To	West Sussex County Council. Horsham District Council, Crawley Borough Council	**Technical Note**	
From	Steer		
Date	7 December 2021		
Project	West of Ifield	Project No.	23747301

Trip Generation and Scenario Planning Scoping Note

Introduction

1. This Technical Note sets out the proposed approach in undertaking the trip generation and scenario planning assessment for the proposed development at West of Ifield. It should be read in conjunction with the accompanying Transport Strategy document.

2. Principally, this note responds to recent comments provided by Horsham District Council (HDC), Crawley Borough Council (CBC) and West Sussex County Council (WSCC) in relation to the need for more detail regarding scenario planning and defined mode share targets to estimate the impacts of the development on the transport network and to substantiate the infrastructure and service provision requirements of the development.

Local Plan Modelling (Scenario 1)

3. Strategic transport modelling has been carried out by Stantec to support both the HDC and CBC Local Plan review processes, the Crawley Transport Study (May 2021) and Horsham Transport Study (May 2021) respectively.

4. This work provides an update to each respective strategic model and includes new committed developments, site allocations, neighbouring authority growth projections and proposed highway schemes as agreed with WSCC. The West of Ifield development is considered in both transport studies 'Local Plan' scenarios.

5. The following development mix assumptions were applied when considering the West of Ifield development within the respective Local Plan modelling scenarios.

Table 1: West of Ifield Local Plan Development Quantum

	Dwellings	Employment (GFA m^2)			
		B1	B2	B8	Total
Crawley 2035 (Scenario 3)	3,750	8,333	8,333	8,333	25,000
Horsham 2036 (Local Plan Preferred Scenario)	2,800	10,000	11,875	11,875	33,750

6. As agreed with WSCC, Steer intend to use the Crawley Transport Model (CTM) as the majority of impact from West of Ifield will be generated within the Crawley area. In addition, it is understood that the CTM is refined and calibrated to greater level of detail than the Horsham model, utilising trip and journey information from the mobile phone network data, observed junction turning counts and road traffic flows. The impacts of West of Ifield can therefore be interpreted more concisely within the CTM. We understand that the Crawley Transport Study and CTM does not consider the potential Gatwick Airport DCO and associated future growth.

7. The total person and vehicle trips rates used in the Crawley Transport Study have been interrogated and applied to the development quantum in Table 1, as shown below in Table 2. A modest 12% vehicle trip reduction was applied to West of Ifield within the CTM to account for a proposed high-quality bus corridor,

these are also presented in Table 2. It is noted that this is significantly lower than the current LPA, WSCC and Homes England shared ambition for bus mode share.

Table 2: West of Ifield Modelled Trips (CTM)

	AM Peak (0800 – 0900)			PM Peak (1700 – 1800)		
	Arrive	Depart	Two-Way	Arrive	Depart	Two-Way
Total People	835	2,529	3,364	2,358	1,200	3,558
Vehicles	522	1,196	1,718	1,242	681	1,923
Vehicles (reduced)	413	1,025	1,438	897	619	1,516

8. Whilst car trips are applied to the model to account for specified sustainable transport interventions associated with West of Ifield, the outputs are considered to present a 'business as usual' scenario with regards to vehicle trip generation. Whilst useful to consider the highest roadway capacity requirements for private vehicles, the West of Ifield development is planned as a highly sustainable development as set out in the accompanying Transport Strategy, providing high levels of trip containment facilitated by active travel opportunities to a good mix of services and amenities, and working towards the draft Local Plan aspiration to provide 1:1 homes to jobs. It is also uniquely placed in terms of its proximity to major employment areas at Gatwick Airport, Manor Royal and Crawley Town Centre – all of which will be easily accessible by public transport and cycle routes.

9. When considering the overarching target baseline mode share for West of Ifield, as set out within the accompanying transport strategy, the total people trips presented above would be split as follows.

Table 3: Total People Trips + Baseline West of Ifield Mode Shares

Mode	Target Baseline Mode Share	AM Peak (0800 – 0900)			PM Peak (1700 – 1800)		
		Arrive	Depart	Two-Way	Arrive	Depart	Two-Way
Train	6%	50	152	202	141	72	213
Bus	20%	167	506	673	472	240	712
Car Driver	39%	326	986	1,312	919	468	1,388
Car Passenger	21%	175	531	707	495	252	747
Bicycle	5%	42	126	168	118	60	178
Walk	9%	75	228	303	212	108	320
Total	**100%**	**835**	**2,529**	**3,365**	**2,358**	**1,200**	**3,558**

10. As shown in Table 3, application of the target baseline West of Ifield mode shares to the total people trips used in the CTM analysis would result in fewer overall vehicle trips during both the AM and PM peak periods than assessed within the Crawley Transport Study.

11. The Crawley Transport Study is therefore considered to have robustly assessed the impacts of West of Ifield with regards to highway capacity. The results from the study suggest that although the V/C's are higher at more junctions on the network as a result of additional traffic, in most cases the unmet demand could be addressed without substantial physical highway mitigation and in accordance with wider Crawley aspirations (as set out in the Crawley Transport Strategy March 2020) for reduced reliance on private vehicles. The results suggest that mitigation is required at both the Ifield Roundabout/Ifield Avenue/A23 Crawley Avenue junction and the A2011 Crawley Avenue/B2036 Balcombe Road junction, although the latter is addressed through signal optimisation.

12. A local widening scheme has been tested for the Ifield Roundabout/Ifield Avenue/A23 Crawley Avenue junction which appears to provide a solution for the capacity issues. However the scheme would also be

required in Scenario 2 (without West of Ifield development) and is not therefore directly attributed to impacts from the development.

13. For the purposes of scenario planning to determine the impacts of the West of Ifield development within the Transport Assessment, the Crawley Transport Study is considered to provide a robust assessment to determine highway impacts and is therefore referred to as 'Scenario 1'.

Scenario 2 - Sustainable

14. This scenario represents a more balanced view with regards to the mode share targets for West of Ifield, as evidenced through the accompanying Transport Strategy document and set out further below. It also presents an opportunity to consider the emerging scheme in greater detail with regards to the anticipated development maximum quanta and mix assumptions, the achievable self-containment of trips and the accompanying infrastructure and service provision requirements.

15. To inform this scenario, the total people trip rates used in the Crawley Transport Study have been adopted for each specific land use. Trip rates for schools have been derived separately as these are not considered within the Crawley Transport Study. The following development mix assumptions have been considered at this stage based on the latest emerging masterplan.

Table 4: West of Ifield Development Mix Assumptions

Land Use	Development Quantum (up to)
Residential	3,250 dwellings
Offices/Innovation Centre	15,000 m^2
Foodstore	3,500 m^2
Retail	6,000 m^2
Secondary School	900 pupils
Primary Schools	2 x 420 pupils

16. The approach to assessing the trip generation for West of Ifield follows the approach agreed with WSCC in the Transport Assessment supporting the Land at North Horsham planning consent (LPA ref: DC/16/1677). The trip rates, levels of internalisation and mode shares are adjusted from those used at Land at North Horsham to reflect the truly mixed-use nature of the development, providing a neighbourhood centre with foodstore, secondary school and primary school(s) and targeting 1:1 homes to jobs to provide for residents' needs locally, whilst recognising its unique location with respect to key employment centres – all of which will be easily accessible by public transport and cycle routes.

Residential Trip Rates

17. Total person residential trip rates have been taken from the TRICS sites used in the Crawley Transport Study. These are comparable with those used for Land at North Horsham as set out in Table 5.

Table 5: Residential Person Trips

Residential Total People	AM Peak (0800 – 0900)			PM Peak (1700 – 1800)		
	Arrive	Depart	Two-Way	Arrive	Depart	Two-Way
Land at North Horsham Trip Rates	0.162	0.680	0.842	0.499	0.241	0.740
West of Ifield Trip Rates	0.171	0.667	0.838	0.623	0.272	0.895
West of Ifield Trips (up to 3,250 dwellings)	556	2,168	2,724	2,025	884	2,909

Trip Purpose

18. Total residential person trips have been considered by trip purpose, based on the Department for Transport (DfT) National Travel Survey (NTS) 2019 statistics, specifically table NTS0502, Trip Start Time by Trip Purpose (Monday to Friday only).

19. The NTS data incorporates all education types into one group. These have been separated into primary and secondary/further education using the following method. School pupil data has been taken from the Department for Education's (DfE) Statistical First Release, Schools, Pupils, and their Characteristics, June 2021. Table 7B of this report highlights the total number of pupils by type of school and local authority area at all schools in England. Data for West Sussex has been used to breakdown the education and escort education category trip purpose.

20. The trip purpose breakdown is summarised in Table 6.

Table 6: Peak Hour Trip Purpose

Purpose	AM Peak	PM Peak
Employment	22.9%	35.6%
Education Primary Secondary / Further	28.6% 17% 11.6%	3.0% 1.8% 1.2%
Escort Education Primary Secondary / Further	22.9% 13.6% 9.3%	2.2% 1.3% 0.9%
Retail	4.2%	12%
Other Personal Business and Escort	14.2%	20%
Visiting Friends/ Entertainment/ Sport	3.5%	19.7%
Holiday/ Day Trip/ Other	3.8%	7.6%

21. The trip purposes shown in Table 6 apply to two-way trips. However, it is considered that trip purpose will vary by arrivals and departures. Trip purposes, split by time and arrivals/departures, have been calculated based upon the data contained within Tables 5 and Table 6, and the following assumptions:

- It has been assumed that there will be no residential person trips with an education purpose arriving at their home in the AM peak hour or departing from their home in the PM peak hour from the residential element of the development, as all trips with an education trip purpose are assumed to be school pupils travelling to and from school.
- To provide a robust assessment, it is assumed that all PM peak hour escort education trips are arrivals. These are assumed to be parents returning from work, off-site, and picking their child up from afterschool clubs.

22. The directional trip purposes in each peak hour and resultant person trips for the residential element of the development are shown in Table 7 and Table 8.

Table 7: AM Peak Hour Directional Trip Purposes

	%		Person Trips	
	Arrive	Depart	Arrive	Depart
Employment	32%	22.9%	178	496
Education Primary Secondary / Further	0% 0% 0%	28.6% 17% 11.6%	0 0 0	619 369 250
Escort Education Primary Secondary / Further	32% 19% 13%	22.9% 13.6% 9.3%	178 106 72	495 295 200
Retail	5.9%	4.2%	33	91
Other Personal Business and Escort	19.9%	14.2%	110	308
Visiting Friends/ Entertainment/ Sport	4.9%	3.5%	27	76
Holiday/ Day Trip/ Other	5.3%	3.8%	30	83

Table 8: PM Peak Hour Directional Trip Purposes

	%		Person Trips	
	Arrive	Depart	Arrive	Depart
Employment	35.5%	37.5%	720	331
Education Primary Secondary / Further	3% 1.8% 1.2%	0% 0% 0%	60 36 24	0 0 0
Escort Education Primary Secondary / Further	2.2% 1.3% 0.9%	0% 0% 0%	44 26 18	0 0 0
Retail	12%	12.7%	244	112
Other Personal Business and Escort	20%	21.1%	404	186
Visiting Friends/ Entertainment/ Sport	19.7%	20.8%	399	184
Holiday/ Day Trip/ Other	7.6%	8%	153	71

Employment Trip Rates

23. Total person employment trip rates have been taken from the Crawley Transport Study and applied to the proposed quantum of employment floorspace for West of Ifield, as shown in Table 9. These account for all employment trips before considering internalisation which is considered in later sections.

Table 9: Employment Person Trips

Employment Total People	AM Peak (0800 – 0900)			PM Peak (1700 – 1800)		
	Arrive	Depart	Two-Way	Arrive	Depart	Two-Way
West of Ifield Trip Rates (per 100m^2)	1.697	0.141	1.838	0.143	1.61	1.753
West of Ifield Trips (up to 15,000m^2)	255	21	276	21	242	263

Secondary School Trip Rates

24. As secondary school trip rates are not presented within the Crawley Transport Study, trip rates have been derived from the TRICS database based on the following:

- Education: Secondary School;
- Most recent 8 year period;
- 500 to 1,000 pupils;
- Suburban area, edge of town and neighbourhood centre only.

25. These criteria result in the selection of four sites. The resulting trip rates and person trip generation are summarised in Table 10.

Table 10: Secondary School Person Trips

Secondary School Total People	AM Peak (0800 – 0900)			PM Peak (1700 – 1800)		
	Arrive	Depart	Two-Way	Arrive	Depart	Two-Way
Trip Rate (per pupil)	0.78	0.093	0.873	0.044	0.04	0.084
Trips (900 pupils)	702	84	786	40	36	76

Primary School Trip Rates

26. Up to two primary schools are proposed at the site. These will cater for children living within the development only. Therefore, only staff trip generation has been considered for off-site impact assessments, as all other trips will be internal to the development.

27. The schools will generate staff trips during the peak hours. DfE data for three local Crawley primary schools of similar size to the proposed schools has been used to calculate the number of fulltime equivalent (FTE) staff that are likely to be employed at the proposed schools. The schools assessed are Gossops Green Primary, Langley Green Primary and Waterfield Primary.

28. The number of FTE pupils at each of the selected schools and the number of FTE staff employed has been extracted from the DfE's 'Schools, pupils and their characteristics: June 2021 dataset. This has been used to calculate a staff per pupil ratio at each school. The average of these ratios results in each 11.5 pupils per staff, equating to 37 staff at each 420 pupil primary school.

29. For the purposes of this assessment, it is assumed that 75% of staff arrive and leave in the AM and PM peak hours, as some will arrive/leave at other times of the day. The resulting staff trip generation is presented in Table 11.

Table 11: Primary School Staff Person Trips

Primary School Staff Total People	AM Peak (0800 – 0900)			PM Peak (1700 – 1800)		
	Arrive	Depart	Two-Way	Arrive	Depart	Two-Way
Trips	55	0	55	0	55	55

Foodstore Trip Rates

30. Total person foodstore trip rates have been taken from the Crawley Transport Study and applied to the proposed quantum of floorspace for West of Ifield, as shown in Table 12.

Table 12: Foodstore Person Trips

Foodstore Total People	AM Peak (0800 – 0900)			PM Peak (1700 – 1800)		
	Arrive	Depart	Two-Way	Arrive	Depart	Two-Way
West of Ifield Trip Rates (per 100m^2)	3.414	2.706	6.12	6.828	7.173	14.001
West of Ifield Trips (up to 3,500m^2)	119	95	214	239	251	490

Retail Trip Rates

31. Although the retail uses at West of Ifield are not defined, the trip rates applied to 'retail park – including food' from the Crawley Transport Study have been used at this stage as a proxy for the trips which retail uses on the site may generate. The total person trip rates have been applied to the proposed quantum of floorspace for West of Ifield, as shown in Table 13.

Table 13: Retail Person Trips

Retail Total People	AM Peak (0800 – 0900)			PM Peak (1700 – 1800)		
	Arrive	Depart	Two-Way	Arrive	Depart	Two-Way
West of Ifield Trip Rates (per 100m^2)	2.308	1.495	3.803	4.026	5.008	9.034
West of Ifield Trips (up to 6,000m^2)	138	90	228	242	300	542

Total Development Person Trips

32. The total number of person trips forecast to be generated by the proposed West of Ifield development are summarised in Table 14. These are the total trips when considering each land use individually and do not account for the movement of people between different land uses internally – this is accounted for in the sections which follow.

Table 14: Total Person Development Trips

Total People	AM Peak (0800 – 0900)			PM Peak (1700 – 1800)		
	Arrive	Depart	Two-Way	Arrive	Depart	Two-Way
Trips	1,825	2,457	4,282	2,566	1,768	4,334

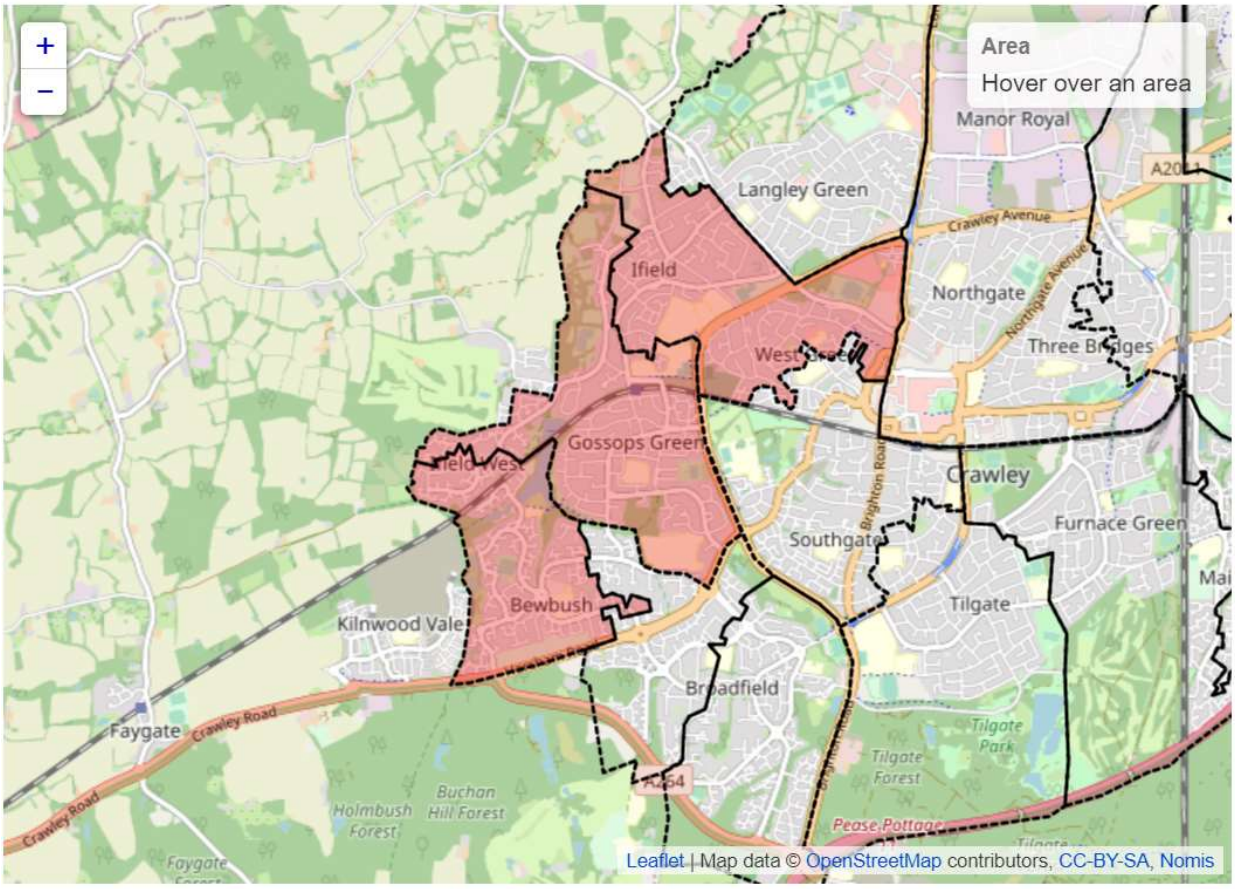
Residential Trip Internalisation

33. As set out in Table 6 and Table 7, the residential person trips generated by the development have been split into trip purpose. The number of trips staying on-site during the peak hours has been calculated for each trip purpose.

Employment Trip Purpose

34. 2011 Census Travel to Work (TTW) data has been analysed in order to determine how many people currently live and work in the Ifield area. Data from the Crawley 003, 006, 010 middle layer super output areas (MSOAs) have been interrogated as shown in Figure 1.

Figure 1: MSOAs for Employment Trips



35. The percentage of people living in these MSOAs, who also work within the MSOAs has been calculated at 8%. This localised internalisation figure has been applied to residential trips for employment purposes generated by the proposed development to show those staying on-site and leaving the site for work, as shown in Table 15.

Table 15: Residential Person Trips – Employment Trip Purpose

Total People	Internal Person Trips			External Person Trips		
	Arrive	Depart	Two-Way	Arrive	Depart	Two-Way
AM Peak (0800 – 0900)	14	39	53	164	457	621
PM Peak (1700 – 1800)	56	26	82	663	305	968

36. Given the 1:1 homes to jobs ratio targeted at West of Ifield, it is likely that the percentage of people living and working on-site will be significantly higher than the 8% currently achieved locally, however the above provides a robust assessment in considering the external trip impacts.

Primary Education Trip Purpose

37. The two proposed primary schools will cater for children living at the development. Therefore, all residential person trips with a primary education purpose will stay on-site, as shown in Table 16.

Table 16: Residential Person Trips – Primary Education Trip Purpose

Total People	Internal Person Trips			External Person Trips		
	Arrive	Depart	Two-Way	Arrive	Depart	Two-Way
AM Peak (0800 – 0900)	0	369	369	0	0	0
PM Peak (1700 – 1800)	36	0	36	0	0	0

Secondary Education Trip Purpose

38. It is assumed that 85% of secondary school pupils living at the development will attend the secondary school on-site. The remaining 15% of pupils will attend other schools and education facilities. Therefore, 85% of residential person trips with a secondary / further education purpose are assumed to stay on-site, as shown in Table 17.

Table 17: Residential Person Trips – Secondary Education Trip Purpose

Total People	Internal Person Trips			External Person Trips		
	Arrive	Depart	Two-Way	Arrive	Depart	Two-Way
AM Peak (0800 – 0900)	0	213	213	0	38	38
PM Peak (1700 – 1800)	21	0	21	4	0	4

Escort - Primary Education Trip Purpose

39. In order to undertake a robust assessment, it is assumed that a proportion of primary escort education trips will be linked to employment trips. The expected number of linked trips has been calculated as follows.

40. During the AM peak hour, some parents may drop their child at school and carry on to work.

41. DfT statistics Table NTS0408 has been utilised to determine the proportion of linked trips during the AM peak hour. This table shows that 73% of escort education trips return home once dropping their child to school. It is therefore assumed that 27% of departing primary escort education trips in the AM peak hour will carry on to work and leave the development during the peak hour.

42. All person trips with a primary escort education purpose in the PM peak hour are assumed to be linked trips, with parents returning from work and picking up their child from after school clubs/activities.

43. The number of residential person trips with a primary escort education purpose staying onsite and leaving the site are summarised in Table 18.

Table 18: Residential Person Trips – Primary Escort Education Trip Purpose

Total People	Internal Person Trips			External Person Trips		
	Arrive	Depart	Two-Way	Arrive	Depart	Two-Way
AM Peak (0800 – 0900)	106	215	321	0	80	80
PM Peak (1700 – 1800)	0	0	0	26	0	26

Escort - Secondary Education Trip Purpose

44. In line with residential person trips with a secondary / further education purpose, 85% of escort education trips will be made to/from the secondary school on site, as shown in Table 17. The remaining 15% of trips will be made to/from schools off site.

45. Therefore, 15% of all escort education trips are assumed to be external trips. Additionally, the methodology for internalisation used for primary escort education trips has been applied to the remaining 85% of secondary / further escort education trips.

46. The number of residential person trips with a secondary / further escort education purpose staying on-site and leaving the site are summarised in Table 19.

Table 19: Residential Person Trips – Secondary Escort Education Trip Purpose

Total People	Internal Person Trips			External Person Trips		
	Arrive	Depart	Two-Way	Arrive	Depart	Two-Way
AM Peak (0800 – 0900)	72	170	242	0	30	30
PM Peak (1700 – 1800)	0	0	0	18	0	18

Retail Trip Purpose

47. For the purpose of this assessment, it is assumed that 50% of all residential person trips with a retail purpose (including foodstore) will stay on-site during both peak hours. These people will use the on-site neighbourhood centre units and foodstore. The remaining 50% are assumed to be people travelling into town centres and retail parks to buy items not available on site.

48. The number of residential person trips with a retail purpose (including foodstore) staying on-site and leaving the site are summarised in Table 20.

Table 20: Residential Person Trips – Retail Trip Purpose

Total People	Internal Person Trips			External Person Trips		
	Arrive	Depart	Two-Way	Arrive	Depart	Two-Way
AM Peak (0800 – 0900)	16	46	62	16	46	62
PM Peak (1700 – 1800)	122	56	178	122	56	178

Other Personal Business Trip Purpose

49. Whilst some residential person trips with other personal business may stay within the site, e.g. visits to services including hairdressers, laundrettes etc, for the purposes of providing a robust assessment it is assumed that all travel off-site. The number of residential person trips with other personal business and escort purposes staying on-site and leaving the site are summarised in Table 21.

Table 21: Residential Person Trips – Other Personal Business and Escort Trip Purpose

Total People	Internal Person Trips			External Person Trips		
	Arrive	Depart	Two-Way	Arrive	Depart	Two-Way
AM Peak (0800 – 0900)	0	0	0	110	308	418
PM Peak (1700 – 1800)	0	0	0	404	186	590

Visiting Friends/ Entertainment/ Sport Trip Purpose

50. It is assumed that 15% of residential person trips with visiting friends, entertainment or sport as their trip purpose will stay on-site. These people are assumed to be visiting friends who live on-site and making use of the proposed facilities at the local centres, open space and amenity, recreation, sport and play space at the development. The remaining 85% are assumed to travel off-site.

51. The number of residential person trips with visiting friends, entertainment and sport trip purposes staying on-site and leaving the site are summarised in Table 22.

Table 22: Residential Person Trips – Visiting Friends, Entertainment and Sport Trip Purpose

Total People	Internal Person Trips			External Person Trips		
	Arrive	Depart	Two-Way	Arrive	Depart	Two-Way
AM Peak (0800 – 0900)	4	11	15	23	64	87
PM Peak (1700 – 1800)	60	28	88	339	156	495

Holiday / Day Trip / Other Trip Purpose

52. For the purpose of this assessment, it is assumed that all residential person trips with holiday, day trip and other trip purposes travel off-site. The number of residential person trips with holiday, day trip and other purposes staying onsite and leaving the site are summarised in Table 23.

Table 23: Residential Person Trips – Holiday, Day Trip and Other Trip Purpose

Total People	Internal Person Trips			External Person Trips		
	Arrive	Depart	Two-Way	Arrive	Depart	Two-Way
AM Peak (0800 – 0900)	0	0	0	30	83	113
PM Peak (1700 – 1800)	0	0	0	153	71	224

Total Residential Person Trips

53. The number of total residential person trips forecast to stay on-site and leave the site during the AM and PM peak hours are summarised in Table 24.

Table 24: Total Residential Person Trips – Internal and External

Total People	Internal Person Trips			External Person Trips		
	Arrive	Depart	Two-Way	Arrive	Depart	Two-Way
AM Peak (0800 – 0900)	212	1,063	1,275	344	1,105	1,449
PM Peak (1700 – 1800)	295	110	405	1,730	774	2,504

Employment Trip Internalisation

54. The number of residential person trips with an employment purpose internal to the site (Table 15) has been subtracted from the total number of employment person trips (Table 9) to determine how many internal and external trips are expected to be generated by the employment site, as shown in Table 25.

Table 25: Employment Person Trips – Internal and External

Total People	Internal Person Trips			External Person Trips		
	Arrive	Depart	Two-Way	Arrive	Depart	Two-Way
AM Peak (0800 – 0900)	39	14	53	216	0	216
PM Peak (1700 – 1800)	26	56	82	0	185	185

Secondary School Trip Internalisation

55. A bespoke pupil yield model which considers local context and planning standards has been used to derive the number of secondary school children likely to live at the 3,250 home development. In accordance with the model the average household size is 2.194 residents per home which results in a yield of 436 secondary school age pupils and 94 post-16 education pupils.

56. In the long term, following full build-out of the development, it is considered reasonable that 85% of secondary school age pupils on-site would attend the new secondary school to be provided, equating to 450 children. Therefore, 450 of the arriving person trips in the AM peak are assumed to be internal to the site. It has been assumed that all other trips will be external to the site, in order to undertake a robust assessment. The number of arriving internal trips in the AM peak hour has been subtracted from the total number of secondary school person trips to determine the number of external arriving trips in the AM peak hour. All departing trips in the AM peak hour are expected to travel off-site.

57. In the PM peak hour, all arriving trips are assumed to be parents collecting children from afterschool clubs on their way home from work, and therefore all are assumed to arrive from off-site.

58. The number of residential person trips arriving at home with a secondary education trip purpose in the PM peak has been used to determine the number of internal secondary school departing person trips. The number of internal departing trips in the PM peak hour has been subtracted from the total number of secondary school person trips to determine the number of external departing trips in the PM peak hour.

59. The total numbers of internal and external secondary school person trips are shown in Table 26.

Table 26: Secondary School Person Trips – Internal and External

Total People	Internal Person Trips			External Person Trips		
	Arrive	Depart	Two-Way	Arrive	Depart	Two-Way
AM Peak (0800 – 0900)	450	0	450	252	84	336
PM Peak (1700 – 1800)	0	21	21	40	15	55

60. As shown in Table 26, during the AM peak hour, 450 arrivals to the secondary school (65%) are expected from within the development, whilst 252 arrivals (35%) are expected from outside of the development. Given the planned early delivery of the secondary school, it is likely that a higher proportion of pupils may travel from off-site initially to serve the existing education deficit within the wider Crawley area. The phasing will be detailed within the Transport Assessment for the secondary school, but consideration will also be given to the access arrangements for earlier phases in the context of the wider West of Ifield development within the Transport Assessment supporting the OPA submission.

Primary School Trip Internalisation

61. As detailed above, the two proposed primary schools will cater for children living within the development. Therefore, it is expected that there will be no external trips generated by children or parents travelling to primary school, and all internal trips have been discounted.

62. Primary school staff numbers have been calculated at paragraph 28. At this stage the assumption is there will be 37 FTE staff at each 420 pupil primary school, with 75% arriving and departing within the AM peak hour and PM peak hour respectively. The resulting external staff trips are summarised in Table 27.

Table 27: Primary School Person Trips – Internal and External

Total People	Internal Person Trips			External Person Trips		
	Arrive	Depart	Two-Way	Arrive	Depart	Two-Way
AM Peak (0800 – 0900)	0	0	0	55	0	55
PM Peak (1700 – 1800)	0	0	0	0	55	55

Retail Trip Internalisation

63. It is assumed that the provision of a foodstore and other retail opportunities at the neighbourhood centre would attract trips from within the development itself and reduce the level of trips made off site. However, it is also anticipated that the foodstore and retail units could generate a number of 'pass by' trips, and attract trips originating from off site.

64. To provide a robust assessment, only the residential person trips with a retail trip purpose have been considered as internal trips. The internal trips have been discounted from the total retail person trips (Table 13) to determine how many external trips are expected to be generated by the retail elements, as shown in Table 28.

Table 28: Retail Person Trips – Internal and External

Total People	Internal Person Trips			External Person Trips		
	Arrive	Depart	Two-Way	Arrive	Depart	Two-Way
AM Peak (0800 – 0900)	46	16	62	212	168	380
PM Peak (1700 – 1800)	56	122	178	424	430	854

Total Internal and External Development Person Trips

65. Table 29 summarises the total number of internal trips forecast from all proposed land uses and presents the external person trip generation of the development.

Table 29: Total Internal and External Development Person Trips

Total People	Internal Person Trips			External Person Trips		
	Arrive	Depart	Two-Way	Arrive	Depart	Two-Way
AM Peak (0800 – 0900)	747	1,093	1,840	1,079	1,356	2,435
PM Peak (1700 – 1800)	377	309	686	2,194	1,459	3,653

Mode Share – External Trips

66. To consider the impacts of the external person trips on the surrounding transport networks, mode splits have been applied based on the evidence presented within the Transport Strategy and accompanying appendices. The mode share of external trips by land use are summarised in the following sections.

Residential Trip Mode Share

67. As set out above, overarching target baseline mode shares for residential trips have been established for West of Ifield through comparator site evidence, National Travel Survey data, local characteristics and through discussions to date with WSCC, HDC and CBC. The target baseline residential mode shares and forecast external trips during the AM and PM peak hours are set out in Table 30.

Table 30: Residential Mode Share – External Trips

Mode	Target Baseline Mode Share	AM Peak (0800 – 0900)			PM Peak (1700 – 1800)		
		Arrive	Depart	Two-Way	Arrive	Depart	Two-Way
Train	6%	21	66	87	104	46	150
Bus	20%	69	221	290	346	155	501
Car Driver	39%	134	431	565	675	302	977
Car Passenger	21%	72	232	304	363	163	526
Bicycle	5%	17	55	72	86	39	125
Walk	9%	31	99	130	156	70	225
Total	**100%**	**344**	**1,105**	**1,448**	**1,730**	**774**	**2,504**

Employment Trip Mode Share

68. To forecast the mode split for external employment trips, Census 2011 'Method of Travel to work by distance travelled' data (DC7701EWIa) from the Crawley area has been used, adjusted as described in the Transport Strategy to reflect the sustainable travel options to be provided and encouraged at West of Ifield. To consider only the external employment trips, those over 2km in distance have been used. The resulting target baseline employment mode shares and forecast external trips during the AM and PM peak hours are set out in Table 31.

Table 31: Employment Mode Share – External Trips

Mode	Target Baseline Mode Share	AM Peak (0800 – 0900)			PM Peak (1700 – 1800)		
		Arrive	Depart	Two-Way	Arrive	Depart	Two-Way
Train	8%	16	0	16	0	14	14
Bus	22%	48	0	48	0	41	41
Car Driver	42%	91	0	91	0	78	78
Car Passenger	23%	50	0	50	0	43	43
Bicycle	4%	8	0	8	0	7	7
Walk	2%	3	0	3	0	3	3
Total	**100%**	**216**	**0**	**216**	**0**	**185**	**185**

Secondary School Trip Mode Share

69. To forecast the mode split for external secondary school trips, NTS *Table NTS06014 11-16 years* has been used as presented in the Transport Strategy and accompanying appendices. To consider only the external secondary school trips, those over 2 miles in distance have been used. The resulting target baseline secondary school mode shares and forecast external trips during the AM and PM peak hours are set out in Table 32.

Table 32: Secondary School Mode Share – External Trips

Mode	Target Baseline Mode Share	AM Peak (0800 – 0900)			PM Peak (1700 – 1800)		
		Arrive	Depart	Two-Way	Arrive	Depart	Two-Way
Train	9%	22	7	29	3	1	5
Bus	55%	138	46	183	22	8	30
Car Driver/ Passenger	30%	77	26	102	12	5	17
Bicycle	4%	9	3	12	1	1	2
Walk	3%	7	2	9	1	0	1
Total	**100%**	**252**	**84**	**336**	**40**	**15**	**55**

Primary School Trip Mode Share

70. As described above, all pupil and parent primary school trips are expected to originate from within the development. At this stage to provide a robust assessment, it is assumed that all staff trips during the AM and PM peak periods are car drivers.

Retail Trip Mode Share

71. To forecast the mode splits for external retail trips, the NTS trip purpose *Table NTS0409* has been used and adjusted as presented in the Transport Strategy and accompanying appendices. Shopping trips over 2km have been used to derive the mode splits for external trips only. The resulting target baseline retail mode shares and forecast external trips during the AM and PM peak hours are set out in Table 33.

Table 33: Retail Mode Share – External Trips

Mode	Target Baseline Mode Share	AM Peak (0800 – 0900)			PM Peak (1700 – 1800)		
		Arrive	Depart	Two-Way	Arrive	Depart	Two-Way
Train	1%	2	1	3	3	3	7
Bus	29%	62	49	110	123	125	248
Car Driver	42%	90	71	161	180	182	361
Car Passenger	23%	49	39	89	99	100	199
Bicycle	1%	2	1	3	3	3	7
Walk	4%	8	6	15	16	16	33
Total	**100%**	**212**	**168**	**380**	**424**	**430**	**854**

Total Multi-Modal External Trips

72. Table 34 shows the total external trips by mode expected to be generated by the development.

Table 34: Development External Trip Generation by Mode – Scenario 2

Mode	AM Peak (0800 – 0900)			PM Peak (1700 – 1800)		
	Arrive	Depart	Two-Way	Arrive	Depart	Two-Way
Train	60	75	135	111	65	176
Bus	316	315	631	491	329	820
Car Driver	446	527	974	866	621	1,487
Car Passenger	171	271	442	462	305	767
Bicycle	36	59	95	91	49	141
Walk	49	108	158	173	90	263
Total	**1,079**	**1,356**	**2,435**	**2,194**	**1,460**	**3,654**

73. When compared with the CTM outputs presented in Table 2, West of Ifield is forecast to generate fewer vehicle trips during both the AM and PM peak hours. The forecasts presented in Table 34 equate to a 41% car driver mode share for external West of Ifield development trips.

74. Having completed this detailed analysis as requested by WSCC, HDC and CBC, it is evident that the overall target baseline bus mode share for external trips is 24%, significantly higher than the conservative 16% mode share presented at the bus strategy meeting. Whilst the CTM modelling (Scenario 1) is considered to present a robust assessment with regards to highway impacts, this analysis (Scenario 2) is considered to present a more balanced and realistic forecast of the likely impacts arising from West of Ifield.

75. However, recent comments from WSCC, HDC and CBC have specifically identified the opportunity for West of Ifield to encourage a bus mode share of 30-35% for external trips. Accordingly, a third scenario is considered below.

Scenario 3 – Ambitious

76. This scenario specifically considers a higher bus mode share for external trips generated by West of Ifield. It will help to consider the potential impacts of the development on the bus network and to substantiate the infrastructure and service provision requirements to sustain a high level of bus use.

77. In accordance with recent WSCC, HDC and CBC comments, Scenario 3 will consider a bus mode share of 35% to assess the upper end of the ambition for bus use. Based on the total external development trips presented in Table 34, the forecast AM and PM peak bus trips associated with Scenario 3 are presented in Table 35.

Table 35: Development External Trip Generation – Scenario 3 Higher Bus Use

Mode	AM Peak (0800 – 0900)			PM Peak (1700 – 1800)		
	Arrive	Depart	Two-Way	Arrive	Depart	Two-Way
Bus Trips	378	475	853	768	511	1,279
Total Development Trips	1,079	1,356	2,435	2,194	1,460	3,654

78. The bus trips presented in Table 35 will be used to inform the bus infrastructure and service provision requirements of the development. The 35% bus mode share will also serve as an ambitious target within the outline Residential Travel Plan supporting by a range of accompanying measures and incentives to encourage bus use among future residents.

Summary

79. The Transport Assessment to be prepared in support of the forthcoming planning application for West of Ifield will adopt the three scenarios presented within this note to robustly assess the potential impacts of the development across all transport networks. The three scenarios to be assessed are summarised as follows:

- Scenario 1 – Based on CTM inputs/outputs for West of Ifield. Is considered to provide a robust assessment to determine the highest roadway capacity requirements for private vehicles. The CTM results suggest that physical mitigation is only required at the Ifield Roundabout for which CBC has identified a local junction widening mitigation scheme.

- Scenario 2 – Represents a detailed and balanced assessment to forecast the trips which West of Ifield is likely to generate across all mode of transport. This considers the latest development mix assumptions associated with the emerging masterplan and refines the assumptions with regards to appropriate levels of trip containment, supported by the Transport Strategy and accompanying appendices. The methodology is based on the approach agreed with WSCC in the Transport Assessment supporting the Land at North Horsham planning consent (LPA ref: DC/16/1677).

- Scenario 3 – Responds directly to WSCC, HDC and CBC requests to consider a more ambitious bus mode share to inform the infrastructure and service provision requirements. This also serves as a target to inform the production and on-going implementation of the outline Residential Travel Plan and accompanying measures and incentives to encourage bus use.

Next Steps

80. Homes England seeks agreement on the approach to trip generation, mode shares and scenario planning presented within this note (and supported by the Transport Strategy and accompanying appendices) to inform the more detailed analysis to be carried out within the Transport Assessment. Following agreement on the above, detailed consideration will be given to the distribution of external trips and presented to WSCC, HDC and CBC for agreement.

81. Whilst acknowledging that work on the masterplan is progressing and assumptions around development mix and quantum will be refined accordingly, agreement on this approach will allow further consideration of the bus infrastructure and service provision requirements and associated OPEX and subsidy requirements, as requested by the authorities.