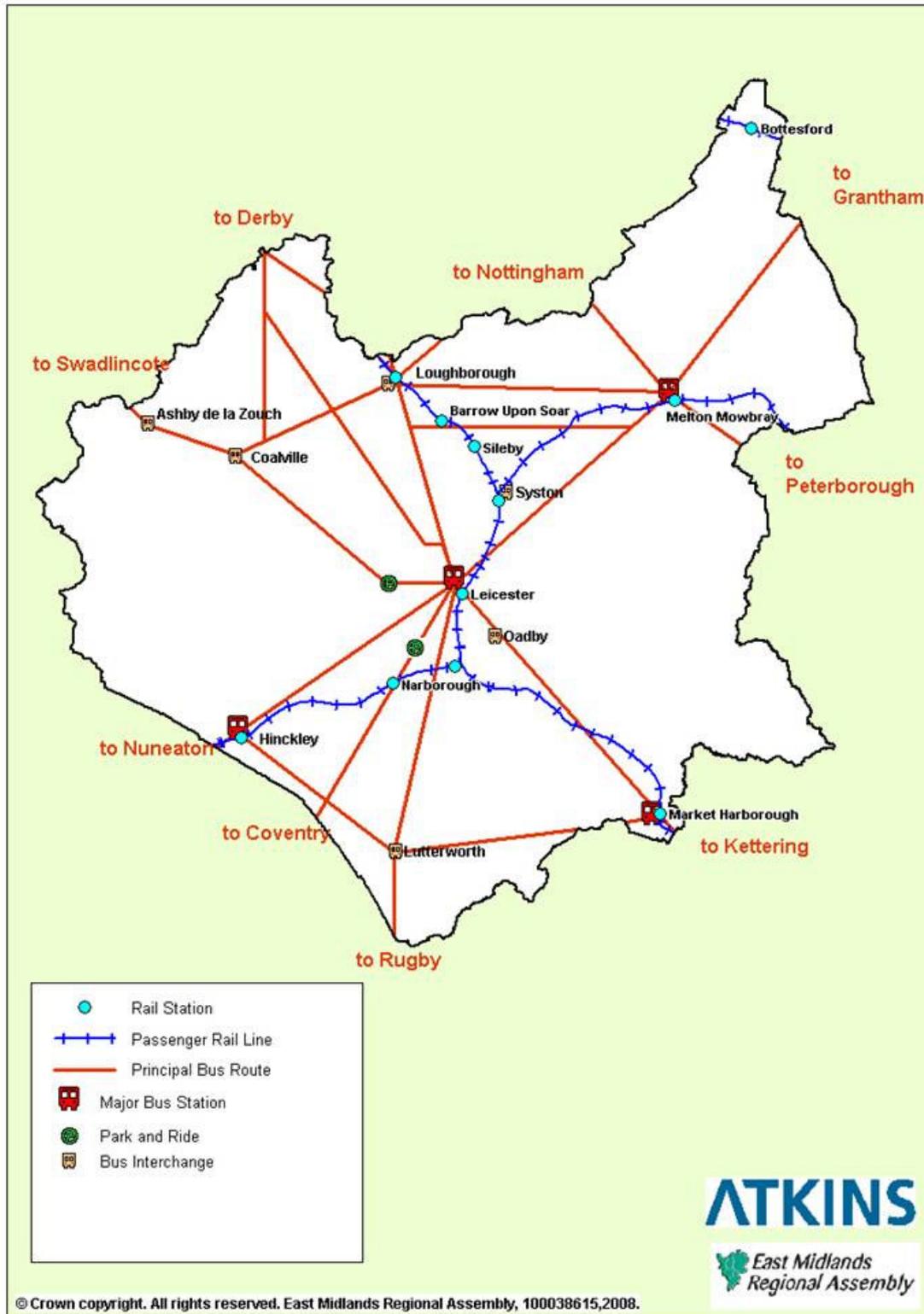


Figure 6.2 - Leicester and Leicestershire HMA principal rail and bus network



6.3 Challenge EM1: Minimising existing and future traffic congestion and rail crowding on strategic links and in urban areas

6.3.1 Congestion and traffic growth

Leicestershire HMA has the highest economic cost of congestion in the East Midlands, with an estimated £153.5 million lost due to congestion per year, or £167 per person.

The busiest routes through the HMA are the M1, M69, A42 and the ring road around/through Leicester city. The city suffers from serious peak period traffic congestion (e.g. inner and outer ring roads, radial routes), as does the A6 north of the city, Loughborough, Hinckley, Melton Mowbray, Wigston, Blaby, Glenfield, Syston, and the A511 through Coalville.

Rail and platform congestion is an existing problem on the Midland Main line in the Leicester area. The draft East Midlands Route Utilisation Strategy proposes various solutions to overcome the existing problem and facilitate future growth. Although rail crowding in the region is relatively uncommon, the most highly loaded rail services tend to be in this HMA (for example south of Leicester on the Midland Mainline and on the Birmingham-Standed Airport services).

East Midlands Airport will have traffic and travel implications as passenger numbers, freight tonnage and employment at the airport is set to at least double in number over the next 20 years. The Leicestershire Local Transport Plan 2006 - 2011 reports that modelling outputs show the M1 and A42 have capacity to deal with this growth from the airport in the medium term, but in the long term there will be a need to ensure that the proportion of people travelling to the airport by public transport is greatly increased.

6.4 Challenge EM2: Enabling growth and dealing with the additional demand for travel brought about mainly by regeneration and growth

6.4.1 Planned growth in population

The objectives of the RSS are to strengthen the role of the Leicester PUA through urban intensification and sustainable urban extensions and to strengthen the sub-regional role of Loughborough, Hinckley, Coalville, Melton Mowbray and Market Harborough⁶⁵.

The total housing provision for the Leicester and Leicestershire is for 80,400 dwellings for the period 2006-2026. Of these, 39,800 are within or adjoining the Leicester PUA, 25,600 of which are in Leicester City Council area.

Blaby district has a provision of 7,600 dwellings, of which 5,000 adjoin the Leicester PUA. Charnwood has a provision of 15,800 dwellings, of which 6,600 adjoin the Leicester PUA and the remainder are mainly in Loughborough.

Harborough has a provision of 7,000, which are mainly in Market Harborough. Hinckley and Bosworth 9,000, mainly in Hinckley and Melton Mowbray will have 3,400, mainly in Melton.

North West Leicestershire will have 10,200, mainly in Coalville and Oadby & Wigston has 1,800, all close to Leicester PUA. These housing allocations include a Growth Point designation of 17,800 dwellings.

⁶⁵ East Midlands Regional Plan (RSS) March 2009
/East Midlands Transport Conditions & Issues 2010 Update FINAL
- 1 March10.docx

The housing provision is the largest increase in housing numbers of any HMA in the region; although in terms of the percentage increase on top of the existing housing numbers it is lower than the average. This means that there will be a lot of housing to accommodate, but high capacity infrastructure is already in place to provide for the large population that already exists in Leicestershire.

6.5 Challenge EM3: Overcoming gaps and weaknesses in the existing transport networks and maintaining accessibility

6.5.1 Key travel movements and patterns

Leicester is the major population centre in the HMA, but there are also several towns with significant populations, including Loughborough and Market Harborough. Transport demand and the road and public transport networks are however heavily focussed on Leicester. The east of the HMA is largely rural, with Melton Mowbray being the only significant town.

The journey to work pattern reflects this, with large commuting flows into Leicester from the outskirts of the city and the market towns to the south and the north-west of the area, along the M1 corridor. The amount of net in-commuting to the HMA is the second highest in the region, at over 9,000 people per day.

The M1 and M69 carry large volumes of through traffic and the A46 and A42 are both very important Trunk Road routes. Travel towards the east is more difficult with only single-carriageway roads provided.

Leicester is one of the busiest railway stations in the region with the main passenger movements being towards London, Nottingham and within Leicestershire. Loughborough also has a large rail passenger patronage and is the only major station where the majority of passengers are travelling within a HMA.

Most bus routes in the city are high frequency and total bus patronage is relatively high. However, the number of bus trips per person is only 67% of that of Nottingham Core HMA, possibly because the overall network is not as comprehensive as the Nottingham/Derby area.

Freight movement

Leicester's incomplete outer ring road represents a hindrance for freight movement across the central area of the HMA. The motorways provide excellent links for the movement of road freight and distribution centres have located in Leicester close to the M1 and M69.

The city centre is a major origin and destination for freight and short delivery timescales can generate large amounts of goods traffic and add to existing congestion.

Rail freight is important on the Midland Main line as well as on the line between Leicester and Peterborough. EMA is the largest airport outside of London for the handling of air freight, carrying around 300,000 tonnes per year in 2007. Detailed planning permission has been granted for an additional 220,000 sq ft of cargo facilities which will double the size of the airport freight capacity.

6.5.2 Accessibility

Leicester has many areas of deprivation that rank not only worst in the region, but also nationally. By ensuring that key services such as employment, education and healthcare are easily accessible by public transport and sustainable modes this will assist in widening opportunities for people living in deprived communities.

The accessibility priorities identified for this area within the Central Leicestershire Local Transport Plan (LTP) 2006 - 2011 focus around improving access to employment and training facilities and

six areas of the city have been identified as priorities for improvement, Bursom, Troon & Hamilton, Gorse Hill, Braunstone Frith, Meridian and Fosse Park.

National Accessibility Indicators indicate poor access to employment (in Harborough), primary schools (Harborough), secondary schools (Melton), further education (Harborough and Melton) and supermarkets (Melton)

Areas for improvement across the county include developing the bus information strategy and producing site specific travel information, promoting walking and cycling and ensuring accessibility is consistently considered in land use development proposals.

Table 6.1 shows the proportion of households within 250 metres of bus stops serviced by high, medium and low-frequency services during the morning peak. Overall levels of bus accessibility are very high. Leicester city centre and radial routes leading to places including Loughborough, Kegworth and Nuneaton provide good access to bus services operating a 20 minute or better service. In addition to these locations access to services is better in the north and west of this zone.

Table 6.1 - Leicester and Leicestershire HMA - Access to the bus network

Morning peak period bus service frequency of at least	% of HMA households
Six buses per hour (10 minute frequency)	20%
Two buses per hour (30 minute frequency)	56%
One bus per hour (60 minute frequency)	74%

6.5.3 Gaps in network provision

Congestion levels are high and road capacity restrictions in the city and on the M1 may be a constraint on growth and regeneration. The road network is extensive, but is heavily focussed on the city so some journeys are not well-served. The incomplete outer ring road is potentially a constraint on growth, and some local network coverage and capacity limitations may inhibit the unlocking of regeneration (such as the Waterside regeneration area in Leicester or Loughborough town centre).

Rural areas to the east and west of the area have comparatively poor road and public transport links and north-south road and public transport are generally much better than east-west. Although significant compared to some parts of the region, the public transport links between Derby, Leicester and Nottingham and to London, the rest of the region, EMA, and beyond (e.g. Birmingham, Leeds, Manchester and Sheffield) are not ideal. Journey times can be slow and frequencies poor (below what might be considered 'inter city' standard elsewhere). City centre public transport interchange in Leicester is poor, and may limit modal shift and regeneration potential. There is limited capacity at Leicester station for more services or on the Midland Mainline generally.

6.6 Challenge EM4: Minimising the effects of non-recurrent delays on the transport networks

No data is currently available regarding this challenge at an HMA level.

6.7 Challenge EM5: Overcoming lack of awareness of (benefits of) sustainable travel options and inertia of individuals and businesses to change behaviour

6.7.1 Potential for behavioural change

The district of NW Leicestershire has the highest car journey to work mode share anywhere in the region (at 83%), and the district of Blaby the third-highest (at 81%). However, Leicester has the second-lowest car journey to work mode share in the region, at 66%, and high bus use at 63 trips per person per annum.

There are a number of areas that have key demographics and accessibility characteristics within this HMA linked to behavioural change characteristics that are likely to be positive towards behavioural change measures. These areas are largely found to the north of the city of Leicester including Groby and Thurmaston and Blaby to the south.

6.8 Challenge EM6: Identifying measures to reduce further the number of deaths and injury accidents, particularly on roads

6.8.1 Road accidents

On average, 374 people are killed or seriously injured (KSI) in the HMA each year, accounting for 14% of KSIs in the region⁶⁶. The most KSIs occur in Leicester (broadly 20% of the total) with the remainder fairly equally split between the seven County districts (although the number of KSIs is very low in Oadby & Wigston).

Overall, the annual KSI rate per 1,000 residents, of 40.8, is the lowest in the region and is significantly below the English average (of 54.3) and the regional average (of 60.5). The A6003 between Oakham and Corby has been classified by EuroRAP as medium-high risk and M1 Junction 19 (A14/M6) is a particular accident black spot for HGVs.

The number of personal injury accidents (including slight injuries) has fallen from almost 4,000 per year in 2003 to 3,300 per year in 2007. Of those injured therefore, 10.3% are killed or seriously injured, also the lowest in the region and compared to the regional average of 15.5%.

The KSI rate does however vary notably between the districts. In urban Leicester, there are 28.5, and 18.43 KSIs per capita in Oadby and Wigston. By comparison, KSI rates in Harborough district are 63.4 and in NW Leicestershire 72.3. These differentials arise due to the nature of the roads in these areas; accident rates are generally higher in rural areas where the roads are higher speed and single carriageway.

⁶⁶ 2005-2007 average
/East Midlands Transport Conditions & Issues 2010 Update FINAL
- 1 March10.docx

6.9 Challenge EM8: Minimising noise, severance, vibration, local air quality and other issues affecting local communities

6.9.1 Air quality

In terms of air quality, levels of PM₁₀ are highest around the urban areas, particularly Leicester, Loughborough, Hinckley, Melton Mowbray and Market Harborough.

There are air quality problems on the M1 corridor and around the main road corridors and in urban centres (including Leicester, Loughborough). There are a total of eight AQMAs in the area located in Leicester City and the districts of Blaby, Charnwood, Harborough and NW Leicestershire. In terms of carbon emissions, the HMA is considered to have levels either equal to or better than the national average.

6.9.2 Community impacts

Through traffic, especially HGVs, has negative impacts on quality of life in local communities such as Lutterworth, Sharnford and Hoton. There are also noise issues related to East Midlands Airport, both in the HMA and beyond.

6.9.3 CO₂ emissions

Total road transport carbon emissions are by far the highest in this HMA than any other at 2,385kT in 2006, which is well over double the regional average. However, the large population means that the per capita figure is only 2.6T per person, which is about average for the region. The presence of the large city, significant other towns and the long length of the M1 and M69 has produced this high level of emissions.

Leicester and Leicestershire HMA - Summary of conditions and issues

Location of future development

Total housing provision is 80,400 dwellings (39,800 within or adjoining the Leicester PUA).

The housing provision is largely focussed in the city of Leicester and adjoining the city in the districts of Charnwood and Blaby. This provides the best opportunity to provide sustainable transport links between the new development and the rest of the city

The remainder of the housing is mainly in sustainable urban extensions to the centres of Loughborough, Hinckley and Coalville. Urban extensions to Leicester in the districts of Harborough and Oadby and Wigston are more limited.

Implications for transport

The existing network in Leicester PUA is highly congested at peak times. Longer distance routes using the M1 are also constrained by congestion levels in peak periods

Surface access to EMA is constrained by highway capacity on the surrounding highway and limited public transport accessibility

Commuter rail links to Leicester from the main towns in the HMA are relatively good and there is good long distance access to London, Birmingham and the north.

Significant transport capacity improvements will be required to support development around the urban areas, both roads and public transport. Most of the development would be within or adjoining the city so it will be essential to provide high capacity, sustainable links from these developments into the city centre

Transport development in the rest of the HMA will need to focus more on improving the current levels of public transport accessibility and tackling individual highway capacity issues

The M1 and the A6 between Leicester and Loughborough are congested at peak times but other strategic routes, such as the A46 and the M69 still have capacity to carry more traffic.

For those challenges for which there is sufficient evidence, the table below summarises the relative severity of each challenge in this HMA compared to the other HMAs in the region.

Challenge (summary wording)	Relative severity of challenge in HMA
EM1: Minimising congestion and crowding	More severe
EM2: Enabling and dealing with growth	More severe
EM3: Overcoming gaps and weaknesses	Typical
EM5: Encouraging behavioural change	More severe
EM6: Reduce death and injury	Less severe
EM8: Minimise effects on communities	More severe
EM9: Minimise effects on the environment	Less severe
EM11: Overcoming travel habits	Less severe

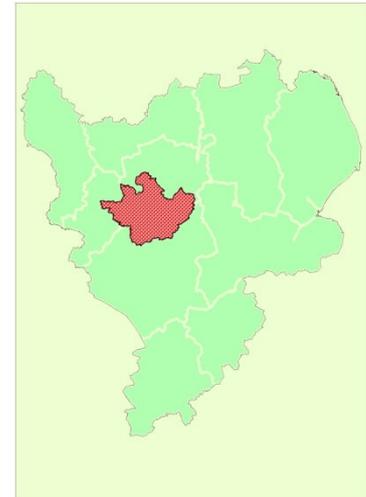
7. Nottingham Core HMA

7.1 Introduction

Nottingham Core HMA is central to the region and comprises the districts of Nottingham City, Erewash, Broxtowe, Gedling and Rushcliffe. With a population of 731,000 it is the second most populated HMA with 17% of the regional population and contains the City of Nottingham and Greater Nottingham urban area⁶⁷. The population is forecast to increase by a further 160,000 by 2031 which is the second largest increase after Leicestershire.

The area is heavily focussed on the city of Nottingham and it contains a wide range of categories of land use, from the city centre to the rural district areas of Rushcliffe.

The size of the city means that it has developed strong relationships beyond the HMA area. The HMAs of Derby and Nottingham Outer are both closely related to Nottingham which generates large amounts of travel within the urban areas. The region's only airport, East Midlands Airport (EMA), is located just outside the area but is a major source of employment and travel demand from Nottingham.



7.2 HMA transport networks

7.2.1 Highway network

Figure 7.1 shows the HMA has a well developed and extensive road network. The A52 links Nottingham with Derby and the M1 passes through Nottingham Core linking the area with the north and south of the country. In addition the A453 and A46 are key routes.

The capacity of the M1 is currently being increased along various lengths in the region. The section from Junction 21 to 31 has been identified for upgrade to Managed Motorway, including Hard Shoulder Running to provide more capacity at peak times. Phase 1 of this programme, widening between Junctions 25 and 28 is currently under construction.

The A453 is a critical link from Nottingham to the M1 south and EMA. This road is currently single carriageway but is a high priority to be widened to dual carriageway to provide additional capacity in this corridor. The scheme, if funded, could be complete by 2012/13. The A52/A6514 Nottingham Ring Road is also included in the Regional Funding Allocation programme of major schemes. If approved, it will reduce orbital journey times and provide more bus priority.

A further Highways Agency scheme that impacts on the area is the A46 widening from Newark to Widmerpool. A new 28 kilometre two-lane dual carriageway is being constructed to replace the existing single carriageway road with the aims of reducing congestion, improving road safety and removing traffic from villages along the route. Construction was brought forward due to the DfT's fiscal stimulus package and is now expected to be complete in 2012.

A further major scheme is planned for Hucknall town centre that will displace traffic from the town on to a new link road and will provide improved traffic management and bus priority. The scheme, if approved, is due for completion in 2012.

⁶⁷ Census mid year estimate, 2007, Office for National Statistics
/East Midlands Transport Conditions & Issues 2010 Update FINAL
- 1 March10.docx

7.2.2 Public transport services

As shown in Figure 7.2, public transport provision in Nottingham is good. All the centres of population are linked to the city by bus or rail, but orbital routes between district centres are less well served. Trips in Nottingham have the lowest proportion of travel by car in the East Midlands because of the good public transport links and good access for pedestrians and cycles.

Nottingham is the main railway station in the area, although there are also local stations such as Beeston and Bingham. Platform congestion is a constraint at Nottingham and there are proposals to upgrade of the current station that will provide a high quality interchange between public transport modes.

The Midland Main line serves Nottingham station with services to London, Leicester, Derby and Sheffield. The Robin Hood Line links Nottingham to Mansfield and Worksop along with a Cross Country service to Cardiff via Birmingham. Improved rail services between Derby, Leicester and Nottingham are important for connectivity and providing sustainable travel within the three cities sub-area.

East Midlands Parkway station has recently opened on the Midland Mainline on the edge of the area and it has improved public transport links to East Midlands Airport with a shuttle bus service from the station to the airport. It has also improved access to train services on Midland Mainline by providing a park and ride facility. The station is served by over 100 trains per day and the patronage after the first year of operation has exceeded the forecast.

Nottingham also has the only light rail system in the East Midlands, the Nottingham Express Transit (NET) tram system, which currently has one main line with 23 stops, of which some link with rail stations, and includes five park and ride sites, including one close to the M1. NET also has plans for extending the network to the west and south of the city and these extensions would also be fully integrated into Nottingham railway station.

The bus route network is heavily focussed on the city centre where the bus network, stations and frequencies are very high quality. All of the significant towns in the HMA are linked to the city centre by bus. Bus accessibility is low in the rural areas to the south and east of the area.

7.2.3 Walking and cycling

Walking and cycling levels in the Nottingham Core HMA are around the average for the East Midlands at 10.3% and 3.4% of journeys to work respectively.

7.3 Challenge EM1: Minimising existing and future traffic congestion and rail crowding on strategic links and in urban areas

7.3.1 Congestion and traffic growth

The highway network within the Nottingham Core HMA is one of the most congested within the region. Specific congestion hotspots include the main arterial routes to the M1 (e.g. the A453), the M1 junctions themselves and parts of the network around the city centre (e.g. where the arterial routes cross the ring road, the A60). Nottingham has the highest level of in-commuting in the East Midlands - 54% who work in the city do not live there.

The annual costs of congestion are higher than any other HMA at around £209 per Nottingham Core resident adding up to a total of £152m per year.

Platform overcrowding and rail congestion on the western approach to the station is an existing problem at Nottingham station. The draft East Midlands Route Utilisation Strategy proposes various solutions to overcome the existing problem and facilitate future growth. Nottingham-Birmingham trains have higher than average load factors.

The growth projections for East Midlands Airport could have a significant impact on transport in the Nottingham HMA. Although the airport itself is outside the area, much of the travel to and from it will originate in the Nottingham HMA or travel through it on the M1. Passenger numbers, freight tonnage and employment at the airport are expected to double in the next 20 years. Transport improvements on the M1 and the A453 to Nottingham will help provide for this, but other capacity increases may be necessary.

7.4 Challenge EM2: Enabling growth and dealing with the additional demand for travel brought about mainly by regeneration and growth

7.4.1 Planned growth in population

The objectives of the RSS for Nottingham Core are to strengthen the role of Nottingham PUA through urban intensification and sustainable urban extensions and to strengthen the sub-regional roles of Hucknall and Ilkeston. Greenbelt surrounds the city and one of the main aims of it is to maintain a clear separation of the urban areas of Nottingham and Derby⁶⁸.

Housing provision within the RSS for the Nottingham Core HMA is 57,000 from 2006-2026. Although specific locations have not yet been identified for the area it is proposed that regeneration opportunities should be identified in the south of Nottingham as well as brownfield development at Stanton and Cotgrave with the potential for these to be eco-town developments. The amount of additional dwellings is the second highest in the region, although the percentage increase (18%) compared with existing housing numbers is lower than the regional average increase (23%).

The housing provision is split between Nottingham City (20,000) and the districts of Erewash (7,200), Broxtowe (6,800), Gedling (8,000) and Rushcliffe (15,000).

⁶⁸ East Midlands Regional Plan (RSS) March 2009
/East Midlands Transport Conditions & Issues 2010 Update FINAL
- 1 March10.docx

This is a larger proportion of urban extension than either Derby or Leicester. The remaining houses in the districts are concentrated in the towns of Kimberley, Eastwood and Ilkeston to the west of the city, close to the M1.

There is an additional extension to Nottingham PUA from a separate Sub-Area and Housing Market Area. There are 3,600 dwellings allocated in Hucknall, which is actually in the Northern Sub-area and in the Nottingham Outer HMA. These dwellings would adjoin the Nottingham City district to extend the overall urban area.

Nottingham is part of the 3 Cities Growth Point and 18,400 of the allocated dwellings have been identified through this process.

7.5 Challenge EM3: Overcoming gaps and weaknesses in the existing transport networks and maintaining accessibility

7.5.1 Key travel movements and patterns

The large population of the HMA is heavily focussed on the city of Nottingham and the primary movements are commuting into the city and along the adjacent M1. There are also strong relationships with the Derby and Nottingham Outer HMAs. There is a net difference of over 8,000 between the workplace population and the number of employed residents, which represents the amount of in-commuting to the HMA from other areas.

Traffic flows are high on most of the major routes, particularly so towards the centres of population to the west and north of Nottingham. Two of the most congested junctions in the region are located between Nottingham and Derby, on the A52 and the A50/A453. North-south through traffic is concentrated on the M1 and A46 while east-west through traffic flow is relatively low.

Nottingham is one of the two busiest railway stations in the region, along with Leicester, and the largest passenger flow is between these two cities. There are also large rail flows to London, the West Midlands and Lincolnshire and other stations in Nottinghamshire.

The bus network and frequencies are very high across the city and towards Derbyshire and Mansfield. As a consequence, Nottingham Core has more total bus patronage than any other HMA, and, by far, the most bus trips per person (almost double the East Midlands average and six times as many as Coastal Lincolnshire).

Freight movement

The M1 is a strategic freight route carrying long distance freight north-south through the area, together with the A52 which carries freight east to west. The routes into Nottingham city centre also carry large proportions of freight. Congestion on the road network and the incomplete ring road tends to act as a barrier to the movement of freight in Nottingham. The proposed road schemes will go some way to reducing these barriers.

The city centre is a major origin and destination for freight and short delivery timescales can generate large amounts of goods traffic and add to existing congestion.

Rail freight has been of great historical importance to the area, in terms of the transfer of coal between mines and power stations, but this role is expected to decrease over time.

Toton sidings have a long established history as a substantial rail freight depot and Network Rail Local Distribution centre (LDC). It is currently the largest rail freight operation site in the East Midlands. The line from Trent Junction north to Chesterfield is the most heavily used freight line in the region carrying over 40 freight trains per day. This route avoids the capacity restriction at Derby station and carries various freight commodities, especially coal and aggregates.

7.5.2 Accessibility

The Nottingham Core HMA is split in terms of levels of deprivation. The more rural Rushcliffe area has lower levels of deprivation; however the western side has much higher levels of deprivation. These areas of high deprivation are mainly concentrated in the urban areas of Nottingham City, although the suburban fringes such as Beeston and Eastwood also have higher levels of deprivation.

Table 7.1 shows the proportion of households with 250m walking distance of a bus stop with services of hourly, half-hourly and 10 minute frequencies. Public transport accessibility in Nottingham Core is the highest in the region in every time category. This helps to achieve the high levels of bus patronage, but there is still a lot of variation within the HMA and the rural areas have low bus accessibility levels.

Table 7.1 - Nottingham Core HMA – Access to bus network

Morning peak period bus service frequency of at least	% of HMA households
Six buses per hour (10 minute frequency)	28%
Two buses per hour (30 minute frequency)	65%
One bus per hour (60 minute frequency)	78%

7.5.3 Gaps in network provision

The road network is limited in the east and south of the area and rural accessibility is low. Congestion levels in the city and on the M1 are high and are a constraint on growth and regeneration. Schemes have been identified that will provide additional road capacity (A453, M1 widening).

Rail access is substandard for a city of this size with long journey times and poor levels of service compared to what may be expected of similar-sized cities elsewhere. The capacity and standard of the tracks on the western approach to Nottingham station and the platforms themselves limit the potential to encourage public transport use.

The lack of high quality transport interchange at Nottingham station may be acting to reduce local regeneration potential and limit the potential for increasing public transport modal share. The lack of railway station in Ilkeston is considered locally to inhibit economic growth and employment in the town.

7.6 Challenge EM4: Minimising the effects of non-recurrent delays on the transport networks

No data is currently available regarding this challenge at HMA level.

7.7 Challenge EM5: Overcoming lack of awareness of (benefits of) sustainable travel options and inertia of individuals and businesses to change behaviour

7.7.1 Potential for behavioural change

Nottingham has lowest car journey to work mode share in the region, at 63% and the HMA has the highest bus use, at 91 trips per person per annum. Both these statistics are strongly influenced by the fact that this is an entirely urban HMA.

The Big Wheel campaign provides a website and information for Nottingham residents and visitors regarding all modes of transport in the Nottingham area.

The proposed Nottingham Workplace Parking levy scheme aims to encourage people to choose alternative ways to travel to and from work, such as by car sharing, using the bus, tram, Park & Ride or by walking or cycling.

Key areas identified as having demographic and accessibility characteristics are Carlton to the north of Nottingham and West Bridgford to the south.

7.8 Challenge EM6: Identifying measures to reduce further the number of deaths and injury accidents, particularly on roads

7.8.1 Road accidents

On average, 437 people are killed or seriously injured (KSI) in the HMA each year, accounting for 17% of KSIs in the region⁶⁹. This is the highest number of KSIs in any HMA. The most KSIs occur in Nottingham (broadly 40% of the total) with the remainder fairly equally split between the four remaining districts.

Overall, the KSI rate per 1,000 residents, of 60.4, ranks the HMA as the third-lowest in the region, broadly equal to the regional average (of 60.5) but still above the English average (of 54.3).

The number of personal injury accidents has remained fairly constant over time at approximately 2,400 per year⁷⁰. Of those injured therefore, 17.9% are killed or seriously injured, markedly above the regional average of 15.5%.

The KSI rate varies between districts, but not as significantly as in some HMAs. The highest KSI rate occurs in the more rural Rushcliffe district, at 82.5, and the lowest in Erewash district, at 44.7. At 65.7, the rate for the Nottingham unitary authority area is the highest of the three cities.

⁶⁹ 2005-2007 average

⁷⁰ Between 2003 and 2007

7.9 Challenge EM8: Minimising noise, severance, vibration, local air quality and other issues affecting local communities

7.9.1 Air quality

In terms of air quality, levels of PM₁₀ are highest around the urban areas, particularly Nottingham City, Eastwood, Stapleford, Beeston and West Bridgford. NO₂ levels are also high in the M1 corridor and in parts of central Nottingham, Stapleford and West Bridgford.

There are seven AQMAs in the area, all within Nottingham. There are three near to the M1, one in the city centre and three on the arterial and ring roads in the city.

7.9.2 CO₂ emissions

Total road transport carbon emissions were high in this area at 1,283kT in 2006. The area has high traffic flows on a large road network which contributes to the high emission levels. However, because of the large population, the per capita figure was only 1.8T per person. This is the lowest in the region, along with the Derby HMA.

Nottingham Core HMA - Summary of conditions and issues

Location of future development

Total housing provision is 57,000, largely within and around the Nottingham PUA. Development will add to these existing pressures

Development should be located to take advantage of highway capacity increases, such as M1 widening and the A453 widening, as well as in locations where public transport capacity is due to increase, such as on the proposed NET routes and Nottingham railway station

Implications for transport

Much of the development would be close to the M1 corridor which has the potential to further increase the pressure on this road, although the M1 widening will provide some additional capacity to cater for growth. Large scale transport interventions will be required in the city to enable development to take place in a sustainable way. Capacity increases will need to concentrate on linking the proposed infill and urban extensions to the city centre and improving orbital links between the outer suburbs

Current levels of non-car usage are high so people living in the proposed development in the area are more likely to follow the same pattern than in some other HMAs. The expansion of Hucknall would take advantage of the existing NET line

The proposed Workplace Parking Levy will create a fund to encourage non-car modes of travel

Development of the central areas of the city will encourage people to live closer to their work and help to reduce the amount of long distance in-commuting

East Midlands Airport expansion plans will provide employment, travel and economic opportunities but it will be essential to provide an adequate level of surface access capacity to fully exploit these benefits

For those challenges for which there is sufficient evidence, the table below summarises the relative severity of each challenge in this HMA compared to the other HMAs in the region.

Challenge (summary wording)	Relative severity of challenge in HMA
EM1: Minimising congestion and crowding	More severe
EM2: Enabling and dealing with growth	More severe
EM3: Overcoming gaps and weaknesses	Typical
EM5: Encouraging behavioural change	More severe
EM6: Reduce death and injury	Typical
EM8: Minimise effects on communities	More severe
EM9: Minimise effects on the environment	Less severe
EM11: Overcoming travel habits	Less severe

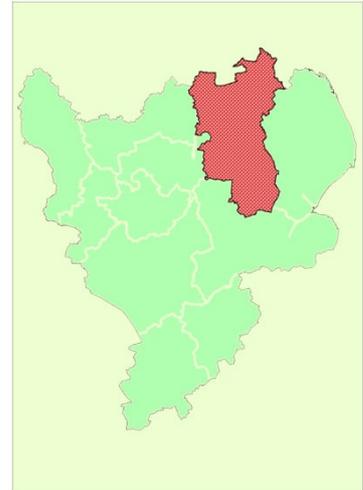
8. Central Lincolnshire HMA

8.1 Introduction

Central Lincolnshire is geographically one of the largest HMAs in the region centred on one of the regions five Principal Urban Areas (PUAs), the City of Lincoln. Outside of the city the HMA is largely rural in nature with a number of market towns.

It includes the districts of Lincoln, North Kesteven to the south and West Lindsey, to the north. It has an overall population of 281,000 accounting for 6% of the East Midlands⁷¹. Lincoln is the predominant urban settlement in the HMA, with an estimated population of 87,800⁷².

Gainsborough is on the border of Central Lincolnshire and the Northern HMAs, and the towns of Sleaford and Market Rasen also lie within the area. Interaction with other areas in the region is relatively low and travel to Lincoln is largely from within the HMA. The HMA also looks to the industrial towns of North Lincolnshire located to the North in the Yorkshire and Humber Region.



North Kesteven is one of the fastest-growing districts in England and Wales with a population growth rate of 17.5% per annum. The increase in population is almost entirely due to net inward migration (more people moving into the district than out of it) since the number of deaths in the county is slightly more than the number of births. The district of West Lindsey has the lowest population density in the region, with an average density of only 75 people per km².

Central Lincolnshire has a large older population and current estimates identify that Central Lincolnshire (excluding Lincoln itself) will have approximately 28% of its population aged over 65 by 2031.

8.2 HMA transport networks

8.2.1 Highway network

The highway network for Central Lincolnshire is shown in Figure 8.1. The A46 is the only trunk road within the HMA, linking Lincoln with Newark and Leicester. Other important routes are the A15 running from Sleaford to Lincoln and the north, and the A631 that provides an east-west link across the area.

The main north-south routes lie outside of Central Lincolnshire and as a consequence congestion levels are relatively low, except for within the City of Lincoln itself. Most routes through the area have relatively low traffic flows, with the busiest route being the A46 to Lincoln and the A17 between Newark and Sleaford.

The lack of a motorway and the limited number of dual carriageway roads means that the bulk of the road network is made up of rural roads resulting in longer journey times. The HMA is therefore not easily accessible to the rest of the region and country.

⁷¹ Census mid year estimate, Office for National Statistics, 2007

⁷² Census mid year estimate, 2007, Office for National Statistics
/East Midlands Transport Conditions & Issues 2010 Update FINAL

A major scheme is proposed to overcome many of the traffic problems in Lincoln. The Eastern Bypass would provide a new road around the east side of the city that would offer a better north-south route. The aim is to relocate existing A15 traffic that has to travel through the city centre on to the new road to alleviate many of the traffic related problems that exist in the city centre. It also facilitates new development on the east side of the city for Growth Point expansion. The scheme is in the region's Regional Funding Allocation programme, but, like all schemes, is subject to DfT approval.

8.2.2 Public transport services

As shown in Figure 8.2, Central Lincolnshire contains the rail stations: Lincoln, Gainsborough, Sleaford and Market Rasen in addition to a number of smaller local stations. There are three local railway lines that cross the area providing direct services to Newark, Nottingham, Leicester, Derby, Scunthorpe, Grimsby and Peterborough. There is currently no direct rail service to London and passengers have to change at Nottingham or Newark. The new December 2010 East Coast Mainline timetable will however introduce a two-hourly direct service between Lincoln and London King's Cross.

The only rail scheme in the RFA2 is the line speed improvement proposed for the Nottingham – Lincoln line. This scheme includes upgrading of the line to increase train speeds and, subject to approval, could be completed by 2016.

There are large rural areas of the HMA that are not served by public transport at all and a lack of accessibility is one of the key issues to address

Principal bus routes focus on Lincoln and connect to main towns through the 'Interconnect' service. The main routes include connect Lincoln to Grimsby, Scunthorpe, Skegness, Grantham and Spalding. The 'Call Connect' service also operates in the area allowing a semi-flexible service whereby passengers can book to be picked up or dropped off, from a divert off the fixed route. Along the Interconnect services are a number of interchange shelters or hubs with enhanced facilities for passengers.

8.2.3 Walking and cycling

Central Lincolnshire has the second highest level of walking and cycling to work of the HMAs in the region. The terrain of the area is likely to encourage non-motorised travel, although Lincoln itself is hilly. The levels of deprivation and low public transport accessibility will also influence the amount of travel by walking and cycling. This level of activity should be encouraged, particularly as Lincoln city centre demonstrates higher than national average rates of adult obesity.

Figure 8.1 - Central Lincolnshire HMA principal highway network

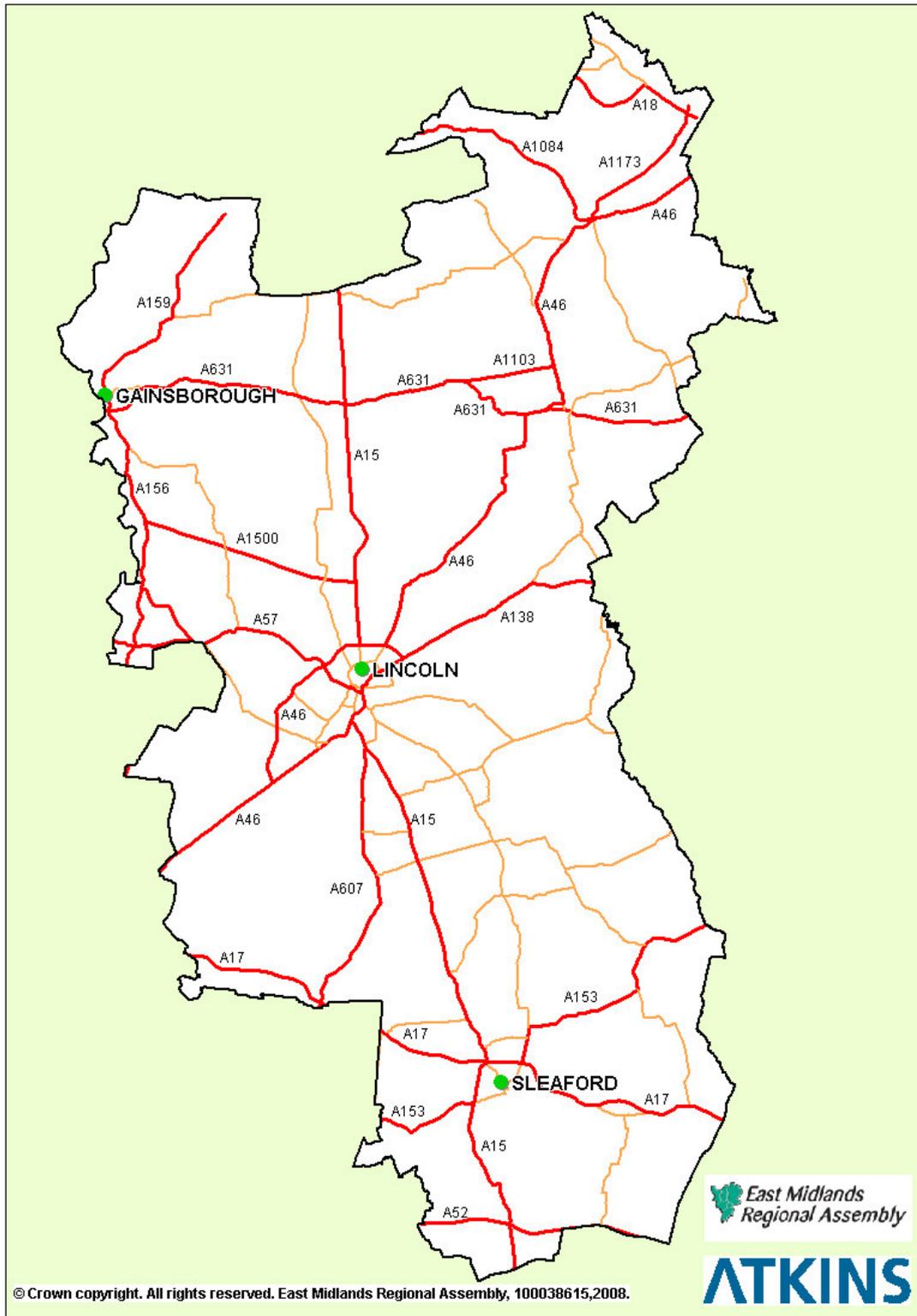
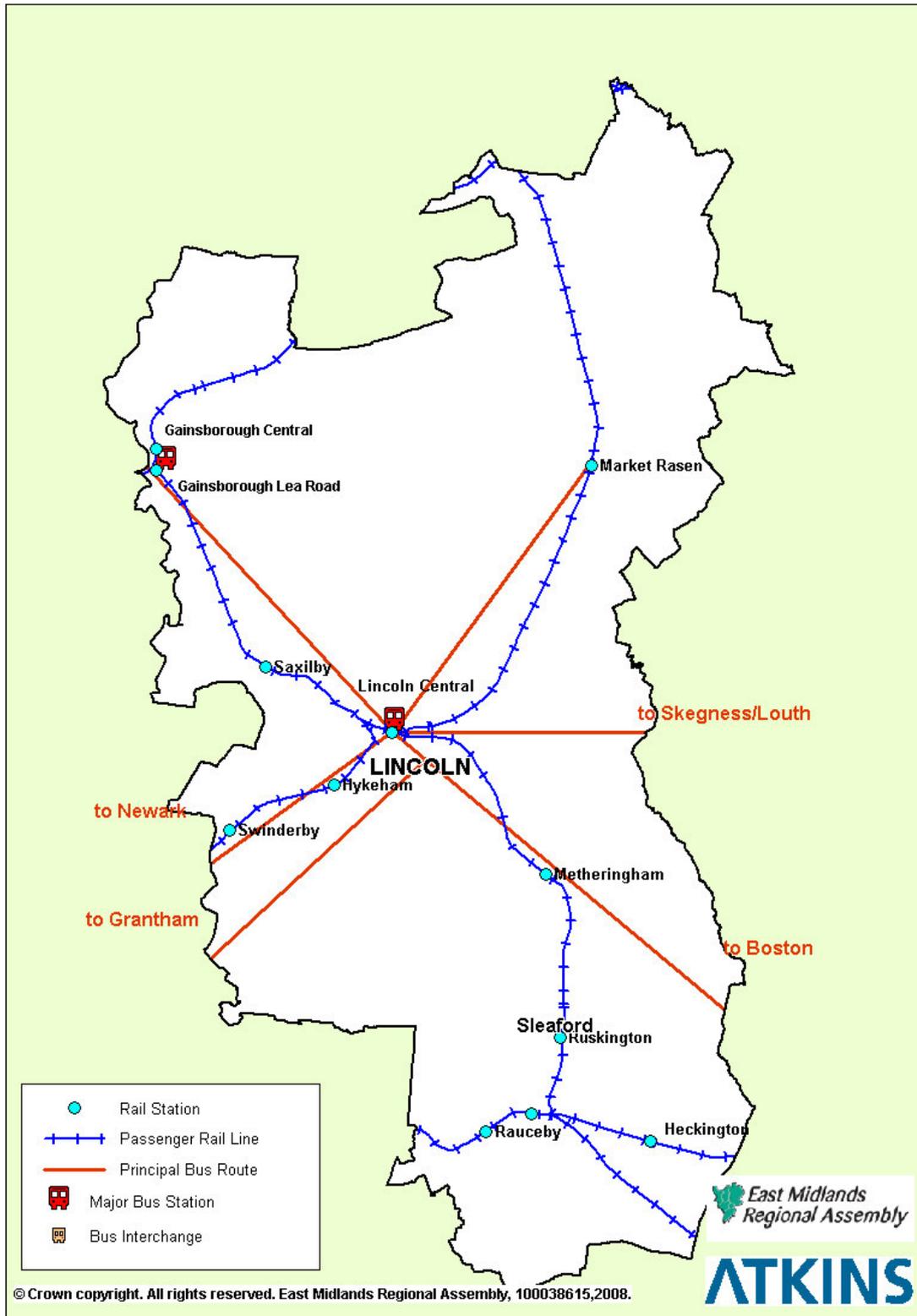


Figure 8.2 - Central Lincolnshire HMA principal bus and rail network



8.3 Challenge EM1: Minimising existing and future traffic congestion and rail crowding on strategic links and in urban areas

8.3.1 Congestion and traffic growth

Housing and employment growth is to be concentrated in Lincoln and Gainsborough. Further development in Lincoln will increase pressure on traffic levels in and around the city due to the limited road network to the south and the east of the city. Transport improvements will need to be considered to facilitate development and the Eastern Bypass that is due to be constructed will provide the additional capacity that is required.

Congestion levels are relatively low in Gainsborough therefore the impacts of growth on the road network should be localised. Congestion is worst in Lincoln, leading to journey time unreliability for both public and private vehicles.

Commuting currently takes place largely within the HMA between the centres of Lincoln and North Kesteven and Lincoln and West Lindsey and to North Lincolnshire in the Yorkshire and Humber Region.

The increased use of the Joint Line for freight movements can cause reliability issues for passenger rail services between Lincoln and Doncaster.

8.4 Challenge EM2: Enabling growth and dealing with the additional demand for travel brought about mainly by regeneration and growth

8.4.1 Planned growth in population

The RSS Core Strategy for determining housing provision in the HMA is to significantly strengthen the role of Lincoln as a PUA, through urban intensification and planned and sustainable urban extensions, to support the regeneration of Gainsborough and strengthen the roles of Sleaford, Caistor and Market Rasen⁷³.

The RSS proposes a housing provision of 40,600 across the HMA by 2026, with most (19,800) of these being within or adjoining the Lincoln PUA. Of the remainder, 11,200 are allocated in North Kesteven and 9,600 in West Lindsey.

Growth Point status has been granted to Lincoln - covering the City of Lincoln Council, North Kesteven District Council and West Lindsey District Council and as part of this there are plans for at least 16,500 homes by 2016; of which 9,500 are in the Lincoln PUA and 7,000 in the rest of the HMA. Gainsborough is recognised as a regeneration priority in the RSS and it has been granted Growth Point status for 3,312 dwellings in addition to the RSS provision.

The overall level of development in the Lincoln sub regional strategy equates to about 34% of the total Eastern Sub-Area, which is considered to be consistent with delivering the significant strengthening of the regional role of the Lincoln Policy Area in a sustainable manner. This is ambitious compared to past house building rates, but is considered to be consistent with the wider development framework of the Regional Plan. The developments proposed for the built up area and urban extensions of Lincoln are considered the most sustainable way of delivering this growth.

⁷³ East Midlands Regional Plan (RSS) March 2009
/East Midlands Transport Conditions & Issues 2010 Update FINAL
- 1 March10.docx

The volume of new dwellings is similar to the average HMA allocation but, because of the small existing population, this number represents a very high percentage increase in the number of dwellings of 33% in 2006-2026. The average increase across the region is only 23%. This means that the impact of this growth on the existing infrastructure could be more significant in Central Lincolnshire than most of the other HMAs.

8.5 Challenge EM3: Overcoming gaps and weaknesses in the existing transport networks and maintaining accessibility

8.5.1 Key travel movements and patterns

Central Lincolnshire is one of the least-populated HMAs and this population is largely based in Lincoln itself. The city forms the central hub of transport provision in the area and the road and public transport network is focussed upon it. Intra-HMA commuting is significant between the towns of Gainsborough and Sleaford to Lincoln, but flows to other HMAs are low because of the distances involved.

Traffic flows are highest on the A46 route from Grimsby/Immingham in the north-east, through Lincoln to Newark and Nottingham to the south-west. The A17 near Sleaford is also a busy through-route. Although traffic flows are not high and congestion levels are generally low, the A46 trunk road at Lincoln is one of the worst roads for delay.

There are a fair number of railway stations in the area with the largest passenger flows being from Lincoln and Sleaford. Bus services are limited to the main towns and rural access is poor. Bus frequency in Lincoln itself is not high. This has led to low bus patronage figures and an average number of bus trips per person well below the regional average.

Access to East Midlands Airport is poor because of the distance and lack of direct roads although both Doncaster Robin Hood Airport and Humberside Airport are closer to the HMA, but road links to these locations are also not of a high standard.

Freight movement

The area is a centre for the food production industry and the lack of a high quality road network provides a barrier to the transportation of freight goods to the rest of the country. It is characterised by a network of single carriageway roads carrying significant proportion of freight putting pressure on the local highway network. These constraints also apply to deliveries to the area which increases the price of goods in comparison with locations that have better transport links.

The A17 carries both the highest volume of freight and a high percentage of HGV traffic. Around 20% of vehicles using the A15 north of Lincoln are HGVs.

Gainsborough has a small port on the River Trent that mainly handles minerals. Rail freight handling is limited in the area by lack of rail termini, but there is an important freight route between Lincoln and Immingham.

8.5.2 Accessibility

Central Lincolnshire is one of the more deprived HMAs in the East Midlands and Lincoln is in the top 100 most deprived local authorities in England. Public transport accessibility levels are low and rural accessibility is a specific issue in the HMA.

This HMA is characterised by a population growing faster than the national rate and has a higher proportion of older people (17%) compared with the national average (14%). The area has been recognised as a priority area for improving accessibility.

Table 8.1, shows the proportion of households within a 250 metre walk of a bus stop served by 10, 30 or 60 minute minimum service levels in the morning peak. Accessibility levels are close to the regional average with 16% of households within the HMA having access to a 10 minute or better frequency service during the morning peak. The majority of these households are located within the urban area of Lincoln.

In rural areas, access to public transport and access more generally is seen as a specific issue. The National Core Accessibility Indicators show relatively poor access to hospitals (N Kesteven, W Lindsey), primary and secondary schools (N Kesteven)..

Table 8.1 - Central Lincolnshire HMA – Access to the bus network

Morning peak period bus service frequency of at least	% of HMA households
Six buses per hour (10 minute frequency)	16%
Two buses per hour (30 minute frequency)	45%
One bus per hour (60 minute frequency)	65%

8.5.3 Gaps in network provision

The relatively limited road network to the south and east of Lincoln acts as a barrier to growth and adds to congestion in central Lincoln. The lack of a high quality road network is a barrier to the transportation of freight by road and a lack of facilities limits the opportunities to encourage rail freight. Rail links between Lincoln and London are currently poor, and opportunities for rail freight are limited due to a lack of facilities.

8.6 Challenge EM4: Minimising the effects of non-recurrent delays on the transport networks

No data is currently available regarding this challenge at an HMA level.

8.7 Challenge EM5: Overcoming lack of awareness of (benefits of) sustainable travel options and inertia of individuals and businesses to change behaviour

8.7.1 Potential for behavioural change

Lincoln has the third-lowest car journey to work mode share in region (at70%) and below average bus trips pre head compared to the rest of the region.

Areas identified through demographic and accessibility analysis as having a high proportion of residents likely to be susceptible to behavioural change as shown in Figure 4.21, are mainly found within Central Lincoln. Consequently any encouragement to get residents to walk, cycle or to use public transport to make their journeys will also help to reduce obesity levels in this area.

8.8 Challenge EM6: Identifying measures to reduce further the number of deaths and injury accidents, particularly on roads

8.8.1 Road accidents

On average, 166 people are killed or seriously injured (KSI) in the HMA each year, accounting for 6% of KSIs in the region⁷⁴. This is the fourth-lowest number of KSIs in any HMA. The most KSIs occur in West Lindsey and North Kesteven districts which, between them, account for 80% of the KSIs in the HMA. This is accounted for by the large amount of rural 'A' roads.

The overall KSI rate per 1,000 residents, of 60.6, means that this HMA has one of the lowest KSI rates in the region. However, the rate is still broadly equal to the regional average, of 60.5, and significantly above the English average of 54.3.

The number of personal injury accidents (including slight injuries) has remained relatively constant at approximately 1,000 per year⁷⁵. Of those injured therefore, 13.4% are killed or seriously injured, lower than the regional average of 15.5%, however the proportion of fatalities is one of the highest in the region, with 2.5% of accidents involving a fatality compared with the average of only 1.9%.

There is a large differential within the HMA as the City of Lincoln had a better than average accident rate, at 34.5, and the rural districts were worse than average at 60.6 and 87.2 in North Kesteven and West Lindsey respectively.

Although accidents rates for the HMA are declining, road safety is still a major concern for the area.

8.9 Challenge EM8: Minimising noise, severance, vibration, local air quality and other issues affecting local communities

8.9.1 Air quality

In terms of air quality, levels of PM₁₀ are highest in the south of the HMA around the more urban areas of Lincoln and Sleaford, with some of the lowest concentration of PM₁₀ in the region found to the north of the HMA.

Lincoln has two designated Air Quality Management Area, one for Nitrogen Dioxide (NO₂) that covers the major road network and one for PM₁₀ covering the whole city. These AQMAs are primarily caused by vehicle emissions.

8.9.2 Community impacts

The high levels of HGV traffic on some strategic links (such as the A17 east of the A1, A15 north of Lincoln) has impacts on communities along these routes in terms of noise, vibration, severance and safety.

8.9.3 CO₂ emissions

Total road transport carbon emissions are very low in this area at only 630kT in 2006 and the per capita figure is 2.2T per person, which is also below average. The largely rural nature of the area has helped to keep this figure low.

⁷⁴ 2005-2007 average

⁷⁵ Between 2003 and 2007

/East Midlands Transport Conditions & Issues 2010 Update FINAL

- 1 March10.docx

Central Lincolnshire HMA - Summary of conditions and issues

Location of future development

Total housing provision of 40,600 dwellings

Housing provision is proposed mainly in the Lincoln PUA with potential for sustainable locations to the west, north east and south east of the built up areas.

Growth Point status has been granted to Lincoln

Implications for transport

Due to the relatively limited local road network and poor public transport network the travel movements in the HMA are relatively self contained with the main journeys to work being between Lincoln, West Lindsey and North Kesteven. Congestion is currently limited to city of Lincoln and therefore further development in and around the area will need to be planned to encourage the use of more sustainable transport modes.

In order to accommodate large sustainable urban extension to the South East of Lincoln improvements will be required to the transport infrastructure, including completion of the Lincoln Eastern Bypass which would provide access to new urban extensions.

Improvements are required to the existing public transport, cycling and walking network to increase sustainability and widen transport choice.

HMA has a higher than average number of road injuries and deaths on its rural road network for the period 2004-2006 – consideration therefore required to improve safety on the existing network.

Public transport accessibility levels are low and rural accessibility is a specific issue in the HMA therefore improvements will be required to support significant growth in housing numbers in the PUA.

For those challenges for which there is sufficient evidence, the table below summarises the relative severity of each challenge in this HMA compared to the other HMAs in the region.

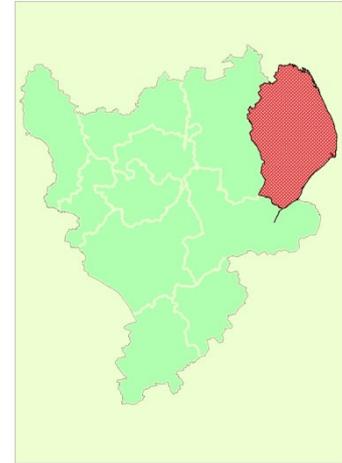
Challenge (summary wording)	Relative severity of challenge in HMA
EM1: Minimising congestion and crowding	Typical
EM2: Enabling and dealing with growth	More severe
EM3: Overcoming gaps and weaknesses	Typical
EM5: Encouraging behavioural change	Typical
EM6: Reduce death and injury	Typical
EM8: Minimise effects on communities	More severe
EM9: Minimise effects on the environment	Less severe
EM11: Overcoming travel habits	Typical

9. Coastal Lincolnshire HMA

9.1 Introduction

Coastal Lincolnshire is one of the largest HMAs and comprises the districts of East Lindsey and Boston. The area is predominantly rural, and is characterised by a large number of small settlements, the main urban settlements being Boston, Skegness, Louth, Mablethorpe and Horncastle. It is the only HMA to have a significant coastline population, industry and ports.

It has a population of 199,000 making it the second least populated of the housing market areas, after Peak Dales and Park, and accounts for only 5% of the total population of the East Midlands⁷⁶. The district of East Lindsey has the second lowest population density in the Region with an average of only 79 people per km² (Leicester City has the highest at 3,951 per km²).



It is predicted to be one of the fastest growing HMAs in terms of population growth with a projected overall population of 257,800 by 2031. More detailed demographic projections shows an ageing population due to its popularity as a retirement destination with proportions of people aged over 65 years rising from 22% in 2006 to 35% in 2031.

The coast also attracts considerable numbers of tourists to the area in the summer. This results in an increased demand on the single carriageway road network towards the coast resulting in pressures on safety, localised congestion and maintenance issues, together with pressures on the rail services. There is a low level of interaction with other HMAs in the East Midlands and with other regions.

Agriculture is also important to the economy due to the large proportion of high grade agricultural land which attracts a high proportion of low paid seasonal and migratory workers.

9.2 HMA transport networks

9.2.1 Highway network

As shown in Figure 9.1, the principal roads in Coastal Lincolnshire include the A16 between Boston and Grimsby, just outside the northern boundary of the HMA, and the A52 between Boston and Skegness. The majority of the highway network is made up of single carriageway minor roads and country lanes requiring high levels of maintenance. There are no motorways and only a limited number of dual carriageways in the area and none of the roads are part of the Strategic Road Network.

There is a low level of travel within the HMA because of the dispersed population and long distances involved. The neighbouring HMAs are also rural in nature and cross-boundary highway links are low capacity and standard.

9.2.2 Public transport services

As shown in Figure 9.2 the public transport network of Coastal Lincolnshire is limited in comparison to other more urban areas. The main rail stations within the HMA are at Boston and

⁷⁶ Census mid year estimate, Office for National Statistics, 2007
/East Midlands Transport Conditions & Issues 2010 Update FINAL
- 1 March10.docx

Skegness providing services to Grantham and Nottingham. The journey distances and low speeds mean that rail journey times from Skegness and Boston to the rest of the East Midlands are long.

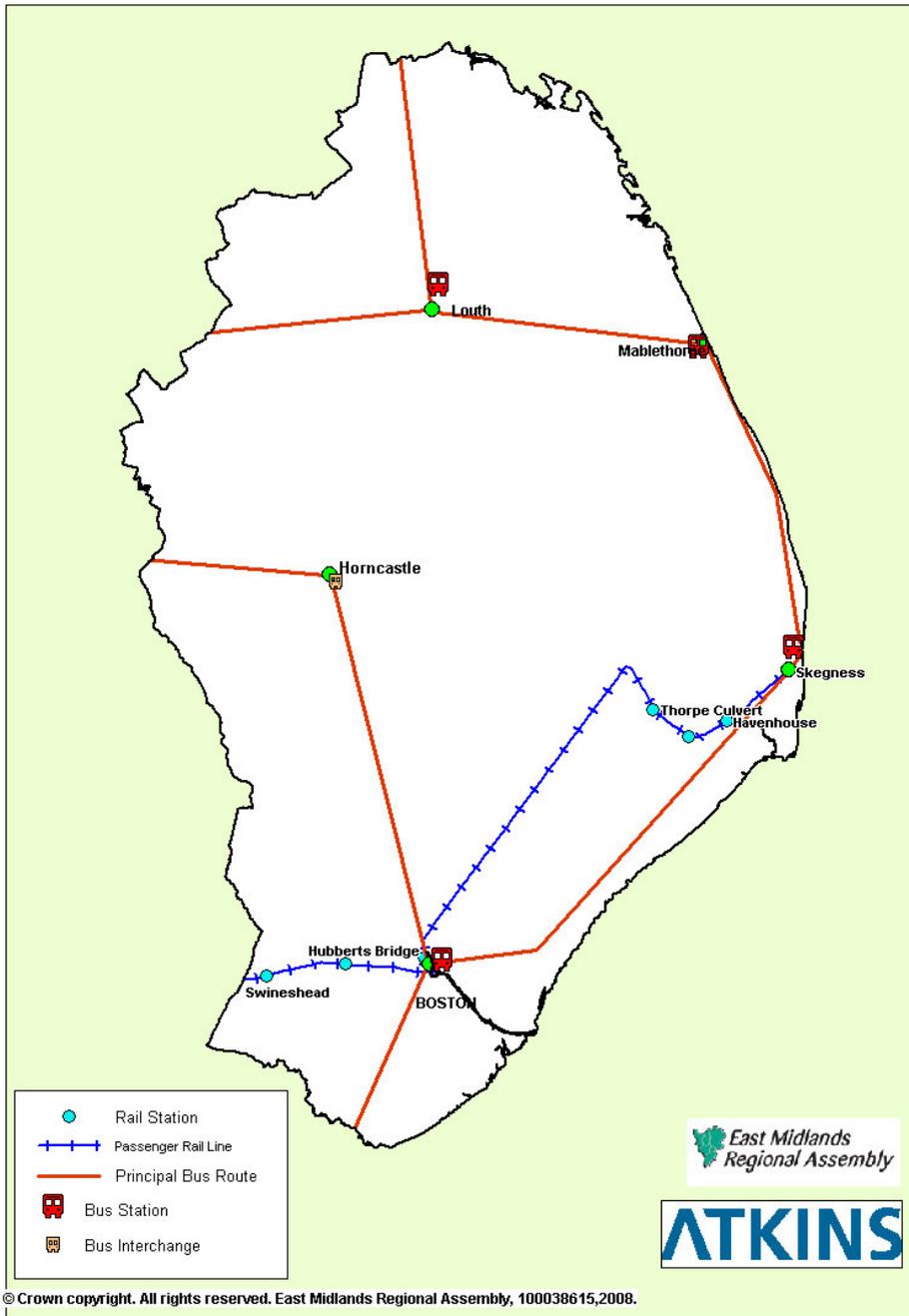
There are large rural areas away from the main roads that have little or no public transport service and these low accessibility levels is one of the key issues.

Principal bus routes focus on Skegness and Boston and connect to towns within the surrounding area through the Interconnect service. The main bus routes link Skegness to Mablethorpe, Horncastle, Boston and Lincoln and Boston to Horncastle and Lincoln. The 'Call Connect' service also operates in the area allowing a semi-flexible service whereby passengers can book to be picked up or dropped off from a location off the fixed bus route. Along the 'Interconnect' services are a number of interchange shelters or hubs with enhanced facilities for passengers.

Figure 9.1 - Coastal Lincolnshire HMA principal highway network



Figure 9.2 - Coastal Lincolnshire HMA principal rail and bus network



9.2.3 Walking and cycling

Coastal Lincolnshire has the highest proportion of people travelling to work by walking or cycling with more than 18% of people using these modes. This could be due to low levels of car ownership in some of the more urban and deprived areas of the HMA, however it could also be a lack to access to car by second wage earner in one car households.

The terrain of the area also helps to encourage walking and cycling because it is flat. Long distance commuting is more difficult because of the large distances between centres of population and the poor standard of roads.

9.3 Challenge EM1: Minimising existing and future traffic congestion and rail crowding on strategic links and in urban areas

9.3.1 Congestion and traffic growth

Recurrent congestion is a small issue in the area. The economic cost of congestion is estimated at £2.2m per year compared with a regional average of £43m for each HMA.

Although congestion is not considered to be an issue in Coastal Lincolnshire and traffic flows are relatively low in comparison to the network in the rest of the region there have been recent high levels of increase in traffic flow, particularly due to seasonal traffic in coastal tourist areas. Congestion in Grantham and Boston are also increasing.

More of an issue is the unreliability of journey times between the key settlements. Tourism is a major industry in the area, but it produces a problem of non-recurrent delay on the approaches to and within the seaside towns in peak holiday periods. Population growth and high car ownership in the HMA means that there is potential for increased levels of background traffic flow.

Traffic growth is likely to be generated by increases in the tourist traffic, the expansion of the existing food production industry and changes in population demographics as the area continues to attract people who have retired.

9.4 Challenge EM2: Enabling growth and dealing with the additional demand for travel brought about mainly by regeneration and growth

9.4.1 Planned growth in population

The RSS proposes a housing provision of 8,700 new dwellings across the HMA from 2006-2026, with 2,700 in Boston and 6,000 in East Lindsey⁷⁷. The RSS priorities for housing provision in Boston, Skegness and Mablethorpe and other coastal settlements will be limited to existing commitments until a coastal strategy has been agreed. It also aims to support regeneration of the Lincolnshire Coast, particularly at Skegness and Mablethorpe and to strengthen the roles of Louth and Horncastle.

This proposed growth is the smallest in the region and is also the smallest percentage increase in total dwellings at only 10% compared with a regional average increase of 23%. This means that the impact of RSS growth is likely to be lower in Coastal Lincolnshire than in most other HMAs.

⁷⁷ East Midlands Regional Plan (RSS) March 2009
/East Midlands Transport Conditions & Issues 2010 Update FINAL
- 1 March10.docx

The Lincolnshire Coast is one of the most low-lying parts of the country and is highly vulnerable to flooding. One third of the district of East Lindsey lies within Flood Zone 3, the highest category of risk. The entire coastal area of the district lies within the coastal floodplain and this includes a number of settlements including the towns of Mablethorpe, Boston, Spalding and Skegness.

Flood risk on the Lincolnshire coast and particularly in East Lindsey was a principal issue of debate at the examination in public of the draft East Midlands Regional Plan. The Environment Agency (EA) submitted a substantial weight of evidence against future development on the coast on the basis of the impacts of climate change.

The Environment Agency, East Midlands Regional Assembly, and the Government Office for the East Midlands submitted a joint statement advocating the need for a sub-regional study of the Lincolnshire coast to inform an early review of the Regional Plan. A strategy needs to be agreed by the Regional Planning Body, the districts, the County Council and the EA that will consider flood risks, flood defence, housing and regeneration needs, infrastructure implications and environmental impact. It will help to provide a long-term and sustainable strategic vision and a regeneration strategy for the Lincolnshire Coast to address rural and coastal deprivation.

Until the agreement of a Coast Strategy for Lincolnshire development will be concentrated within the main settlements of Boston, Skegness and Mablethorpe. Further development will strengthen the role of Louth and Horncastle within the area.

9.5 Challenge EM3: Overcoming gaps and weaknesses in the existing transport networks and maintaining accessibility

9.5.1 Key travel movements and patterns

The low population and isolated nature of Coastal Lincolnshire means that traffic flows are generally low and that the travel patterns are more influenced by a lack of accessibility, the poor standard of roads, an ageing population and tourism. The HMA has the second smallest workforce in the region while deprivation and obesity levels are high. Journey to work trips within the HMA and with other HMAs are very low. Traffic flows and congestion levels are also very low.

The largest traffic flows are on the A16 that bisects the HMA north-south between Boston and Louth. The A17 travels across the south-west corner of the area carrying larger volumes of traffic. The road is also a link between East Anglia and the more built-up areas of the East Midlands and the north.

Rail links exist to Boston and Skegness but passenger flows are very small and are mainly from within Lincolnshire. Frequent bus services exist within the Skegness area but links to other towns and rural areas are poor. The HMA has the lowest number of bus passengers in the region and also the lowest number of bus trips per person at only 27% of the regional average and only 15% of the highest HMA (Nottingham Core).

Access to East Midlands Airport is poor because of the distance and lack of direct roads. Both Doncaster Robin Hood Airport and Humberside Airport are closer to the HMA, although road links are not of a high standard.

Freight movement

The port of Boston handles some 940,000 tonnes of freight per year respectively. Improved access to these ports via the Trunk Road network may assist their expansion plans. The railway line to Boston currently carries less than 10 freight trains per day. The ports of Immingham and Grimsby which lie just outside of the area also serve the East Midlands and generate freight traffic flows that have an impact on Lincolnshire's transport networks.

Other freight issues in the area largely relate to the food production industry and the difficulty of transporting their produce from the area to urban centres in the East Midlands and other regions. The long distances involved and the poor standard of roads are constraints that this industry has to contend with.

Freight movements to the area face equal problems of accessibility and this increases the cost of deliveries to the towns and tourist destinations in the area.

9.5.2 Accessibility

Coastal Lincolnshire is one of the most deprived HMAs in the east midlands, with areas around Mablethorpe and Skegness ranked in the most deprived 20% category. It also has the highest levels of adult obesity in the region, at a level well above the national average. These facts, combined with the rural nature of the area, make access issues an important priority.

Many parts of Lincolnshire suffer some degree of deprivation. In the deeply rural parts of the county, social exclusion remains a problem, particularly access to important services such as health facilities, shopping and employment opportunities. This has been compounded in the recent past by the gradual loss or centralisation of many of these facilities (e.g. village shops, post offices, health facilities). The problem is most acute within East Lindsey (which the National Core Accessibility Indicators also show has particularly poor public transport access to further education). However, this is not just a rural problem. In the urban areas of Boston and Skegness there are also pockets of deprivation. East Lindsey ranks among the top 100 most deprived district authorities in England.

Table 9.1 shows the proportion of households within the HMA that can access a bus stop within a 250 metre walk for bus services with hourly, half hourly and ten minute frequencies. Access to the bus network is the lowest in the region with only 31% of households having access to an hourly bus network between 6 am and 9 am.

Table 9.1 - Coastal Lincolnshire HMA - Access to the bus network

Morning peak period bus service frequency of at least	% of HMA households
Six buses per hour (10 minute frequency)	2%
Two buses per hour (30 minute frequency)	17%
One bus per hour (60 minute frequency)	31%

9.5.3 Gaps in network provision

The area has a limited road network with long distances between centres of population on low quality roads. There are some remote and deprived areas on the coast and in rural areas and social exclusion is an important issue. This is also a constraint on freight movements in and out of the area.

Public transport provision is generally very poor. The poor transport network inhibits the economy and regeneration efforts. The use of the ports is restricted because land access is poor and the area is peripheral to the national transport network. The links to the Humber ports to the north are also sub-standard. Tourism creates issues of congestion and environmental impact and sustainable travel options are very limited for tourists.

East of A15 is relatively in-accessible – poor public transport and long, unreliable car journey times. Some remote and very deprived areas with social exclusion issues, esp. on the coast and rural areas (e.g. Skegness, Mablethorpe). Also inhibits the economy (e.g. tourism) and regeneration (e.g. in Skegness). Peripherality of existing ports, (e.g. Boston), lack of sea-borne freight opportunities. Links to Humber ports sub-standard.

9.6 Challenge EM4: Minimising the effects of non-recurrent delays on the transport networks

No data is currently available regarding this challenge at an HMA level.

9.7 Challenge EM5: Overcoming lack of awareness of (benefits of) sustainable travel options and inertia of individuals and businesses to change behaviour

9.7.1 Potential for behavioural change

This HMA has very low bus use compared to other parts of the region, and no areas in this HMA have been identified as having the potential to change travel behaviour. However the high levels of walking and cycling in the area is encouraging and ways to improve these levels of travel by other modes than the private car should be sought through other initiatives such as car share schemes or flexible public transport to remote parts of the HMA.

9.8 Challenge EM6: Identifying measures to reduce further the number of deaths and injury accidents, particularly on roads

9.8.1 Road accidents

On average, 127 people are killed or seriously injured (KSI) in the HMA each year, accounting for 5% of KSIs in the region⁷⁸. This is the lowest number of KSIs in any HMA. Some 80% of these KSIs occur in East Lindsey district, the remaining 20% in Boston district. In terms of the number of KSIs per capita, there is more of a balance, with 47.5 KSIs per 1,000 residents in Boston compared to 72.1 in East Lindsey.

The HMA's annual KSI rate per 1,000 residents, of 64.7, is the sixth highest in the region and compared to the regional average of 60.5, and is significantly above the English average of 54.3..

The number of personal injury accidents (including slight injuries) has remained relatively constant at approximately 800 per year⁷⁹. Of those injured therefore, 13.9% are killed or seriously injured, lower than the regional average of 15.5%.

The A52 between Boston and Skegness is classified as medium-high risk by EuroRAP.

9.9 Challenge EM8: Minimising noise, severance, vibration, local air quality and other issues affecting local communities

9.9.1 Air quality

In terms of air quality, levels of PM₁₀ are highest in the south of the HMA around Boston and Horncastle. Coastal Lincolnshire has the second lowest road transport fuel consumption in the

⁷⁸ 2005-2007 average

⁷⁹ Between 2003 and 2007

/East Midlands Transport Conditions & Issues 2010 Update FINAL

- 1 March10.docx

East Midlands, which reflects the lower population, and lack of major transport routes going through the area.

There is currently only one air quality management area (AQMA) in the HMA located in Boston which follows the A16 trunk road through the centre of the town encompassing properties on either side.

9.9.2 CO₂ emissions

Total road transport carbon emissions are very low in this area, second only to Peak Dales and Park, at 546kT in 2006. The per capita figure is 2.7T per person which is about average. The dispersed population and low traffic levels have helped to keep this figure low.

Coastal Lincolnshire HMA - Summary of conditions and issues

Location of future development

The RSS proposes a low level of housing provision of 8,700 new dwelling across the HMA, with 2,700 in Boston and 6,000 in East Lindsey

Until the agreement of a Coast Strategy for Lincolnshire development would be concentrated within the main urban settlements of Boston, Skegness and Mablethorpe

Implications for transport

Existing road and public transport network is limited, movement between settlements is constrained

Good access to the holiday coast is of high importance in terms of travel times and road safety and the influence that these have on the local economy

New development likely to attract increasingly ageing population therefore put pressure on existing public transport network

Currently HMA has lowest traffic flows in region with limited congestion within the main settlements

Main issues relate to deprivation, peripherality and connectivity due existing limited road and public transport network.

For those challenges for which there is sufficient evidence, the table below summarises the relative severity of each challenge in this HMA compared to the other HMAs in the region.

Challenge (summary wording)	Relative severity of challenge in HMA
EM1: Minimising congestion and crowding	Less severe
EM2: Enabling and dealing with growth	Less severe
EM3: Overcoming gaps and weaknesses	More severe
EM5: Encouraging behavioural change	Less severe
EM6: Reduce death and injury	Typical
EM8: Minimise effects on communities	Less severe
EM9: Minimise effects on the environment	More severe
EM11: Overcoming travel habits	More severe

10. Peterborough Partial HMA

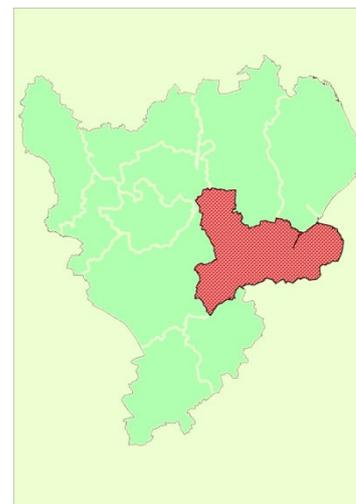
10.1 Introduction

Peterborough Partial HMA comprises the County of Rutland and the Lincolnshire districts of South Holland and South Kesteven, and is defined by its proximity to Peterborough. It is a large and diverse area, with low population density and no major urban areas.

The main towns are Spalding and Grantham. Other towns include Oakham, Stamford and Holbeach. With a population of 252,000 the area is one of the least populous in the region accounting for only 6% of the total population in the East Midlands⁸⁰.

Both South Holland (14.0%) and South Kesteven (13.4%) were in the top 100 fastest-growing districts in England and Wales however this increase is mainly due to in-migration particularly due to its popularity as a retirement destination. The HMA has one of the highest proportions of over-65's in the region at over 28%, which generates particular transport issues.

Employment rates are higher than the regional average and the area has more interaction outside the region than within. Commuting to Peterborough is the most common journey to work. The agriculture industry is an important part of the economy which brings issues of low paid workers and of freight distribution.



10.2 HMA transport networks

10.2.1 Highway network

As shown in Figure 10.1 the key route of national and regional importance is the A1, connecting the area to the north east and to Peterborough and London in the south. Grantham, Oakham and Stamford are all adjacent to this major route. The A52 near Grantham is an important route for the food production industry in south-east Lincolnshire and provides a link to Nottingham and the motorway network.

The towns in the area are connected by a road network that is made up of single carriageway minor roads and country lanes requiring high levels of maintenance. There are no motorways and only a limited number of dual carriageways in the area.

Construction is underway on the A1073 between Spalding and Eye to construct a new road that will improve road safety and journey times and will reduce the environmental impact of traffic on the villages along the route, particularly by HGVs associated with the local food industry. It will improve road links between the HMA and Peterborough. The new road is due to open in 2010.

10.2.2 Public transport services

The Peterborough Partial HMA public transport network is shown in Figure 10.2. The East Coast Main Line serves the HMA at Grantham, connecting the area to London in the south and Yorkshire, the North East and Scotland. The Birmingham to Stansted Airport rail services call at Oakham and Stamford and on to Peterborough. Spalding is on the local rail service between

⁸⁰ Census mid year estimate, Office for National Statistics, 2007
/East Midlands Transport Conditions & Issues 2010 Update FINAL
- 1 March10.docx

Peterborough and Lincoln. The public transport services generally link the towns in the HMA with other areas and there is very little connectivity within the HMA area itself.

There are large rural areas away from the main roads that have little or no public transport service and these low accessibility levels are one of the key issues that needs to be considered.

10.2.3 Walking and cycling

Whilst walking to work is slightly lower than the regional average, cycling is more popular with 4.6% of the population cycling to work. Rural deprivation, low levels of car ownership and the flat topography have an impact on this travel behaviour.

Figure 10.1 - Peterborough Partial HMA principal highway network

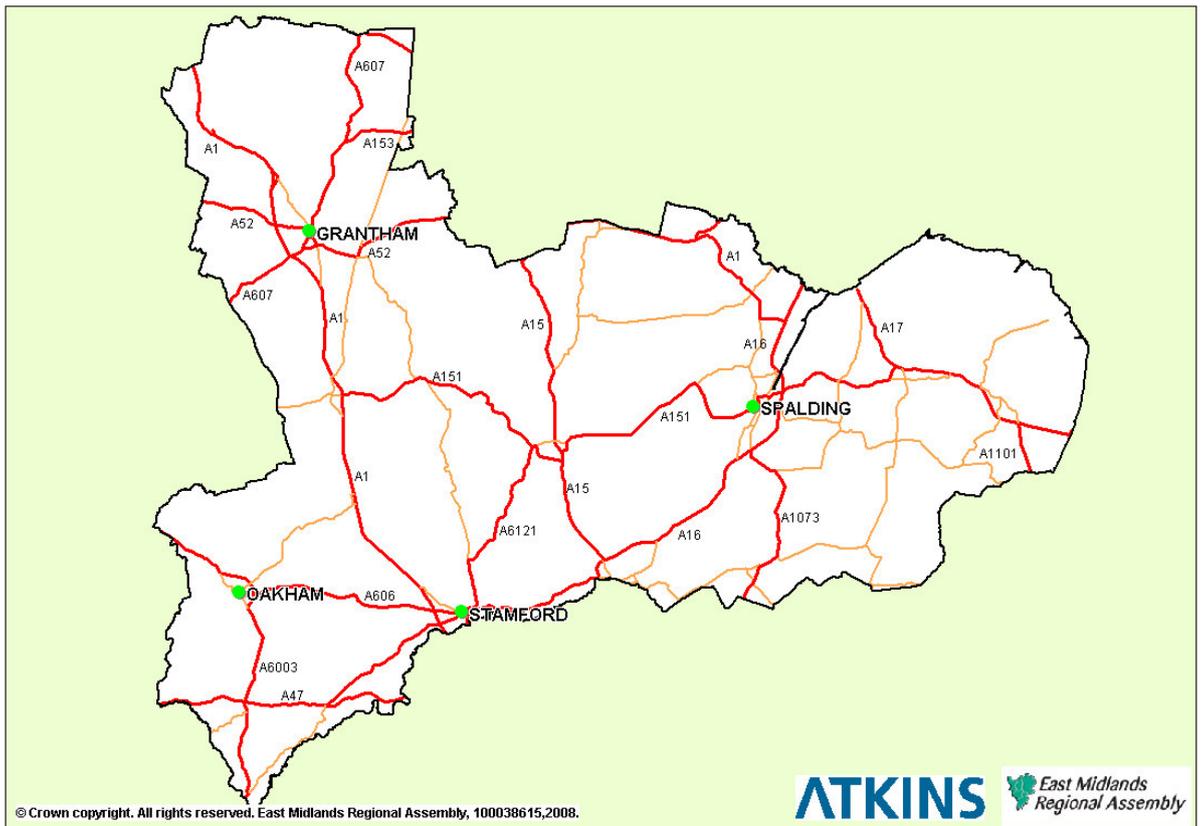
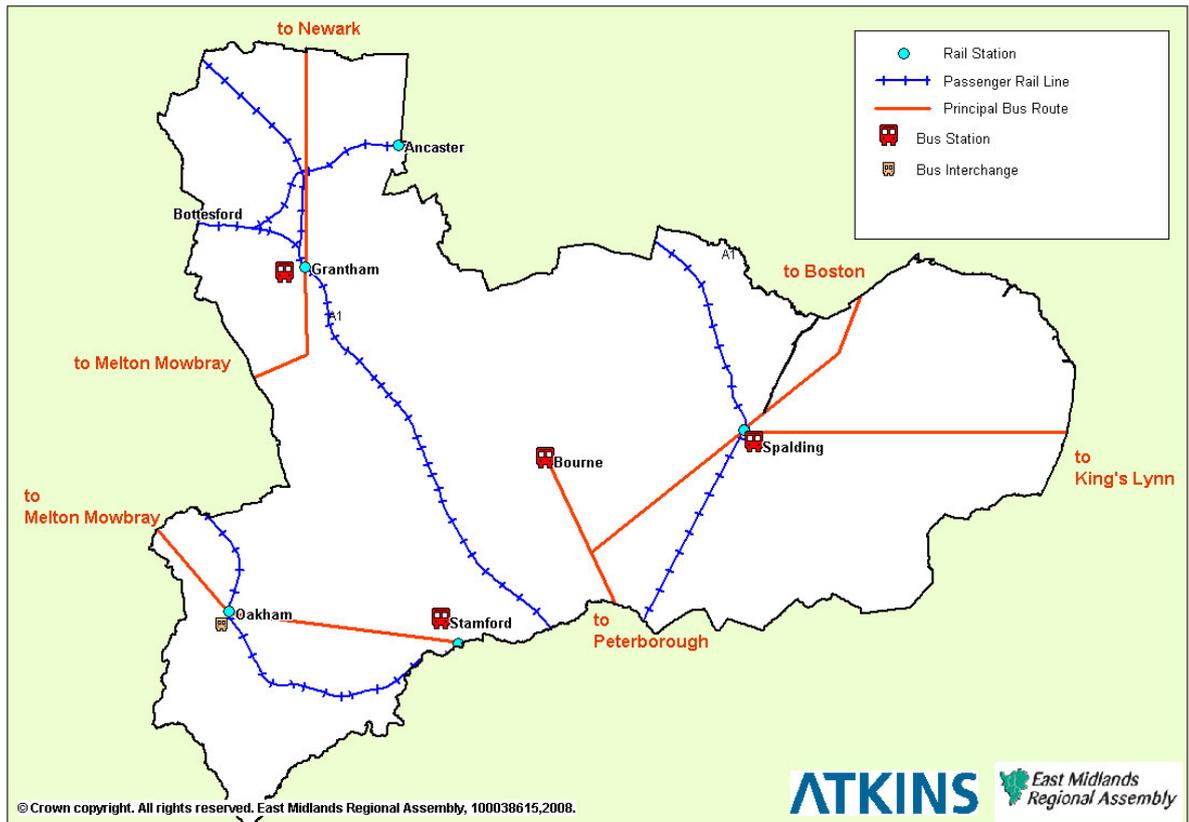


Figure 10.2 - Peterborough Partial HMA principal bus and rail network



10.3 Challenge EM1: Minimising existing and future traffic congestion and rail crowding on strategic links and in urban areas

10.3.1 Congestion and traffic growth

Congestion levels are not considered to be a priority issue for the Peterborough Partial area, although car use is relatively high. It has the second lowest economic cost of congestion in the region at only £2.6m per year compared with the average for all HMAs of £43 million. The section of the A1 that runs through the HMA to Peterborough does not have the level of delay of the section north of the area.

The Lincolnshire Local Transport Plan (LTP2) 2006 - 2011 states that Grantham is increasingly suffering from traffic congestion caused by local traffic, HGVs associated with the food production industry and tourist traffic. Since 2000; overall average speeds on the town's network have fallen by 2 kph in the morning peak, with average delays in the town centre increasing by 28% in the evening peak over the same period. Economic and housing growth in the town, including spillover effects from the MKSM area, will increase these problems unless suitable mitigation measures are put in place.

10.4 Challenge EM2: Enabling growth and dealing with the additional demand for travel brought about mainly by regeneration and growth

10.4.1 Planned growth in population

The main objectives of the RSS for this HMA are to support the regional role of Peterborough and to strengthen the sub-regional centre of Grantham. Housing provision in South Holland, including Spalding, will be limited to existing commitments until the Lincolnshire Coastal Strategy has been agreed.

The total housing provision for the Peterborough Partial HMA is set out in the RSS is 24,000 from 2006-2026. This is split into 3,000 within Rutland, 7,400 within South Holland and 13,600 within South Kesteven⁸¹.

Grantham has been accepted as a Growth Point which proposes 6,300 dwellings by 2016 and will complement the larger urban area of Lincoln.

The area has the potential to be affected by the Growth Points in different regions at MKSM and London-Stansted-Cambridge-Peterborough.

10.5 Challenge EM3: Overcoming gaps and weaknesses in the existing transport networks and maintaining accessibility

10.5.1 Key travel movements and patterns

The rural nature of the area and the high proportion of over 65's means that commuting flows are low. The largest journey to work flows are from Grantham and Spalding out of the region to Peterborough. Intra-HMA flows are low because the centres of population are small, the distances are large and the road links are not very direct.

The HMA has by far the largest proportion of households with no car, with 33% compared to the regional average of 24%. This is different to all of the other rural HMAs that have higher than average car ownership and could be a particular problem in an area where public transport accessibility is also low.

North-south through trips are concentrated on the A1, but east-west movement is limited by the lack of demand and the poor standard of roads in that direction.

The main rail flows are generated in Grantham, because its station on the East Coast Main line provides good access to London. Most of the other towns in the area are on the rail network, but passenger flows are low. Bus routes, frequencies and patronage are among the lowest in the region.

Freight movement

The A1 is the most significant strategic route through the areas in terms of road freight. The area is particularly important for the movement of fresh food due to the importance of the agricultural industry in the area and the close proximity to the Lincolnshire ports and to Felixstowe and Harwich. The area around Spalding is particularly important for the movement of this type of

⁸¹ East Midlands Regional Plan (RSS) March 2009
/East Midlands Transport Conditions & Issues 2010 Update FINAL
- 1 March10.docx

freight and further development of consolidation centres in the area could assist in reducing road freight traffic.

Sutton Bridge is a small port on the east coast that handles approximately 745,000 tonnes of freight per year, accessed off the A17.

There are significant rail freight movements on the line through Oakham and Stamford in the south-west of the area. This line carries aggregates between the midlands and London and containers between the midlands and Felixstowe. Ketton cement factory on the edge of the HMA is also a source of rail freight on this line.

10.5.2 Accessibility

The area is mixed in terms of deprivation levels. The west side of the area around Grantham, Oakham and Stamford have low levels of deprivation while the eastern, coastal area suffers from worse than average deprivation. Barriers to housing and services are generally quite large except in the towns themselves.

Due to its rural nature accessibility is an important issue in the HMA. Table 10.1 shows that only 32% of households have access to an hourly bus service and only 1% have access to a bus stop with 10 minute or greater frequency level of bus services in the AM Peak. Access to further education establishments, particularly in the west of the area is poor with only 50% of the population able to access an Further Education institute within a 30 minute public transport journey.

The National Core Accessibility Indicators suggest poor access to secondary schools across the HMA and to further education in South Holland

Table 10.1 - Peterborough Partial HMA – Access to the bus network

Morning peak period bus service frequency of at least	% of HMA households
Six buses per hour (10 minute frequency)	1%
Two buses per hour (30 minute frequency)	20%
One bus per hour (60 minute frequency)	32%

10.5.3 Gaps in network provision

Access to the key employment and service destination of Peterborough is relatively poor, as are rail and bus links between the main centres within the HMA. Rural accessibility is a key issue. Agricultural and food production industries are affected by poor accessibility to the national transport network.

With the exception of the A1, the road network is limited and of relatively poor quality with single carriageway roads of a low standard. Agricultural and food processing industries are affected by poor accessibility (e.g. lack of full-height east-west route through Grantham).

10.6 Challenge EM4: Minimising the effects of non-recurrent delays on the transport networks

No data is currently available regarding this challenge at an HMA level.

10.7 Challenge EM5: Overcoming lack of awareness of (benefits of) sustainable travel options and inertia of individuals and businesses to change behaviour

10.7.1 Potential for behavioural change

No specific areas in this HMA have been identified as having the potential to significantly change travel behaviour. However the low car ownership and high levels of cycling in the area is very encouraging and ways to improve these levels of travel by other modes than the private car should be sought through other initiatives such as car share schemes or flexible public transport to remote parts of the HMA. However, current bus use is very low.

10.8 Challenge EM6: Identifying measures to reduce further the number of deaths and injury accidents, particularly on roads

10.8.1 Road accidents

On average, 152 people are killed or seriously injured (KSI) in the HMA each year, accounting for 6% of KSIs in the region⁸². This is the second-lowest number of KSIs in any HMA. The most KSIs occur in the two Lincolnshire districts, West Lindsey and North Kesteven districts which, between them, account for 85% of the KSIs in the HMA. Both districts, and the County of Rutland, are largely rural.

The HMA's annual KSI rate per 1,000 residents, of 61.7, is the seventh-highest in the region. However, the rate is still above the regional average, of 60.5, and significantly above the English average of 54.3.

The number of personal injury accidents (including slight injuries) has remained relatively constant at approximately 900 per year⁸³. Of those injured therefore, 16% are killed or seriously injured, similar to the regional average of 15.5%, however the proportion of fatalities is the highest in any HMA in the region, with 3.1% of accidents involving a fatality compared with the average of only 1.9%.

The KSI accident rate is broadly consistent across the authorities in the HMA, ranging from 55.4 in South Kesteven to 68.7 in South Holland.

10.9 Challenge EM8: Minimising noise, severance, vibration, local air quality and other issues affecting local communities

10.9.1 Air quality

There are several Air Quality Management Areas (AQMAs) in Grantham and one in Stamford. PM₁₀ levels are relatively high along the A1 corridor and in the towns of Grantham, Stamford and Spalding and Caldecott on the A6003.

⁸² 2005-2007 average

⁸³ Between 2003 and 2007

/East Midlands Transport Conditions & Issues 2010 Update FINAL

- 1 March10.docx

10.9.2 CO₂ emissions

Total road transport carbon emissions are below average in this area at 1,653kT in 2006. The per capita figure is 3.3T per person, the second highest figure in the region. The dispersed population and the low traffic levels on the road network has helped to keep the total emissions figure low but the per capita figure is disproportionately high because of the low population and the amount of through travel on the A road network in the area.

Peterborough Partial HMA - Summary of conditions and issues

Location of future development

Total housing provision for the Peterborough Partial HMA is 24,000
 Provision split between 3,000 within Rutland and 7,400 within South Holland and 13,600 within South Kesteven
 Development may be constrained by coastal flood issues

Implications for transport

HMA is a large and diverse area, with low population density and no major urban area
 Network of mainly rural single carriageway routes which connect towns within the HMA
 Currently little congestion on local road network – therefore potential capacity for further development although local roads are mainly single carriageway
 Currently significant out commuting to Peterborough takes places – concentration of development at Grantham should encourage self containment of settlement
 The concentration of development in Grantham and funding from Growth Point will give potential to improve public transport services and alternative modes
 Improvements to the A1073 Spalding to Eye are underway and will improve access for heavy freight vehicles particularly related to the food industry in the area
 The proximity to two other Growth Points outside the East Midlands Region, MKSM and London – Stansted – Cambridge – Peterborough, will need to be considered.

For those challenges for which there is sufficient evidence, the table below summarises the relative severity of each challenge in this HMA compared to the other HMAs in the region.

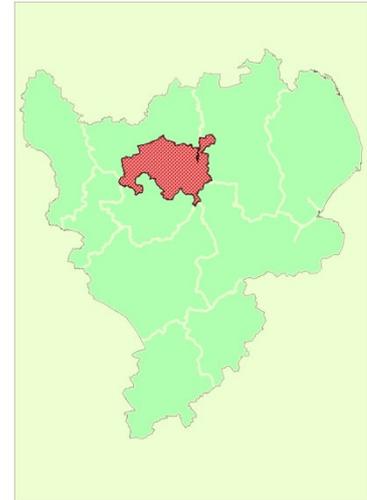
Challenge (summary wording)	Relative severity of challenge in HMA
EM1: Minimising congestion and crowding	Less severe
EM2: Enabling and dealing with growth	Less severe
EM3: Overcoming gaps and weaknesses	More severe
EM5: Encouraging behavioural change	Typical
EM6: Reduce death and injury	Typical
EM8: Minimise effects on communities	Typical
EM9: Minimise effects on the environment	More severe
EM11: Overcoming travel habits	More severe

11. Nottingham Outer HMA

11.1 Introduction

Nottingham Outer HMA comprises the districts of Ashfield, Mansfield, Newark and Sherwood. It has an overall population of 329,000 with a projected population growth to 408,200 by 2031⁸⁴. The population is spread across a large number of towns and built-up urban areas rather than any single large centre. The character of the HMA is split between the industrial area to the west, centred on Mansfield, and the rural area to the east that looks towards Newark.

Nottingham Outer HMA has undergone a large transition in its economy from the old industries of coal mining and manufacturing to a more service, distribution and retail-led economy. The western sector suffers from lower than average employment and other associated deprivation indicators. The area has strong relationships with the Nottingham Core HMA to the South and the Northern HMA.



11.2 HMA transport networks

11.2.1 Highway network

As shown in Figure 11.1 the M1 runs through the far west of the area. The main road network connects the principal towns within the area in Mansfield-Ashfield and Newark on Trent. The A1 forms the main north-south corridor to the east of the country and this runs through the HMA near to Newark.

There is a low level of connectivity within the HMA itself. The west and east sides of the area are relatively self-contained and the interaction between the two is limited by distance, the lack of travel demand and few connecting roads.

The A46 to the east of the area forms an important link between Leicester, Newark and Lincoln and this road is currently being widened between Newark and Widmerpool. A new 28 kilometre two-lane dual carriageway is being constructed to replace the existing single carriageway road with the aims of reducing congestion, improving road safety and removing traffic from villages along the route. Construction was brought forward due to the DfT's fiscal stimulus package and is now expected to be complete in 2012.

11.2.2 Public transport services

Figure 11.2 shows the principal rail and bus network for the Nottingham Outer HMA. The area is served by the Robin Hood Line which runs from Worksop to Nottingham stopping at the stations of Shirebrook, Mansfield Woodhouse, Mansfield, Sutton in Ashfield and Kirkby in Ashfield. The Nottingham Express Transit service also connects the area with Nottingham City Centre with the addition of two Park and Ride sites for the line located within the HMA.

The East Coast Main line provides the area with a direct link to London at Newark North Gate and the local rail service from Nottingham to Lincoln also serves Newark and a number of other stations in the east of the area.

⁸⁴ Census mid year estimate, Office for National Statistics, 2007
/East Midlands Transport Conditions & Issues 2010 Update FINAL
- 1 March10.docx

Principal bus services link the main towns within the HMA as well as to important destinations outside of the area such as Lincoln, Nottingham, Retford and Sheffield. However, there are large rural areas in the centre of the HMA where the provision of public transport is very poor and this low level of accessibility is a key issue.

A major scheme is planned in Mansfield to provide a new bus station that is also linked to the existing railway station that could improve the interchange and encourage the use of public transport. If approved, the scheme could open by 2012.

Figure 11.1 - Nottingham Outer HMA principal highway network

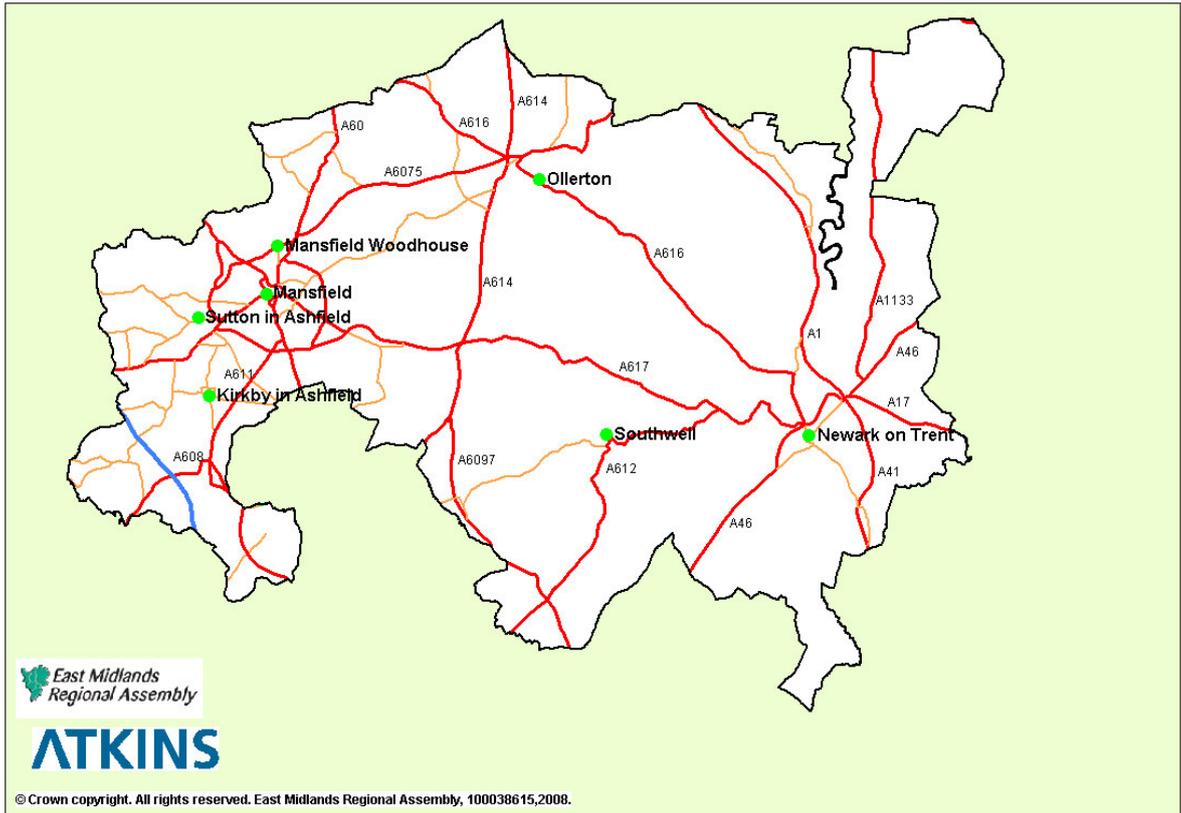
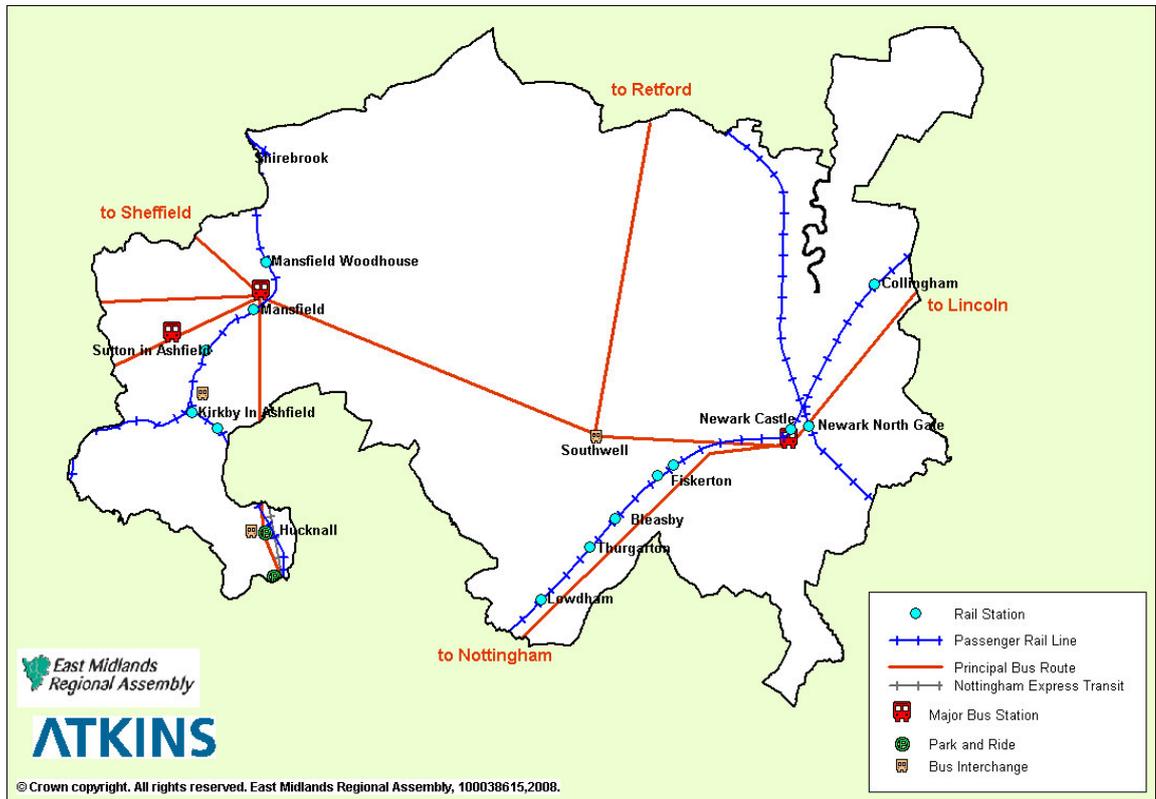


Figure 11.2 - Nottingham Outer HMA principal rail and bus network



11.2.3 Walking and cycling

Walking and cycling account for 12.9% of all journeys to work. This is similar to the regional average. There is potential to increase these proportions through working with the health sector to provide information on the benefits of walking and cycling to help reduce obesity levels. The northern parts of the HMA have higher than average adult and child obesity levels and hence should be regarded as a priority.

11.3 Challenge EM1: Minimising existing and future traffic congestion and rail crowding on strategic links and in urban areas

11.3.1 Congestion and traffic growth

Traffic congestion is a lesser issue in this area compared with many others in the region and the local infrastructure has some spare capacity to cater for new developments. However, there is congestion on the M1 corridor, the A38, A46 and localised congestion hotspots within the district centres causing delays to buses and general traffic.

There are above-average loadings on rail services between Mansfield Woodhouse and Worksop.

Traffic growth is restricted by the lower than average rates of economic growth that are present in the area. The proposed additional housing growth is similar to the average level within the region. Greater growth is expected in the west of the area, in the M1 corridor around Ashfield-Mansfield. Congestion currently occurs on the M1 and A38 and in the town centres of Mansfield and Newark.

11.4 Challenge EM2: Enabling growth and dealing with the additional demand for travel brought about mainly by regeneration and growth

11.4.1 Planned growth in population

The objectives of the RSS are to strengthen the roles of Newark and Mansfield-Ashfield and to regenerate the smaller settlements in a sustainable way⁸⁵.

Total housing provision in RSS for HMA is 36,600 for 2006-2026. New development will be concentrated in and around the main sub-regional centre of Mansfield/Ashfield and the growth point of Newark.

The housing provision is split between the districts of Ashfield (11,200), Mansfield (10,600) and Newark & Sherwood (14,800). Newark has been granted Growth Point status, 6,000 of the dwellings have been allocated through this process. The regeneration of Ashfield should be able to take place without the need for any release of greenbelt land because of the availability of disused, brownfield land.

11.5 Challenge EM3: Overcoming gaps and weaknesses in the existing transport networks and maintaining accessibility

11.5.1 Key travel movements and patterns

Population and transport provision are concentrated on the west and east sides of the HMA with a large rural area between. This means that intra-HMA flows are low compared with flows from Mansfield and Newark to other HMAs, Nottingham Core in particular. Large volumes of through traffic travel through the area on the M1 and A1 trunk road.

This HMA has the largest amount of out-commuting in the region; there are almost 15,000 more employed residents in the area than the workplace population. These people are commuting to other HMAs to work, mainly to Nottingham but Derby and Chesterfield are also within easy commuting distance.

Mansfield has a railway station, it is not a mainline service however and patronage is relatively low. Patronage from Newark station is higher, particularly to London, because it is on the East Coast Main line. Newark is the most northerly station in the Region where the majority of passengers travel to London.

Freight movement

The area has two strategic north-south freight routes carrying long distance road freight through the area, the M1 and A1. The A38 trunk road also joins the M1 in the south west of the area. Local freight is concentrated in the industrial areas to the west of the HMA and uses the M1 to access the rest of the country. The growth of the warehouse and distribution industry in the area has taken advantage of this good access to the Trunk Road network.

Rail freight has been of great historical importance to the area, in terms of the transfer of coal between mines, ports and power stations, but this role is expected to decrease over time. Rail freight is carried on the line through Mansfield and there are larger flows on the Nottingham-

⁸⁵ East Midlands Regional Plan (RSS), March 2009
/East Midlands Transport Conditions & Issues 2010 Update FINAL
- 1 March10.docx

Newark-Lincoln-Immingham route. The East Coast Main line also carries freight through the region, up to 20 trains per day on the section through Newark.

11.5.2 Accessibility

There is a clear split of deprivation levels within the area with the Ashfield-Mansfield area experiencing high levels of deprivation as a result of the economic changes that have taken place in recent years. The rural area to the east of the HMA experiences much lower levels of deprivation.

The reverse is true in terms of barriers to services. Rural isolation means that the access to services is more difficult in the areas to the east of the HMA while the urban areas have better than average access levels.

Table 11.1 shows the proportion of households within 250 metres of a bus stop with bus services of hourly, half-hourly and 10 minute frequencies. This shows relatively good access to the bus network in comparison to the region as a whole. Key priorities for the area are to enhance the roles of the main towns within the HMA. Improving public transport accessibility to these destinations will strengthen the roles of the towns.

The National Core Accessibility Indicators suggest poor access to hospitals in Newark & Sherwood.

Table 11.1 - Nottingham Outer HMA – Access to the bus network

Morning peak period bus service frequency of at least	% of HMA households
Six buses per hour (10 minute frequency)	7%
Two buses per hour (30 minute frequency)	53%
One bus per hour (60 minute frequency)	73%

11.5.3 Gaps in network provision

There is a variable quality of road network and public transport provision within the area.

Bus routes and frequencies are good in the Mansfield area but poor in the rest of the HMA and patronage levels across the HMA are well below the regional average.

The rural area in the centre of the HMA suffers from poor road links and a lack of public transport services, especially east-west. This acts as a barrier between the centres of population in the east and west of the area and south to Nottingham. There are also poor transport links to the regeneration areas to the north and east of Nottingham (e.g. Mansfield), western parts of the HMA as well as to Nottingham itself where car ownership is low. Rural accessibility is also low in this central area. The lack of a single main centre of population makes the provision of sustainable transport more difficult.

11.6 Challenge EM4: Minimising the effects of non-recurrent delays on the transport networks

No data is currently available regarding this challenge at HMA level.

11.7 Challenge EM5: Overcoming lack of awareness of (benefits of) sustainable travel options and inertia of individuals and businesses to change behaviour

11.7.1 Potential for behavioural change

Bus use in the HMA is low, and few areas have been identified where the population is considered to be particularly susceptible to respond to behavioural change measures.

11.8 Challenge EM6: Identifying measures to reduce further the number of deaths and injury accidents, particularly on roads

11.8.1 Road accidents

On average, 246 people are killed or seriously injured (KSI) in the HMA each year, accounting for 9% of KSIs in the region⁸⁶. This is only the seventh-highest number of KSIs in any HMA. Approximately half of all KSIs occur in the district of Newark & Sherwood, with approximately 30% in Ashfield and the remaining 20% in Mansfield district.

However, the HMA's annual KSI rate per 1,000 residents, of 75.7, is the second-highest in the region. The rate is significantly above the regional average, of 60.5, and the English average of 54.3.

The number of personal injury accidents (including slight injuries) has remained relatively constant at approximately 1,200 per year⁸⁷. Of those injured therefore, 19.4% are killed or seriously injured, higher than the regional average of 15.5%. The nature of rural 'A' roads, in particular speed limits, are thought to be a major contributory factor.

When comparing the three districts, the KSI accident rate is markedly higher in Newark & Sherwood, at 112.1, than in Ashfield or Mansfield (63.2 and 49.5 respectively). The Newark & Sherwood KSI rate is roughly twice the English average, and is the second-highest of any district or unitary authority in the region. By contrast, the Mansfield KSI rate is one of the lowest.

11.9 Challenge EM8: Minimising noise, severance, vibration, local air quality and other issues affecting local communities

11.9.1 Air quality

The HMA contains some of the worst levels of PM₁₀ in the region, although there are no designated AQMAs within the area.

⁸⁶ 2005-2007 average

⁸⁷ Between 2003 and 2007

/East Midlands Transport Conditions & Issues 2010 Update FINAL

- 1 March10.docx

11.9.2 CO₂ emissions

Total road transport carbon emissions are lower than average in this area at 743kT in 2006. The per capita figure is 2.3T per person which is about average. The large rural area to the east of the HMA has helped to keep total emission levels down.

Nottingham Outer HMA - Summary of conditions and issues

Location of future development

Total housing provision for HMA is 36,600.

New development will be concentrated in and around the main sub-regional centre of Mansfield/Ashfield and the growth point of Newark

Housing provision is split between the districts of Ashfield (11,200), Mansfield (10,600) and Newark & Sherwood (14,800)

Newark has been granted Growth Point status, 6,000 of the dwellings have been proposed through this process.

Disused, brownfield land available in Ashfield could allow development to take place without release of greenbelt land

Implications for transport

The HMA is polarised between the industrial area to the west and the more rural area to the east. These areas are focussed on different centres of population and employment, at Ashfield-Mansfield and Newark but there is no central city where support for sustainable travel modes can be concentrated

The majority of new development is proposed close to the two north-south corridors that run through the area, at Ashfield – Mansfield in the M1 corridor in the west and at Newark on the A1/A46 corridor in the east. This has the potential to provide a source of housing for commuters who work outside of this HMA to use these routes for long distance commuting

The capacity of the A46 could restrict the scale of future development in the area

There is little evidence of significant congestion, except on the M1 in peak periods.

The Robin Hood Line provides a non-car travel option to Nottingham and the regeneration areas in between and has potential to increase capacity if necessary

For those challenges for which there is sufficient evidence, the table below summarises the relative severity of each challenge in this HMA compared to the other HMAs in the region.

Challenge (summary wording)	Relative severity of challenge in HMA
EM1: Minimising congestion and crowding	Typical
EM2: Enabling and dealing with growth	Typical
EM3: Overcoming gaps and weaknesses	Typical
EM5: Encouraging behavioural change	Typical
EM6: Reduce death and injury	More severe
EM8: Minimise effects on communities	More severe
EM9: Minimise effects on the environment	More severe
EM11: Overcoming travel habits	More severe

12. Northern HMA

12.1 Introduction

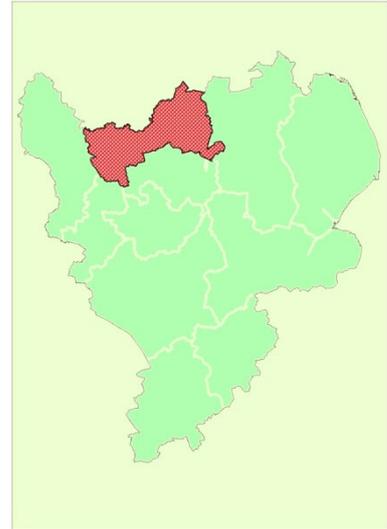
The Northern HMA comprises the districts of Bolsover, Chesterfield, NE Derbyshire and Bassetlaw. The main centres of Chesterfield, Worksop and Retford lie within the area and it is an important travel to work area for Sheffield and Rotherham. The area also forms the southern part of the Sheffield City Region that is the partnership of 11 local authorities dedicated to encouraging economic development in Sheffield and its surrounding area.

With a population of 385,000 it is the fourth most populated HMA, even though it does not contain any of the Principal Urban Areas (PUAs) and it accounts for 9% of the total population of the East Midlands⁸⁸.

The population of the area is expected to grow by 17% by 2026, putting it on a par with Peak Dales and Park HMA in terms of having the lowest levels of growth within the region, as well as growth below the national average.

There are relatively high levels of deprivation, including some of the most deprived areas within the country. This area is a transition stage developing from a traditional coal mining and manufacturing economy into an increasingly important area for the tertiary, retail, distribution and warehouse industries attracted by good transport links that the proximity to the M1 provides. Employment rates are below the regional average and there is a large proportion of out-commuting to Sheffield and Rotherham. There is a low level of commuting within the HMA itself.

Robin Hood Airport lies just outside the HMA near Doncaster, to the north-east.



12.2 HMA transport networks

12.2.1 Highway network

Figure 12.1 shows the highway network for the Northern HMA. Both the A1 and the M1 run through the HMA and, together with the A61, provide links for the primary travel movements to the Yorkshire and Humber Region to the north and the rest of the East Midlands to the south. These roads suffer from increasing levels of congestion, particularly on the M1 and the A61 junctions on the inner ring road through Chesterfield.

East to west connections across the area are relatively poor and traffic flows are low.

Junction 29a of the M1, and associated link roads, has recently opened to provide access to major regeneration sites at Markham Vale.

12.2.2 Public transport services

Levels of public transport accessibility are good compared with the other HMAs that do not have a major urban centre as a focal point. Figure 12.2 shows the main public transport network for the area.

⁸⁸ Census mid year estimate, Office for National Statistics, 2007
/East Midlands Transport Conditions & Issues 2010 Update FINAL
- 1 March10.docx

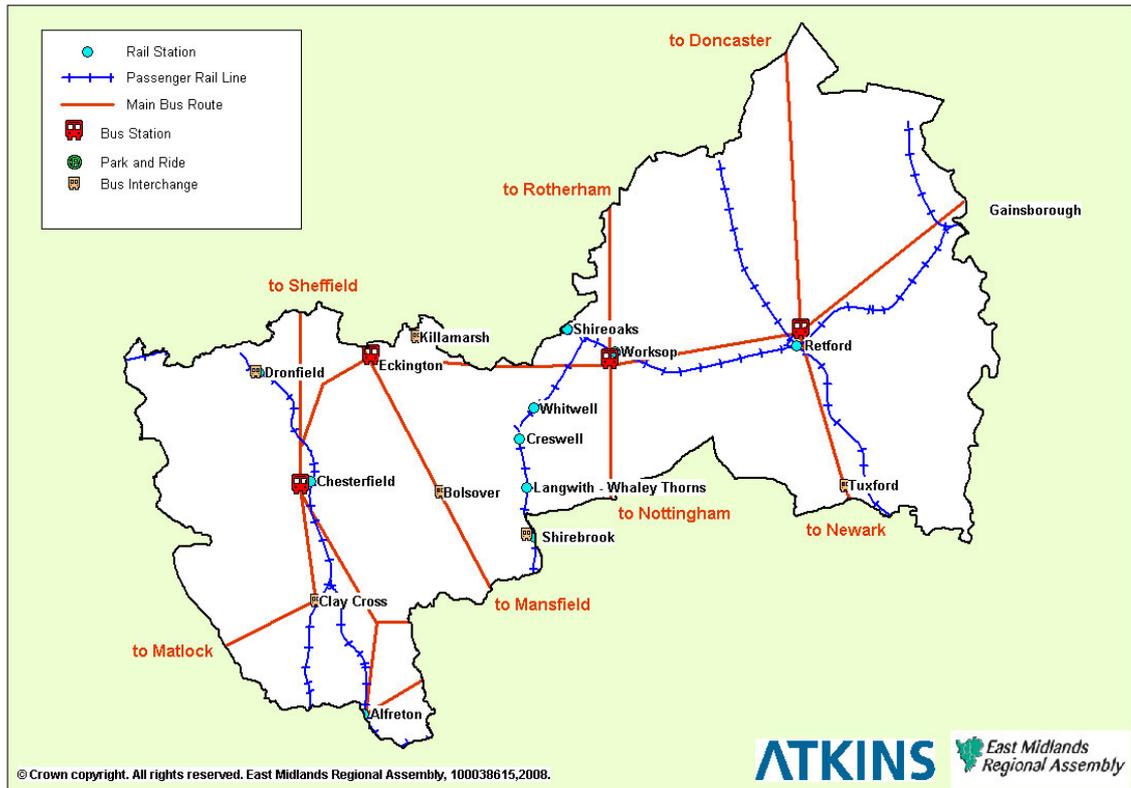
The HMA is served by Midland Mainline at Chesterfield that provides a link to Sheffield to the north and Derby, Nottingham and London to the south. Cross Country and Liverpool-Norwich services also call at Chesterfield and Dronfield providing links to the north-west, north-east, Birmingham and East Anglia. The East Coast Main Line serves Retford with services to London and the North East while the Robin Hood Line also runs through the area serving the stations of Worksop, Whitwell, Cresswell, Langwith Whaley-Thoms and Shirebrook providing commuter links with Mansfield and Nottingham.

The bus/coach network is well developed, particularly for north-south routes, with a good network of routes and bus stations and interchanges.

Figure 12.1 - Northern (Sheffield/Rotherham) HMA principal highway network



Figure 12.2 - Northern (Sheffield/Rotherham) HMA principal rail and bus network



12.2.3 Walking and cycling

Walking and cycling to work levels are the lowest for the region. Some 11.4% and 1.9% of journeys to work are on foot or by bicycle compared with a regional average of 13.6%. This is likely to be influenced by the relatively good road and public transport networks.

12.3 Challenge EM1: Minimising existing and future traffic congestion and rail crowding on strategic links and in urban areas

12.3.1 Congestion and traffic growth

Besides the high levels of congestion on the M1 through the area most problems with congestion are centred upon Chesterfield, particularly the junctions on the inner ring road (A61). The widening of the M1 to the north and south of the area will provide increased road capacity to cater for future growth in traffic. Markham Vale redevelopment site is likely to generate a significant amount of new traffic that will have easy access to the M1 via the new Junction 29a.

The State of Freight Study found that there are areas of localised congestion as travel and employment patterns in the area are changing more rapidly than the road network. Employment and housing growth is expected to be one of the lowest in the region so the increase in travel demand within the HMA will be proportionately low.

12.4 Challenge EM2: Enabling growth and dealing with the additional demand for travel brought about mainly by regeneration and growth

12.4.1 Planned growth in population

The RSS gives a housing provision for the area of 30,200 with most new housing focused on the main centres of Chesterfield and Worksop⁸⁹. This housing is distributed evenly across the four districts of Bolsover (8,000), Chesterfield (7,600), North East Derbyshire (7,600) and Bassetlaw (7,000). Development is concentrated close to the M1 corridor, which has the potential to increase the level of out-commuting by car.

The objectives of the RSS are to strengthen the sub-regional roles of Chesterfield and Worksop and to regenerate the smaller settlements in a sustainable way.

12.5 Challenge EM3: Overcoming gaps and weaknesses in the existing transport networks and maintaining accessibility

12.5.1 Key travel movements and patterns

The HMA is well-served with transport links and has strong commuting links to Sheffield that are facilitated by the presence of the M1. The good rail links and high levels of bus frequency. Chesterfield is the largest source of in- and out-commuting from within the HMA and also with Sheffield. The HMA as a whole has one of the largest amount of out-commuting in the region with over 6,000 more employed residents than workplace population. These people are commuting to jobs in other HMAs.

The geography of the area and the road and rail links within it tend to promote more north-south movements than east-west. Large volumes of north-south through-trips are carried by the M1, A61 and A1 and congestion levels are high on these roads.

Freight movement

The main freight movements are on the M1 and A1, with the M1 carrying both the highest volume and the highest proportion of freight. The A619 also carries high volumes of HGV freight. There are a lack of good quality east-west routes.

As a consequence of the proximity to the M1 a large demand for warehouse and distribution centres has arisen in this corridor.

Rail freight has been of great historical importance to the area, in terms of the transfer of coal between mines, ports and power stations, but this role is expected to decrease over time. The Trent Valley line between Toton and Chesterfield is the busiest rail freight route in the region with over 40 trains per day. The line between Chesterfield and Derby also carries between 30-40 trains per day. There are also significant freight flows on the Mansfield-Worksop line and the East Coast Main line through Retford.

⁸⁹ East Midlands Regional Plan (RSS), March 2009
/East Midlands Transport Conditions & Issues 2010 Update FINAL
- 1 March10.docx

12.5.2 Accessibility

The Northern HMA is one of the most deprived in the country. Areas around Chesterfield and Bolsover are among the most deprived 10% in the region. This is generally urban deprivation caused by a decline in traditional industries. As a result of this, access to public transport is likely to be better than in areas of rural deprivation.

The area also has one of the highest levels of adult obesity in the region and is well above the national average. Improving access to key services by public transport will assist in widening opportunities for people living in deprived communities. The National Core Accessibility Indicators show poor access to hospitals in NE Derbyshire.

Table 12.1 shows the proportion of households with within 250 metres of a bus stop served by hourly, half-hourly or more frequent bus services in the morning peak. Within Chesterfield there is good accessibility to bus services and the radial routes leading from these centres also provide a good level of service. Being within the Sheffield and Rotherham travel to work areas it is important that public transport accessibility to these areas is available as well as services to Nottingham and Doncaster.

Table 12.1 - Northern HMA – Access to the bus network

Morning peak period bus service frequency of at least	% of HMA households
Six buses per hour (10 minute frequency)	12%
Two buses per hour (30 minute frequency)	56%
One bus per hour (60 minute frequency)	73%

12.5.3 Gaps in network provision

Good north-south links mean that out-commuting is particularly significant, especially in the M1 corridor, but the rural area to the east suffers from poor levels of access to jobs and services in adjacent cities (e.g. Chester-field, E-W to Sheffield, Worksop) and outside the HMA. Road links within the area make east-west movements difficult. North-south rail links are relatively good, but the service levels are not high on some routes and east-west links are poor, including for freight movement. Transport links to regeneration areas are also poor. Access to Robin Hood Airport is poor, especially by public transport.

Gaps in strategic network are thought to limit regeneration opportunities (for example Shirebrook is not on the Primary Road Network and the service on the Robin Hood line is considered to be unreliable). Generally poor E-W freight routes. There are also poor transport links to some of the regeneration areas such as Hucknall.

12.6 Challenge EM4: Minimising the effects of non-recurrent delays on the transport networks

No data is currently available regarding this challenge at HMA level.

12.7 Challenge EM5: Overcoming lack of awareness of (benefits of) sustainable travel options and inertia of individuals and businesses to change behaviour

12.7.1 Potential for behavioural change

Two key locations, Worksop and the Walton area of Chesterfield were identified by Figure 4.21 as having demographic and accessibility characteristics of residents likely to be positive to behavioural change measures.

12.8 Challenge EM6: Identifying measures to reduce further the number of deaths and injury accidents, particularly on roads

12.8.1 Road accidents

On average, 248 people are killed or seriously injured (KSI) in the HMA each year, accounting for 9% of KSIs in the region⁹⁰. This is the eighth-highest number of KSIs in any HMA. Over 40% of KSIs occur in Bassetlaw district with a broadly equal spread between the remaining three districts.

The HMA's annual KSI rate per 1,000 residents, of 64.8, is the fifth-highest in the region. The rate is still above the regional average, of 60.5, and significantly above the English average of 54.3.

The number of personal injury accidents (including slight injuries) has remained relatively constant at approximately 1,400 per year⁹¹. Of those injured therefore, 15.7% are killed or seriously injured, similar to the regional average of 15.5%.

When comparing the KSI rate between the four districts, it is clear that the rate is very high in Bassetlaw, at 92.9, low in Chesterfield, at 38.6, and broadly average in Bolsover and NE Derbyshire at around 61.

12.9 Challenge EM8: Minimising noise, severance, vibration, local air quality and other issues affecting local communities

12.9.1 Air quality

The area experiences some of the highest levels of PM₁₀ in the region with the exception of the most eastern and western rural areas of the HMA. The presence of the M1 and A1 and an extensive network of A roads contribute to these high levels of PM₁₀ in the central areas of the HMA.

12.9.2 Community impacts

Rural communities are negatively affected by through traffic, particularly freight, such as Glapwell on the A617, and Pleasley on the A511.

⁹⁰ 2005-2007 average

⁹¹ Between 2004 and 2007

12.9.3 CO₂ emissions

Total road transport carbon emissions are above average in this area at 1,204kT in 2006. CO₂ emissions are high along the main roads (such as the M1, A1, A1(M) and A61 at Chesterfield).

The per capita figure is 3.1T per person which is also above average. The Northern HMA has a well-developed road network and major through routes in the M1 and A1 which pushes the carbon emissions up. There are two AQMAs in Bolsover district, both related to the M1.

Northern HMA - Summary of conditions and issues

Location of future development

Housing provision for HMA is 30,200 with most new housing focused on the main centres of Chesterfield and Worksop

The total volume of development in the HMA is relatively low; this matches the low forecasts of population increase.

The economy of the HMA is in a transitional stage and the low level of employment suggests that the employment opportunities are not large enough to support large scale housing development. A large amount of brownfield land is available close to existing centres.

Implications for transport

General levels of public transport and road network accessibility are relatively good

Housing provision is generally close to the M1 corridor which has the potential to further increase the amount of out-commuting

There are isolated examples of transport problems, but congestion is a relatively less significant problem in this HMA

There are isolated congestion issues in the Chesterfield area, particularly on junctions along the A61

Specific transport interventions may be required, but there appear to be fewer requirements for large scale improvements to highway and public transport

For those challenges for which there is sufficient evidence, the table below summarises the relative severity of each challenge in this HMA compared to the other HMAs in the region.

Challenge (summary wording)	Relative severity of challenge in HMA
EM1: Minimising congestion and crowding	Typical
EM2: Enabling and dealing with growth	Typical
EM3: Overcoming gaps and weaknesses	Typical
EM5: Encouraging behavioural change	Typical
EM6: Reduce death and injury	Typical
EM8: Minimise effects on communities	More severe
EM9: Minimise effects on the environment	Typical
EM11: Overcoming travel habits	More severe

13. Peak Dales and Park HMA

13.1 Introduction

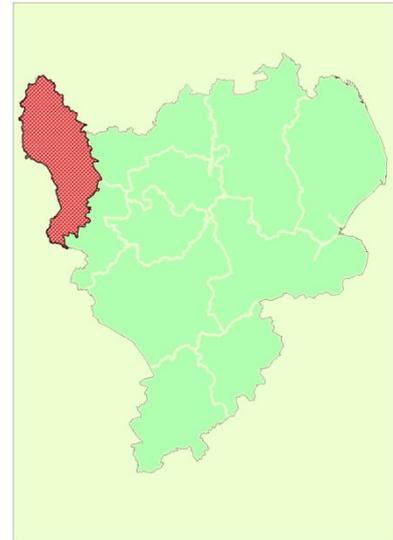
The Peak Dales and Park HMA comprises the two Derbyshire districts of High Peak and Derbyshire Dales and it also includes areas of the Peak District National Park Authority. High Peak Borough falls within the influence of the 'Manchester City Region' which forms part of the 'Northern Way' Initiative.

With an estimated population of 163,000 the Peak Dales and Park is the least-populated HMA in the region with only 4% of the total East Midlands population⁹². Population growth is also expected to be low compared to most other HMAs (16% between 2006 and 2031). The HMA has one of the highest proportions of over-65's in the region, mainly due to its popularity as a retirement destination and the lack of industry and employment opportunities for under-65's.

The main towns in the HMA are Matlock, Buxton, Ashbourne, Bakewell and Glossop. With a workplace population of fewer than 60,000 the area also has the lowest number of jobs in the region, accounting for only 3% of the region's employment.

Together with quarrying, tourism and recreation play an important role in the economy of the HMA, as well as having significant implications for transport. Small concentrations of manufacturing can be found in some of the towns and employment rates are in line with the regional average.

The area is located in close proximity to a number of major urban areas including Greater Manchester, Sheffield, Stoke, Derby and Nottingham; the Peak Park is the most visited National Park in the UK and receives over 22 million visitor days per year putting pressure on the transport network and impacting on the rural environment.



13.2 HMA transport networks

13.2.1 Highway network

Figure 13.1 shows the highway network for the Peak Dales and Park HMA. The network is largely made up of single carriageway, sinuous rural roads. The terrain of the area is more of an issue here than in any other area, the Peak District creates a physical barrier that affects road construction, maintenance and journey times on the network. It acts as a barrier to movement between the large conurbations surrounding the area.

There are no motorways running through the area so a network of 'A' roads provides links between the key settlements and the Strategic Road Network beyond. The A628 runs through the very north of the area carrying heavy flows of traffic between the Greater Manchester conurbation and Sheffield and South Yorkshire and the A50 Derby to Stoke road cuts across the very southern end of the area.

⁹² Census mid year estimate, Office for National Statistics, 2007
/East Midlands Transport Conditions & Issues 2010 Update FINAL
- 1 March10.docx

13.2.2 Public transport services

Figure 13.2 provides an overview of the key rail and bus interchanges, stations and network within the HMA. The Peak Dales and Park HMA is served by local rail services from Derby to Matlock, Buxton to Manchester, Glossop to Manchester and Sheffield to Manchester. There is currently a gap in rail services between Matlock and Buxton which used to be a main line route but is now used as a leisure route for walkers and cyclists. Rail service improvements have recently been made on the Derby-Matlock line and the Hope Valley line that links Manchester and Sheffield has also been identified for further improvements to line speed and capacity.

The Transpeak is a bus service connecting Nottingham and Derby in the East Midlands to Manchester via Matlock, Bakewell and Buxton. However, public transport services are generally very limited in the rural areas away from the main roads and low levels of accessibility are a key issue in many parts of the HMA.

Figure 13.1 - Peak Dales and Park HMA principal highway network



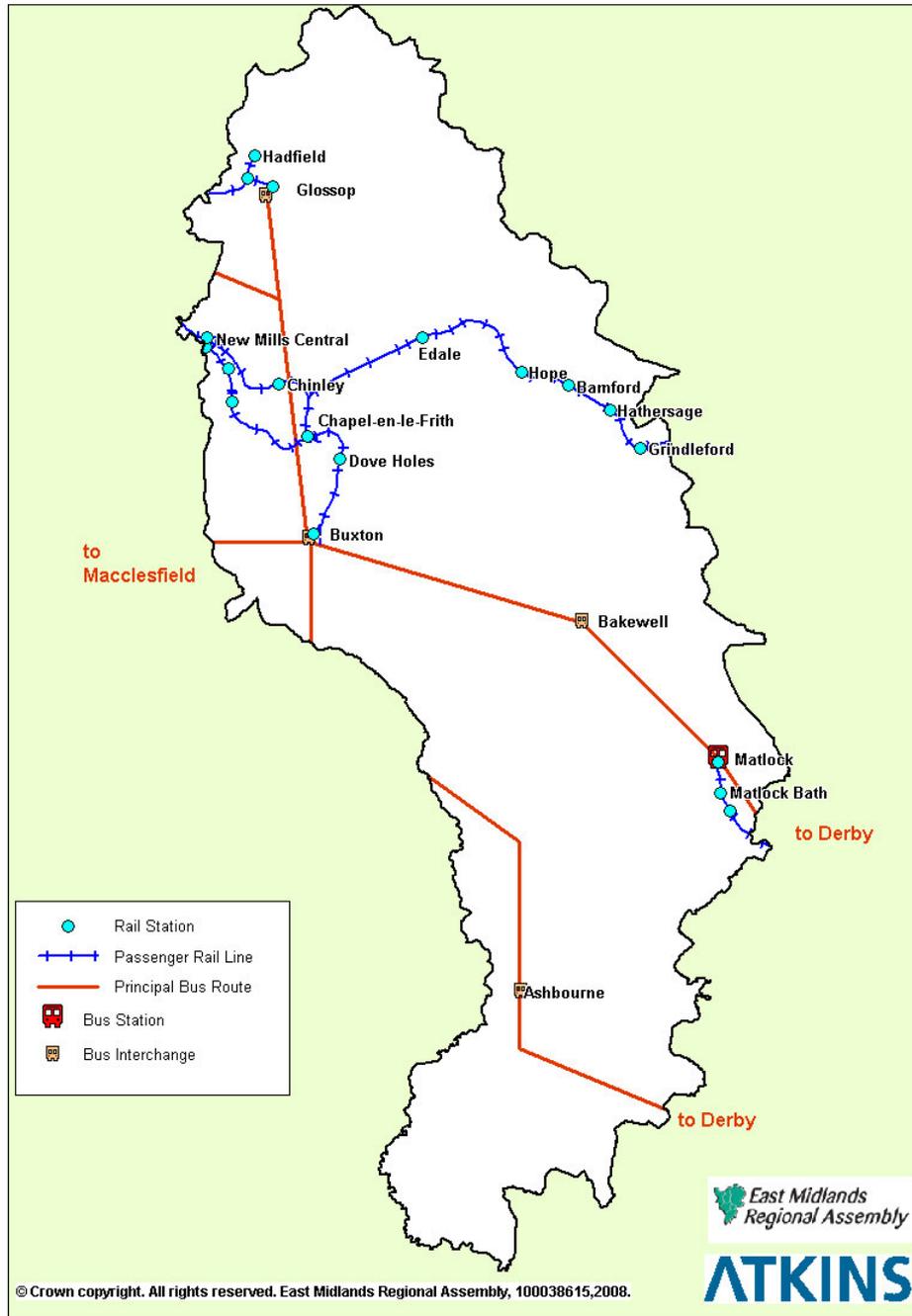
13.2.3 Walking and cycling

An extensive Public Right of Way (PROW) network covers the HMA, although this is mainly used for leisure purposes. However 12.8% of journeys to work in the HMA are made by walking, which is the highest in the region. Cycling on the other hand is lowest for the region at 1.1% of journeys to work.

These figures are the result of a number of factors. The area is largely rural, with large distances between centres of population and the road and public transport network is poor. This tends to

encourage people to live close to their place of work. However, the terrain is generally hilly which tends to have a large negative effect on the proportion of cycling trips.

Figure 13.2 - Peak Dales and Park HMA principal bus and rail network



13.3 Challenge EM1: Minimising existing and future traffic congestion and rail crowding on strategic links and in urban areas

13.3.1 Congestion and traffic growth

The Peak District National Park suffers from traffic pressures related to the tourist industry, its central location in the country and because it is surrounded by several major conurbations of the

Midlands, the North West and South and Yorkshire and The Humber regions. Significant out commuting takes place to areas in the North West region; from Glossop, including movements to Tameside, Stockport and Manchester.

Local congestion is increasingly becoming an issue in the towns of Buxton, Matlock and Glossop, particularly in 'congestion hotspots' associated with tourism and on the A628 between Mottram and Tintwistle.

Approximately 85% of visitors travel to the area by car and this can have significant environmental and social impacts on the National Park. Access and arrangements for traffic circulation, alongside demands for parking, can threaten the environmental quality of the National Park.

The South Pennines Integrated Transport Strategy (SPITS), is a partnership of local authorities, highway authorities, transport providers and other interested parties which has been developed to address these problems. Policy 8 of the RSS supports this strategy by supporting the development of routes for long distance traffic to avoid the National Park and to improve access to the National Park by public transport and other non-car modes.

A major scheme to relieve the congestion and environmental problems on the A628 in the villages of Mottram and Tintwistle in the very north of the area has recently been withdrawn by the Highways Agency in response to the RFA2 prioritisation process.

13.4 Challenge EM2: Enabling growth and dealing with the additional demand for travel brought about mainly by regeneration and growth

13.4.1 Planned growth in population

The main RSS priorities relating to transport and development are consolidating the roles of the market towns of Buxton, Matlock and Glossop and meeting affordable housing needs in a way that promotes a more sustainable pattern of development⁹³. Other RSS policies include managing tourism and visitor pressure by giving particular attention to improved public transport, walking and cycling.

The total housing provision for HMA, as set out in the RSS is 10,000, with 6,000 allocated in High Peak and 4,000 in Derbyshire Dales, with a large proportion of these being concentrated around the market towns of Matlock, Buxton and Glossop.

The housing provision is the second smallest number of new dwellings in any HMA in the region and is also the second smallest percentage increase in dwellings at only 14%, compared with the regional increase of 23%. This means that the impact of this growth could be less significant than in most other HMAs.

The RSS priorities for the area are to consolidate the roles of Buxton, Matlock and Glossop while complying with the statutory purposes of the Peak District National Park. The provision of affordable houses is of particular importance in parts of the HMA because house prices are high.

⁹³ East Midlands Regional Plan (RSS), March 2009
/East Midlands Transport Conditions & Issues 2010 Update FINAL
- 1 March10.docx

13.5 Challenge EM3: Overcoming gaps and weaknesses in the existing transport networks and maintaining accessibility

13.5.1 Key travel movements and patterns

Population is dispersed across the HMA with relatively long distances between towns so commuting flows are low. The most significant travel movements are towards Greater Manchester rather than the East Midlands, from Glossop and New Mills areas. Leisure travel is more significant in this HMA as tourists are attracted to the Peak District from the surrounding cities.

There are some roads that carry large amounts of east-west through traffic, such as the A50, A52 and A628, but these are rural roads that do not pass through any of the towns in the HMA.

Public transport provision is low with the largest passenger movements being towards Greater Manchester.

Freight movement

There are relatively low levels of HGV road freight traffic travelling through the Peak Dales and Park area although due to the sensitive nature of the area the impact of such traffic can have a large negative impact. Much of the movement of the freight in the area is local industry and quarrying and the Peak District National Park Authority are seeking to get more freight onto trains in the area. However the A628 in the very north of the area has a very high proportion of HGVs with over 25% of overall traffic flows.

Rail freight is generated by the quarries near Buxton and it travels out via the Manchester-Sheffield line. This route also carries longer-distance freight trains on many different cross-country routes.

13.5.2 Accessibility

The area has some pockets of deprivation but generally has lower than average levels of deprivation. However, the rural nature of the HMA means that there are significant barriers to services. For example, the National Core Accessibility Indicators show poor access to secondary schools and further education in the Derbyshire Dales.

Public transport accessibility is a key issue. Isolated and towns and villages have infrequent or no public transport access to key facilities. Table 13.1 shows the proportion of households within 250 metres of a bus stop with bus services of hourly, half-hourly and 10 minute frequencies. This shows that accessibility levels are lower than overall regional levels with only 58% of households having access to an morning peak hourly service.

Table 13.1 - Peak Dales and Park HMA – Access to the bus network

Morning peak period bus service frequency of at least	% of HMA households
Six buses per hour (10 minute frequency)	6%
Two buses per hour (30 minute frequency)	37%
One bus per hour (60 minute frequency)	58%

13.5.3 Gaps in network provision

There are limited transport routes within the HMA and to both the North West region and the rest of the East Midlands, especially by public transport (depending on specific location).

The terrain of the Peak District acts as a physical barrier to movements across the area. Centres of population have poor road and public transport links and a gap in the rail network exists between Matlock and Buxton. The Hope Valley line is the only rail line to cross the area but this line is constrained by its limited capacity to handle any increases in passenger and freight movements. Bus routes and frequencies are low quality and rural accessibility is an significant issue. Tourism creates issues of congestion and environmental impact and sustainable travel options are very limited for tourists.

13.6 Challenge EM4: Minimising the effects of non-recurrent delays on the transport networks

No data is currently available regarding this challenge at an HMA level.

13.7 Challenge EM5: Overcoming lack of awareness of (benefits of) sustainable travel options and inertia of individuals and businesses to change behaviour

13.7.1 Potential for behavioural change

No specific areas in this HMA have been identified as demonstrating significant behavioural change potential. However, the high levels of walking in the area is encouraging and ways to improve these levels of travel by other modes than the private car should be sought through other initiatives such as car share schemes or flexible public transport to remote parts of the HMA.

There are opportunities to work with the Peak District National Park Authority to identify and build up the sustainable travel opportunities for this area.

13.8 Challenge EM6: Identifying measures to reduce further the number of deaths and injury accidents, particularly on roads

13.8.1 Road accidents

On average, 162 people are killed or seriously injured (KSI) in the HMA each year, accounting for 6% of KSIs in the region⁹⁴. This is the third-lowest number of KSIs in any HMA. The number of KSIs are split broadly 60:40 between the districts of Derbyshire Dales and High Peak. The nature of the rural 'A' roads is a major contributory factor to the high numbers of accidents, as is the large number of tourists meaning that many drivers are unfamiliar with the roads. Several medium-high risk roads have been identified in the HMA by EuroRAP including the A623, A628, A619, A6 and A515.

The HMA's annual KSI rate per 1,000 residents of 100.7, is the highest in the region, almost twice the English average, of 54.3, and significantly above the regional average. The KSI rate is high in part due to the relatively low resident population and the high proportion of visitor traffic.

The number of personal injury accidents (including slight injuries) has increased in the period 2003-2007, against regional and national trends, to around 600 per annum⁹⁵. Of those injured

⁹⁴ 2005-2007 average

⁹⁵ Between 2003 and 2007.

therefore, 22.2% are killed or seriously injured, the highest severity rate in the region, markedly above the regional average of 15.5%. The proportion of fatalities was also one of the highest in the region, with 2.7% of accidents involving a fatality compared with the average of only 1.9%.

When comparing the KSI rate between the two districts, it is clear that the rate is very high in the Derbyshire Dales, at 132.9 the highest district in the region.

Motorcycle accidents are a particular problem in the area with 27% of all KSI accidents in 2008 involving a motorcyclist, although this figure is lower than in previous years because of various road safety measures and campaigns.

13.9 Challenge EM8: Minimising noise, severance, vibration, local air quality and other issues affecting local communities

13.9.1 Air quality

There is no Air Quality Management Area (AQMA) in the HMA and air quality levels are generally very good except in the urban centres of Matlock, Buxton and Glossop.

13.9.2 Community impacts

Some HMA communities, such as Ashbourne, experience high numbers of HGVs passing through them as a result of the quarrying and aggregates sectors.

13.9.3 CO₂ emissions

Total road transport carbon emissions are the lowest in the region at only 438kT in 2006. The per capita figure is 2.7T per person which is above average. The lack of major roads and traffic causes the total emissions to be low but the low population means that the per capita figure is higher.

Peak Dales and Park - Summary of conditions and issues

Location of future development

Total housing provision is low at 10,000:

Large proportion to be concentrated around the market towns of Matlock, Buxton and Glossop

Implications for transport

HMA largely rural making access issues difficult and large distances between towns on rural roads

Glossop located close to the North West region where out commuting currently takes place – further development around this area could encourage more commuting to Manchester, Stockport etc

A628 already has capacity issues on the route to and from Manchester

Frequency and extent of public transport network is currently low

Gaps in the rail network discourage rail travel to and through the area

There is an ageing population which has related public transport issues

Tourism will have an increasingly important influence on the travel patterns in the area

For those challenges for which there is sufficient evidence, the table below summarises the relative severity of each challenge in this HMA compared to the other HMAs in the region.

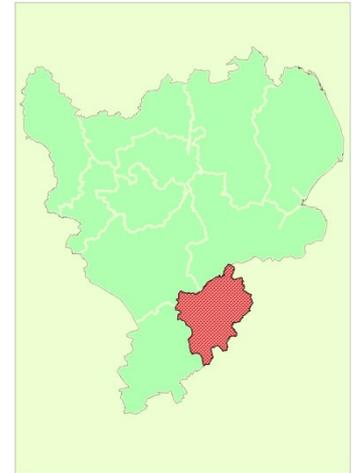
Challenge (summary wording)	Relative severity of challenge in HMA
EM1: Minimising congestion and crowding	Typical
EM2: Enabling and dealing with growth	Less severe
EM3: Overcoming gaps and weaknesses	More severe
EM5: Encouraging behavioural change	Less severe
EM6: Reduce death and injury	More severe
EM8: Minimise effects on communities	More severe
EM9: Minimise effects on the environment	More severe
EM11: Overcoming travel habits	More severe

14. North Northamptonshire HMA

14.1 Introduction

North Northamptonshire comprises the districts of Corby, Kettering, Wellingborough and East Northamptonshire. It contains the main urban centres of Corby, Kettering and Wellingborough and has an overall current population of 306,000⁹⁶.

This population is expected to increase significantly (98,000 between 2006 and 2031), which is close to the average absolute increase across HMAs, but is a high rate compared to the existing population. Only one other HMA, neighbouring West Northamptonshire, has a larger forecast rate of growth. The area is part of the Milton Keynes and South Midlands Sub-Regional Strategy (MKSM SRS).



It is an economically diverse area that does not contain a single dominant city or town. The three main towns form an urbanised north-south corridor down the centre of the HMA with high levels of interaction between each other.

Although parts of the HMA have performed well economically, there are still areas that are in need of regeneration. Corby for example has experienced severe economic decline due to the loss of the steel industry, but has more recently seen economic and employment growth. This has not yet been reflected in the population base which has remained fairly static. Unemployment levels have remained higher than the average in the sub-area.

There are strong interactions between Northampton and the towns in North Northamptonshire. However, in general travel across the HMA is dispersed across the towns with no single area dominating, making it more difficult to provide sustainable alternatives to the car.

14.2 HMA transport networks

14.2.1 Highway network

The highway network for North Northamptonshire HMA is shown in Figure 14.1. The A14 is a key nationally important road, linking the Midlands and the north of the country to the ports of Felixstowe and Harwich in the east. The effectiveness of the A14 is, however, restricted by serious congestion at key points. The A45 is also a strategic east-west route. The A1 passes the northern edge of North Northamptonshire providing a regionally important strategic link for the east of the area.

There is a well developed road network between and around the three main urban areas which allows a high level of interaction and travel between these towns. North-south links within the area are not very direct but access to the M1 corridor to the west and the A1 corridor to the east are good. The lack of a motorway or high quality north-south route means that journey times are high on some trips. There are large rural areas, but the 'A' road network is relatively good, so journey times to urban areas are shorter than in many other HMAs.

⁹⁶ Census mid year estimate, Office for National Statistics, 2007
/East Midlands Transport Conditions & Issues 2010 Update FINAL
- 1 March10.docx

Major road schemes are proposed on the A509 at Isham and the A43 Corby Link Road. Isham bypass will remove traffic from the centre of the village and Corby Link Road will encourage the regeneration of Corby and reduce traffic in the village of Geddington. If approved, these schemes could open by 2012 and 2013 respectively.

14.2.2 Public transport services

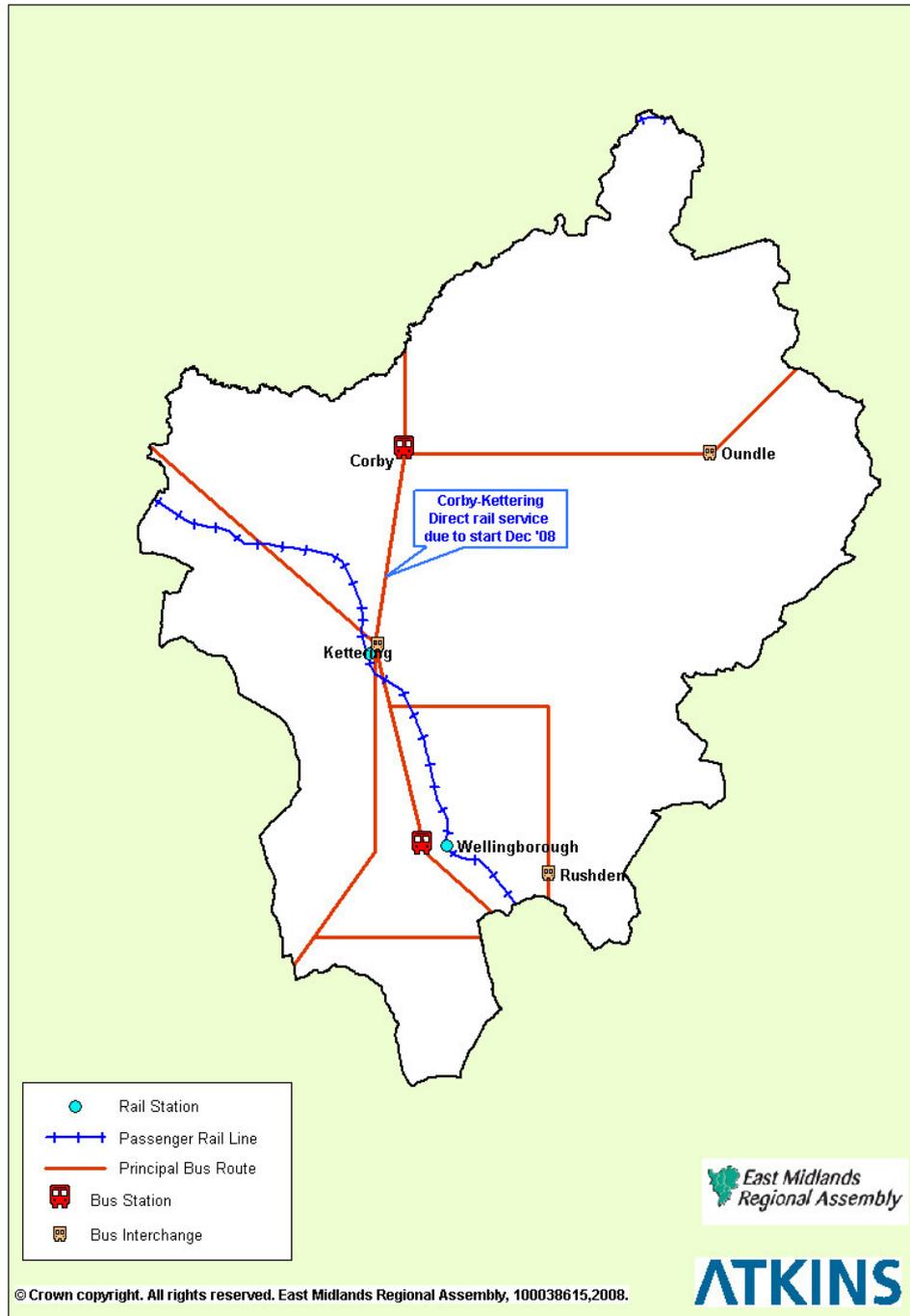
The public transport network is shown in Figure 14.2. The stations of Wellingborough and Kettering are situated on the Midland Mainline serving London St. Pancras to the south and Derby, Nottingham, Leicester and Sheffield to the north. The station of Stamford also borders the HMA. A new station has recently been opened in Corby which fills a long-standing gap in the network and direct services are now provided to London and the stations in between. This service now provides an alternative to car travel over short distances as well as providing direct links to London.

Bus services are provided between the main towns within the HMA and also to the two key destinations beyond the boundary, Northampton and Peterborough. However, the overall provision of bus routes and frequencies is relatively poor and the number of trips and modal split for bus travel is low. The rural areas to the north and east of the HMA have poor public transport services and a lack of accessibility is a key issue in these areas.

Figure 14.1 - North Northamptonshire HMA principal highway network



Figure 14.2 - North Northamptonshire HMA principal bus and rail network



14.2.3 Walking and cycling

Despite low levels of car ownership the HMA has a relatively low percentage of people walking or cycling to work, 9.6% and 2.2% respectively in comparison with the regional average of 10% and 2.8%. Areas such as Corby have low car ownership and high levels of adult obesity and the encouragement of walking and cycling could help tackle this problem. Increased development of the towns has the potential to achieve this because the development is not an urban extension of a large city so the distance to town centres should be shorter. However, the dispersal of employment and retail destinations away from the town centres could work against this objective.

14.3 Challenge EM1: Minimising existing and future traffic congestion and rail crowding on strategic links and in urban areas

14.3.1 Congestion and traffic growth

Apart from the major cities of the region, North Northamptonshire HMA has the one of the higher economic costs of congestion in the east midlands, with an estimated £16.8 million lost per year. There is significant congestion in Kettering and Wellingborough and on the A14, A45 and A509 (e.g. A45/A6 and A45.A509 junctions).

Corby, Kettering and Wellingborough have been identified as growth towns in the Milton Keynes and South Midlands (MKSM) Sub-Regional Strategy and this will generate additional traffic problems. The dispersed nature of the towns will make it more difficult to provide comprehensive public transport than in a Principal Urban Area. Conversely, the development will be closer to the town centres than it will be in the city-based development so there is potential to develop higher levels of walking and cycling trips. Without a central hub it will be more difficult to avoid creating dispersed, car orientated growth.

East Midlands train services are highly loaded between Kettering and Leicester and approaches to London. Rail crowding is likely to become an increasingly important issue as rail travel grows, particularly on the Midland Main line south of Kettering and Wellingborough towards London St. Pancras.

14.4 Challenge EM2: Enabling growth and dealing with the additional demand for travel brought about mainly by regeneration and growth

14.4.1 Planned growth in population

The HMA is part of the MKSM Growth Area where substantial growth is planned which will bring new houses and jobs requiring much new investment in infrastructure and facilities. The population of the area is expected to rise to 404,400 by 2021

The total housing provision for the HMA as set out in the RSS is 54,950 from 2006-2026, including 19,300 within Corby, 13,500 within Kettering, 8,900 within East Northamptonshire and 13,250 within Wellingborough⁹⁷. It is the only HMA to have a high level of housing provision that is not based around a single city, but rather the growth is spread across the large towns in the area.

This is the third highest provision in the region, and is only just less than the second highest in Nottingham Core. Additionally, it is, by far, the largest percentage increase on top of the existing housing level with an increase of 54% compared with the regional average of only 29%. This means that the growth has the potential to have a larger impact on the existing infrastructure than many of the other HMAs.

The RSS states that development should be concentrated within, or in planned extensions to, existing urban areas and the regeneration of Corby should be supported by a level of housing development that will significantly reduce the need for out-commuting.

The aim for the RSS is to strengthen the roles of Corby, Wellingborough and Kettering through urban intensification and planned and sustainable urban extensions, whilst maintaining the

⁹⁷ East Midlands Regional Plan (RSS), March 2009
/East Midlands Transport Conditions & Issues 2010 Update FINAL
- 1 March10.docx

separate identify of each town. The majority of new development would therefore be concentrated around these growth towns.

Lower levels of development will be focused within smaller settlements of Desborough, Oundle, Thrapston, Higham Ferrers, Raunds, Rothwell, Burton Latimer, Irthlingborough and Rushden.

14.5 Challenge EM3: Overcoming gaps and weaknesses in the existing transport networks and maintaining accessibility

14.5.1 Key travel movements and patterns

The population in the HMA is distributed across the three main towns and there is no single primary focus. There are significant commuting flows between Corby, Kettering and Wellingborough and also beyond the HMA to Northampton. The HMA has one of the highest amounts of out-commuting in the region with a net difference of almost 8,000 people working in other HMAs, with the largest number travelling to Northampton.

The modal split of work journeys is high for car trips and low for public transport when compared to the other large towns and cities in the region.

East-West through traffic flow is high on the strategic A14 and A45 routes between the midlands and the East Coast ports.

The Midland Main line stops at both Kettering and Wellingborough and, along with the new station at Corby, provides a high level of service to the East Midlands and London.

Freight movement

The A45 and A14 both carry heavy percentages of road freight due to the traffic travelling to and from the ports of Felixstowe and Harwich in the East of England. A trans-European transport network priority route passes through the area: the Ireland/Benelux road route. The lack of a high quality north-south route through the area means that north-south through-trips for road freight are relatively low.

There are direct rail freight links from Corby which offer opportunities for transfer of freight from road to rail. There are, however, issues of lack of access to the rail network from many other parts of the HMA and gauge constraints on the Midland Main Line. This line can only accommodate standard UK container height of 8'6"; but cannot carry 9'6" continental containers. It currently carries up to 20 freight trains per day.

The development of the Corby Eurohub has provided a state of the art facility for rail and road freight interchange and has been a catalyst for new development.

There are no significant waterways used for freight in the HMA at present. British Waterways are in the process of developing the Grand Union Canal that runs through the area in order to increase the volume of freight as the tonnage of freight on the canal is currently at its lowest ever level.

14.5.2 Accessibility

North Northamptonshire is predominantly rural with implications for accessibility levels to essential services. In addition, the more urban areas around Corby and Wellingborough have pockets of high deprivation and low car ownership.

The Northamptonshire accessibility strategy⁹⁸ shows that public transport access levels to different services vary between 88% of all households having access to their nearest hospital within an hour, access to a major centre is 83% and 90% of all 16 to 19 year olds can access their nearest post 16 establishment within 30 minutes. Relevant accessibility priorities for this HMA include access to healthcare at Kettering and rural isolation leading to poor access to services in places such as Welland and Clipston.

Table 15.1 shows the proportion of households within 250 metres of a bus stop with hourly, half-hourly and 10-minute service frequencies during the morning peak. Overall accessibility to bus services is low, only Lincolnshire has worse bus accessibility. The centres of Kettering and Corby provide good access to bus services operating a 20 – 30 minute service frequency, however, the rest of the HMA is not as well served by bus services with a scattering of locations within an hourly or less bus service.

The National Core Accessibility Indicators show particularly poor access to primary schools in North Northamptonshire and access to healthcare is seen as a key challenge.

Table 14.1 - North Northamptonshire HMA – Access to the bus network

Morning peak period bus service frequency of at least	% of HMA households
Six buses per hour (10 minute frequency)	2%
Two buses per hour (30 minute frequency)	38%
One bus per hour (60 minute frequency)	52%

14.5.3 Gaps in network provision

The area has no single large centre of population so the provision of high quality public transport services and bus priorities are more difficult because they cannot be concentrated in the same way as on a traditional city centre network. Although the road network around the three main centres is extensive there are few high quality, direct routes between them (for example the single carriageway section of the A45 between Stanwick and Thrapston, and the A43 south-east of Corby). Public transport links are poor, particularly to rural areas, which has led to a low level of bus use and there is no rail link at all for the most common commuter destination, Northampton (although Corby is now served by Midland Mainline services via Kettering to London. Rural accessibility levels are a particular problem in the north and east of the area.

14.6 Challenge EM4: Minimising the effects of non-recurrent delays on the transport networks

No data is currently available regarding this challenge at an HMA level.

⁹⁸ Northamptonshire Local Transport Plan , 2006 2011
/East Midlands Transport Conditions & Issues 2010 Update FINAL
- 1 March10.docx

14.7 Challenge EM5: Overcoming lack of awareness of (benefits of) sustainable travel options and inertia of individuals and businesses to change behaviour

14.7.1 Potential for behavioural change

The HMA has the second-highest car mode share for commuting trips in the region, at 83% and below-average bus usage. However, a number of areas have been identified as having key demographic and accessibility characteristics more susceptible to behavioural change measures, including Kettering and Wellingborough. Opportunities should be sought in these areas to encourage travelling by non car modes. Qualifications of economically active adults are slightly higher than the regional average and together with high employment rates make parts of the HMA potentially sustainable to changes in travel behaviour.

14.8 Challenge EM6: Identifying measures to reduce further the number of deaths and injury accidents, particularly on roads

14.8.1 Road safety

On average, 210 people are killed or seriously injured (KSI) in the HMA each year, accounting for 8% of KSIs in the region⁹⁹. This is the fifth-lowest number of KSIs in any HMA. The number of KSIs are split broadly equally between the four districts, albeit with slightly fewer in Corby district. The A45, A509 and A43 between Northampton and Kettering are considered to be particular local black spots.

The HMA's annual KSI rate per 1,000 residents of 70.4, is the fourth-highest in the region, significantly above both the regional average, of 60.5, and the English average, of 54.3.

The number of personal injury accidents has decreased significantly from approximately 1,700 in 2004 to less than 1,000 in 2007. Of those injured, 21.2% are killed or seriously injured, one of the highest KSI proportions in the region. The proportion of fatalities was also one of the highest in the region, with 2.4% of accidents involving a fatality compared with the average of only 1.9%.

Like the number of KSIs, the KSI rate is broadly similar across the four regions. It ranges from 65.5 in Kettering district to 74.3 in Wellingborough district.

The A6003 between Oakham and Corby is classified as medium-high risk by EuroRAP.

⁹⁹ 2005-2007 average

14.9 Challenge EM8: Minimising noise, severance, vibration, local air quality and other issues affecting local communities

14.9.1 Air quality

In terms of air quality, levels of PM₁₀ are highest around the urban areas, particularly Corby, Kettering, Wellingborough and Rushden, including the route of the A14 south of Kettering, but there are no AQMAs.

14.9.2 Community impacts

There are negative impacts on the quality of life in communities resulting from large amounts of through traffic, especially with large proportions of HGVs. Examples include Isham, Great Harrowden and Geddington.

14.9.3 CO₂ emissions

Total road transport carbon emissions are below the East Midlands average at 789kT in 2006. The per capita figure is 2.6T per person which is about average. The lack of major roads in the area is the main reason this figure is low.

North Northamptonshire HMA - Summary of conditions and issues

Location of future development

HMA is part of the MKSM Growth Area where high levels of growth are planned

Increase in population to around 404,400.

Total housing provision for the HMA is 54,950, this is one of the highest numbers of proposed dwellings in the region

Majority of new development to be concentrated within or close to the main urban areas of Corby, Kettering and Wellingborough.

Unlike the other HMAs with a large number of proposed dwellings (Leicester and Nottingham) this area does not have a central city to build development upon. Development is more dispersed across the area.

Implications for transport

Strong interactions between Northampton, Corby, Kettering and Wellingborough

The lack of a central focus in the area creates a different set of transport issues to the other larger HMAs because it will be more difficult to provide a comprehensive public transport network that carries passengers to the urban centre. However, it may help to encourage cycling and walking journeys within the town.

The HMA has one the higher economic costs of congestion in the East Midlands, with an estimated £16.8 million lost per year

The busiest routes through the HMA are on the A45 and A14 especially at Kettering

East Northamptonshire district is predominantly rural with implications for accessibility levels to essential services

The characteristics of the residents suggests that they have the potential to respond positively to travel behaviour initiatives

For those challenges for which there is sufficient evidence, the table below summarises the relative severity of each challenge in this HMA compared to the other HMAs in the region.

Challenge (summary wording)	Relative severity of challenge in HMA
EM1: Minimising congestion and crowding	More severe
EM2: Enabling and dealing with growth	More severe
EM3: Overcoming gaps and weaknesses	More severe
EM5: Encouraging behavioural change	More severe
EM6: Reduce death and injury	More severe
EM8: Minimise effects on communities	Typical
EM9: Minimise effects on the environment	More severe
EM11: Overcoming travel habits	Typical

15. West Northamptonshire

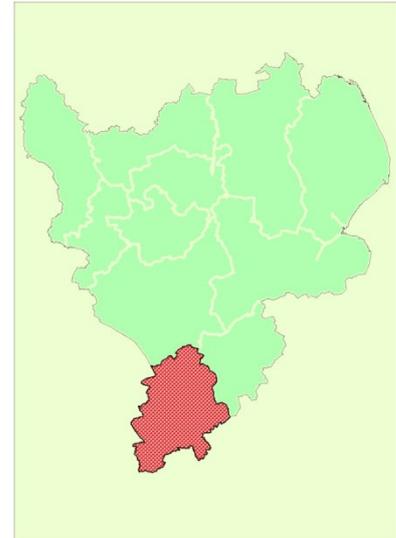
15.1 Introduction

West Northamptonshire comprises the districts of Northampton, Daventry and South Northamptonshire. It is the most southerly area of the East Midlands.

The area has a population of 372,000 and, outside of Northampton and Daventry, is predominantly rural¹⁰⁰. There are few areas of significant deprivation and these are limited to more urban areas of Northampton and Daventry.

Due to its close proximity to the rapidly growing South East Region the HMA has also experienced rapid growth, which accounts for the high levels of out-commuting to areas such as Milton Keynes. The rate of forecast population increase is the largest of any HMA in the region.

It has a close relationship with the North Northamptonshire HMA with large commuting flows between the two.



15.2 HMA transport networks

15.2.1 Highway network

Figure 15.1 shows the highway network in West Northamptonshire. The M1 runs through the area providing direct access to London, the rest of the Midlands and the North. The M45 to Coventry begins in the area at Junction 17 of the M1. The A14 strategic route between the midlands and the east coast ports passes through the north of the area but does not directly serve many towns within the HMA. A number of strategic A roads feed into the M1 including the A45 and the A43, which links the M1 with the M40.

The main road network is heavily focussed towards Northampton while the rural area to the west has a lack of main roads. Brackley and the M40 in the south west of the area are on the periphery of the HMA but the A43 that links Brackley, Silverstone and the M40 to Northampton and the M1 has been upgraded to a high standard in recent years.

15.2.2 Public transport services

Figure 15.2 shows the public transport network in West Northamptonshire. The HMA has the only railway stations on the West Coast Main Line in the East Midlands, at Northampton and Long Buckby. The West Coast Main line has had major upgrading in recent years to increase capacity and speeds however many services do not stop at either of these stations. Direct services are available from Northampton to Milton Keynes and London to the south and Coventry, Birmingham and Manchester to the north.

Kings Sutton and Banbury are on the south west boundary of the HMA and they have stations on the Chiltern Line between London and Birmingham.

Key bus stations are found at Daventry and Northampton. Inter-urban bus services include hourly services between Northampton and Milton Keynes, Kettering, Towcester and Rugby. Rural public

¹⁰⁰ Census mid year estimate, Office for National Statistics, 2007
/East Midlands Transport Conditions & Issues 2010 Update FINAL
- 1 March10.docx

transport is limited, especially in the west and north of the area, and lack of accessibility is a key issue in these areas.

Figure 15.1 - West Northamptonshire HMA principal highway network

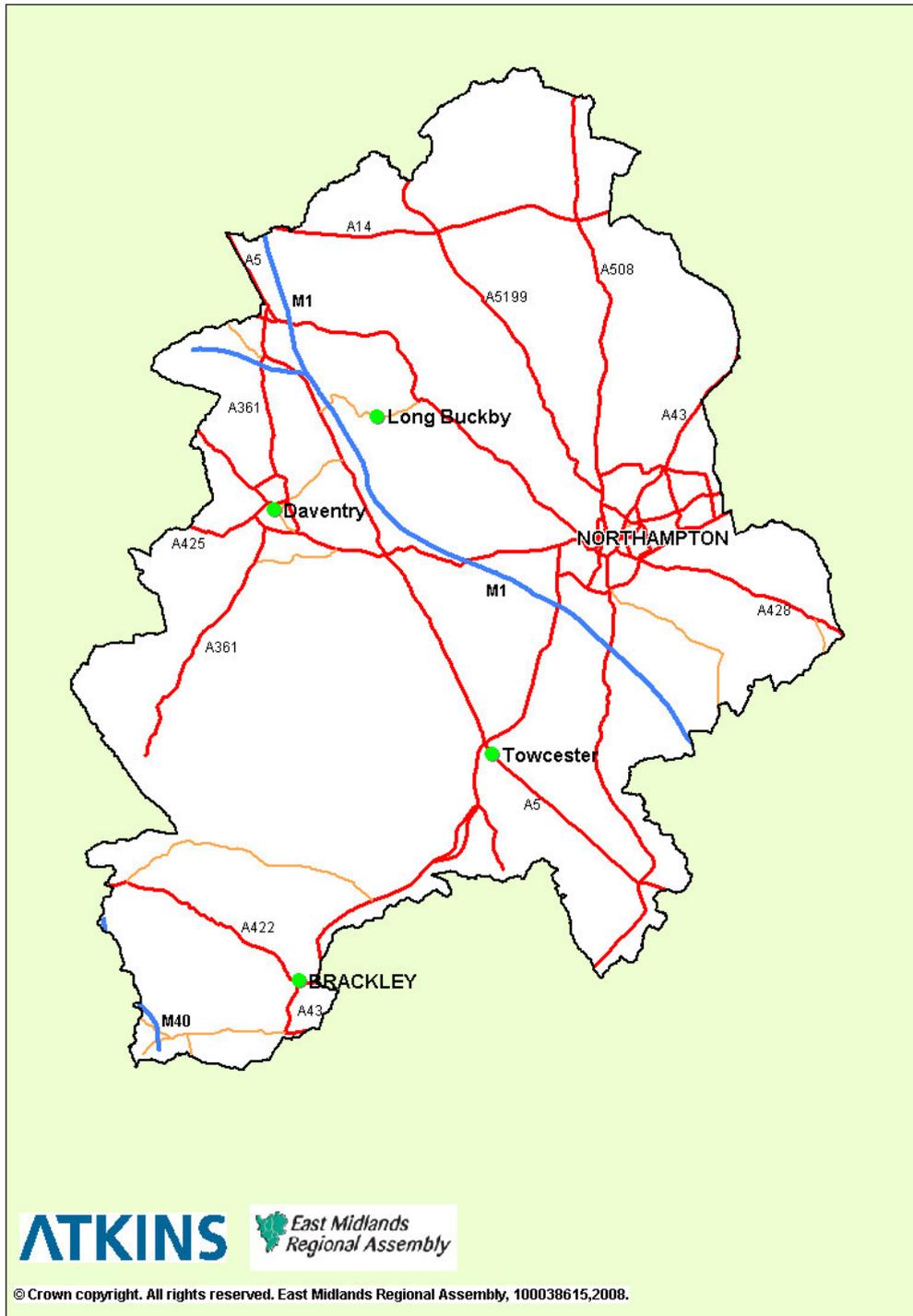
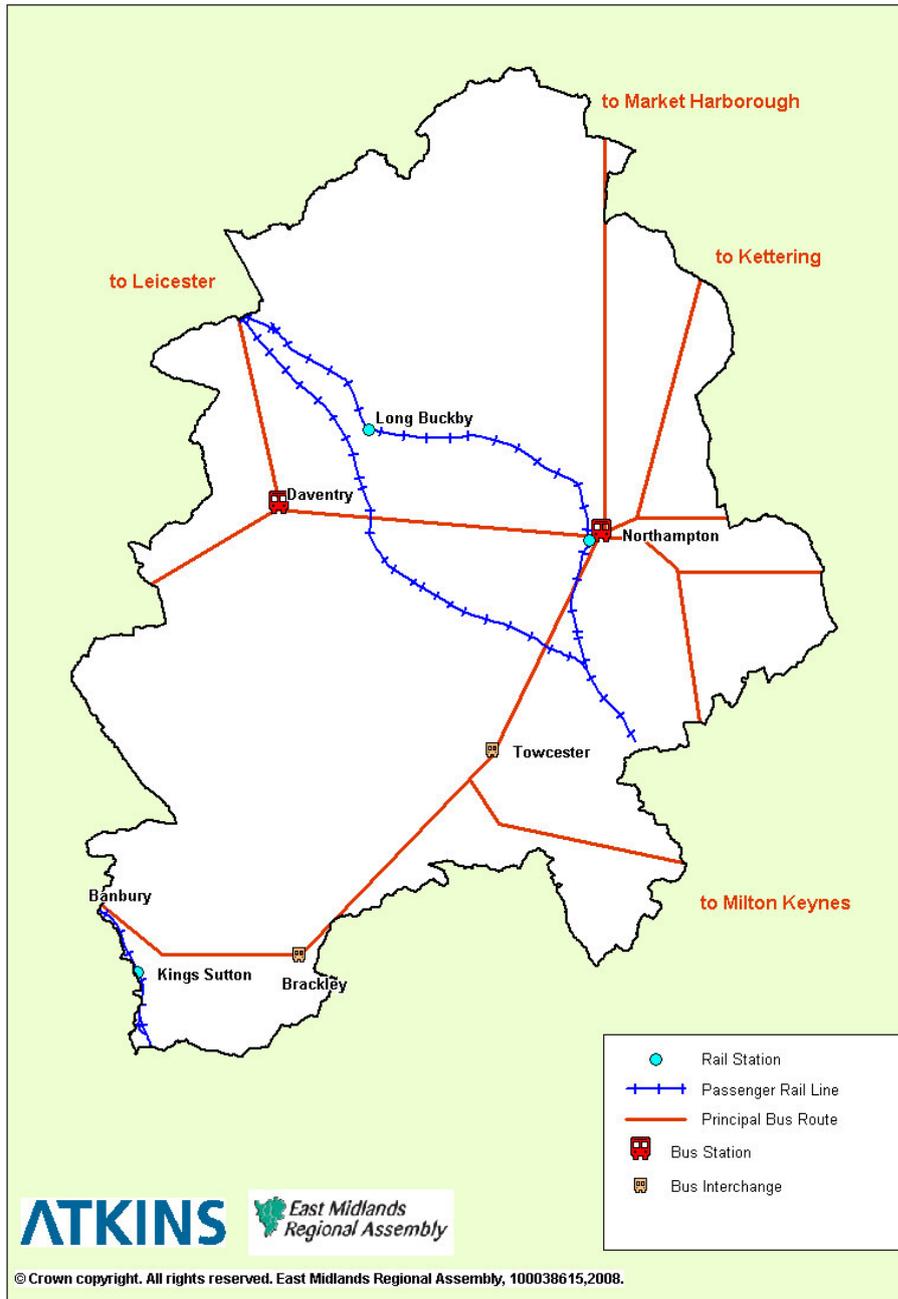


Figure 15.2 - West Northamptonshire HMA principal bus and rail network



15.2.3 Walking and cycling

Walking and cycling is slightly below the regional average at 9.3% and 2.3% compared to 10.4% and 3.2% and there are pockets of high non-car ownership in the centre of Northampton. The rural nature of the majority of the area contributes to this lower than average figure. The level of walking and cycling could be further encouraged by the introduction of behavioural measures such as travel plans, particularly in the urban areas.

15.3 Challenge EM1: Minimising existing and future traffic congestion and rail crowding on strategic links and in urban areas

15.3.1 Congestion and traffic growth

Traffic has grown rapidly in Northamptonshire as a consequence of economic growth in the area. The M1 suffers from considerable levels of peak period congestion through the area as does the A14. There is also peak period congestion on the A45 linking the M1 and A14, and within Northampton. Towcester is the largest town in the county to have a trunk road passing through its centre and large delays are experienced on the A5 in the town.

The economic cost of existing congestion is high in the area at £60m per annum which equates to £166 per person.

The West Northamptonshire HMA will be subject to high levels of growth due to the development of the Milton Keynes and South Midlands Growth Area generating high levels of population and economic growth. The population of the West Northamptonshire HMA is projected to have the highest percentage increase in the country.

There is a high level of interaction between Northampton and Milton Keynes along the M1 corridor which is expected to grow significantly when the Growth Point is implemented. Commuting to London is also greater from this area than anywhere else in the region. Northampton also has strong links to the towns in the North Northamptonshire HMA, Corby, Kettering and Wellingborough and significant commuting takes place between these towns.

Silverstone motor racing circuit, located on the A43 south of Northampton, is a source of traffic delay when a major event is being held. After some doubt about the future of the British Grand Prix at Silverstone it has now been agreed that the venue will stage the event for the foreseeable future.

15.4 Challenge EM2: Enabling growth and dealing with the additional demand for travel brought about mainly by regeneration and growth

15.4.1 Planned growth in population

The main objective for the HMA is strengthening of the roles of Northampton as a PUA through intensification and planned sustainable urban extension and strengthening of the sub-regional role of Daventry¹⁰¹. Housing provision in RSS is 51,275 households by 2026, helping to increase the population size to an estimated 495,900 by 2031.

As set out in the RSS, most new developments are to be located within Northampton which has a proposed housing provision of 33,875 dwellings. The remaining housing provision is to be allocated in Daventry – 10,800 and South Northamptonshire – 6,600.

The area is earmarked for significant growth and is part of the MKSM growth area. Growth Point housing numbers are included within the overall RSS housing provision.

¹⁰¹ East Midlands Regional Plan (RSS), March 2009
/East Midlands Transport Conditions & Issues 2010 Update FINAL
- 1 March10.docx

15.5 Challenge EM3: Overcoming gaps and weaknesses in the existing transport networks and maintaining accessibility

15.5.1 Key travel movements and patterns

Northampton is the primary source of travel in the area which attracts commuters from the remainder of the HMA and beyond. The town is the focus for the main road network and access to Northampton is good from most areas within the HMA, with the exception of the rural area to the west. North-south links are very good and there is a high degree of interaction with Milton Keynes and the south via the M1 and with the other Northamptonshire towns of Wellingborough and Kettering.

The HMA has the highest amount of in-commuting in the region. The workplace population is over 10,000 higher than the number of working residents and these jobs are filled by people from outside the HMA.

There are large through-traffic movements on the M1 and A14 strategic routes and these roads provide very good long distance links for the area.

The West Coast Mainline travels through the HMA, however the two stations at Northampton and Long Buckby are on a loop off the main line so the frequency of stopping trains is lower than at those stations on the main line itself, such as Milton Keynes.

The modal split of work journeys is high for car trips and low for public transport, in comparison with the other large cities and towns in the region. Bus frequencies and bus trips per person are lower than the other large conurbations, which reflects the high level of car ownership in the HMA.

Freight movement

West Northamptonshire is an important area in terms of freight movements and interchanges and has one of the highest rates of fuel consumption nationally. The M1 and A14 are key freight routes of national importance which have high percentages of HGV traffic of around 20% of total traffic flows. As a consequence of the proximity to the M1 and A14 a demand for large warehouse and distribution centres has arisen in the HMA.

The A43 and A45 around Northampton carry heavy volumes of HGV traffic and M1 Junction 15A is particularly affected. The A43 to Stamford and A5 North of Towcester also carry high percentages of HGV traffic as a proportion of total traffic flow. While the more rural roads in the area carry less HGV traffic, there are problems with goods vehicles passing through small villages without bypasses.

Daventry International Rail Freight Terminal (DIRFT) is a freight depot of national importance. It handles approximately eight trains per day carrying containers and wagonload traffic and provides an interchange between road and rail freight. It has very good links to the M1 at Junction 18 and is also a major source of growth in warehouse, distribution and manufacturing industries.

The West Coast Main line is a key freight route and most freight trains on it are routed via the Northampton line to release capacity on the main line for high speed passenger services.

15.5.2 Accessibility

Although deprivation levels are low in the rural areas of West Northamptonshire, there are still rural accessibility implications affecting rural communities with poor public transport accessibility. Some of the more urban areas, around Northampton in particular, have pockets of high deprivation and low car ownership.

The Northamptonshire Accessibility Strategy shows that public transport access levels to different services varies between 88% of all households having access to their nearest hospital within an hour, access to a major centre is 83% and 90% of all 16 – 19 year olds can access their nearest post 16 establishment within 30 miles. Accessibility priorities for this HMA include rural isolation, poor access to services in South Northamptonshire and urban deprivation, particularly in Northampton.

The National Core Accessibility Indicators show poor access to GPs and hospitals in South Northants, to secondary schools across the HMA, to further education in Daventry and South Northants) and to supermarkets in Daventry. The indicators also show very low public transport access to employment for residents of Daventry.

Table 15.1 shows the proportion of households within 250 metres a bus stop with hourly, half-hourly and 10-minute service frequency in the morning peak period. Overall levels of bus accessibility are low compared with the other urban HMAs. Northampton provides good access to bus services operating a 20 – 30 minute service frequency, however, the rest of the area is not as well served by bus services with a scattering of locations within an hourly or less bus service.

Table 15.1- West Northamptonshire HMA – Access to the bus network

Morning peak period bus service frequency of at least	% of HMA households
Six buses per hour (10 minute frequency)	12%
Two buses per hour (30 minute frequency)	39%
One bus per hour (60 minute frequency)	59%

15.5.3 Gaps in network provision

Bus service levels in Northampton are poor when compared to the other cities in the region which has led to low levels of bus use. Public transport links to Milton Keynes are limited but road links are good which results in a high level of car commuting. Rural public transport accessibility levels are low in the west and north of the area and the road network is also poor in these areas.

There are limitations on highway capacity from the main centres to Milton Keynes, especially along the A45/43 and A5 corridors (e.g. A43 Northampton-Kettering) and congestion levels are high on the M1, M40, A45 and A14 in the area.

15.6 Challenge EM4: Minimising the effects of non-recurrent delays on the transport networks

No data is currently available regarding this challenge at an HMA level.

15.7 Challenge EM5: Overcoming lack of awareness of (benefits of) sustainable travel options and inertia of individuals and businesses to change behaviour

15.7.1 Potential for behavioural change

The relatively high qualification levels of economically active adults make the HMA more open to changes in travel behaviour, although there is currently below-average bus usage. There is the potential to encourage cycling and walking journeys within the main towns, notably in

Northampton's suburbs, such as Wootton, is one of the main locations in the East Midlands with high concentrations of people who are potentially susceptible to behavioural change measures.

15.8 Challenge EM6: Identifying measures to reduce further the number of deaths and injury accidents, particularly on roads

15.8.1 Road accidents

On average, 261 people are killed or seriously injured (KSI) in the HMA each year, accounting for 10% of KSIs in the region¹⁰². This is the third-highest number of KSIs in any HMA. The number of KSIs are split broadly equally between the three districts of Daventry, Northampton and South Northamptonshire.

The HMA's annual KSI rate per 1,000 residents of 72.3, is the third-highest in the region, very markedly above both the regional average, of 60.5, and the English average, of 54.3.

The number of personal injury accidents has decreased significantly from approximately 3,000 in 2004 to 1,400 in 2007. Of those injured, 19.6% are killed or seriously injured, one of the higher KSI proportions in the region (the regional average is 15.5%).

The KSI rate is highest in Daventry district, at 114.9 KSIs per 1,000 residents. This is the highest rate for any district in the region but may be due in part to the large amount of through-traffic in the district (for example the M1 and M6 – the district also includes the accident black spot M1 Junction 19).

The A5 between Rugby and Daventry is classified as medium-high risk by EuroRAP.

15.9 Challenge EM8: Minimising noise, severance, vibration, local air quality and other issues affecting local communities

15.9.1 Air quality

In terms of air quality, levels of PM₁₀ are worse around the main urban areas of Northampton and Daventry as well as along the main nationally strategic links of the M1 and the A5 in central Towcester. There are designated AQMAs in Northampton and Towcester.

15.9.2 Community impacts

There are high levels of freight traffic on the M1, A14, A43 to Stamford, A5 north of Towcester, and A43/A45 around Northampton. This traffic impacts on the quality of life in communities such as Moulton on A43, and Weedon & Flore on A45).

15.9.3 CO₂ emissions

Total road transport carbon emissions are very high in this area, second only to Leicestershire, at 1,653kT in 2006. The per capita figure is also very high at 4.4T per person, the highest in the region. HMAs that have major road links through their area will tend to have high per capita carbon emissions figures and West Northamptonshire is an example of this.

¹⁰² 2005-2007 average
/East Midlands Transport Conditions & Issues 2010 Update FINAL
- 1 March10.docx

West Northamptonshire HMA - Summary of conditions and issues

Location of future development

The area is earmarked for significant growth as part of the MKSM growth area – includes proposals for an additional 51,275 households increasing the population size to an estimated 495,900 by 2031

Most new developments are to be located within the Northampton Implementation Area

Remaining provision to be allocated in Daventry and South Northamptonshire

Main objective for the HMA is strengthening of the roles of Northampton as a PUA through intensification and planned sustainable urban extension and strengthening of the sub-regional role of Daventry.

Highest levels of projected rates of population increase in the country

Implications for transport

Rapid growth in development and traffic due to close proximity to south east and the Growth Point proposals

High levels of commuting to and from other HMA areas, particularly to Milton Keynes and North Northamptonshire

Further development of Northampton could support better public transport within the town, but also has potential to further strengthen its role as a commuter town for the south-east and increase long distance out-commuting

The M1 through the HMA suffers from considerable levels of congestion in peak periods as does the A14 resulting in increased economic costs

There is currently a low level of travel by bus, walk and cycle, so there is potential to accommodate travel growth by modal shift towards these sustainable modes

Accessibility implications affecting rural communities with poor public transport services in rural areas of West Northamptonshire

For those challenges for which there is sufficient evidence, the table below summarises the relative severity of each challenge in this HMA compared to the other HMAs in the region.

Challenge (summary wording)	Relative severity of challenge in HMA
EM1: Minimising congestion and crowding	More severe
EM2: Enabling and dealing with growth	More severe
EM3: Overcoming gaps and weaknesses	More severe
EM5: Encouraging behavioural change	More severe
EM6: Reduce death and injury	More severe
EM8: Minimise effects on communities	Typical
EM9: Minimise effects on the environment	More severe
EM11: Overcoming travel habits	Typical