

# Greater Manchester's Clean Air Plan to tackle Nitrogen Dioxide Exceedances at the Roadside

## Note 13: Traffic Impact on Neighbouring Authorities



Salford City Council



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## **COVID-19 Pandemic Statement**

This work has not considered the impact of the COVID-19 pandemic. Whilst we are continuing, where possible, to develop the Greater Manchester Clean Air Plan, the pandemic has already had an impact on our ability to keep to the timescales previously indicated and there may be further impacts on timescales as the impact of the pandemic becomes clearer.

We are also mindful of the significant changes that could result from these exceptional times. We know that the transport sector has already been impacted by the pandemic, and government policies to stem its spread. The sector's ability to recover from revenue loss, whilst also being expected to respond to pre-pandemic clean air policy priorities by upgrading to a cleaner fleet, will clearly require further thought and consideration.

The groups most affected by our Clean Air Plan may require different levels of financial assistance than we had anticipated at the time of writing our previous submission to Government.

More broadly, we anticipate that there may be wider traffic and economic impacts that could significantly change the assumptions that sit behind our plans. We have begun to consider the impacts, and have committed to updating the government as the picture becomes clearer over time.

We remain committed to cleaning up Greater Manchester's air. However, given the extraordinary circumstances that will remain for some time, this piece of work remains unfinished until the impact of the COVID-19 pandemic has been fully considered by the Greater Manchester Authorities.

## 1 Introduction

- 1.1 This note presents an analysis of vehicle flows from the highway models developed for the appraisal of the Greater Manchester Clean Air Zone (CAZ). The analysis has been undertaken to inform discussions concerning the potential road traffic impacts of the proposed CAZ on roads in neighbouring district authorities.
- 1.2 The impacts of the CAZ have been measured by using the traffic models to determine the proportions of non-compliant through trips (i.e. trips crossing the GM county boundary that have an origin and destination in the external area) which could re-route to avoid paying the CAZ charge.
- 1.3 Separate analyses have been carried out for 2021 and 2023.

## 2 GM CAP Proposals

- 2.1 The GM CAP proposals comprise a Category B CAZ implemented in Phase 1, which would extend to a Category C CAZ in Phase 2. The opening year for Phase 1 of the scheme would be 2021, with phase 2 opening in 2023.
- 2.2 Under the proposals, the drivers of non-compliant vehicles would have to pay a daily charge to enter the CAZ, which would cover the whole of Greater Manchester and include all non-compliant vehicles travelling on roads inside the County, excluding trips made entirely on the motorway network. Vehicles included in the category B CAZ comprise buses, coaches, taxis plus private hire cars and Heavy Goods Vehicles (HGVs). The category C CAZ would be extended to include Light Goods Vehicles (LGVs).
- 2.3 The minimum emission standards for compliant vehicles entering the CAZ are shown below in **Table 2-1**.

**Table 2-1 CAZ Emission Standards**

Vehicle Type	Euro Standard
Cars	Not Applicable
Taxis + Private Hire Cars	Euro 4 (petrol), Euro 6 (diesel)
Light Goods Vehicles	Euro 4 (petrol), Euro 6 (diesel)
Heavy Goods Vehicles	Euro VI
Buses	Euro VI

### 3 Overview of the Highway Modelling

- 3.1 The CAP highway modelling has been carried out using TfGM's county-wide Saturn model for a 2016 base year and three forecast years comprising:
- 2021, which represents the assumed opening year of the CAZ scheme
  - 2023
  - 2025
- 3.2 The 2023 and 2025 models were developed to assist in confirming the year of compliance and to help with modelling the phased introduction of the GM-wide CAZ C.
- 3.3 The Saturn model represents 3 time periods comprising:
- a weekday morning peak hour 0800-0900
  - an evening peak hour 1700-1800
  - an average inter-peak hour for the 1000-1530 time period
- 3.4 The results presented in this report show average daily traffic flows calculated from the hourly data.
- 3.5 The assignment matrices that are used with the model represent 8 user classes comprising:
- Compliant Car trips
  - Non-Compliant Car trips
  - Compliant LGV trips
  - Non-Compliant LGV trips
  - Compliant OGV trips
  - Non-Compliant OGV trips
  - Compliant Taxi trips (including private hire cars)
  - Non-Compliant trips (including private hire cars)
- 3.6 Buses are not included in the assignment matrices, but are represented in the model as fixed link loads, with routes defined as chains of nodes in the buffer and simulation networks. Modelled bus services are based on 2015 service patterns and flows for scheduled services operating within the County. Coaches are not represented in the models.
- 3.7 Geographically, the model is focused on Greater Manchester, although it does extend to cover all of Great Britain, albeit in increasingly less detail with increasing distance from the county boundary, as illustrated in **Figure 4-1**.

3.8 The analysis presented in this report has been undertaken using the 2021 and 2023 do-something models, which represent what is forecast to happen following the introduction of the CAZ.

### 3.9 **Modelling Behaviour Change**

3.9.1 The nature of the CAP proposals mean that non-compliant vehicles will face a daily charge for travelling in parts of Greater Manchester. The modelling therefore assessed what proportion of vehicles are likely to be non-compliant and therefore 'in scope' for a charge, and how they might respond.

3.9.2 The behavioural responses to the CAP proposals were modelled using a spreadsheet application developed as part of the option sifting and assessment exercise. The application uses stated preference data weighted towards the characteristics of Greater Manchester to estimate the impact of the introduction of a charging Clean Air Zone and the travel demand responses of non-compliant vehicle users.

3.9.3 For those vehicles that are 'in scope' for a daily charge, there are a number of possible responses, as described below:

- continue to travel into, within or through the CAZ and pay the charge ('stay and pay')
- change their behaviour to avoid travelling into, within or through the CAZ, for example by travelling by a different mode or cancelling their trip. (Some 'cancelled' trips would in fact move to a different destination to avoid the charging area, but the available model did not allow us to consider that option in this analysis).
- upgrade to a compliant vehicle – this is assumed to be a newly purchased vehicle but note that another possible response is to swap to a compliant vehicle already owned (e.g. another vehicle in the household or in a commercial fleet).

3.9.4 The choice to upgrade is dependent both on the charge level – with higher charges leading to more change – and on the frequency of travel. Those who need to travel frequently in a charged zone are more likely to choose to upgrade their vehicle as it is more cost effective for them; conversely, those who travel infrequently are more likely to 'stay and pay' as the cost of upgrade would outweigh the cost of the charge.

3.9.5 The behavioural responses that have been used in the modelling are summarised below in **Table 3-1**.

**Table 3-1 Behavioural Response to the GM CAP by Vehicle Type (%)**

Behavioral Response	Car	Taxis	Private Hire Vehicles (PHVs)	Light Goods Vehicles (LGVs)	Heavy Goods vehicles (HGVs)	Buses/ Coaches
Pay Charge	6.7%	0%	24.2%	9.6%	9.4%	0%
Change Mode	12.8%	0%	18.9%	7.5%	0.0%	0%
Cancel Trip	15.1%	0%	18.7%	7.5%	4.2%	0%
Upgrade Vehicle	65.4%	100%	38.2%	75.4%	86.5%	100%

Source: Greater Manchester Clean Air Plan Outline Business Case

## 4 Results

4.1 This section presents summary results of the analysis for roads crossing the GM county boundary. There are, however, a number of caveats and limitations with regards to the modelling in the external area (outside of Greater Manchester) that need be borne in mind when considering the results:

- The highway model uses a simplified network representation outside of the County, whose primary purpose is to allow traffic flows at the county boundary to be estimated within acceptable levels of accuracy
- The highway network is less dense outside of the County, and becomes increasing less detailed with increasing distance from the county boundary, which might prevent some diversion routes from being captured
- The highway network in the external area does not include planned (future year) road schemes
- Traffic zones in the external area are larger than those within the County, which will affect the accuracy of the trip and flow estimates
- Origin-destination (trip matrix) data is less accurate in the external area
- Taxi/private hire car trips with an origin and destination outside of Greater Manchester are not modelled in the external area
- The model has not been validated in the external area.

4.2 It should also be borne in mind that the forecasts include national changes to the vehicle fleet mix and engine technology over time, as older more polluting vehicles are replaced by newer models which are compliant with stricter Euro standards. (The modelled improvements to the vehicle fleet are based on national forecasts of the fleet turnover, and how long vehicles last before they are scrapped).

4.3 **Table 4-1** shows modelled all vehicle 24 hour Annual Average Weekday Traffic flows (AAWT) for roads crossing the GM county boundary for 2021 and 2023, excluding motorways. The figures in the columns headed 'All Trips' show modelled flows for all movements combined, comprising compliant plus non-compliant vehicles with an origin or destination inside Greater Manchester and vehicles with an origin and destination outside the county (external-external/through trips) that cross the county boundary. The figures in the columns headed 'External-External (Through Trips)' show modelled cordon crossing flows for external-to-external trips only (i.e. movements that enter Greater Manchester, excluding trips with an origin or destination inside the county). For the purpose of this analysis we have assumed that through trips made in non-compliant vehicles are the trips which would potentially divert (change their route/re-assign) to avoid entering the CAZ.

4.4 Features to note from **Table 4-1** include:

- Approximately 1.18 million vehicles are forecast to cross the county boundary in 2021 in terms of the total 24 hour AAWT, rising to 1.21 million vehicles in 2023
- Overall, through trips (with an origin and destination outside Greater Manchester), represent approximately 16% of the total cordon crossing flow
- Approximately 99% of all trips are forecast to be compliant in both 2021 and 2023
- Approximately 97% of through trips are forecast to be compliant in both 2021 and 2023
- The numbers of non-compliant heavy goods vehicles crossing the county boundary is forecast to fall between 2021 and 2023, due in part to improvements to the vehicle fleet over time, but also due to the impacts of the CAZ, and the expectation that the majority of operators of non-compliant vehicles with origins and destinations inside the county will choose to upgrade their vehicles. This is likely to deliver air-quality improvements in the external area as older more polluting vehicles are replaced by newer models.
- Overall, there is a small increase in the total number of non-compliant vehicles forecast to cross the county boundary between 2021 and 2023, due to the extension of the CAZ to include LGVs in 2023. In contrast, however, the numbers of non-compliant through trips that are forecast to cross the county boundary in 2021 and 2023 remain broadly stable, as the increase in the number of non-compliant LGV trips brought about by the extension of the CAZ in 2023 is off-set by a reduction in the number of non-compliant HGV through trips over this period, which make up a greater proportion of total through trips in the external area, partly due to their greater trip lengths.

4.5 **Table 4-2** shows modelled 24 hour AAWT flows broken down by site, as illustrated in **Figure 4-2**.

4.6 As would be expected, the motorways carry the heaviest cordon crossing flows, with the M6 (sites 80 and 81) carrying between 133,000 and 128,000 vehicles per day in 2021, and the M62 (sites 78 and 79) carrying between 140,000 and 123,000 vehicles per day. There are, however, significant flows in other parts of the network, with the A580 on the border between St Helens and Wigan (site 67) having a 2021 forecast AADT flow of approximately 59,000 vehicles per day and the A555 on the border between Cheshire East and Stockport (sites 11/12) having a forecast flow of approximately 54,000 vehicles per day.

4.7 **Table 4-3** shows the 20 sites with the greatest numbers of non-compliant through trips and the percentage of the total flow through each site, excluding motorways.



- 4.8 In general, the numbers of non-compliant through trips at these sites are relatively small, with the possible exception of the A58 in St Helens (Site 65), where the modelled non-compliant through trip flow is approximately 520 vehicles per day in 2021, which is equivalent to approximately 5% of the total flow through the site. If all of these vehicles were to divert, this would be equivalent to a re-assignment of approximately 1 vehicle every 3 minutes throughout the day, although this figure would be higher in the peaks. It seems reasonable to assume, however, that not all of the non-compliant vehicles would re-assign, as some drivers would choose to either pay the charge or to upgrade their vehicles. (It has not, however, been possible to determine the scale of these responses, as the behavioural impacts of the CAP proposals were not modelled for through trips). It should also be borne in mind that whilst the GM CAZ is primarily designed to improve air quality with the county, it will also provide benefits outside the region from cleaner vehicles affected by the CAZ travelling elsewhere, which are likely to be greater for areas close to the scheme.

## **5 Conclusions**

- 5.1 This report has described the analysis that has been carried out to assess the potential road traffic impacts of the proposed GM CAZ on roads in neighbouring district authorities.
- 5.2 The report highlights several limitations to the modelling in the external area which must be borne in mind when considering the results. It is not thought, however, that the CAZ will have a significant impact on traffic flows on roads in the surrounding area, although the impacts will clearly vary by location, depending on the level of interaction with Greater Manchester, flows of non-compliant vehicles and the availability of diversion routes. It is also likely, however, that the scheme will deliver air quality improvements on routes to and from the County, which will provide air quality benefits in the surrounding districts.
- 5.3 The analysis that has been carried out so far has focussed on the proportions of non-compliant vehicles at sites on the county boundary which could re-route to avoid paying the CAZ charge. It would, however, be possible to use the models to identify the origins and destinations of traffic that might re-assign and possible re-assignment routes, subject to the uncertainty surrounding the modelling in the external area referred to above. Neighbouring authorities might also have their own (more detailed) local models that could be used to assess the re-assignment effects outside the scheme area, if necessary.

**Table 4-1 GM CAP Study Modelled Do-Something AAWT Flows for All Roads Crossing the GM County Boundary Broken Down By Vehicle Type (00:00 to 24:00, Inbound + Outbound Vehicles Flows, Excluding Motorways)**

	2021						2023					
	All Trips			External-External (Through Trips)			All Trips			External-External (Through Trips)		
Vehicle Type	Compliant + Non-Compliant Vehicles (A)	Non-Compliant Vehicles (B)	Percentage Compliant (A-B/A)	Compliant + Non-Compliant Vehicles (C)	Non-Compliant Vehicles (D)	Percentage compliant (C-D/C)	Compliant + Non-Compliant Vehicles (A)	Non-Compliant Vehicles (B)	Percentage Compliant (A-B/A)	Compliant + Non-Compliant Vehicles (C)	Non-Compliant Vehicles (D)	Percentage Compliant (C-D/C)
Car	945,000	0	100%	167,000	0	100%	966,000	0	100%	168,000	0	100%
LGV	134,000	0	100%	7,000	0	100%	138,000	10,000	93%	7,000	2,000	71%
HGV	49,000	6,000	88%	18,000	5,000	72%	50,000	4,000	92%	18,000	3,000	83%
Taxi + Private Hire	49,000	7,000	86%	NA	NA	NA	51,000	4,000	92%	NA	NA	NA
Total	1,177,000	13,000	99%	192,000	5,000	97%	1,205,000	18,000	99%	193,000	5,000	97%

**Notes:**

1. External-external trips are not modelled for Taxi + Private Hire Vehicles
2. Totals have been rounded to the nearest 1000 trips
3. Percentages are based on unrounded totals

**Table 4-2 GM CAP Study Modelled Do-Something Two-Way AAWT Flows for Roads Crossing the GM County Boundary (00:00 to 24:00, All Vehicles, Excluding Buses)**

Site ID	Road Number	Neighbouring Authority	2021			2023		
			All Trips	External-External (Through) Trips		All Trips	External-External (Through) Trips	
			Compliant + Non-Compliant Vehicles	Non-Compliant Through Trips	Percentages of Non-Compliant Through Trips	Compliant + Non-Compliant Vehicles	Non-Compliant Through Trips	Percentages of Non-Compliant Through Trips
			(A)	(B)	(B/A)	(A)	(B)	(B/A)
1	A56	A56	Cheshire East	36,400	30	0.1%	36,800	20
2	Ashley Road	Ashley Road	Cheshire East	3,800	0	0.0%	4,200	0
3	Mill Lane	Mill Lane	Cheshire East	1,200	0	0.2%	1,200	10
4	A538	A538	Cheshire East	36,600	250	0.7%	37,700	320
5	B5166	B5166	Cheshire East	13,800	0	0.0%	14,400	0
6	A555	A555	Cheshire East	30,800	340	1.1%	32,000	260
7	B5358	B5358	Cheshire East	24,700	30	0.1%	25,100	40
8	A555	A555	Cheshire East	34,500	290	0.8%	35,600	230
9	Earl Road	Earl Road	Cheshire East	1,400	0	0.0%	1,500	0
10	A34	A34	Cheshire East	38,000	0	0.0%	39,800	40
11	A555	A555	Cheshire East	53,700	300	0.6%	55,900	250
12	A555	A555	Cheshire East	53,700	290	0.5%	55,900	250
13	A5102	A5102	Cheshire East	12,500	50	0.4%	12,700	100
14	A5149	A5149	Cheshire East	35,000	120	0.3%	36,000	170
15	Woodford Road	Woodford Road	Cheshire East	11,400	10	0.1%	11,300	20
16	A523	A523	Cheshire East	23,500	70	0.3%	23,600	210
17	A6	A6	Cheshire East	31,200	210	0.7%	30,800	310
18	Jacksons Edge Road	Jacksons Edge Road	Cheshire East	5,800	60	1.1%	6,200	40
19	B6101	B6101	Cheshire East	6,300	60	1.0%	6,700	50

Table 4-2 Continued

Site ID	Road Number	Neighbouring Authority	2021			2023		
			All Trips	External-External (Through) Trips		All Trips	External-External (Through) Trips	
			Compliant + Non-Compliant Vehicles	Non-Compliant Through Trips	Percentages of Non-Compliant Through Trips	Compliant + Non-Compliant Vehicles	Non-Compliant Through Trips	Percentages of Non-Compliant Through Trips
			(A)	(B)	(B/A)	(A)	(B)	(B/A)
20	Briargrove Road	High Peak	6,500	0	0.0%	7,000	10	0.1%
21	A626	High Peak	14,800	60	0.4%	15,200	90	0.6%
22	Long Lane	High Peak	10,600	0	0.0%	11,300	0	0.0%
23	A57	High Peak	30,500	70	0.2%	30,200	130	0.4%
24	A628	High Peak	16,100	310	1.9%	17,000	300	1.8%
25	A635	Kirklees	16,500	10	0.0%	17,400	20	0.1%
26	A62	Kirklees	19,700	60	0.3%	20,300	60	0.3%
27	A640	Kirklees	11,300	10	0.1%	11,700	10	0.1%
28	A672	Calderdale	6,400	0	0.1%	6,500	10	0.2%
29	A58	Calderdale	17,500	10	0.1%	17,800	40	0.2%
30	B6138	Calderdale	16,300	30	0.2%	16,800	60	0.3%
31	A6033	Calderdale	200	0	0.0%	100	0	0.0%
32	Calderbrook Road	Calderdale	4,200	40	0.9%	4,200	40	1.1%
33	A671	Rossendale	20,900	0	0.0%	21,300	0	0.0%
34	B6377	Rossendale	8,500	0	0.0%	8,500	0	0.0%
35	A680	Rossendale	12,200	10	0.1%	12,700	20	0.1%
36	Bury Road	Rossendale	500	0	0.0%	600	0	0.0%
37	A56	Rossendale	5,500	0	0.0%	5,600	0	0.0%
38	A676	Rossendale	11,500	0	0.0%	11,900	0	0.0%
39	B6214	Rossendale	20,700	30	0.1%	20,900	20	0.1%

**Table 4-2 Continued**

Site ID	Road Number	Neighbouring Authority	2021			2023		
			All Trips	External-External (Through) Trips		All Trips	External-External (Through) Trips	
			Compliant + Non-Compliant Vehicles	Non-Compliant Through Trips	Percentages of Non-Compliant Through Trips	Compliant + Non-Compliant Vehicles	Non-Compliant Through Trips	Percentages of Non-Compliant Through Trips
			(A)	(B)	(B/A)	(A)	(B)	(B/A)
40	Bury Road	Blackburn & Darwen	7,600	10	0.1%	7,800	0	0.1%
41	B6391	Blackburn & Darwen	3,200	0	0.0%	3,200	0	0.0%
42	A666	Blackburn & Darwen	20,200	70	0.3%	20,700	70	0.3%
43	Longworth Road	Blackburn & Darwen	5,000	0	0.0%	4,900	0	0.0%
44	A675	Blackburn & Darwen	5,600	0	0.0%	6,200	10	0.2%
45	Scout Road	Blackburn & Darwen	8,800	0	0.0%	9,200	0	0.0%
46	A673	Chorley	12,100	30	0.2%	12,600	20	0.1%
47	A6	Chorley	15,300	140	0.9%	16,400	130	0.8%
48	A5106	Chorley	19,300	70	0.3%	19,500	50	0.3%
49	A49	Chorley	28,800	230	0.8%	29,500	220	0.8%
50	Boundary Lane	West Lancashire	10,000	50	0.5%	9,900	60	0.6%
51	A5209	West Lancashire	27,300	260	1.0%	27,600	240	0.9%
52	Back Lane	West Lancashire	3,200	0	0.0%	3,500	10	0.4%
53	B5375	West Lancashire	7,100	0	0.0%	6,900	0	0.0%
54	MILL LANE	West Lancashire	2,100	0	0.0%	2,700	10	0.4%
55	A577	West Lancashire	2,600	0	0.0%	4,500	0	0.0%
56	Sefton Road	West Lancashire	2,600	0	0.0%	1,700	0	0.0%
57	Sandbrook Road	West Lancashire	5,900	20	0.4%	6,400	50	0.9%

**Table 4-2 Continued**

Site ID	Road Number	Neighbouring Authority	2021			2023		
			All Trips	External-External (Through) Trips		All Trips	External-External (Through) Trips	
			Compliant + Non-Compliant Vehicles	Non-Compliant Through Trips	Percentages of Non-Compliant Through Trips	Compliant + Non-Compliant Vehicles	Non-Compliant Through Trips	Percentages of Non-Compliant Through Trips
			(A)	(B)	(B/A)	(A)	(B)	(B/A)
58	Crank Road	St Helens	9,900	210	2.1%	9,400	120	1.2%
59	B5206	St Helens	10,000	60	0.6%	11,000	70	0.6%
60	A571	St Helens	8,400	10	0.1%	6,700	10	0.2%
61	Ashton Road	St Helens	2,800	0	0.0%	2,900	0	0.0%
62	Booth's Brow Road	St Helens	3,800	0	0.0%	3,800	0	0.0%
63	B5207	St Helens	2,000	0	0.0%	2,200	0	0.0%
64	Low Bank Road	St Helens	4,000	0	0.0%	3,900	0	0.0%
65	A58	St Helens	10,700	520	4.8%	10,600	540	5.1%
66	A49	St Helens	29,300	0	0.0%	29,500	0	0.0%
67	A580	St Helens	58,900	260	0.4%	59,400	300	0.5%
68	Rob Lane	St Helens	1,300	0	0.0%	1,300	0	0.0%
69	A573	St Helens	9,700	10	0.1%	10,000	20	0.2%
70	A572	St Helens	3,900	0	0.0%	4,200	10	0.1%

**Table 4-2 Continued**

Site ID	Road Number	Neighbouring Authority	2021			2023		
			All Trips	External-External (Through) Trips		All Trips	External-External (Through) Trips	
			Compliant + Non-Compliant Vehicles	Non-Compliant Through Trips	Percentages of Non-Compliant Through Trips	Compliant + Non-Compliant Vehicles	Non-Compliant Through Trips	Percentages of Non-Compliant Through Trips
			(A)	(B)	(B/A)	(A)	(B)	(B/A)
71	A579	Warrington	15,100	70	0.5%	15,400	70	0.4%
72	B5207	Warrington	3,800	10	0.2%	4,000	0	0.1%
73	A574	Warrington	17,800	20	0.1%	18,300	10	0.1%
74	A580	Warrington	39,700	330	0.8%	40,900	370	0.9%
75	A57	Warrington	28,900	20	0.1%	29,400	60	0.2%
76	Warburton Bridge Rd	Warrington	16,700	0	0.0%	16,900	0	0.0%
77	A6144	Warrington	8,000	0	0.0%	8,100	0	0.0%
78	M62	Warrington	140,500	2,130	1.5%	142,700	2,060	1.4%
79	M62	Calderdale	123,200	1,870	1.5%	128,000	2,160	1.7%
80	M6	St Helens	133,000	2,900	2.2%	139,400	4,510	3.2%
81	M6	West Lancashire	128,200	3,780	2.9%	131,500	5,370	4.1%
82	M58	West Lancashire	57,300	700	1.2%	58,400	710	1.2%
83	M66	Rossendale	65,400	870	1.3%	68,400	750	1.1%
84	M61	Chorley	87,000	210	0.2%	90,000	280	0.3%
85	M56	Cheshire East	145,600	790	0.5%	152,800	840	0.5%

**Notes:**

1. Figures in columns A have been rounded to the nearest 100 trips
2. Figures in columns B have been rounded to the nearest 10 trips
3. Percentages are based on unrounded totals

**Table 4-3 20 Sites With Highest Non-Compliant Through Trip Flows (AAWT, 00:00 to 24:00, All Vehicles, Excluding Buses)**

Site ID	Road Number	Neighbouring Authority	2021	% of Total flow Through Site	2023	% of Total Flow Through Site
65	A58	St Helens	520	4.8%	540	5.1%
6	A555	Cheshire East	340	1.1%	260	0.8%
74	A580	Warrington	330	0.8%	370	0.9%
24	A628	High Peak	310	1.9%	300	1.8%
11	A555	Cheshire East	300	0.6%	250	0.5%
12	A555	Cheshire East	290	0.5%	250	0.4%
8	A555	Cheshire East	290	0.8%	230	0.6%
51	A5209	West Lancashire	260	1.0%	240	0.9%
67	A580	St Helens	260	0.4%	300	0.5%
4	A538	Cheshire East	250	0.7%	320	0.9%
49	A49	Chorley	230	0.8%	220	0.8%
58	Crank Road	St Helens	210	2.1%	120	1.2%
17	A6	Cheshire East	210	0.7%	310	1.0%
47	A6	Chorley	140	0.9%	130	0.8%
14	A5149	Cheshire East	120	0.3%	170	0.5%
42	A666	Blackburn with Darwen	70	0.3%	70	0.3%
23	A57	High Peak	70	0.2%	130	0.4%
16	A523	Cheshire East	70	0.3%	210	0.9%
71	A579	Warrington	70	0.5%	70	0.4%
48	A5106	Chorley	70	0.3%	50	0.3%

**Notes:**

1. Flows have been rounded to the nearest 10 trips



Figure 4-1 2016 Saturn Network

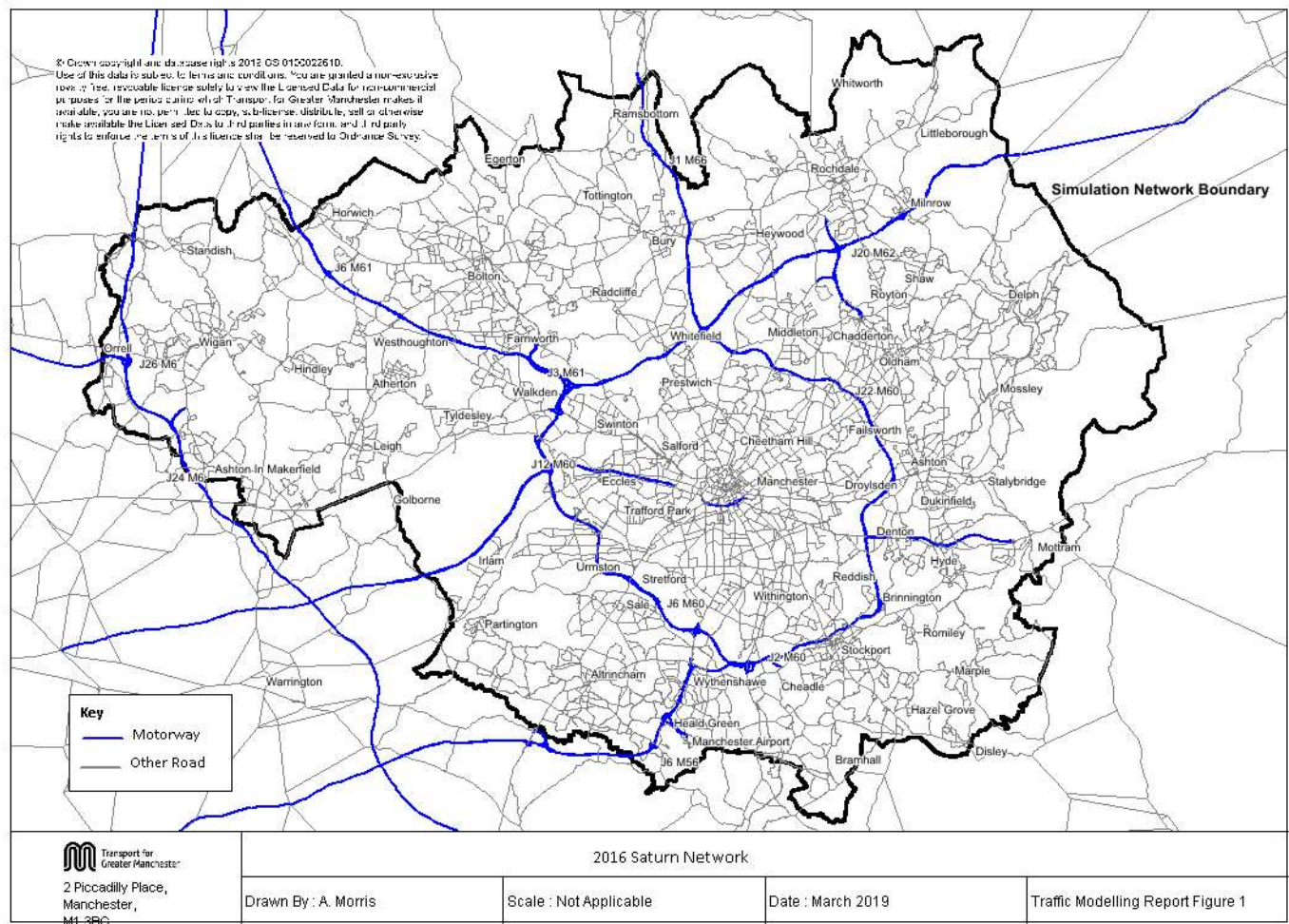


Figure 4-2 External Cordon Crossing Sites

