

Appendix 9.2 – Model Inputs

This appendix presents the key model inputs, including receptor location and traffic data for all operational phase modelling.

- Background concentrations of NO₂ and PM₁₀ were sourced from the closest UK-AIR grid-square, where appropriate. Where one study area spanned a number of UK-AIR grid squares, the highest background concentration of NO₂ and PM₁₀ was used to describe all receptors in that study area.
- The NO_x removal tool was used to avoid double counts on significant roads, i.e. A45 and M1.
- Modelled speeds were based on outputs of the NTSM2 model; speeds were adapted to account for congestion and junctions, using LAQM TG (16) guidance, google maps traffic flow speed estimates, and the practitioners driving experience.

Table A9.2.1 Modelled Receptors Locations

Receptor ID	Ordnance Survey Grid		Height (m)	In AQMA?
	X	Y		
Collingtree				
C1	474979	255370	1.5*	Y
C2	474984	255370	1.5*	Y
C3	474989	255371	1.5*	Y
C4	474994	255371	1.5*	Y
C5	475030	255401	1.5*	N
C6	474983	255420	1.5*	N
C7	474975	255420	1.5*	N
C8	474962	255428	1.5*	N
C9	474955	255428	1.5*	N
C10	474950	255434	1.5*	N
C11	474944	255441	1.5*	N
C12	474939	255446	1.5*	N
C13	474921	255457	1.5*	N
C14	474915	255463	1.5*	N
C15	474909	255470	1.5*	N
C16	474883	255479	1.5*	Y
C17	474895	255487	1.5*	N
NSSUE1	474624	255809	1.5*	N
NSSUE2	474744	255676	1.5*	N
NSSUE3	474765	255660	1.5*	N
AQMA No.5 Wootton				
W1	475743	255971	1.5	N
W2	475853	256539	1.5	Y
W3	475838	256927	1.5	Y
W4	475799	257259	1.5	Y
W5	475669	257377	1.5	Y
AQMA No.4				
K1	475308	262855	1.5	Y
K2	475294	262829	1.5	Y
K3	475288	262870	1.5	Y
K4	475150	262873	1.5	Y
K5	475166	263074	1.5	Y

K6	475168	263181	1.5	Y
K7	475180	263313	1.5	Y
K8	475183	263356	4.5	Y
K9	475167	263454	4.5	Y
K10	475182	263632	1.5	Y
K11	475177	263692	1.5	Y
K12	475168	263591	1.5	Y
K13	475128	263052	1.5	Y
AQMA No.2, 6 and 8				
VP1	475489	260174	1.5	Y
VP2	475488	260141	1.5	Y
VP3	475487	260102	1.5	Y
VP4	475517	260112	1.5	Y
VP5	475614	260138	1.5	Y
VP6	475386	260111	1.5	Y
SM1	476132	260960	1.5	Y
SM2	476047	260933	1.5	Y
SM3	475901	260889	1.5	Y
CS1	475310	261082	1.5	Y
CS2	475313	261091	1.5	Y
CS3	475322	261117	4.5	Y
CS4	475340	261050	2.5	Y
AQMA No.3				
SJ1	473852	260852	1.5	Y
SJ2	473998	260805	1.5	Y
SJ3	473992	260778	1.5	Y
SJ4	474035	260791	1.5	Y
SJ5	474075	260786	1.5	Y
SJ6	474107	260888	1.5	Y
SJ7	474116	260866	1.5	Y
SJ8	474107	260928	1.5	Y
SJ9	474152	260900	1.5	Y
SJ10	474132	260910	1.5	Y
SJ11	474163	260767	1.5	Y
SJ12	474132	260758	1.5	Y
SJ13	474234	260608	4.5	Y
SJ14	474305	260540	4.5	Y
SJ15	474392	260449	1.5	Y
SJ16	474530	260384	1.5	Y
Roads and WLC				
RO 1	475547	252196	1.5	N
RO 2	475516	252124	1.5	N
RO 3	475608	252162	1.5	N
RO 4	475984	251796	1.5	N
RO 5	475464	251838	1.5	N
RO 6	475484	251793	1.5	N
RO 7	475503	251731	1.5	N
RO 8	475349	251728	1.5	N

RO 9	474755	251835	1.5	N
RO 10	475453	251256	1.5	N
RO 11	475374	251147	1.5	N
WLC 1	475266	253342	1.5	N
WLC 2	475268	253354	1.5	N
Towcester				
TW 1	469378	248595	1.5	Y
TW 2	469408	248521	1.5	N
TW 3	469239	248794	4.5	Y
Blisworth and Milton Malsor				
BL1	472041	253786	1.5	N
BL2	472718	253896	1.5	N
BL3	472816	253651	1.5	N
BL4	472842	253579	1.5	N
BL5	473264	253502	1.5	N
BL6	471851	254610	1.5	N
MM1	473085	255494	1.5	N
MM2	473177	255605	1.5	N
MM3	473137	255372	1.5	N
MM4	473219	255445	1.5	N
MM5	473645	255366	1.5	N
Hartwell				
H1	479018	250957	1.5	N
H2	479123	250870	1.5	N
H3	479247	250730	1.5	N
H4	479291	250610	1.5	N
Grafton Regis and Potterspury				
GF1	475486	246690	1.5	N
GF2	475557	246590	1.5	N
P1	475196	243514	1.5	N
P2	475475	243256	1.5	N

*relevant local height above ground, however modelling accounted for difference in height from M1 (in cutting @4.5m) at Collingtree.

Table A9.2.2 Operational Traffic Data

Road Link	Base (2018)			Without (2021)			With (2021)			Without (2031)			With (2031)			With (2031) + Rail Central		
ID	AADT	%HDV	Speed (km/hr)	AADT	%HDV	Speed (km/hr)	AADT	%HDV	Speed (km/hr)	AADT	%HDV	Speed (km/hr)	AADT	%HDV	Speed (km/hr)	AADT	%HDV	Speed (km/hr)
Collingtree AQMA No.1																		
15	53985	22	95	64201	19	95	64199	19	95	70189	18	95	71071	19	95	73288	19	95
16	51397	21	97	58292	19	97	58311	20	97	62536	19	97	64650	20	97	63575	22	97
Wootton AQMA No.5																		
37	23,991	5	89	24,613	6	89	26,631	9	89	25,870	7	85	29,151	12	85	29,604	12	85
38	24,281	5	88	25,861	5	88	27,823	8	88	27,036	6	84	30,260	10	84	29,984	10	84
39	27,228	9	85	28,743	9	85	31,286	11	85	32,767	8	76	37,161	13	76	37,822	12	76
40	24,281	5	88	25,861	5	88	27,823	8	88	27,036	6	84	30,260	10	84	29,984	10	84
Kingsthorpe AQMA No.4																		
432 & 446	18,420	6	40	21,231	4	40	21,691	5	40	19,900	6	40	19,511	7	40	19,475	9	40
421 & 425	10,534	3	43	9,689	5	43	9,874	5	43	12,717	2	43	12,795	3	43	12,791	3	43
418 & 437	7,086	0	48	7,738	3	48	7,777	3	48	10,692	1	48	10,616	1	48	10,963	1	48
422 & 431	14,174	2	48	14,264	5	48	14,544	5	48	17,382	2	48	17,552	2	48	17,894	2	48

430 & 447	3,226	0	32	2,090	0	32	2,081	0	32	2,817	0	32	3,081	1	32	3,091	1	32
423 & 427	3,512	1	25	3,465	1	25	3,480	1	25	4,779	0	25	4,942	1	25	4,958	1	25
419 & 442	14,973	5	31	20,149	3	31	20,576	4	31	20,890	3	31	20,427	5	31	20,097	5	31
439 & 443	29,509	5	40	31,641	5	40	32,386	5	40	33,266	5	40	32,937	6	40	32,888	7	40
426 & 445	19,260	5	40	22,142	4	40	22,603	5	40	20,803	6	40	20,408	7	40	20,377	9	40
428 & 434 J	13,271	2	16	15,162	3	16	15,517	3	16	15,342	3	16	15,089	4	16	14,905	7	16
428 & 434	13,271	2	34	15,162	3	34	15,517	3	34	15,342	3	34	15,089	4	34	14,905	7	34
AQMA No.2, 6 & 8																		
398 & 399	6334	1	25	8232	1	25	8164	1	25	9086	0	25	8247	1	25	8554	2	25
272	11707	15	48	12620	18	48	13005	16	48	14261	12	48	14427	12	48	14419	12	48
290 & 291	7959	15	44	17849	10	44	18235	9	44	18674	7	44	20639	7	44	21027	7	44
394	12567	7	50	2180	22	50	2554	17	50	2142	21	50	2393	9	50	2400	18	50
394 J	12567	7	16	2180	22	16	2554	17	16	2142	21	16	2393	9	16	2400	18	16
386 & 395	6072	1	44	19592	7	44	19481	6	44	20828	5	44	20583	5	44	20755	5	44
289	2127	9	48	4797	10	48	4816	13	48	5154	11	48	6072	12	48	6254	11	48
387	9374	4	50	2213	7	50	2277	7	50	2741	6	50	1813	8	50	1789	8	50
407	9409	9	50	12359	5	50	12421	5	50	14573	4	50	14248	5	50	14130	5	50

407 J	9409	9	25	12359	5	25	12421	5	25	14573	4	25	14248	5	25	14130	5	25
414 & 417	17293	9	50	17270	5	50	17036	5	50	23251	4	50	23204	4	50	23552	4	50
413 & 415	6735	12	25	13973	6	16	14679	7	16	19590	5	16	20014	7	16	20696	6	16
408 & 410	16318	6	48	22134	4	48	22802	5	48	25277	4	48	25305	6	48	25427	6	48
414 & 417J	17293	9	16	17270	5	25	17036	5	25	23251	4	25	23204	4	25	23552	4	25
409 & 412	16505	6	16	22321	4	16	22989	5	16	25453	4	16	25475	6	16	25596	6	16
411 & 416	6735	12	25	13973	6	25	14680	7	25	19554	5	25	19895	7	25	20593	6	25
St James AQMA No.3																		
370 & 378	10,468	7	32	12,515	3	32	12,584	3	32	17,354	2	32	17,308	2	32	17,666	2	32
364 & 369	20,203	10	32	23,222	8	32	23,018	7	32	27,506	5	32	28,038	4	32	28,360	4	32
364 & 369 J	20,203	10	20	23,222	8	20	23,018	7	20	27,506	5	20	28,038	4	20	28,360	4	20
379 & 381	9,755	9	32	11,676	7	32	11,823	8	32	15,718	7	32	15,565	7	32	16,337	8	32
371 & 380	14,971	9	20	17,585	4	20	17,595	5	20	23,074	4	20	22,842	4	20	23,340	4	20
360 & 377	4,465	7	20	5,460	13	20	5,587	13	20	10,270	7	20	10,056	6	20	10,926	7	20
368 & 384	8,833	12	35	10,717	12	35	10,705	10	35	8,466	9	35	9,281	6	35	9,625	5	35
358 & 366	12,387	9	48	15,244	12	48	15,242	10	48	17,752	7	48	18,089	6	48	18,089	6	48
365 & 376	15,032	10	48	17,285	11	48	17,333	10	48	19,551	7	48	19,675	6	48	20,535	6	48

354 & 375	16,419	11	35	18,659	13	35	18,908	11	35	21,020	9	35	21,079	7	35	21,876	7	35
374 & 382	17,589	11	48	23,290	10	48	23,334	9	48	25,961	7	48	25,786	6	48	26,408	6	48
Roads & WLC																		
1 & 2	673	0	50	614	-	50	584	-	50	1,230	0	50	2,622	0	50	2,609	3	50
3 & 4	1,576	0	50	1,498	-	50	1,469	-	50	2,081	0	50	1,616	0	50	1,597	4	50
3 & 4J	1,576	0	30	1,498	-	30	1,469	-	30	2,081	0	30	1,616	0	30	1,597	4	30
11 & 12	4,209	-	46	5,949	-	44	5,418	-	44	6,483	0	44	4,053	-	44	3,978	-	44
11 & 12J	4,209	-	20	5,949	-	20	5,418	-	20	6,483	0	20	4,053	-	20	3,978	-	20
9 & 10	17,210	7	69	17,335	10	66	16,693	8	66	18,359	9	66	7,188	11	66	7,445	10	66
7 & 8	14,504	8	20	17,335	10	20	12,702	11	20	14,314	11	20	3,798	19	20	4,068	19	20
5 & 6	15,104	8	30	14,189	11	34	14,062	10	34	15,598	10	34	3,305	4	34	3,126	4	34
111 & 112	21,074	7	63	21,047	13	60	20,230	8	60	21,832	8	60	29,820	15	60	28,935	15	60
55&56	-	-	-	-	-	-	-	-	-	-	-	-	23329	15	60	22508	14	60
57&58	-	-	-	-	-	-	-	-	-	-	-	-	22500	15	60	21539	15	60
57&57 R	-	-	-	-	-	-	-	-	-	-	-	-	22915	15	40	22024	15	40
Towcester																		
45 & 46	21,145	6	28	15,382	3	28	15,356	3	28	14,974	2	28	14,465	3	28	15,975	3	28

Blisworth and Milton Malsor

19	3,152	-	64	3,103	-	63	3,015	-	63	3,881	-	63	4,060	-	63	3,599	-	63
19J	3,152	-	16	3,103	-	16	3,015	-	16	3,881	-	16	4,060	-	16	3,599	-	16
20	2,101	-	64	2,480	-	63	2,742	-	63	3,124	-	63	3,710	-	63	4,428	-	63
20J	2,101	-	16	2,480	-	16	2,742	-	16	3,124	-	16	3,710	-	16	4,428	-	16
21	5,031	3	40	4,662	3	33	4,697	3	33	6,245	3	33	6,730	3	33	6,478	3	33
22	5,262	7	39	5,846	3	31	5,509	1	31	7,229	5	31	6,989	10	31	6,694	10	31
23	2,784	5	64	3,063	5	63	2,788	5	63	4,705	4	63	3,607	5	63	4,101	4	63
24	3,611	10	63	4,849	4	61	4,821	2	61	4,969	8	61	5,038	13	61	4,628	14	61
25	1,263	2	64	1,888	1	64	1,494	2	64	2,831	1	64	1,447	2	64	1,447	2	64
26	1,237	3	64	2,260	1	64	2,839	1	64	1,736	2	64	2,637	-	64	2,977	-	64
27	479	0	64	876	-	64	837	3	64	2,502	-	64	1,788	4	64	2,306	6	64
28	729	0	64	573	-	64	627	1	64	1,345	-	64	698	2	64	855	3	64
29	2,784	5	64	3,063	5	63	2,788	5	63	4,705	4	63	3,607	5	63	4,101	4	63
29J	2,784	5	16	3,063	5	16	2,788	5	16	4,705	4	16	3,607	5	16	4,101	4	16
30	3,611	10	63	4,849	4	61	4,821	2	61	4,969	8	61	5,038	13	61	4,628	14	61
30J	3,611	10	16	4,849	4	16	4,821	2	16	4,969	8	16	5,038	13	16	4,628	14	16

31	1,747	1	45	1,276	2	48	1,355	14	48	1,407	2	48	1,117	19	48	1,346	20	48
32	3,286	11	38	2,692	12	51	2,605	22	51	2,738	8	51	631	-	51	642	-	51
13	15,562	14	99	16,865	13	96	16,897	13	96	18,387	12	96	17,954	12	96	26,889	16	96
14	14,992	14	99	16,582	13	95	16,937	13	95	17,370	11	95	18,922	14	95	23,839	18	95
Hartwell																		
17	49,505	21	98	58,792	18	100	59,164	19	100	63,618	17	99	64,032	19	98	63,998	20	98
18	50,740	20	98	55,534	18	101	57,042	18	101	59,498	18	100	61,580	19	99	61,202	20	99
Grafton Regis and Potterspurpy																		
176 & 177	-	-	-	12,175	11	63	12,047	12	63	10,371	13	63	14,890	16	63	14,856	16	63
348 & 351	-	-	-	14,392	5	48	14,301	5	48	13,967	5	48	13,540	4	48	14,325	5	48

Table A9.2.3 ADMS-roads Input Data

Study Area	Meteorological Data	Road Type	Surface Roughness	Notes
AQMA No.1 Collingtree	Bedford 2016& 2016	Motorway (Not London)	0.5	Additional height added to receptors to account for M1 Cutting.
AQMA No.5	Bedford 2015& 2016	Urban	0.5	
AQMA No.4	Bedford 2015& 2016	Urban	0.5	
AQMA No.2, 6 & 8	Bedford 2015& 2016	Urban	0.75	
AQMA No.3	Bedford 2015 & 2016	Urban	0.5	
Road and WLC	Bedford 2015	Urban	0.5	Bypass modelled only in with 2031 and with RC scenarios
Towcester	Bedford 2015	Urban	0.5	Simple canyon of 7m height modelled at receptors R1 and R3
Blisworth and Milton Malsor	Bedford 2015	Urban	0.5	
Hartwell	Bedford 2015	Motorway (Not London)	0.5	
Grafton Regis	Bedford 2015	Urban	0.5	