

Technical Note

Project Title:	Assessing the Transport Impacts of the Local Development Framework
MVA Project Number:	C37840
Subject:	Trafford Transport Impacts of LDF
Note Number:	13 Version: 2
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Date:	20 November 2009

1 Introduction

- 1.1 The purpose of this Note is to summarise the transport impacts in Trafford of the Local Development Frameworks (LDF). This note is one of a series of outputs from a study into the potential transport impacts of the Local Development Frameworks (LDF) in Greater Manchester.
- 1.2 The objective of the study was to investigate the potential impacts on transport networks of the LDF core spatial strategies for each of the districts in Greater Manchester. The approach involved using the land use and transport forecasting models that have been developed for the Greater Manchester area. The models assume levels of economic growth that are consistent with the Association of Greater Manchester Authorities' (AGMA) Accelerated Growth Scenario (AGS), along with development of the sites and allocations contained within the emerging Local Development Frameworks.
- 1.3 The outputs from this study will be used to inform the further development of the LDF strategies by showing how the resulting travel demand changes impose stresses on the transport network. These outputs will consider the impacts both locally and in neighbouring areas, and highlight where investment in the transport network is required to achieve the core strategy or a revision to that strategy.
- 1.4 The potential transport impacts of the LDFs across Greater Manchester are reported in the Final Report, along with a description of the methodology employed in analysing the transport impacts. This note focuses on the transport impacts in Trafford and should be read in conjunction with the Final Report.

2 Modelling Approach

- 2.1 The approach to the study has been to undertake land use and transport modelling to explore the relative impacts on land use and key transport metrics of the following:
 - underlying travel demand trends;
 - the land use allocations within the LDFs; and
 - the potential impact of new capital investment in transport via the Transport Fund.

- 2.2 In order to test the impacts of these drivers, artificial test scenarios were created and run through the models. In each of these scenarios, the level of population and employment growth over time was constrained to control totals for the Fully Modelled Area (equating roughly to the City Region area). However, the location of the population and employment growth was determined by the land use model.
- 2.3 The employment and population control total inputs were based upon the Accelerated Growth Scenario from AGMA's economic forecasting model, the Greater Manchester Forecasting Model (GMFM), and Department for Transport's TEMPRO data. The control for the Fully Modelled Area comprised the sum of the growth implied by the AGS forecasts for Greater Manchester County and the TEMPRO forecasts for the rest of the City Region area.
- 2.4 The tests that are reported within this note are outlined below:
- **Do Minimum** which assumed the levels of economic and demographic growth contained within the AGS forecasts and basic transport trends (on car ownership etc) but no additional development after 2011 and no changes to the transport network beyond schemes already committed.
 - **Greater Manchester Proposals Scenario** which added the LDF development proposals and a package of transport interventions that were planned for the Transport Fund to the assumptions for the Do Minimum Scenario.
- 2.5 The transport schemes contained within each of the scenarios are described in detail in Technical Note 1 "Transport Strategy Assumptions".
- 2.6 The reporting of the transport impacts of the LDFs concentrates on comparing the forecasts for 2011 with those for 2026, assuming that all of the LDF developments are built, but not necessarily occupied, and that the Greater Manchester Transport Fund schemes are constructed over this period. It should be noted that the overall level of population and employment growth is constrained to a fixed level over the fully modelled area as described above. The areas where this growth is located is determined by the land use model considering the available development space and the accessibility of those developments.
- 2.7 Some comparison is made with the situation where new developments and the transport schemes have not been constructed, to show the overall impact of the LDFs and the transport schemes on the demand for travel within Greater Manchester. In this case, the growth in population and employment has been catered for in already existing residential and employment buildings.

3 Land Use Inputs and Outputs

- 3.1 This section briefly outlines the inputs to the models in terms of the additional housing, office and industrial floorspace provided by the LDF developments, and goes on to summarise the change in population and employment in Trafford for the Greater Manchester Proposals Scenario between 2011 and 2026.
- 3.2 A summary of the LDF planning assumptions for Trafford are provided in Table 1, and the resulting change in population and employment is shown in Table 2. These tables show that although there is a 10% increase in the provision of housing floorspace, population only

increases by 4%. There is a clear expectation for industry to decline in Trafford, with a 4% reduction in the available floorspace. However, available office floorspace in 2026 is 24% higher than in 2011, but this increase in floorspace has only seen an increase in jobs in the district of 5%.

Table 1 Trafford LDF Land Use Inputs

	2011	2026	Difference
Housing	9,996,300	10,957,885	10%
Office	654,482	812,395	24%
Industrial	2,382,330	2,296,112	-4%

Table 2 Trafford Population and Employment Forecasts - Greater Manchester Proposals Scenario

	2011	2026	Difference
Population	221,444	229,901	4%
Households	91,680	94,595	3%
Jobs	126,870	133,561	5%

- 3.3 Figure 1 shows the distribution of population changes across the district between 2011 and 2026. This shows a change in the distribution of population, with some zones seeing increases and others decreases. The largest increases in population occur to the north of the district close to the Regional Centre, and it is noticeable that there are significant increases in population around the edge of the district in the Regional Centre. This area will be served by the extension of the Metrolink network to Media City, with the resulting increase in Metrolink frequencies.
- 3.4 The distribution of employment change, shown in Figure 2, shows that increases in employment occur across the district, with the majority of zones seeing increases, but are not as noticeable in the northern part of the district. It is noticeable that there are more significant increases in employment over the district border towards the Regional Centre, at the Airport and in Warrington.

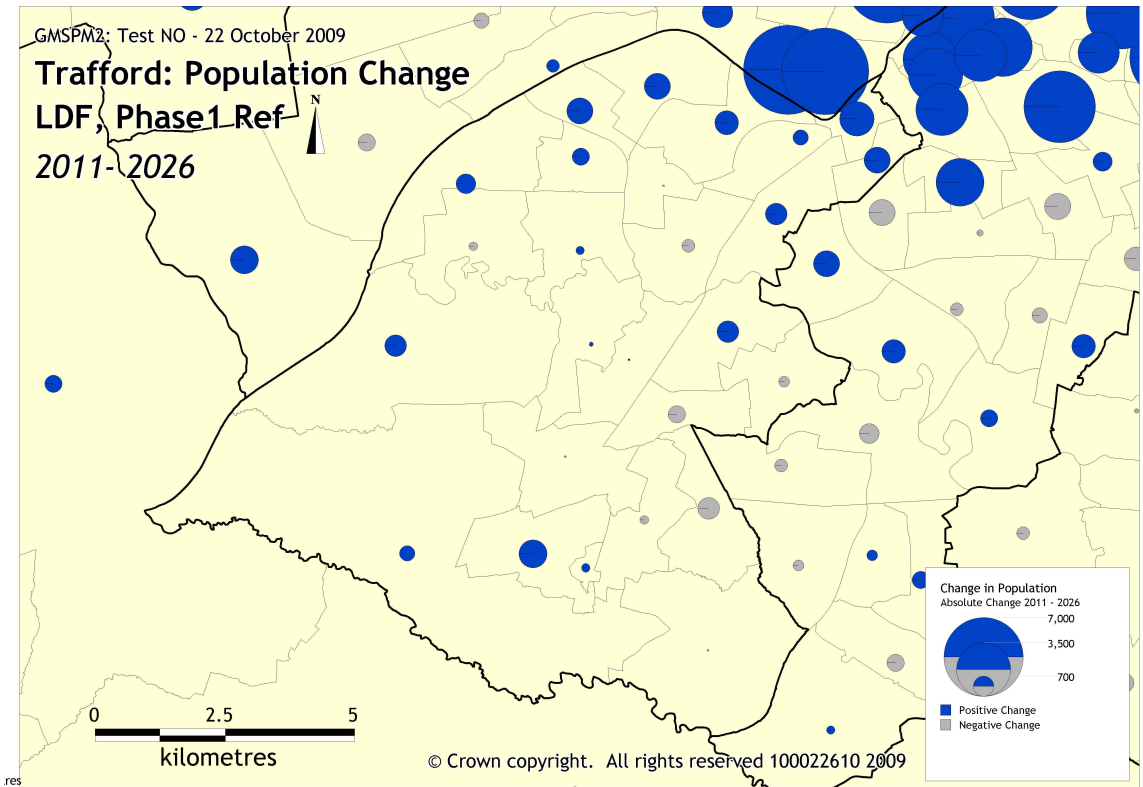


Figure 1 Trafford Population Change – Greater Manchester Proposals Scenario

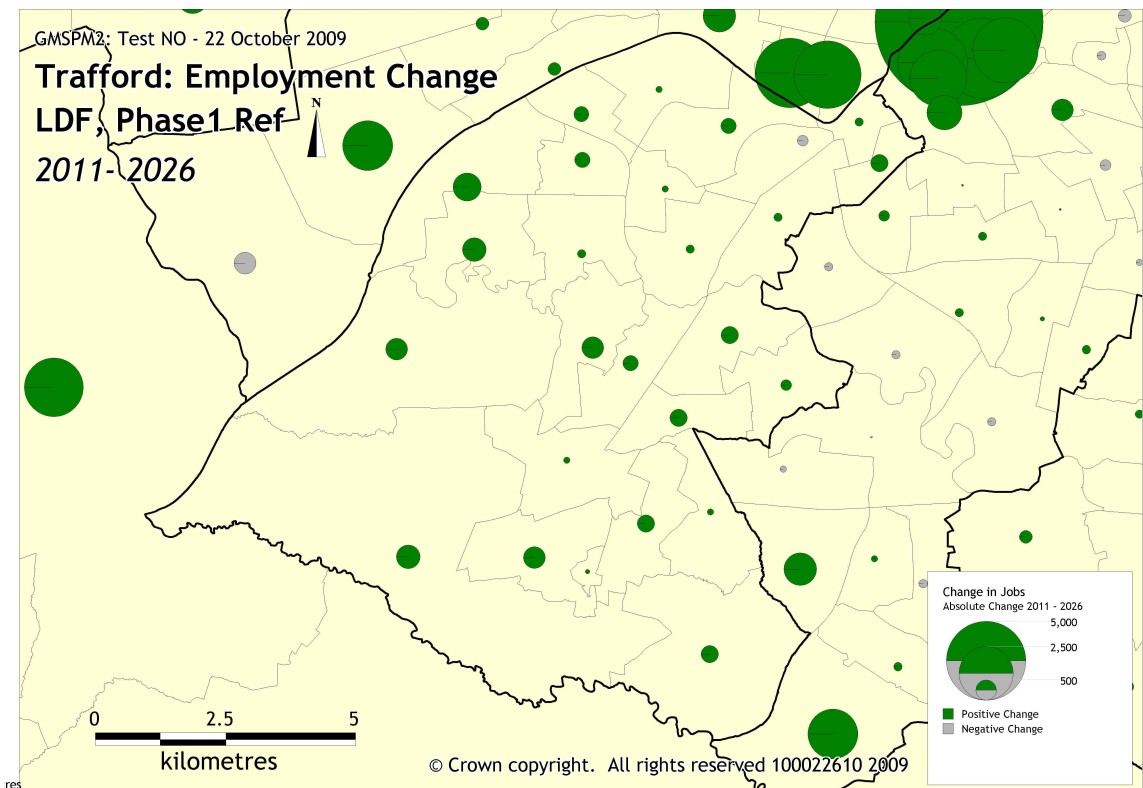


Figure 2 Trafford Employment Change - Greater Manchester Proposals Scenario

4 Transport Outputs

- 4.1 This Section reports on the impact of the LDFs and the Transport Scenario on the transport networks over time.

Changes in Trip Making

- 4.2 Table 3 shows the forecast impact on the demand for travel in the Do Minimum scenario, which reflects the changes in population and employment levels, changes in car ownership, and changes in the cost of travel over time but without considering the location of new developments. This shows that the increasing levels of population, employment income and car ownership over time, together with the declining relative affordability of public transport compared with car, are forecast to result in increasing traffic levels. The model forecasts show increases in the number of car trips of 14-15% between 2011 and 2026, with corresponding decreases in public transport and walk/cycle journeys. The overall increase in trip making forecast between 2011 and 2026 is 8-9%.
- 4.3 The model forecasts for the Greater Manchester Proposals Scenario are shown in Table 4, which show lower levels of trip making increases across Trafford between 2011 and 2026, which will be a result of the low levels of population and employment increases previously noted and greater growth in other districts. However, car trip productions and attractions are still increasing, with productions forecast to increase by 12% over the period. However, public transport does see an increase in the number of trip productions over the period, but only a 1% increase, and it is likely this is as a result of the improvements to the Metrolink network over the period along with the locations of new developments.
- 4.4 Trip attractions to Trafford show a clear shift away from public transport, walking and cycling to car over time. Despite the slight increase in public transport productions, there is still a significant drop in the public transport mode share over the period. This is likely to be a result of the dispersed nature of the locations of new developments and therefore the locations of new jobs throughout the district, particularly to areas which are less well served by public transport. The improvements to the Metrolink network have clearly help to lessen the impact of increasing traffic levels, but these increases in car trips over the period is still significant.

Table 3 Change in Trafford Home Based Trip Productions and Attractions – Do Minimum

	2011	2026	Difference
Productions			
Car	197,691	225,759	+14%
Public Transport	24,717	23,728	-4%
Walk/Cycle	68,243	64,422	-6%
Total	290,650	313,910	+8%
Attractions			
Car	211,428	243,360	+15%
Public Transport	22,891	21,803	-5%
Walk/Cycle	73,217	68,807	-6%
Total	307,536	333,970	+9%

Table 4 Change in Trafford Home Based Trip Productions and Attractions – Greater Manchester Proposals Scenario

	2011	2026	Difference
Productions			
Car	197,691	220,618	+12%
Public Transport	24,717	24,841	+1%
Walk/Cycle	68,243	62,635	-8%
Total	290,650	308,094	+6%
Attractions			
		0	
Car	211,428	240,997	+14%
Public Transport	22,891	22,185	-3%
Walk/Cycle	73,217	66,322	-9%
Total	307,536	329,504	+7%

4.5 The change in the number of trips to, from and within Trafford district between 2011 and 2026 is shown in Table 5, which again highlights the forecast increases in traffic levels across all three time periods, but also shows increases in public transport trip making of between 2-4%. Despite these increases in public transport trip making, it is important to note that public transport mode share is still declining over the period.

Table 5 Change in Trips to/from/within Trafford – Greater Manchester Proposals Scenario

	2011	2026	Difference
Car			
Morning Peak	174,603	194,602	+12%
Inter-peak	277,933	311,759	+12%
Evening Peak	220,736	244,989	+11%
Rest of Day	108,734	128,536	+18%
TOTAL	782,005	879,887	+13%
Public Transport			
Morning Peak	25,152	25,818	+3%
Inter-peak	27,307	27,849	+2%
Evening Peak	25,710	26,670	+4%
Rest of Day	6,191	6,880	+11%
TOTAL	84,360	87,217	+3%

Impact on the Highway Network

4.6 The forecast morning peak traffic flows for 2026 are shown in Figure 3, with the changes in flows from 2011 shown in Figure 4. The morning peak flows are shown to be most significant on the motorways and the A56. The flow increases over the period are most significant on the motorways and in the north of the district, but increases are occurring throughout the district which is consistent with the changes seen in the location of population and employment.

4.7 Figure 5 shows the links in Trafford where the volume over capacity ratio is 85% or greater in 2011, and Figure 6 presents the same information in 2026. It is clear from these two figures that a significant number of links and junctions have become closer to capacity by 2026, as would be expected with the forecast increases in traffic levels. This is particularly significant on

the M60, in the north of the district and in Altrincham town centre, where the largest population and employment increases are seen.

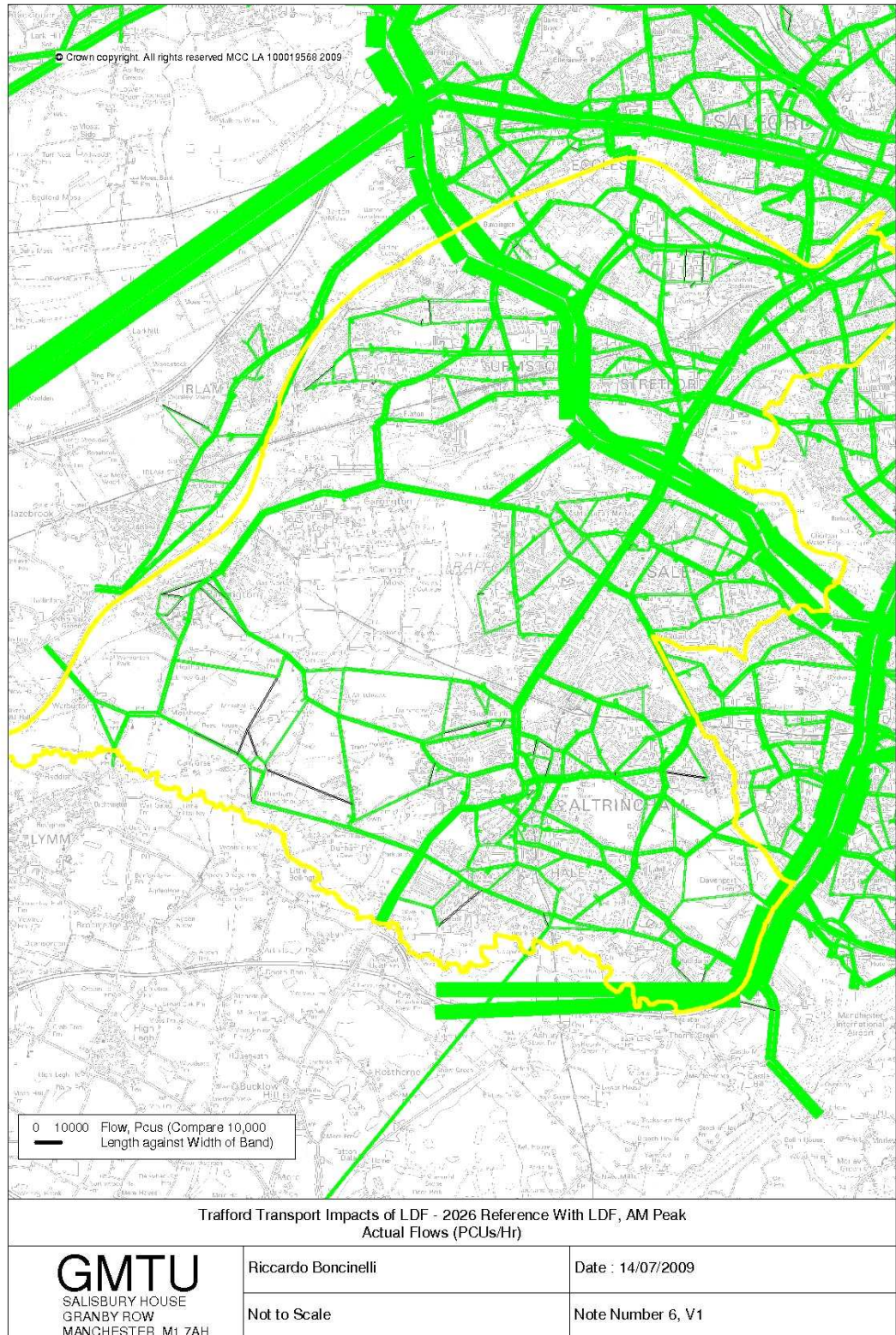


Figure 3 2026 Morning Peak Traffic Flows in Trafford - Greater Manchester Proposals Scenario

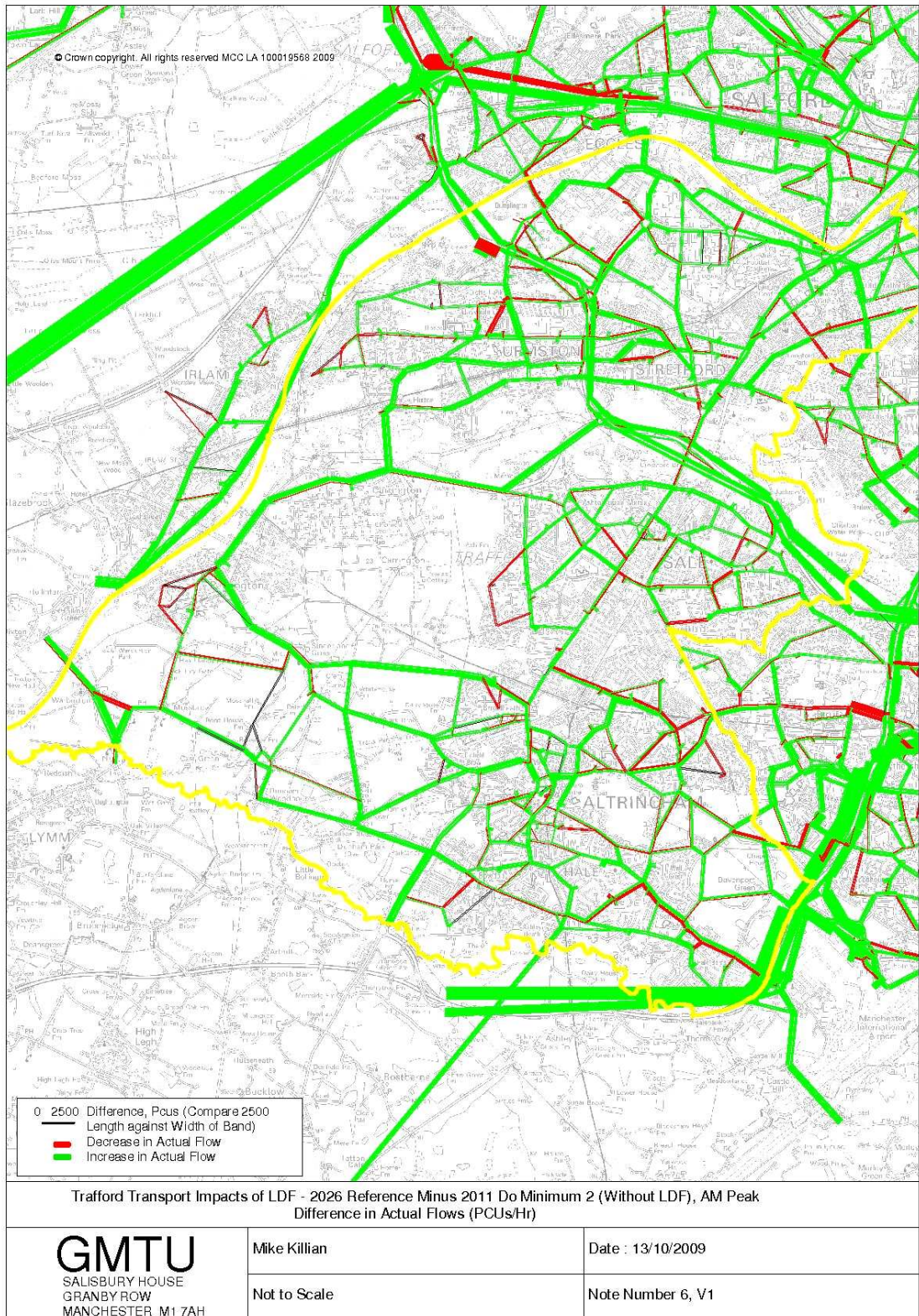


Figure 4 Change in Morning Peak Traffic Flows in Trafford between 2011 and 2026 - Greater Manchester Proposals Scenario

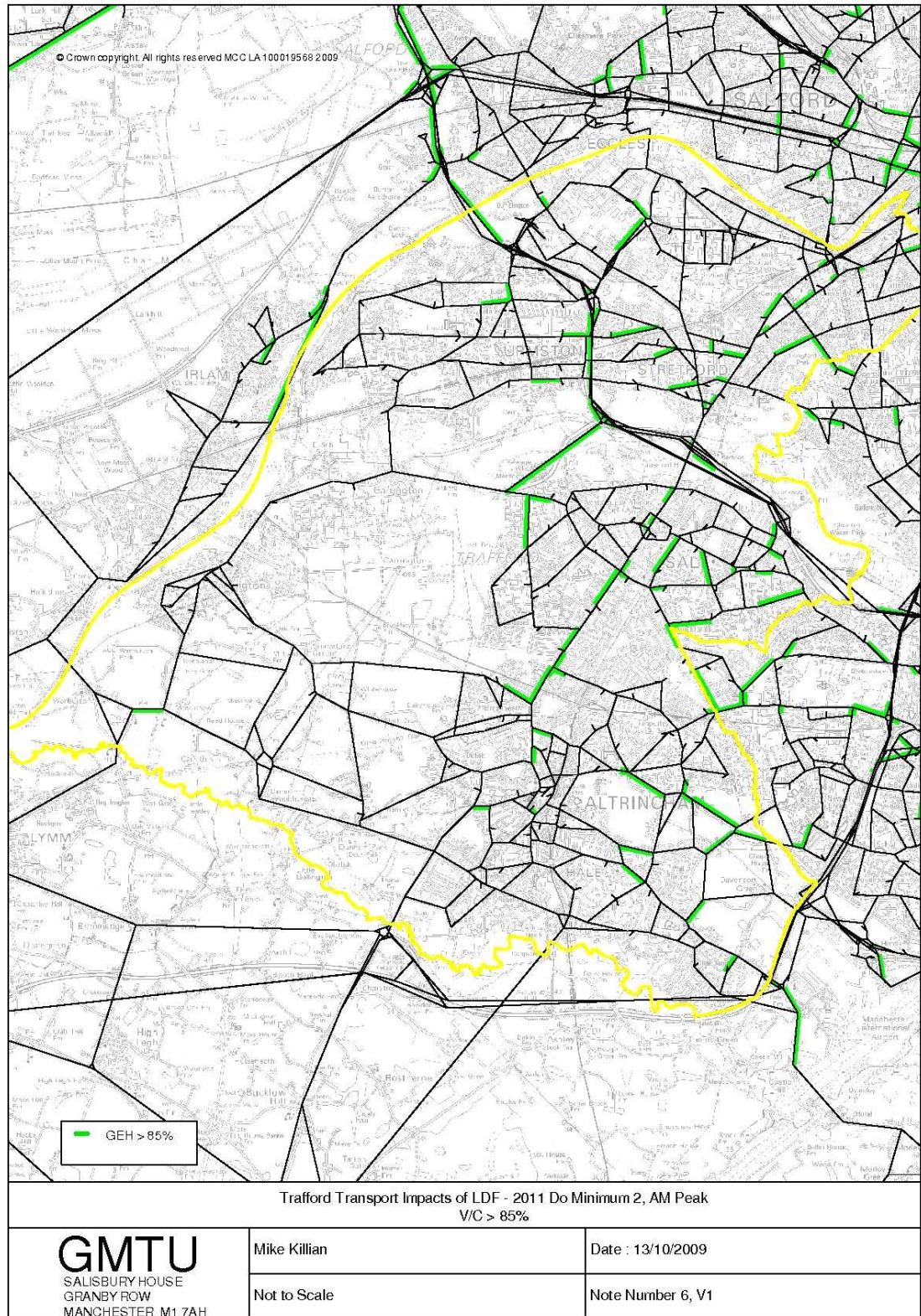


Figure 5 Road Links in Trafford with Volume/Capacity Greater than 85% in 2011 - Greater Manchester Proposals Scenario

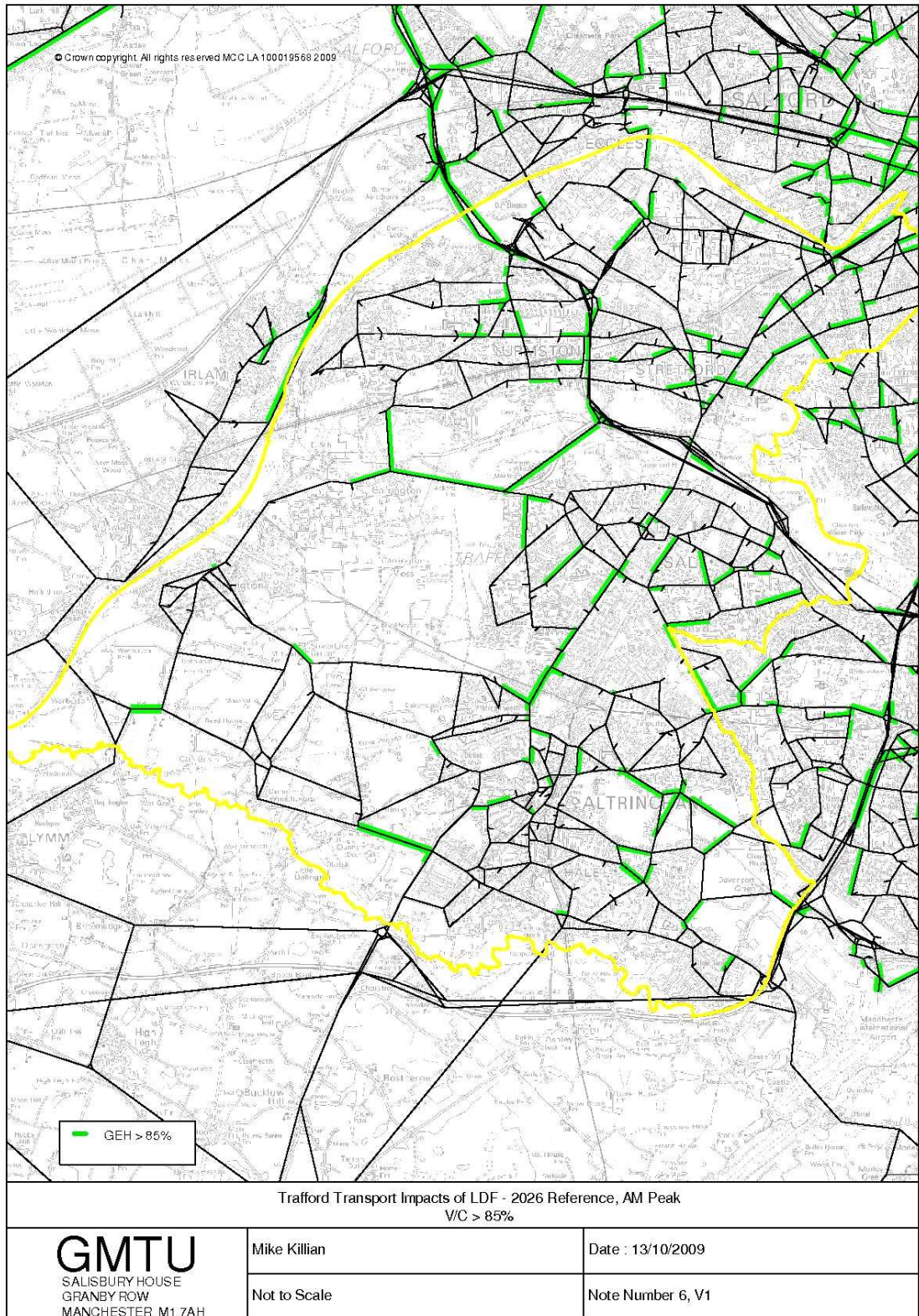


Figure 6 Road Links in Bury with Volume/Capacity Greater than 85% in 2026 - Greater Manchester Proposals Scenario

Impact on Journey Times

- 4.8 The forecast changes in motorway journey times within Trafford are shown in Table 6, which show that the section of the M60 between junction 7 and junction 9 has seen the most significant increase in journey times in both directions in the evening peak period. There are also 20% increases in journey times anticlockwise between junctions 11 and 9 of the M60, and 17% increases in journey times in the opposite direction, in the morning peak. The other sections of the motorway have all seen increases in journey time over the 2011 to 2026 period.
- 4.9 Table 7 shows the changes in journey times on the key radial route, the A56, into the Regional Centre, which show significant increases of at least 15% inbound in the morning peak and outbound in the evening peak. As these changes represent around an additional 5 minutes onto journey times, these are forecast to be of a level at which drivers will notice the impact.
- 4.10 The model forecasts are also suggesting significant journey time impacts on some of the other key routes in Trafford, as shown in Table 8. There are journey time increases in excess of 20% on a large number of corridors, and the vast majority of these corridors have increases in excess of 10% in at least one time period. The increases in population and employment occurring throughout the district is clearly having an impact on the traffic levels on many of these major routes, resulting in increases in journey times in these peak periods.

Table 6 Change in Motorway Journey Times in Trafford - Greater Manchester Proposals Scenario

	Morning Peak			Evening Peak		
	2011	2026	Diff	2011	2026	Diff
M60 Clockwise						
J5 to J7	3:38	3:47	+4%	3:25	3:39	+7%
J7 to J9	2:36	2:44	+6%	2:09	2:57	+37%
J9 to J11	3:09	3:41	+17%	3:51	4:07	+7%
TOTAL	9:22	10:12	+9%	9:26	10:43	+14%
M60 Anticlockwise						
J11 to J9	3:11	3:49	+20%	3:14	3:36	+12%
J9 to J7	3:38	3:54	+7%	4:21	5:25	+24%
J7 to J5	3:10	3:25	+8%	3:35	3:48	+6%
TOTAL	9:11	10:18	+12%	10:16	11:53	+16%

Table 7 Change in Trafford to Regional Centre Journey Times - Greater Manchester Proposals Scenario (Minutes : Seconds)

	Morning Peak			Evening Peak		
	2011	2026	Diff	2011	2026	Diff
Altrincham to Regional Centre						
A56 Altrincham to Regional Centre	35:26	41:21	+17%	26:45	30:27	+14%
Regional Centre to Altrincham						
A56 Regional Centre to Altrincham	31:36	34:34	+9%	34:28	39:35	+15%

Table 8 Change in Journey Times on Major Routes in Trafford - Greater Manchester Proposals Scenario

	Morning Peak			Evening Peak		
	2011	2026	Diff	2011	2026	Diff
Altrincham to Stockport via A560	48:43	55:55	+15%	36:09	39:10	+8%
Stockport to Altrincham via A560	33:28	38:41	+16%	29:52	32:14	+8%
Altrincham to Stockport via A560/M56/M60	38:17	43:42	+14%	30:23	32:55	+8%
Stockport to Altrincham via M60/M56/A560	24:07	27:50	+15%	21:46	24:10	+11%
A538/M56 Altrincham to Airport	14:38	17:50	+22%	14:55	17:42	+19%
Airport to Altrincham M56/A538	16:17	17:33	+8%	18:49	17:14	-8%
A56 Altrincham to M56 J7	6:00	6:16	+4%	4:49	5:13	+8%
A56 M56 J7 to Altrincham	4:53	5:38	+15%	4:42	5:14	+11%
A5081 M60 J9 to White City	10:15	12:39	+23%	7:57	9:14	+16%
A5081 White City to M60 J9	7:28	7:42	+3%	8:06	7:41	-5%
A6144 Warr Bdy to M60 J8	13:17	16:41	+26%	14:25	17:07	+19%
A6144 M60 J8 to Warr Bdy	13:10	14:33	+11%	14:04	17:51	+27%
A6144 Carrington Spur to M60 J6	16:37	22:44	+37%	13:24	13:47	+3%

	Morning Peak			Evening Peak		
	2011	2026	Diff	2011	2026	Diff
A6144 M60 J6 to Carrington Spur	17:56	19:35	+9%	13:56	14:14	+2%
A576/A5081 M602 J2 to M60 J9	7:37	8:40	+14%	8:04	10:41	+33%
A5081/A576 M60 J9 to M602 J2	8:58	10:53	+21%	6:56	8:26	+22%

Impact on Public Transport

4.11 The forecast changes in public transport boardings and alightings in Trafford are shown in Table 9 and, as would be expected with the increase in public transport patronage already noted, boardings have increased in all three time periods and alightings have increased in the inter-peak and evening peak periods. The expansion of the Metrolink network, combined with changing income levels and increases in congestion on the road network, have led to a clear shift to Metrolink from bus. In the vast majority of cases, these factors have also contributed to an increase in rail patronage, and the impact of these changes are likely to be increases in the levels of crowding on the rail and Metrolink networks unless additional carriages are made available.

Table 9 Change in Bury Public Transport Boardings and Alightings– Greater Manchester Proposals Scenario

	Boardings			Alightings		
	2011	2026	Diff	2011	2026	Diff
Morning Peak						
Bus	3,420	3,289	-4%	3,781	3,477	-8%
Rail	281	266	-5%	214	225	5%
Tram	3,644	4,043	11%	2,576	2,810	9%
TOTAL	7,345	7,599	3%	6,571	6,512	-1%
Inter-peak						
Bus	2,183	2,123	-3%	2,224	2,118	-5%
Rail	108	112	4%	60	60	0%
Tram	1,062	1,257	18%	934	1,150	23%
TOTAL	3,353	3,492	4%	3,218	3,328	3%
Evening Peak						
Bus	2,827	2,652	-6%	2,921	2,906	-1%
Rail	182	203	12%	158	182	15%
Tram	2,066	2,411	17%	2,821	3,091	10%
TOTAL	5,075	5,266	4%	5,900	6,179	5%

Impact on Environmental Indicators

4.12 The forecast change in the environmental indicators in Trafford are shown in Table 10. The model forecasts have included the Department for Transport's guidance that fuel efficiency will improve over time and that engine standards for emissions will continue to improve. This means that, despite the increases in traffic levels, NOx emissions are forecast to reduce by 17% over the period 2011 to 2026. However, PM10 and CO₂ emissions are forecast to continue increasing, the CO₂ increase being 16%.

Table 10 Change in Environmental Indicators in Bury – Greater Manchester Proposals Scenario

	2011	2026	Difference
NOx	804	668	-17%
PM10	99	107	+8%
CO ₂	80,581	93,218	+16%

5 Summary

- 5.1 Population and employment in Trafford increase between 2011 and 2026, the overall increases being 4% for population and 3% for employment. The largest increases in population occur to the north of the district, close to the Regional Centre, with there being significant increases in population around the edge of the district in the Regional Centre. Employment increases are spread around the district, but are most significant in the south and west. This dispersed nature of employment increases is going to increase the reliance on the car for commuting journeys.
- 5.2 The forecasts changes in overall trip making in Trafford over the period are of the order of 6-7%, which is higher than the increases in population and employment. The increasing levels of population and employment, changes in car ownership, and declining relative affordability of public transport compared to car have resulted in increases in traffic levels. Although there are increases in public transport trip making, public transport mode share is falling. There is an increasing dominance in car for journeys in Trafford, with walk and cycle journeys experiencing a significant decrease between 2011 and 2026. The dispersal of jobs across the district is contributing to this switch to car, particularly with the employment increases noted in the west of the district.
- 5.3 A significant number of roads and junctions are forecast to become closer to capacity over the period 2011 to 2026, in particular on the M60 and the A56. Car flows increase on links right across the district, reflecting the disperse pattern of population increases. In addition, journey times on a number of key routes are forecast to increase, most notably the following:
- the M60 between junctions 7 and 11;
 - the key radial route, the A56, into the Regional Centre; and
 - a number of the other key routes within the Trafford district.
- 5.4 It has already been noted that public transport patronage is increasing over time in Trafford, and this will reflect the fact that this is still a relatively attractive mode for commuting to the Regional Centre. This is particularly the case with the expansion of the Metrolink network, such as the Media City extension and the increase in frequency provided by these additional services. However, the changing costs of travel caused by increased congestion on the road network, combined with rising income levels are forecast to lead to a shift away from bus to rail and tram for public transport journeys. This will have an impact on crowding levels on tram and

rail services, particularly as services into Manchester already suffer from overcrowding in the peak periods.

- 5.5 The model inputs have assumed that fuel efficiency of vehicles is improving through time, and that engine standards for emissions continue to increase. Therefore, NO_x emissions are forecast to reduce by 17% between 2011 and 2026 even though traffic levels are increasing. PM₁₀ and CO₂ emissions are forecast to increase.