

Technical Note

Trip Generation Note

Land at John Mason International

Project Number: 22036
Doc Number: TN03
Prepared for: Linden Hill – Capital Assets – ALX Ltd

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1. Introduction

Preamble

- 1.1 This Technical Note (TN) has been prepared on behalf of Linden Hill – Capital Assets – ALX Limited. It follows the issue of TN02 which addressed the highways objections from both National Highways (NH) and Knowsley Metropolitan Borough Council (KMBC) in relation to development proposals at the John Mason International site, Huyton (ref 22/00284/OUT).
- 1.2 TN02 provided an assessment of the performance of the Tarbock interchange to 2030 with and without the proposed development in place; this assessment was carried out on the proposed junction layout. The assessment confirmed that with the full capacity improvement scheme implemented, the proposed development only had a modest impact on junction operation. This position was agreed with NH and KMBC officers and the proposals was considered to be acceptable, subject to the development not coming forward until the after the full capacity scheme is completed.
- 1.3 Following further discussions with NH and KMBC, it was agreed that further study should be undertaken in order to allow the development to proceed without such a condition in place. This Note has therefore been prepared to specifically assesses the impact of the development proposals if the KMBC capacity improvement scheme at Tarbock Island does not get delivered.

2. Assessment Approach

2.1 It was agreed with NH and KMBC that this further assessment should consider only the committed schemes that could come forward in advance of the capacity improvement scheme at Tarbock Island being completed. It was agreed that 2025, as the assumed year of opening for the proposed development, would be an appropriate future assessment year.

2.2 The schemes agreed with KMBC for inclusion within the assessment were identified as the following:

Halsnead North of M62

- a) 18/00283/HYB 123 dwellings fully consented [22/00213/REM – 237 dwellings awaiting decision]
- b) 20/00417/FUL – consented (Taylor Wimpey)
- c) 20/00399/OUT – awaiting decision
- d) 18/00660/FUL [withdrawn] or 20/00399/OUT (ongoing/awaiting decision)

Halsnead South of M62

- e) 20/00494/HYB – Grampian condition restricts development to 17,000sqm prior to Tarbock improvements. [22/00162/REM - awaiting]

Beacon 62

- f) Beacon 62: 17/00301/HYB and 19/00481/FUL.

2.3 The Transport Assessment for each committed development scheme was reviewed and the trip distributions extracted accordingly. Where no trip generations were presented through the Tarbock junction, it was agreed that the method of Travel to Work distribution would be the most appropriate way of assigning trips across the network. The Trip distributions for each scheme are Included in Appendix A.

3. Proposed Development Trip Generation & distribution

Net Change

3.1 It was previously agreed that the net change in trip generation as a result of the proposed development should be used to assess the impact on the highway network. This uplift is again summarised in **Table 3.1** for the peak hour period and across the day.

Table 3.1 Net Change in Trip Generation

Net Impact	AM Peak			PM Peak		
	In	Out	Total	In	Out	Total
Net Difference in Vehicle Trips	13	7	20	4	9	13

- 3.2 **Table 3.1** demonstrates that the development proposals will only generate an additional 20 two-way vehicle trips in the AM peak and 13 in the PM peak. Therefore, demonstrating that the impact of the development on the existing highway network will be nominal.
- 3.1 Similarly, as the development proposals do not as yet have any preferred occupier, it was previously agreed that it would be most appropriate to distribute traffic based on the existing turning proportions at Tarbock Island. For robustness, it was assumed that all vehicle movements will pass through the junction, again overrepresenting the likely impact of the proposed development.
- 3.2 These assumptions were used to test the impact of the development in 2025.

VISSIM Modelling

- 3.3 In discussions with NH and KMBC, it was again agreed that WSP would be commissioned to undertake a run of the VISSIM model for the Tarbock island without the proposed capacity enhancement scheme in place.
- 3.4 The model run includes all committed development flows identified above and background growth to 2025. The trip distributions from the committed development schemes were reviewed by WSP and only minor differences were identified between the method of distribution identified above and that contained within the 2030 VISSIM model. Where flows were shown to be lower in the 2030 model, these were used accordingly as they were considered to be a representative of the network.
- 3.5 The outputs below (as received from WSP) present the comparison between the 2025 forecast year with and without the proposed development flows applied to the network. The junction layout remains as per the existing arrangement under both scenarios.
- 3.6 The summary results are provided below for each modelled scenario and give an indication of the change to network performance, queue, and Journey time as a result of the proposed development.

Table 3.2 Average Speeds

AM Peak		PM Peak	
2025 DN AM	2025 DS AM	2025 DN PM	2025 DS PM
41	42	38	37

Table 3.3 Network Performance Summary

Network Performance Summary								
Peak	Scenario	Average Delay (s)	Average Speed	Total Distance (km)	Total Travel Time (Hrs)	Total Delay (Hrs)	Total Vehicles	Latent Demand
AM Peak	2025 DN AM	85	41	329,293	4,945	1,486	63,225	198
	2025 DS AM	82	42	329,426	4,907	1,447	63,226	271
PM Peak	2025 DN PM	116	38	354,824	5,842	2,163	67,396	226
	2025 DS PM	118	37	354,882	5,889	2,208	67,462	205

Table 3.4 Mean Max Queue (m)

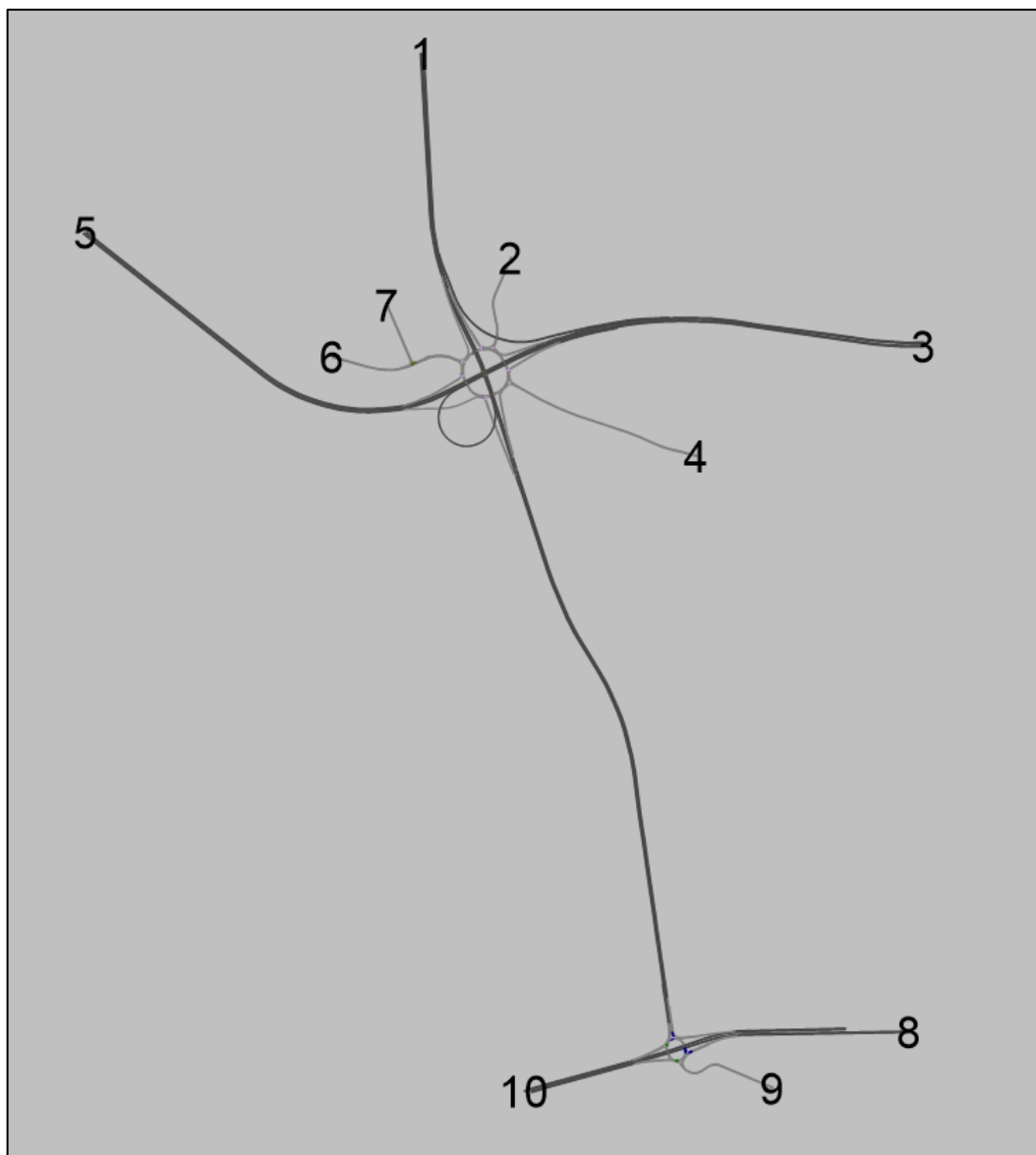
Location	AM Peak		PM Peak		Ramp length (m)
	2025 DN AM	2025 DS AM	2025 DN PM	2025 DS PM	
Cronton Road	842	845	788	764	
M57N Slip	335	235	168	187	400
Windy Arbor Road	413	418	443	441	
M62 E Slip Road	100	102	72	71	360 + 380
A5080 (S)	90	88	30	31	
A5300 Slip Road	150	142	1,668	1,737	530
M62 W Slip Road	93	101	702	673	350
Circulatory at Cronton	85	86	94	95	
Circulatory at M57 N Slip	118	127	129	128	
Circulatory at M62 E Slip	357	272	172	170	
Circulatory at A5300	84	91	105	104	
Circulatory at M62 West	129	142	208	207	

Table 3.5 Max Queue (m)

Location	AM Peak		PM Peak		Ramp length (m)
	2025 DN AM	2025 DS AM	2025 DN PM	2025 DS PM	
Cronton Road	872	871	869	863	
M57N Slip	1,217	953	501	570	400
Windy Arbor Road	643	643	673	675	
M62 E Slip Road	163	164	106	102	360 + 380
A5080 (S)	365	245	86	90	
A5300 Slip Road	231	249	4,504	4,598	530
M62 W Slip Road	226	262	1,646	1,579	350
Circulatory at Cronton	101	101	100	99	
Circulatory at M57 N Slip	146	144	139	141	
Circulatory at M62 E Slip	659	498	248	227	
Circulatory at A5300	143	158	155	148	
Circulatory at M62 West	196	209	223	225	

3.7 Journey times outputs for 10 junction arms as identified in **Figure 3.1** were considered.

Figure 3.1 Journey Time Routes



2.11 The weighted average journey time in seconds from the origin arm and the average journey times are summarised in **Table 3.6** and **Table 3.7**.

Table 3.6 Weighted Average Journey Time(s) from Origin Arm

Arm s	AM Peak		PM Peak	
	2025 DN AM	2025 DS AM	2025 DN PM	2025 DS PM
1	334	316	253	254
2	515	521	655	647
3	270	268	257	257
4	286	288	261	260
5	250	251	303	300
6	485	499	550	551
7	535	591	602	610
8	195	195	323	328
9	247	193	237	238
10	222	222	383	393

Table 3.7 Average Journey Times

AM Peak		PM Peak	
2025 DN AM	2025 DS AM	2025 DN PM	2025 DS PM
284	281	313	315

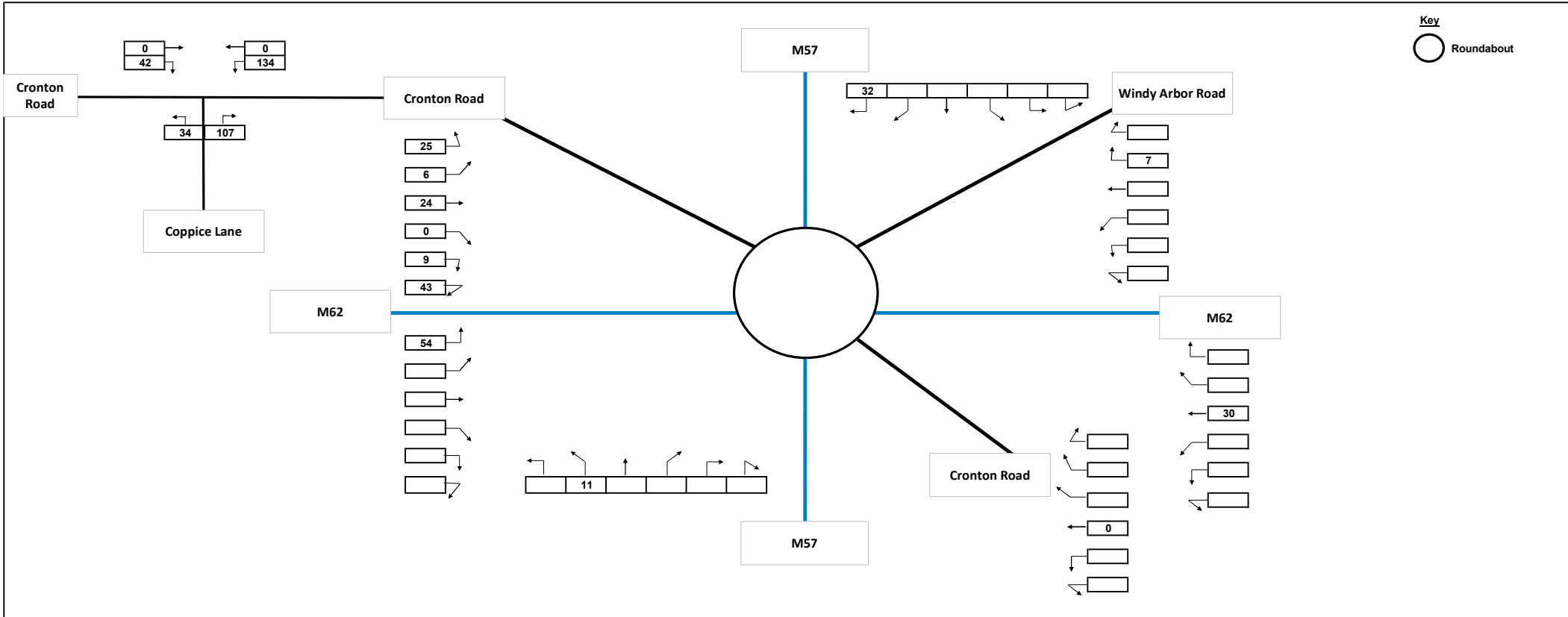
Summary of VISSIM Results

- 3.8 It is evident that overall, the proposed increase in 20 two-way vehicle trips in the AM peak and 13 in the PM peak through the network will have limited impact on the operation of the Tarbock Island junction.
- 3.1 The average speeds do not materially change between the with and without development scenarios. Whilst it is noted that some average speeds actually improve in the DS scenario, this is because the model was run five times using different seed values to better represent real-world variability (in line with standard guidelines), and the output is based on the average of the results of each run, demonstrating that the increase in flows as a result of the proposed development is consistent with the daily variations in traffic that could be expected.
- 3.2 The queues during the AM peak are comparable between the Do minimum and do something model runs accounting for the proposed development.

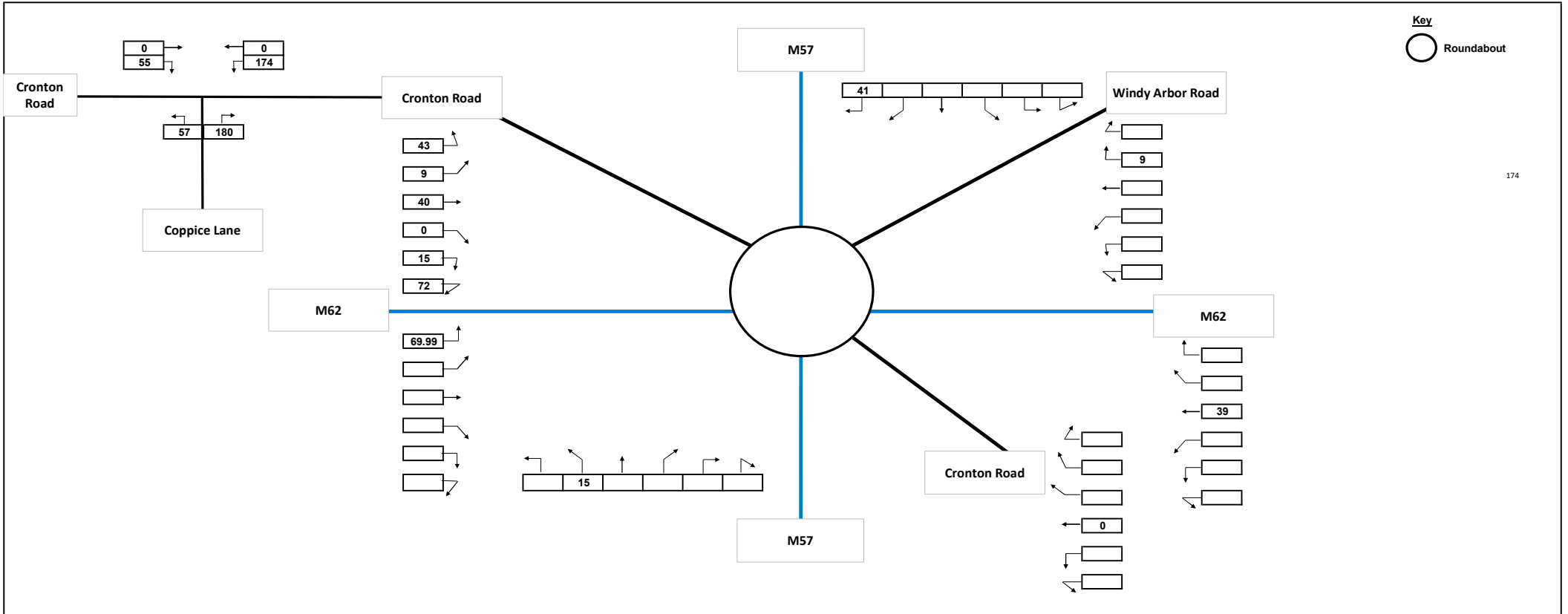
Whilst the junction shows queuing on some of the arms in one of the runs, the network statistics and queue lengths in the DM and DS scenarios are still comparable.

- 3.3 This TN presents the agreed trip generation for the proposed development and the results of the VISSIM modelling of the Tarbock island. It is evident from these results that the proposals would not give rise to a material increase in trip generation and would have negligible impact on the operation of the local and strategic highway network. The increase in flows as a result of the development are also within the likely daily fluctuations typical of the network.

APPENDIX A – COMMITTED DEVELOPMENT TRAFIFC FLOWS



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		Figure No:	Date: 44835