Transport for Greater Manchester

DRAFT

TfGM HFAS Report 1940
NEQ Gt Ancoats St
Paramics Model Forecasts
August 2017 2139-06

Client	**Manchester City Council**
Report	**TfGM HFAS Report 1940**
Project	**NEQ Great Ancoats Street Scheme Design Options**
Subject	**Microsimulation Modlling Forecasting Note**

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1. Executive Summary

1.1 This note summarises the results of microsimulation modelling done to assess the likely overall traffic impacts of a combination of improvements proposed to enhance conditions for pedestrians and to improve the operation of junctions on Great Ancoats Street. The set of measures differs from those that were under discussion earlier in 2016/17.

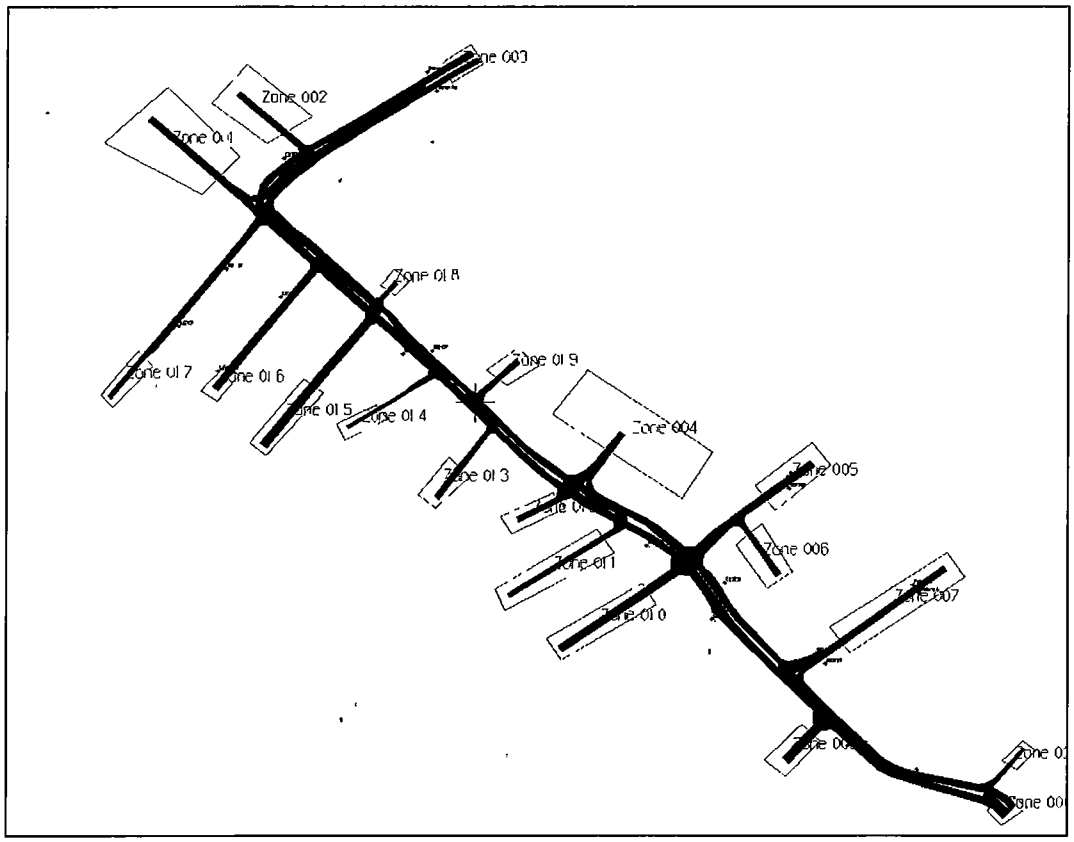
1.2 The Base and Do-Minimum models are the same as those developed for the initial round of forecasting done for Manchester CC in April 2016.

1.3 The results indicate that journey times are unlikely to change significantly in either direction along Great Ancoats Street if the proposed combination of measures is implemented. However, conditions for pedestrians would be improved by the inclusion of a new pedestrian crossing facility on Great Ancoats Street just west of Redhill Street and by the inclusion of all-red-to-traffic crossings at the junctions with Lever Street and Newton Street, as well as adequate walk-with-traffic crossing phases at the junctions with Oldham Road, Laystall Street, Old Mill Street and Pollard Street/Adair Street.

2. Introduction

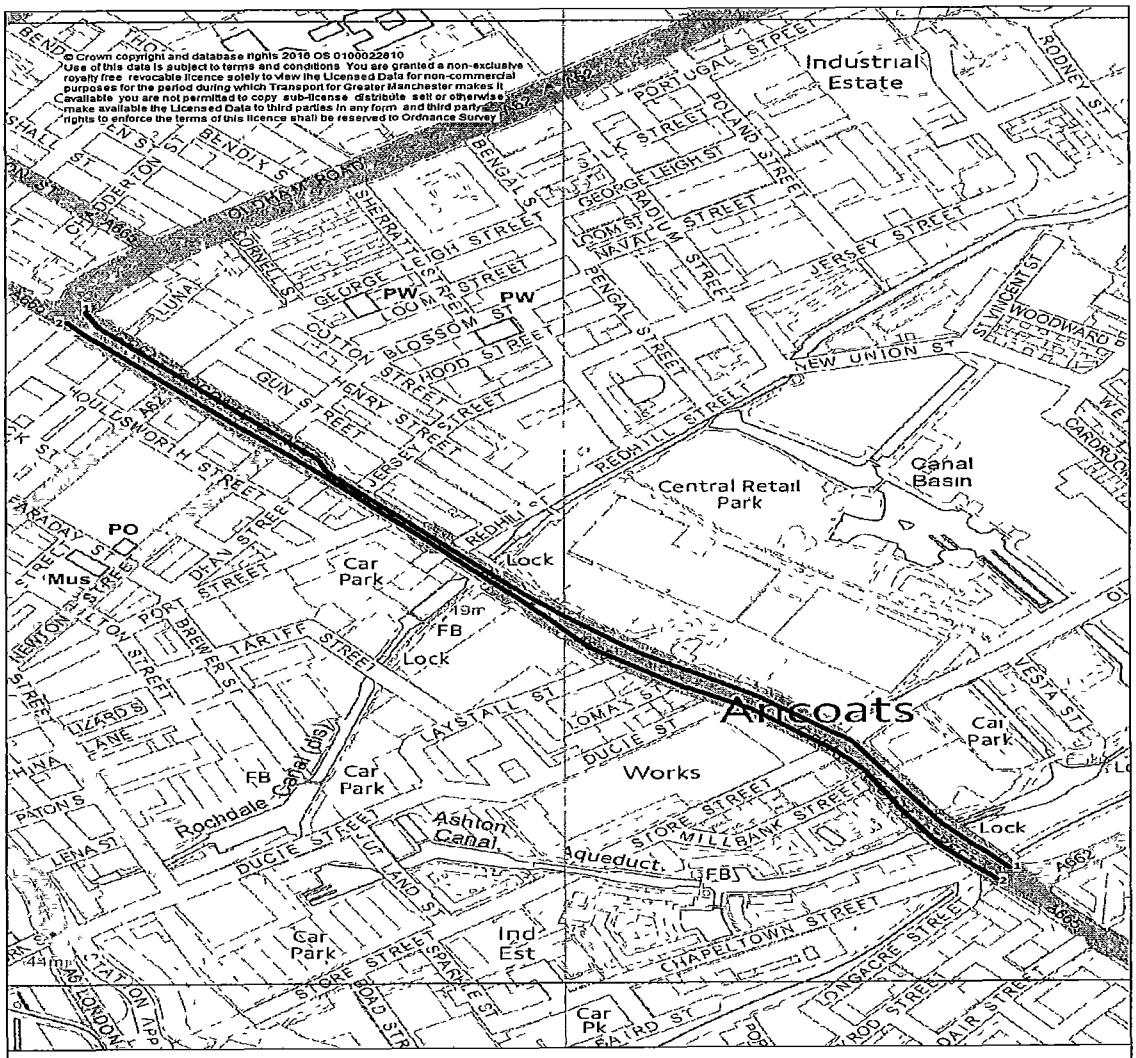
2.1 This note summarises the results of microsimulation modelling done in July 2017 by TfGM Highways, Forecasting and Analytical Services (HFAS) to test the likely traffic effects of a combination of improvements to pedestrian facilities and junction operation along Great Ancoats Street in central Manchester.

2.2 The microsimulation model was developed in early 2016. The extent of the model is shown in the screenshot below. The model has 18 traffic loading-points, or zones.



Journey Times

2.3 For the most recent work, the journey times routes originally specified for the Base model were used. These are shown in the figure reproduced below from the previous TfGM modelling report, Report_1892_NEQ-Paramics-ModelDev&Forecasting_v0.2.docx.



TfGM HFAS Report 1892

Transport for Greater Manchester 2 Piccadilly Place, Manchester, M1 3BG	Drawn By atkinsonm	Date 29/03/2016
	Scale NTS	Report 1892 Figure 3

Journey Time Validation

2.4 For the Base model, the modelled and observed journey times are shown in Table 1 below. There is generally a good fit for the two routes. (The observed journey times were derived from Bluetooth detectors on Great Ancoats Street for the period 14th- 18th March 2016 from the C2 database.)

Table 1– Modelled vs Observed Peak Hour Journey Times (mm:ss)

Time Period	Route No.	Direction	Observed Time	Modelled Time	Modelled - Observed	% Error	Within DMRB
AM Peak Hour	1	SE	03:31	03:08	-0 23	11%	Yes
	2	NW	02:22	02:42	+0:20	14%	Yes
		Total	**05:53**	**05:50**	**-0:03**	**1%**	**Yes**
PM Peak Hour	1	SE	03:06	03:21	+0:15	8%	Yes
	2	NW	03:00	03:06	+0 06	3%	Yes
		Total	**06:06**	**06:27**	**+0:21**	**6%**	**Yes**

Note All four routes satisfy DfT's DMRB criteria for goodness of fit between modelled and observed journey times

3. Forecasting

3.1 The Do-Minimum scenario originally reflected layouts provided by Waterman from June 2013 at two key junctions, namely Great Ancoats Street /Laystall St/Retail Park and Great Ancoats Street /Old Mill St/Store St. However, for the most recent work, only the improvements proposed for the Old Mill St/ Store St junction were assumed to be implemented.

3.2 The latest Do-Something #2 scenario assumes that the original set of Do-Something junction improvements would be implemented along Great Ancoats Street, with the exception of the Laystall Street/ Retail Park junction and the (combined) Pollard Street/ Adair Street junction. At these junctions, the existing layouts would be maintained.

3.3 Table 2 therefore summaries the changes tested in the most recent modelling work.

Table 2 – NEQ Model Test Scenarios

Scenario	Junction	Scheme Description
Do-Minimum	Gt Ancoats St/Laystall St/Retail Pk	No change from as-now
	Gt Ancoats St/Old Mill St/Store St	New ped facilities; junction alignment, staging changes
Do-Something #2	Gt Ancoats St/Oldham St	Three lanes on Gt Ancoats St
	Gt Ancoats St, west of Redhill St	Signalised pedestrian crossing
	Gt Ancoats St/Piccadilly Basin	Removal of signals
	Gt Ancoats St/Lever St	New ped facilities; junction alignment, staging changes
	Gt Ancoats St/Newton St	
	Gt Ancoats St/Old Mill St/Store St	
	Gt Ancoats St/Pollard St/Adair St	Some changes to staging and green times

Notes Signal timings have been optimised both by TfGM UTC (using LINSIG software) and by HFAS (using the microsimulation model

3.4 The Do-Something #2 signal staging and timings have been provided by TfGM Urban Traffic Control (GMUTC); some further adjustments to green splits and offsets were done by HFAS using the Paramics model, to obtain maximum efficiency of traffic throughput at junctions. The Do-Minimum signal staging and timings at the Old Mill Street junction is as originally provided by Watermans.

3.5 The same demand matrices are used in both the Base and Do-Something scenarios.

Great Ancoats Street – Journey Times

3.6 Table 3 summarises the modelled journey times along the southeastbound and northwestbound Great Ancoats Street routes for the different model scenarios. The changes in journey time associated with the Do-Something scenario, compared to the Base, are well within the 95%-confidence range of the modelled journey times and are therefore not statistically significant.

Table 3 – Great Ancoats Street – Peak Hour Modelled Journey Times

Time Period	Route	Direction	Scenario	JT (mm:ss)	Base – Scenario (mm:ss)
AM Peak Hour	1	SE	Base	03:08	
			Do-Minimum	05 42	02:34
			Do-Something	03:00	-00 08
	2	NW	Base	02 42	
			Do-Minimum	02:10	-00:32
			Do-Something	02:50	+00 08
PM Peak Hour	1	SE	Base	03:21	
			Do-Minimum	03·22	00:01
			Do-Something	03 05	-00 16
	2	NW	Base	03:06	
			Do-Minimum	02 24	-00 42
			Do-Something	03:15	+00·09

Notes The Do-Minimum journey times are as tabulated in TfGM Report 1892, for comparison.

Journey Time Results - Summary

3.7 In the peak hours, the Do-Something scenario is not forecast to change journey times significantly in either direction along Great Ancoats Street.

Pedestrian Facilities

3.8 The proposed scheme includes a new pedestrian crossing on Great Ancoats Street, just west of Redhill Street. All-red-to-traffic pedestrian phases would also be included at the junctions with lever Street and Newton Street. It is anticipated that these facilities will improve conditions for pedestrians; however the modelling indicates that these improvements can be made without adverse effects on traffic movements along Great Ancoats Street.

4. Conclusions

4.1 The Do-Something #2 model scenario represents changes along Great Ancoats Street which include enhanced pedestrian facilities, junction alignment and signal staging changes to enable more pedestrian movements. The Do-Something scenario includes a new pedestrian crossing on Great Ancoats Street just west of Redhill Street and the removal of signals at the Urban Exchange/Piccadilly Basin access.

4.2 The modelling indicates that journey times along Great Ancoats Street are likely to remain broadly unchanged with the Do-Something #2 scenario in place, in both time periods.