

Elmsbrook – Phases 1 & 2

Traffic Surveys Sept to Dec 2019 & June 2021 Results, Analysis and Discussion

Executive Summary

- The original NW Bicester Ecotown Exemplar Phase 2010 and 2015 Transport Assessment figures for (a) Travel Plan Targets – including by Transport Mode – and (b) Trip Simulation figures are extracted, and scaled as appropriate for 2019 and 2021 based on the actual buildings constructed and occupied by these dates.
- Traffic Surveys were undertaken in September and December 2019 (and June 2021), and compared with Traffic Monitoring data for September to December 2019 (kindly provided by Mode Transport) and the above original target and trip simulation figures.
- The two 2019 survey datasets were found to agree well with the Autumn 2019 average and September 2019 peak data from the Traffic Monitoring dataset, confirming their accuracy.
- The survey and monitoring datasets show that the original modelling **significantly underestimates the true vehicle traffic flows** – the following results are shown for the most crucial time period, i.e. the 8-9am morning peak hour:
 - Overall vehicle trip underestimation, vs Weekday average in 2019, = 97%.
 - Worst-case observation being 20 September 2019, underestimation = 121%.
 - Gagle Brook School traffic is underestimated by 417% for 20 September 2019.
 - For June 2021, the overall vehicle trip underestimation is **higher at 126%**, based on a single day capture. (This also saw a 10.5% reduction in residential trips, suggesting this may be an estimate of the reduction caused by Covid-19 -related Home-working.)
 - This is predicted to increase to 168% and 211% respectively, in Sept. 2021 and 2022.
 - This is predicted to increase to 150% underestimation, if all people return to work.

Prepared on behalf of Elmsbrook Residents' Association by

R. Fellows, January 2020.

16 pages.

NB: Updated June 2021 to include section 5 – June 2021 traffic data and analysis.

1 / Background Information

1.1/ Travel Plan Targets

Draft Travel Plan targets, from section 7 on page 53 of [1] include 4 relevant targets as follows:

- T1: By 2026, 50% of all trips originating from the Exemplar Site will be by non-car modes;
- T2 : By 2016 (three years post first occupation), 45% of all trips originating from the Exemplar Site will be by non-car modes;
- T3: By 2016, no more than 30% of pupils will arrive at school by car on a typical school day;
- T4: By 2016 (3 years post first occupation) 12% of working adults are to be working from home on a typical work day.

Section 8.3/Table 8.3 on page 55 of [1] show the Travel Mode Shares 2016 Target; note however that even adjusting the date to 2019 (i.e. 3 years after the first houses are occupied), the percentage breakdowns are not going to link to the 55%:45% overall vehicle:non-vehicle split intended, because 4 of the 8 land use components in the table have yet to be started, and of the remaining 4, 2 are not completed (Residential uses), and 2 are not fully occupied (the Primary School and Business Centre).

Table 1.1 below (summarising the key Targets) shows the Target Percentage Vehicle (= Car/Van/Lorry) usage, as a proportion of total trips, which is identical for both the 8-9am Morning Peak and 5-6pm Evening Peak time windows. NB: the years for the targets have been adjusted from [1] based on the delays to the opening of the Business Centre and growth of the estate, as discussed in [9].

Land Use	Calculation Factor	% in 2019 (was 2016)	% in 2029 (was 2026)
Residential	Per no of units	60	55
Primary School	Per no of units	30	30
Eco Business Centre	Per 100 sq.m	70	65
Average / Overall		55	50

Table 1.1: Target Percentage Vehicle Trips (c.f. Bicycle, Walking and Bus) for Elmsbrook

1.2/ Transport Mode Data

Table 4.1 on Page 42 of [2] reproduces results from the Bicester 2010 Household Diary Shares by Transport Mode. NB: this updates the 2007 version originally used in [1]. Table 5.7 on Page 31 of [2] gives the long-term Targets for Elmsbrook. The relevant figures are reproduced in Table 1.2:

Transport Mode	2010 Bicester Modal Diary Share (%)	2031 Target Modal Share (%)
Car	69	50
Bicycle	4	10
Walking	22	30
Bus	5	10

Table 1.2: Breakdown by Transport Mode of measured data for Bicester from 2010 and 2031 Targets

1.3/ Vehicle Trip Generations – Simulations to Predict Traffic Flows

Tables 8.7 and 8.8 on pages 57-58 of [1] then show the Simulated Traffic from Trip Generations, for 2016 and 2026 respectively. (These should be read as 2019 and 2029 respectively, as guided elsewhere, e.g. in [9].) These were updated in [2] – and presented in a single table (for 2026), which is Table 7.1.

The critical result here is the 8-9am time period (– the morning period is found to be the most significant for all traffic issues except for Ring Road bottlenecks, in fact). Table 1.3 below extracts the relevant lines of Table 7.1 from [2], i.e. for the existing buildings – and includes a “Residential – Total” row summing the Private/Affordable rows, as these are not considered separately in other relevant sections/references, in terms of trip generation.

Land Use	Occupancy	Arrive	Depart	TOTAL
Residential – Private		19	69	88
Residential – Affordable		7	25	32
Residential – Total	393	26	94	120
Primary School	135	19	4	23
Eco Business Centre	100	57	4	61

Table 1.3: Trip Generations for 2019 (was 2016), 8-9am, from Table 7.1 of [2]. (NB: The update in [9] for the Residential Total (adding 16 flats -> 125 trips) doesn't affect comparisons here for 2019-20.)

It would not be fair to compare these results directly with the Traffic Surveys [5, 8, 10] because the above assume full occupancy of the School and Eco Business Centre, and completion of all Phase 3 and Phase 4 homes, also fully occupied: as of December 2019, this is nowhere near the case. Table 1.4 below thus shows an adjusted version of Table 1.3, scaling each figure in the Arrive and Depart columns by the ratio of full occupancy to current occupancy (for the School and Business Centre), and counts only Phase 1 & 2 homes for the Residential: since Phases 3-4 use the other B4100 entrance.

Land Use	Occupancy	Arrive	Depart	TOTAL
Residential – Phases 1-2	160	11	38	49
Primary School	45	6	1	7
Eco Business Centre	16	9	1	10
Total Vehicle Trips		26	40	66

Table 1.4: Scaled version of Table 1.3 Trip Generations for 2019 8-9am, using true occupancy data

If the 66 Total Vehicle Trips is taken as 60% (as per the 2019 Target in Table 1.1), then the Total Number Of Trips would be 110, with the difference of 44 being trips by Bicycle, Bus and Walking.

Similarly, if 66 Total Vehicle Trips is taken as 50% (as per the 2031 Target in Table 1.2), then the Total Number Of Trips would be 132, with the difference of 66 being trips by Bicycle, Bus and Walking.

2 / Elmsbrook Traffic Surveys, September and December 2019

2.1 / Methodology

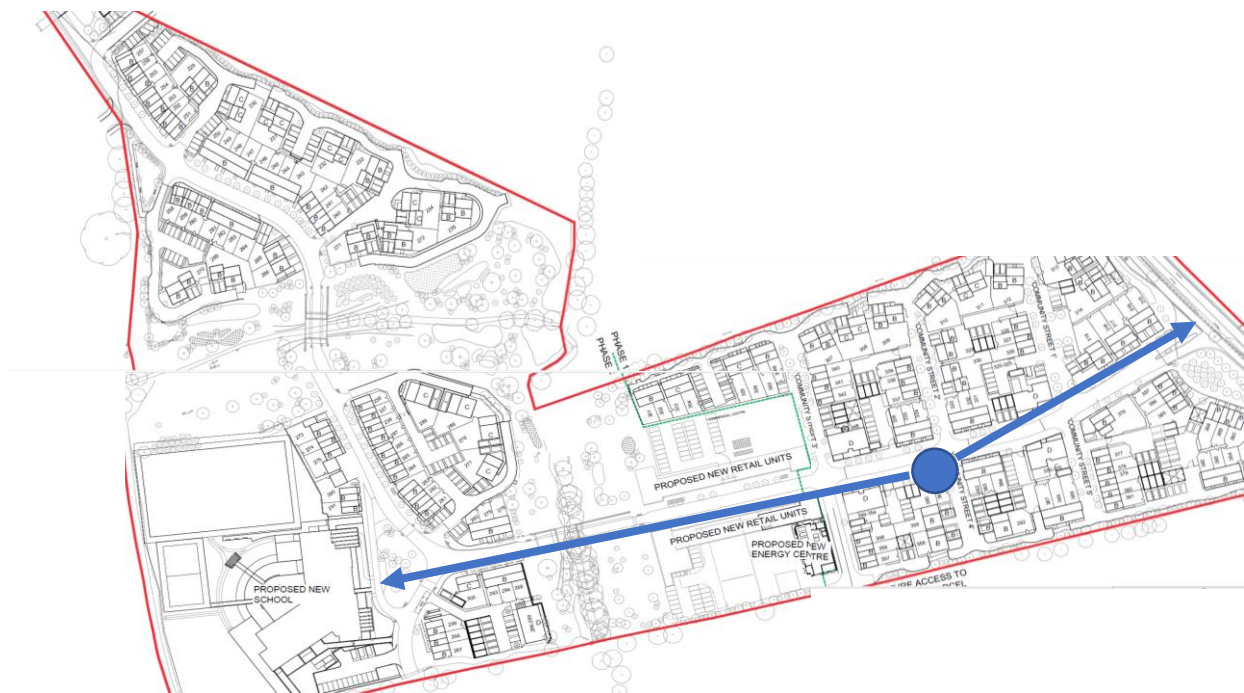


Figure 2.1: Map of Elmsbrook Phases 1-2 from above, indicating annotator location and views

A single annotator was located as indicated in Figure 2.1: this enables a vantage point whereby: (1) all vehicles turning into and out of the B4100/Charlotte Avenue entrance to Phases 1 and 2 can be seen; (2) all side-road exits onto Charlotte Avenue within Phase 1 can be seen; (3) vehicles coming to and from Phase 2, the Eco Business Centre (EBC) and Gagle Brook Primary School can also be seen.

Between 0800 and 0900 hours (“8-9am” in tables) on Friday 20 September 2019 [8] and Thursday 5 December 2019 [10], records were made to a granularity of 5-minute “windows” (e.g. 0800-0805, 0805-0810, etc.) of all observed Cars (also including vans/lorries in this category – a very small minority), Bicycles, persons Walking, and counting E1 Bus passengers at times when the bus passed.

Potential flaws/inaccuracies in this methodology were:

(i) Fridays are often quieter days, possibly biasing results: this is assessed in section 3, using vehicle data from Traffic Monitoring counters, kindly supplied by Mode Transport.

(ii) Any residents in the southern half of Phase 1 who cycle or walk and exit via the end of Orchard Walk would not be observed; however, given the small number of Elmsbrook residents leaving during this hour via bicycle or on foot from the rest of Phase 1 and Phase 2, this is likely to be insignificant, and was investigated by comparing with pedestrian/cycle counter data, kindly supplied by Mode.

(iii) There are a small number of homes on Phase 2 (a total of 7 homes, located on Cherry Lane and Cranberry Avenue) for whom visitors would not typically be separable from Primary School visitors, from the observation point; the same is true for those returning from the Primary School vs. the rest of Phase 2. However, this is largely ameliorated because the annotator is a school parent, familiar with most of the school parents and their cars, so errors are likely to be very minimal.

(iv) Potentially some small errors exist tracking vehicles to their destinations, or missing a car coming from the B4100 and parking in the Marketing Suite car park (while facing the other way): the likelihood of this occurring is unknown, but likely to be minimal, and have minimal impact on results (and was again investigated by comparing with pedestrian/cycle counter data, kindly supplied by Mode).

2.2 / Observed Results

Tables 2.1 and 2.2 show the “raw” observed traffic data, broken down by 5-minute time window past 8:00 am, by transport mode, and by from/to i.e. source/destination. Table 2.1 shows this for 8-9 am on Thursday 20 September 2019 [8]; Table 2.2 shows this for 8-9 am on Friday 5 December 2019 [10]. The tables are identical in format, except that some lines have been omitted in a table where all data were 0s (e.g. for the Eco Business Centre – EBC – which was not visited by vehicles on 20 September, as it was not populated by workers at that point in time).

The subsequent Tables (4.1 to 4.9) in Section 4 then analyse the statistics of the raw data, in terms of number of trips and percentages of different transport modes, and draws comparisons with figures extracted and/or calculated from Targets and previous Transport Assessment report Simulation data.

TIME +0 to +5 past 8:	0	5	10	15	20	25	30	35	40	45	50	55	
CARS													<i>Total</i>
B4100 to Phase 1	0	1	1	2	2	1	1	2	5	1	3	5	24
Phase 1 to B4100	3	4	2	4	3	1	6	5	5	1	3	2	39
B4100 to Phase 2	0	0	0	0	2	0	1	2	1	0	1	0	7
Phase 2 to B4100	1	3	2	1	0	1	4	2	1	2	1	2	20
B4100 to GB School	2	1	2	1	1	7	3	4	6	0	0	4	31
GB School to B4100	2	0	1	1	1	0	0	5	2	9	4	0	25
<i>Total</i>	8	9	8	9	9	10	15	20	20	13	12	13	146
BICYCLES													<i>Total</i>
Elmsbrook to B4100	4	0	1	1	2	1	0	0	0	0	0	0	9
B4100 to GB School	0	0	2	0	3	2	2	0	0	0	0	0	9
GB School to B4100	0	0	0	0	0	0	0	1	1	2	0	0	4
<i>Total</i>	4	0	3	1	5	3	2	1	1	2	0	0	22
WALKING													<i>Total</i>
B4100 to GB School	0	0	0	0	2	1	4	2	1	0	0	0	10
Phase 1 to B4100	0	1	1	0	1	0	0	0	0	2	0	0	5
Phase 2 to B4100	0	1	0	0	0	0	0	0	0	0	0	0	1
Elmsbr’k to GB School	0	0	0	0	0	0	3	2	2	0	0	0	7
GB School to B4100	0	0	0	0	0	0	0	2	0	5	2	0	9
<i>Total</i>	0	2	1	0	3	1	7	6	3	7	2	0	32
BUS													<i>Total</i>
No. Passengers on E1	2	0	0	0	0	0	0	0	0	0	0	1	3

Table 2.1: Raw observation counts per 5 minute time window, 8-9am, Friday 20 September 2019

TIME +0 to +5 past 8:	0	5	10	15	20	25	30	35	40	45	50	55		
CARS														<i>Total</i>
B4100 to Phase 1	0	1	1	1	2	2	3	0	0	1	1	1		13
Phase 1 to B4100	6	2	1	1	1	4	4	7	4	3	4	1		38
B4100 to Phase 2	2	1	1	1	0	1	0	0	1	0	2	1		10
Phase 2 to B4100	3	1	1	1	2	4	1	1	0	1	1	0		16
B4100 to GB School	1	1	0	1	3	4	5	5	2	1	0	1		24
GB School to B4100	0	0	0	2	0	0	0	6	7	7	1	0		23
B4100 to EBC	1	0	2	0	0	0	0	0	0	0	0	1		4
EBC to B4100	0	0	0	0	0	0	0	0	0	0	0	0		0
<i>Total</i>	12	5	3	6	6	13	10	19	14	12	8	3		111
BICYCLES														<i>Total</i>
Elmsbrook to B4100	0	0	0	0	0	0	2	0	0	0	0	0		2
B4100 to Elmsbrook	0	0	0	1	0	0	2	0	0	0	0	0		3
B4100 to GB School	0	0	0	3	1	0	0	0	1	0	0	0		5
GB School to B4100	0	0	0	0	0	0	0	0	2	0	0	1		3
Elmsbr'k to GB School	0	0	0	0	0	0	0	1	0	0	0	0		1
<i>Total</i>	0	0	0	4	1	0	4	0	3	0	0	1		13
WALKING														<i>Total</i>
B4100 to GB School	0	0	0	0	0	2	0	3	1	0	0	0		6
Phase 1 to B4100	1	0	1	0	0	0	0	0	0	0	0	0		2
Phase 2 to B4100	0	0	0	0	0	2	0	1	0	1	0	0		4
B4100 to Phase 2	0	0	0	0	0	0	0	0	0	0	0	1		1
Elmsbr'k to GB School	0	0	0	0	0	3	0	2	0	0	0	0		5
GB School to B4100	0	0	0	0	0	0	0	0	2	0	1	1		4
GB School to Elmsbr'k	0	0	0	0	0	0	0	0	0	2	0	1		3
<i>Total</i>	1	0	1	0	0	7	0	6	3	1	1	2		22
BUS														<i>Total</i>
No. Passengers on E1	0	0	0	0	0	1	0	0	0	0	0	2		3

Table 2.2: Raw observation counts per 5 minute time window, 8-9am, Thursday 5 December 2019

3/ Comparison with Traffic Monitoring Data

Figure 3.1 shows the counts of Vehicles (Cars/Vans/Lorries/Buses) entering and leaving Elmsbrook Phase 1 via the B4100 entrance to Charlotte Avenue. The bars showing the figures calculated allow comparison of the overall Average for all Weekdays (excluding school holidays), with individual Day averages (MONs, TUEs...), and with the 2 specific days on which more detailed (5-minute window) data was gathered by observation, reported in section 2: for “FRI 20/9” and “THU 5/12.”

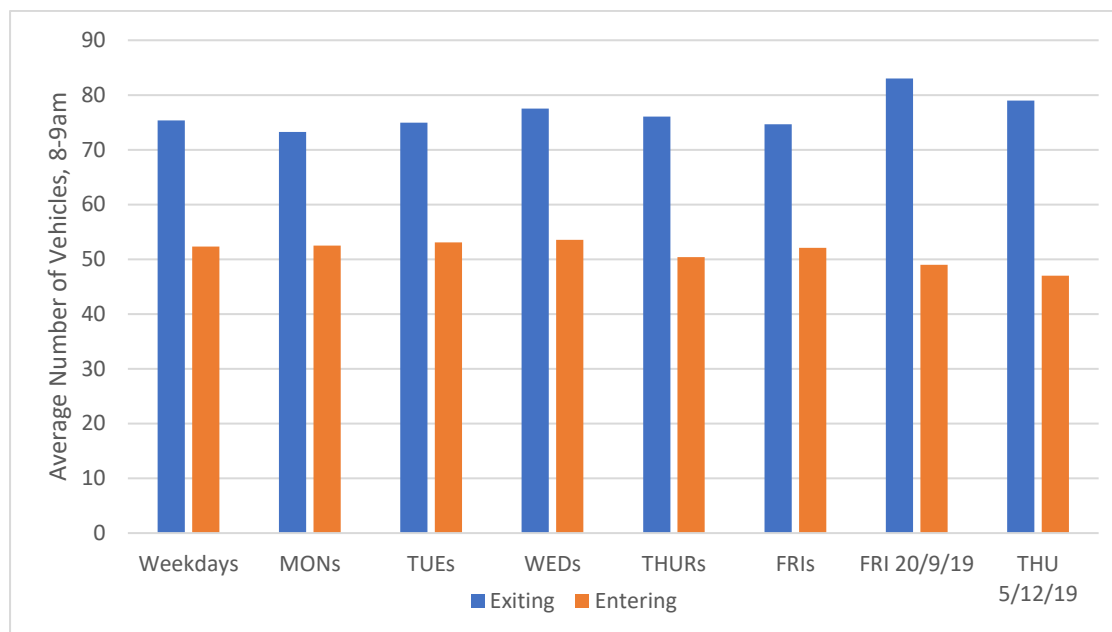


Figure 3.1: Vehicles entering & leaving Elmsbrook Phase 1 via the B4100/Charlotte Avenue junction

Figure 3.2 shows the results of summing the pairs of columns in Figure 3.1, to get the total number of Vehicle journeys captured by the Vehicle Traffic monitoring sensors, averaged across the September-December 2019 period, excluding weekends and school holidays.

Key Result #1:

It can be seen from Figures 3.1 and 3.2 that 5/12/19 – **the Thursday of the second traffic survey** – is **actually very representative of the weekday average across the September to December period** (if slightly low on the “entering” column).

Figure 3.3 is similar to Figure 3.2, but uses only vehicle trip data from the first 3 complete school weeks in the September term – Y-axis range zoomed in.

Key Result #2:

It can be seen from Figures 3.1 and 3.3 that 20/09/19 – **the Friday of the first traffic survey** – is **actually very representative of the weekday average across the September period** (i.e. of the weeks within the Autumn term where the number of vehicle trips is at/around the maximum. NB: the busiest weeks recorded are the last 2 full weeks in September).

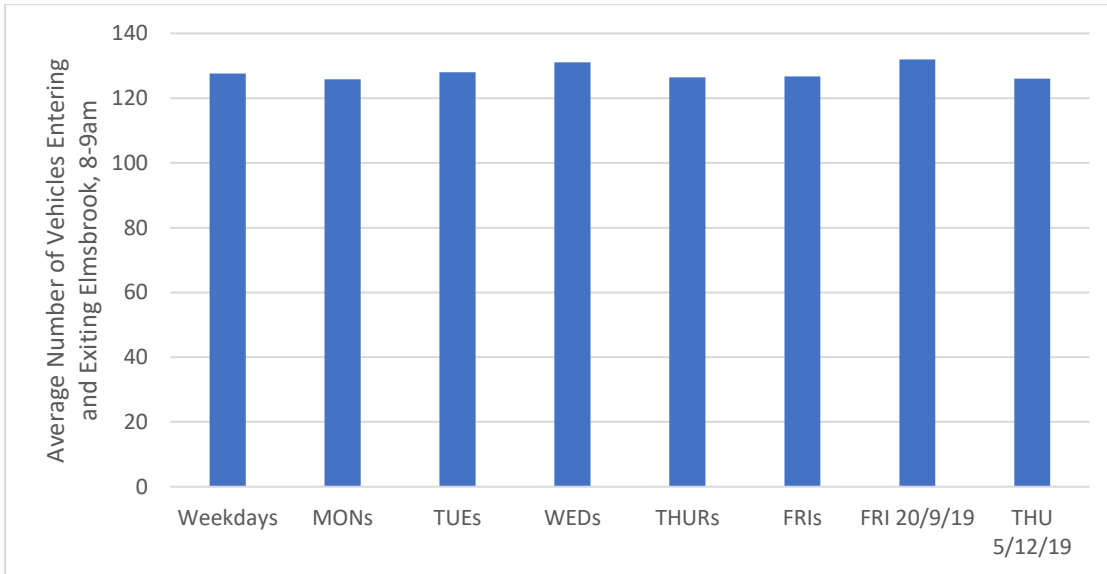


Figure 3.2: Total Vehicle Trips via the B4100 entrance to Charlotte Avenue, Sept-Dec 2019

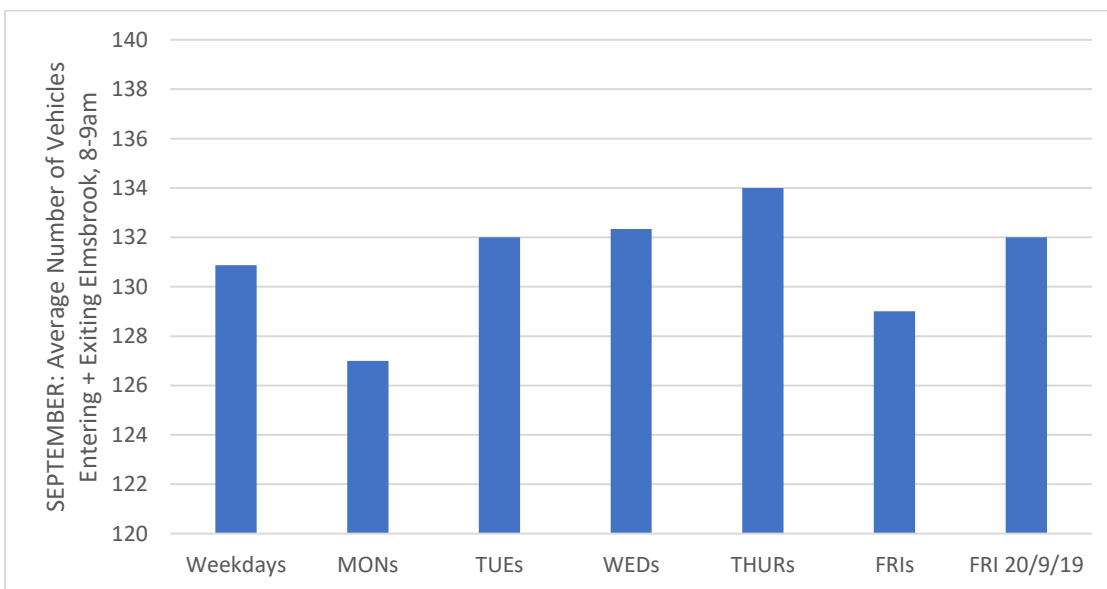


Figure 3.3: Total Vehicle Trips via the B4100 entrance to Charlotte Avenue, first 3 weeks Sept 2019

Conclusion:

The two survey dates, despite one of them being a Friday, actually provide two very useful representative datasets for comparison with predictions from simulations: this is determined by comparison with different types of averages across the September to December 2019 Traffic Monitoring dataset, kindly provided by Mode Transport.

4/ 2019 Traffic Surveys: Analysis and Discussion

4.1/ Trips and Traffic Flows

Tables 4.1 and 4.2 compare the 20 September [8] and 5 December 2019 [10] traffic survey results in terms of the total number of trips, and break the total down by source and destination, seeking to investigate and answer the following questions:

- What is the ratio of trips entering Elmsbrook to trips exiting Elmsbrook?
- How many cars pass the Local Centre – i.e. the stretch of road between the EBC/Community Hub entrances and the “bottlenecks” by the park?
- How many School visitor trips occur in the 8-9 am Morning Peak hour – as this contains the school’s gate opening window of 0830-0845 (start time) – though note that wrap-around care starts at the school from 0700, so not all drop-off trips will be made during this period.

	Number of Trips		Difference
	20-Sep-19	05-Dec-19	
Total Trips	203	149	54
Total Entering Elmsbrook	81	70	11
Total Exiting Elmsbrook	115	95	20
Total Cars passing Local Centre	83	77	6
Total School Trips	95	74	21

Table 4.1: Comparing Source/Destination results between Surveys, by the Number of Trips

	As % of Total Trips:		(% Diff.)
	20-Sep-19	05-Dec-19	Difference
Total Trips	100	100	27
Total Entering Elmsbrook	40	47	-7
Total Exiting Elmsbrook	60	53	7
Total Cars passing Local Centre	41	52	11
Total School Trips	47	50	-3

Table 4.2: Comparing Source/Destination results between Surveys, as % of Total Trips

- 27% fewer total trips are made on Thursday 5 December c.f. Friday 20 September.
- Half of all trips are to/from the School (47% on 5 September, 50% exactly on 5 December).
- While the *number* of trips passing the Eco Business Centre/Local Centre entrances has reduced by 7%, *proportionately* this has increased by 11% between September and December. This is partly due to the EBC now being open, and 4 vehicles travelling from the B4100 to the EBC Car Park during the 8-9 am time window on 5 December (c.f. none during this same time period on 20 September).

- Of the 27% fewer total trips, there are 14% fewer coming into Elmsbrook, 17% fewer exiting Elmsbrook, and 31% fewer trips *to the* School (NB: these figures come from dividing the differences by the 20 September data). However, it should be noted that 7 children have moved schools between the two survey dates, and some staff work Friday but not Thursday at the school: these changes account for 14% of this 31% difference.
- Possible reasons contributing to the overall 14-17% trip reductions include:
 - Illness being higher in December than September, so residents/visitors stay at home.
 - Cold/bad weather – so trips are taken later when warmer, or not at all.
 - Both Resident and School Parent working days may be different between Thursday and Friday – e.g. home-working may be more prevalent on a Friday.
 - Additional walking/cycling siblings/parents/grandparents may not be accompanying school pupils in the colder weather.

4.2/ By Transport Mode

Tables 4.3 and 4.4 compare the 20 September and 5 December 2019 traffic survey results in terms of the break down by Transport Mode. Table 4.4 also contains the “2010 Bic.” Column: this is the 2010 Bicester Modal Shares Diary (figures from [2]), taken from Table 1.2.

	Number of Trips		Difference
	20-Sep-19	05-Dec-19	
Total Trips	203	149	54
Total Car Trips	146	111	35
Total Bicycle Trips	22	13	9
Total Walking Trips	32	22	10
Total Bus Trips	3	3	0
Total Non-Car Trips	57	38	19

Table 4.3: Comparing Transport Mode results between Surveys, as Number of Trips

	As % of Total Trips:		2010 Bic.	(% Diff.)	
	20-Sep-19	05-Dec-19		Sep-Dec	Avg-Bic.
Total Trips	100	100	100	27	
Total Car Trips	72	74	69	-2	4
Total Bicycle Trips	11	9	4	2	7
Total Walking Trips	16	15	22	1	-6
Total Bus Trips	1	2	5	-1	-4
Total Non-Car Trips	28	26	31	2	4

Table 4.4: Comparing Transport Mode results between Surveys, as % of Total Trips

- Averaging across the 2 surveys, Total Car Trips average at 73% between the two surveys – 13% higher than the Target of 60%, and 4% higher than the 2010 Bicester average travel data.
- This is perhaps in part because Elmsbrook is located much further from the centre of town, compared to Bicester “on average.” This can be particularly seen in the Walking travel result – Elmsbrook residents are found to be walking 6% less than the measured data for Bicester in 2010 – being further from the Town Centre, they are consequently less likely to walk there.
- (The Bus travel result is also slightly less for Elmsbrook, at 2%, though this may not be statistically significant – and Elmsbrook also has a more restricted bus service compared to the centre of Bicester and the other estates.)
- While the Total Trips is 27% lower on 5 December compared to 20 September, all modes of transport are reduced by almost exactly the same proportion. (It might have been expected that there would be a shift from Non-Car to Car travel in the colder/rainier weather – however, this initial look at the data suggests this is not the case.)
- However: Elmsbrook shows proportionately significantly more Bicycle travel – by 7%. (NB: the proportion of electric/hybrid Car travel on Elmsbrook compared to elsewhere is not known, but could also be expected to be significantly higher.)

4.3/ Comparison with Simulations in Transport Statements

Tables 4.5 and 4.6 extend this to compare with figures extracted and/or calculated from Targets and previous Transport Assessment report Trip Simulation data. The latter is given in the “TA-Sims” columns, and note that these are taken from Table 1.4 of this document – which scales the original Simulation data from [2] by the true occupancy level ratios – in order to enable fair comparison.

	Number of Trips		TA-Sims	Differences:	
	20-Sep-19	05-Dec-19		Sep-Sim	Dec-Sim
Total Trips	203	149	110	93	39
Total Car Trips	146	111	66	80	56
Total Non-Car Trips	57	38	44	13	-6

Table 4.5: Comparing Transport Mode results with Transport Assessment Simulation data as #of trips

	As % of Total Trips:		TA-Sims	% Differences:	
	20-Sep-19	05-Dec-19		Sep: Sim	Dec: Sim
Total Trips	100	100	100	85	35
Total Car Trips	72	74	60	121	85
Total Non-Car Trips	28	26	40	29	14

Table 4.6: Comparing Transport Mode results with Transport Assessment Simulation data, as % trips

- The Simulated data from 2010 does not provide a difference for different times of year, but significantly underestimates the survey measurements: for Total Trips, the **underestimation is by 85% on 20 September**, and by 35% on 5 December. **The worst case underestimation is for Total Car Trips compared with September – which is by 121%. Scaled based on the average Weekday number of trips, from section 3, vehicle trip underestimation is 97%.**

4.4/ School Visitors by Transport Mode

Tables 4.7 and 4.8 compare the 20 September and 5 December 2019 traffic survey results *only for the trips TO Gagle Brook School*, in terms of the break down by Transport Mode. The latter enables direct comparison with the School’s Travel Plan Targets (key figures taken from Section 3.2 of [5]: “Target (1)” is the school’s self-set “ideal” target; “Target (2)” is the NW Bicester goal).

	Number of Trips		Difference
	20-Sep-19	05-Dec-19	
Total Visiting GB School	59	41	18
Of which Cars	31	24	7
Of which Bicycles	9	4	5
Of which Walking	17	11	6
Of which Bus	0	0	0

Table 4.7: Comparing Transport Mode results for GB School Visitors only, as # of trips

	As % of Total Trips:		(% Diff.)	Targets:	
	20-Sep-19	05-Dec-19	Reduction	Target (1)	Target (2)
Total Visiting GB School	100	100	31	100	100
Of which Cars	53	59	-6	20	30
Of which Bicycles	15	10	5	57	50
Of which Walking	29	27	2	14	15
Of which Bus	0	0	0	9	5

Table 4.8: Comparing Transport Mode results for GB School Visitors only, as % of trips

- Table 4.8 shows that while the overall 31% reduction in total School visitors, as noted above in section 4.1, is significant – the reduction is approximately proportional across all Transport Modes. The observed shift is in the proportion travelling to the School by Car being 6% *higher* in December, and bicycle usage reduced by 5%: this is likely caused by the colder weather altering transport mode plans for some pupils travelling from outside Elmsbrook.
- It was noted in Sections 2 and 4.2 that due to the School demographic being very different from 2010 assumptions, the Actual Percentage Car Trips is much greater than the long-term Targets of 30% (for Elmsbrook, [1]) and 20% (for the School itself, [5]). The November 2018 results of 58% car, 29% walking compare well with the 53%/59% car and 29%/27% walk results for September/December 2019. Again, we note the Percent Bicycles is low due to the age of the children involved, and the trip distances involved (average 2.1 km [5]).

4.5/ Actual School Traffic compared with Simulations in Transport Statements

In Table 4.9, the “TA-Sims” column shows the predicted number of trips for the morning peak (8-9am) period, for all visitors to Gagle Brook School and broken down by Mode of transport. These figures are calculated from Simulations carried out as part of the Transport Assessment originally carried out to model the traffic visiting the school as part of [1]: the key figure is the Total Number of Cars Visiting GB School, for which the required calculation was explained in section 1.4, and the results shown in Table 1.4.

The other transport mode figures in the TA-Sims “No. of Trips” column are then scaled from the modal share (as taken from [1]) for other modes compared to Cars, and the total summed from this. This provides the fairest way to compare the (fully occupied school) predictions of [1] with data from the 2019 Traffic Surveys.

	TA-Sims		Differences:		% Differences:	
	No. of Trips	As % of Total	Sep-Sim	Dec-Sim	Sep-Sim	Dec-Sim
Total Visiting GB School	30	100	29	11	97	37
Of which Cars	6	20	25	18	417	300
Of which Bicycles	4	14	5	0	125	0
Of which Walking	17	57	0	-6	0	-35
Of which Bus	3	9	-3	-3	-100	-100

Table 4.9: Comparing Simulation-extrapolated Transport Mode results for GB School Visitors only

- The September traffic survey shows almost twice the number of visits during the 8-9am period as was predicted by the Transport Assessment simulations: the latter are an **underestimation by 97%**.
- With the reduced traffic levels in December, the underestimation is less (37%) – note that the simulations do not state/include a time variation, so presumably aim to model the worst case time of the year.
- **The most significant underestimation is by 417% in the number of cars.** This is because the model only uses data from averaged travel around Bicester – no mention is made of including assumptions about the specific demographic of Gagle Brook School pupil residence locations. As identified in [5], ~80% of pupils live outside of Elmsbrook, unlike the assumption in [1], which essentially conjectured that all the pupils would be coming from within Elmsbrook, throughout the lifetime of the school. (The potential future trajectories of the school demographic, while the school grows to full capacity and beyond, have been considered in detail and are reported elsewhere.)

5/ Update: June 2021 Vehicle Traffic Survey and Comparison

New data and analysis:

- The observed number of trips (summation of entering and exiting) passing through the B4100 / Charlotte Avenue Junction at the morning peak (8-9am) in June 2021 is 149 vehicles.
- This (single day dataset) gives an increase of 17 compared to the 132 observed in September 2019, and an increase of 18 compared to the Weekday average of 131 for September 2019.
- (NB: The number of residential homes occupied on Phases 1 and 2 has not changed between 2019 and 2021 – because all homes were already occupied in September 2019.)
- The number of pupils attending Gagle Brook School has increased from ~50 (Autumn 2019) to 70 (June 2021); so with a 56% vehicle trip rate, this equates to $(70 - 50) * 0.56 = 11$ more pupils being dropped off, which equates to 22 additional trips within the 8-9am time period.
- The number of people working at the Eco Business Centre has also increased, and an additional 3 vehicle trips in 2021 compared to 2019 are accounted for by this (from direct observation of the EBC Car Park immediately before 8am and after 9am).
- Thus the total additional School and EBC trips totals $22 + 3 = 25$ trips.
- (Note that in June 2021, there are no other new buildings/functions from this road access which would cause any additional/new reasons for traffic.)
- This is 7 trips more than the increase compared to the Weekday average of September 2019.
- This indicates that the Residential-generated trips – i.e. trips into and out of Phases 1 and 2 which go to or from Residential properties – have reduced by 7. It seems logical that this must be (to a close approximation) the overall reduction *caused by the impact of Covid-19* – i.e. this is the only estimate we have for the amount by which the total number of trips has reduced due to people working from home, rather than travelling to work between 8-9am.
- The **impact of Covid/Home-working** Trip Reduction is therefore estimated – based on this one day's results alone – to be $(25 - 18) / 66.5 =$ a **10.5% reduction in traffic for the 8-9am morning peak hour**. (NB: the 66.5 is based on the more recent estimate of approximately 50% non-residential vs residential trip sources.)
- Based on the observed data, the **underestimation in vehicle traffic** vs. the 2026 “consented traffic” trip generation levels, is now $(149 - 66) / 66 =$ **126%. i.e. More than double**.
- If the 10.5% figure for home-working is accurate, and these people were to return to work soon (since, as of June 2021, we are still “coming out of” lockdown restrictions), then we can calculate a predicted **underestimation in vehicle traffic** from the original modelling of $66.5 * 1.105 + 66.5 + 25 = 165$ vehicles, thus $(165 - 66) / 66 =$ **150%. i.e. 2.5 times as much traffic**.
- Note that **the school will increase in size again in September 2021**, to ~95 pupils, **and again in September 2022** to ~120 pupils. Assuming all other things stay equal, this will equate to overall trip count increases of 28 cars per annum, and thus **underestimates of 168% and 211% respectively**. NB: this doesn't account for increases due to the construction vehicles between July 2021-September 2022, constructing the Community Hub on Charlotte Avenue.

Appendix 1: Key References

[1] 2010 Transport Assessment for 10/01780/HYBRID:

P3Eco (Bicester) Limited & A2Dominion Group

NW Bicester Eco Development : Transport Assessment – Exemplar Site

Author: Dan Hammond; Checker: Janice Hughes; Approver: Kathryn Kennell

Report No. 1500-UA001881-UP23R-01

Final Issue Date November 2010, by Hyder Consulting

[2] 2015 Transport Assessment for 15/00760/F

A2Dominion Developments Ltd NW Bicester Exemplar Local Centre Transport Assessment

Author: Janice Hughes; Checker: Janice Hughes; Approver: Philip Harker

Report No. 5100-UA005241-UE31R-001

Date April 2015, by Hyder Consulting

[3] 2017 Transport Assessment for 17/00573/CDC (for the Eco Business Centre)

NW BICESTER ECO BUSINESS CENTRE Transport Statement

Author: Matthew Fry

Report Version No. UA009524-D01

Date 16 February 2017

[4] June 2018 – Residents’ Committee organised Travel Survey and analysis

Elmsbrook Residents’ Association: Parking Enforcement Subgroup 2018

Travel and Parking Survey – Summary Version

Report Version No. 1.0

Date 12 June 2018

[5] November 2018 – Gagle Brook Primary School Parents Travel Plan incl. Survey and Analysis

Gagle Brook Primary School - School Travel Plan

Prepared by: Alan Derry (Principal) / Angela Smith (CDC) / Rob Fellows (Parent/Elmsbrook)

Report Version No. 1.0

Final Release Date: 22 January 2019

[6] January 2019 – Presentation of Elmsbrook parking issues and causes

Components to Parking and Traffic on Elmsbrook.pptx

Presenter: R Fellows

Delivered 29 January 2019; slides available on request.

[7] June 2019 Transport Statement for 19/01306/F

A2Dominion Developments Ltd: Elmsbrook Local Centre Transport Statement June 2019

Prepared by: MS; Checked by: CH; Authorised by: LF

Mode Transport Planning – Project No. J324075

Report Version No. 1.8 Issue Date 26 May 2019

[8] September 2019 – Traffic Survey (8-9am peak slot): Phase 1/Phase 2/School/B4100 exit as nodes.

Carried out on Friday 20 September, on behalf of Elmsbrook Residents' Association.

Not available as a separate report: raw data and analyses are contained in Sections 2/4 of this document. A .xlsx file containing the data and calculations can be obtained by request.

[9] October 2019 Transport Statement for 19/01306/HYBRID

A2Dominion Developments Ltd: Elmsbrook Local Centre Transport Statement: October 2019

Prepared by: JH; Checked by: LF; Authorised by: LF

Mode Transport Planning – Project No. J324075

Report Version No. 2.0 Issue Date 07 October 2019

[10] December 2019 – Traffic Survey (8-9am pk slot): Phase 1/Phase 2/School/B4100 exit as nodes.

Carried out on Thursday 5 December, on behalf of Elmsbrook Residents' Association.

Not available as a separate report: raw data and analyses are contained in Sections 2/4 of this document. A .xlsx file containing the data and calculations can be obtained by request.