

DfT Consultancy Advice – West Sussex County Council & Mid-Sussex District Council

East Grinstead Strategic Development Transport Advice

April 2009

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1. Introduction

- 1.1 The Department for Transport (DfT) has commissioned Atkins Transport Planning and Management to provide strategic transport advice for new development in East Grinstead based on previous work undertaken.

Background

- 1.2 Atkins Transport Planning and Management have been engaged by the DfT Housing Growth and Eco-Town Team to provide strategic transport planning consultancy advice to selected Local Planning Authorities and to compile a 'Lessons Learnt' document for the DfT.
- 1.3 Atkins Transport Planning and Management attended a meeting on the 27th of February 2009 with Officers from West Sussex County Council (WSSCC), Mid-Sussex District Council (MSDC), Three Tiers Group (3TG) and the DfT. At this meeting, the scope of the project was discussed and the services that Atkins can provide to the partners were explored. Following this meeting a methodology (please refer to Appendix A) was submitted to the DfT for Atkins planned interaction with WSSCC.

Aim of the Study

- 1.4 The DfT is looking to offer support to Local Planning Authorities in conducting strategic reviews into how best to incorporate transport considerations into the planning process for housing growth. As part of this work Atkins has been asked to engage with officers at WSSCC in order to conduct a review of the processes and work that has been undertaken to form the transport evidence base for the strategic development.
- 1.5 To begin this process, a Workshop was held between senior members of the Atkins Team and ATLAS, West Sussex County Council, East Sussex County Council, Mid Sussex District Council and Surrey County Council on the 19th of March 2009. The minutes taken from this workshop are presented in Appendix B of this document.
- 1.6 Following on from the workshop Atkins have produced two technical notes as follows:
- A junction review and improvement study for the five main junctions along the A22 through East Grinstead. This is the subject of a separate report; and
 - This report, which explains the methodology behind the spreadsheet modelling based on previous work, designed to explore possible measures and actions that could mitigate the impact of the strategic development at East Grinstead.

Structure of the Document

- 1.7 The remainder of this document is structured as follows:
- Section 2 summarises the previous background transport assessment work undertaken for the strategic development;
 - Section 3 sets out the methodology used for the spreadsheet modelling together with results; and
 - Section 4 presents a list of possible transport measures and actions that could be implemented to mitigate the effects of the strategic development at East Grinstead.

2. Previous work

2.1 The initial task for this study involved compiling previous transport assessment work undertaken for the strategic development in East Grinstead. Information was supplied by West Sussex County Council or downloaded from the Mid Sussex District Council website (<http://www.midsussex.gov.uk/page.cfm?pageid=3749>).

2.2 A full list of information reviewed is supplied in Appendix C, but essentially there have been two main pieces of work undertaken into the transport impact of the strategic development at East Grinstead as follows:

- Peter Brett Associates modelling and associated reports (2007); and
- Savell Bird and Axon's Strategic Transport Assessment Report (STAR) – updated 2007.

Peter Brett Associates modelling reports

2.3 In 2004, Peter Brett Associates (PBA) was commissioned by WSCC to build a multi-modal model of the transport system in East Grinstead. A Local Model Validation Report (LMVR) was produced in 2007 to explain the modelling. Separate detailed and summary reports were produced to assess the strategic development in East Grinstead.

Savell Bird Axon Strategic Transport Assessment Report

2.4 Savell Bird Axon (SBA) were subsequently commissioned by a consortium of developers to undertake a Strategic Transport Assessment Report (STAR) to assess the transportation implications of a strategic housing led mixed use development to the west of East Grinstead. The consortium of developers included Taylor Woodrow, David Wilson Homes, Linden Homes and Persimmon Homes.

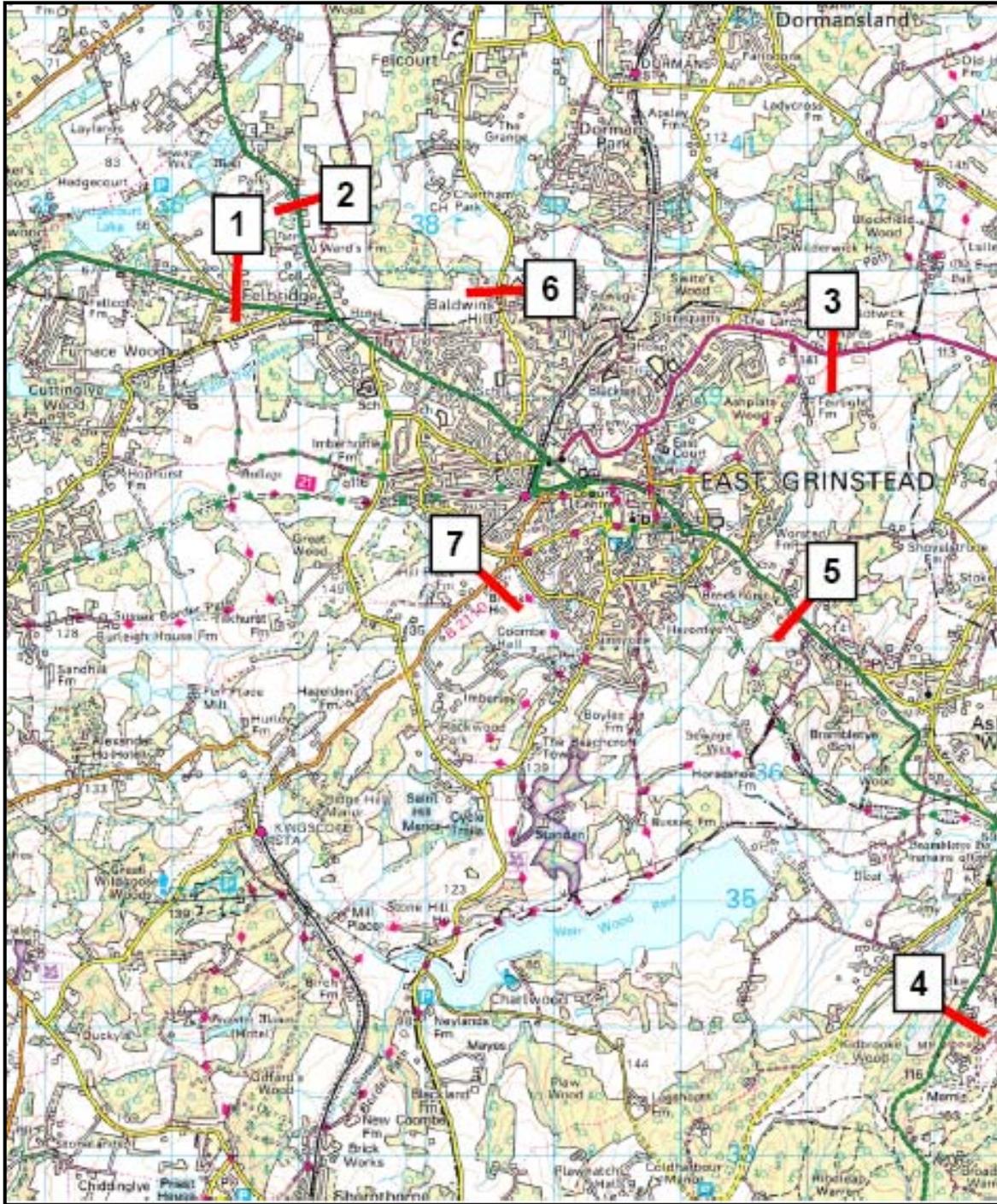
2.5 The STAR used results from the PBA modelling and a cordon survey commissioned by WSCC and SBA that were undertaken in October 2006 on the main roads into East Grinstead. The aim of the cordon survey was to establish the levels of traffic passing through the town and the proportions of traffic that had either an origin or destination within the town.

2.6 The cordon survey was undertaken for 15 minute periods over 12 hours from 0700-1900 hours on Tuesday 10th October 2006 using video cameras at seven key locations shown in Figure 2.1 and listed below:

- Node 1: A264 Copthorne Road, west of Felbridge;
- Node 2: A22 north of East Grinstead;
- Node 3: A264 Holtye Road, east of East Grinstead;
- Node 4: A22 Lewes Road, Forest Row;
- Node 5: A22 South of East Grinstead;
- Node 6: Lingfield Road; and
- Node 7: B2110 Turner's Hill Road.

2.7 At each location, the volume of traffic was recorded in each direction, along with a number plate survey.

Figure 2.1 – Location of 2006 traffic surveys



3. Methodology

Scenario Testing

3.1 A workshop was held on 19th March 2009 attended by ATLAS, Atkins, West Sussex County Council, East Sussex County Council, Mid Sussex District Council and Surrey County Council. Four scenarios were developed in partnership with the attendees in order to test the trip generation and associated impact of the strategic development to the west of East Grinstead as follows:

- Scenario 1: Baseline (based on LMVR);
- Scenario 2: Increased sustainable mode share;
- Scenario 3: Increased internalisation of trips; and
- Scenario 4: Maximum scale of development possible without a bypass, but supported by a package of sustainable transport measures.

Scenario 1: Baseline (Original LMVR)

3.2 As a baseline assessment, information from the LMVR has been used to generate trips associated with the strategic development. The LMVR considered two levels of development as follows:

- A reduced level of development (“Reduced Development”); and
- The full development (“Full Development”).

3.3 The scale of development associated with each of these situations is shown in Table 3.1 below, along with the internalisation factor assumed for the modelling.

Table 3.1 – LMVR “Reduced Development” and “Full Development” Options

Land Use	“Reduced Development”	“Full Development”	Internalisation factor
New housing (households)	1500	2500	20%
Primary school (pupils)	368	613	70%
Secondary school (pupils)	320	533	50%
Offices (jobs)	695	868	10%
Industrial estate (jobs)	500	626	10%

Trip distribution

3.4 The trip distribution for development traffic used in the modelling was not specified in the LMVR. Therefore, in order to determine the distribution of development trips for the Baseline scenario, a bespoke trip distribution methodology was developed using results from the 2006 cordon survey.

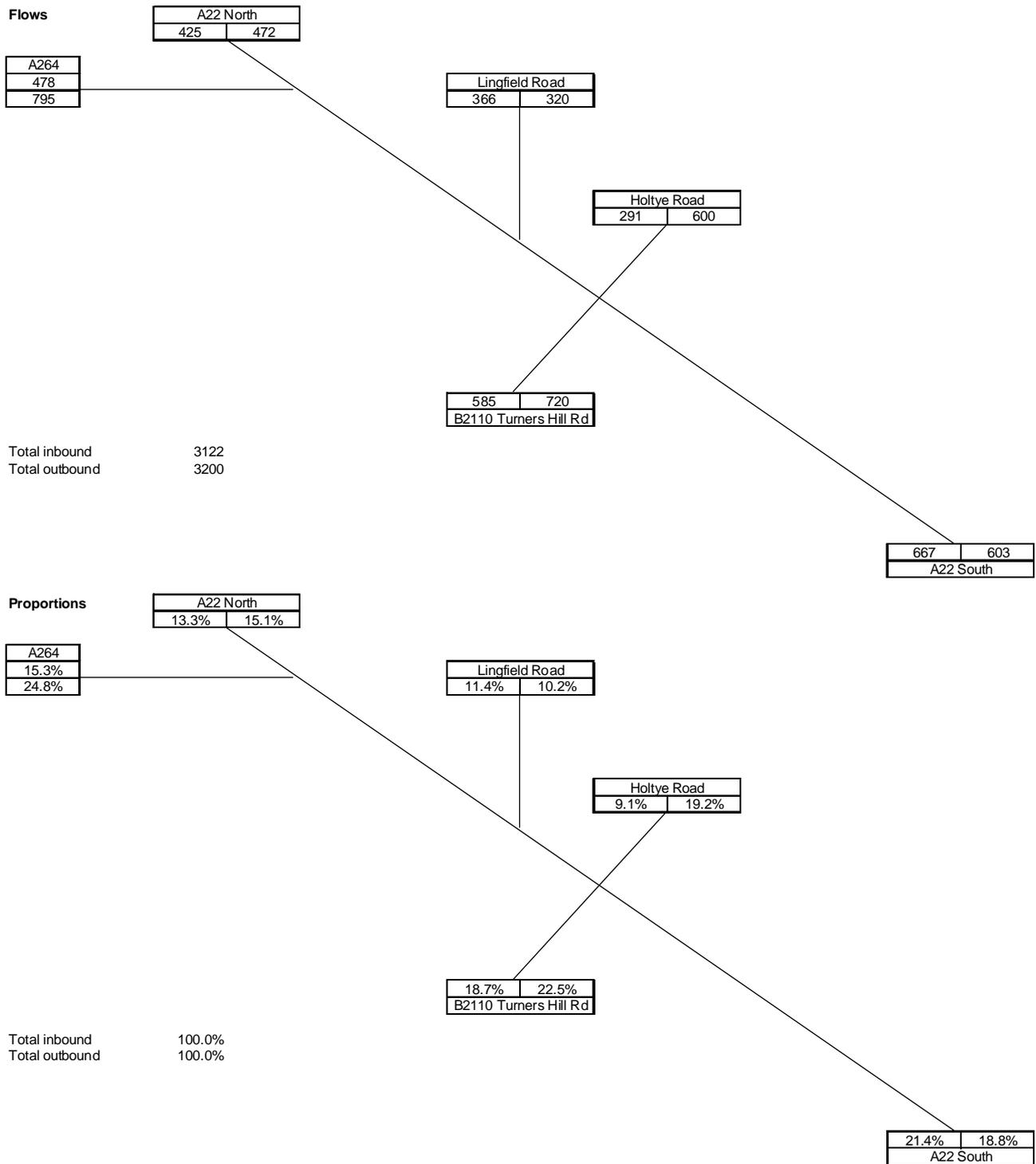
3.5 It should be noted that, in analysing the results of the cordon survey, Node 4 (located on the A22 near Forest Row) was discounted, as Node 5 is also located on the A22, but is closer to East Grinstead. Thus, six nodes were used as arrival / departure points for development trips as follows:

- Node 1: A264 Copthorne Road, west of Felbridge;
- Node 2: A22 north of East Grinstead;
- Node 3: A264 Holtye Road, east of East Grinstead;

- Node 5: A22 South of East Grinstead;
- Node 6: Lingfield Road; and
- Node 7: B2110 Turner's Hill Road.

- 3.6 The AM and PM peak hours were first determined by totalling all the traffic passing the six nodes for each hour, then identifying the hourly period with the highest total volume of traffic for the AM and the PM periods. The AM peak hour was determined as 0745-0845 hours and the PM peak hour was determined as 1800-1900 hours. The AM peak hour was found to have the highest volume of vehicles, and thus the AM peak hour has been used for the assessment henceforth.
- 3.7 In order to determine the distribution, the total volume of traffic departing East Grinstead was calculated along with the total volume of traffic arriving at East Grinstead.
- 3.8 The volume of traffic departing East Grinstead at each node was then divided by the total volume of traffic departing East Grinstead to determine a proportion of traffic associated with that node.
- 3.9 Similarly, the volume of traffic arriving at East Grinstead at each node was then divided by the total volume of traffic arriving at East Grinstead to determine a proportion of traffic associated with that node.
- 3.10 The AM traffic flows and resulting distribution proportions are shown in Figure 3.1 below.

Figure 3.1 – 2006 Cordon survey flows and proportions for AM peak hour (0745-0845 hours)



Trip generation

- 3.11 The LMVR used the vehicle trip rates shown in Table 3.2 below. The new housing land use uses bespoke trip rates, while trip rates were derived from TRICS for other land uses.

Table 3.2 – Vehicle Trip rates – AM peak hour

Land Use	Arrivals	Departures
New housing (per household)	0.15	0.41
Primary school (per pupil)	0.2	0.25
Secondary school (per pupil)	0.08	0.14
Offices (per job)	0.019	0.1597
Industrial estate (per job)	0.0383	0.099

- 3.12 The resulting trip generation for the “Reduced Development” and “Full Development” Options are shown in Table 3.3 below.

Table 3.3 – AM peak hour development vehicle trips

Land Use	“Reduced Development”		“Full Development”	
	Arrivals	Departures	Arrivals	Departures
New housing	180	492	300	820
Primary school	22	28	37	46
Secondary school	13	22	21	37
Offices	12	100	15	125
Industrial estate	17	45	22	56
Total	244	686	395	1084

Impact analysis

- 3.13 In order to determine the impact of the development trips upon the network, the 2006 traffic survey results were converted to 2021 levels (the assumed year of completion of the proposed strategic development) using TEMPRO. TEMPRO is a DfT approved program designed to provide projections of traffic growth over time for use in local and regional transport models and transport planning. Table 3.4 below shows the TEMPRO growth rates for Car Drivers in East Grinstead between 2006 and 2021.

Table 3.4 – AM peak hour TEMPRO growth rates for Car Drivers in East Grinstead (2006-2021)

Growth period	Arrivals	Departures
2006-2021	1.17	1.15

- 3.14 The resulting changed flows are shown in Figure 3.2 below.
- 3.15 The development traffic has been compared to the 2021 traffic flows to show the percentage increase in traffic associated with each node. The impact of the “Reduced Development” and “Full Development” is shown in Figure 3.3 and Figure 3.4 respectively.

Figure 3.2 – 2021 AM peak hour traffic flows

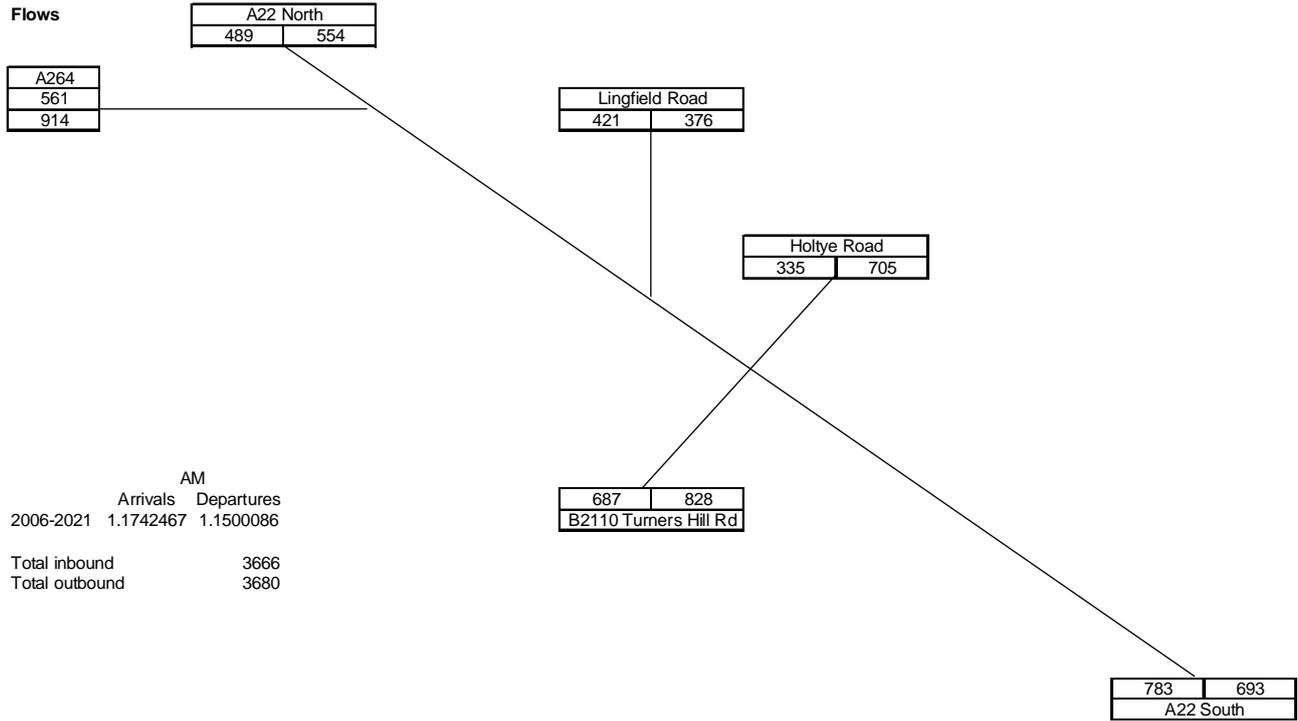


Figure 3.3 – “Reduced Development” % impacts – AM peak hour

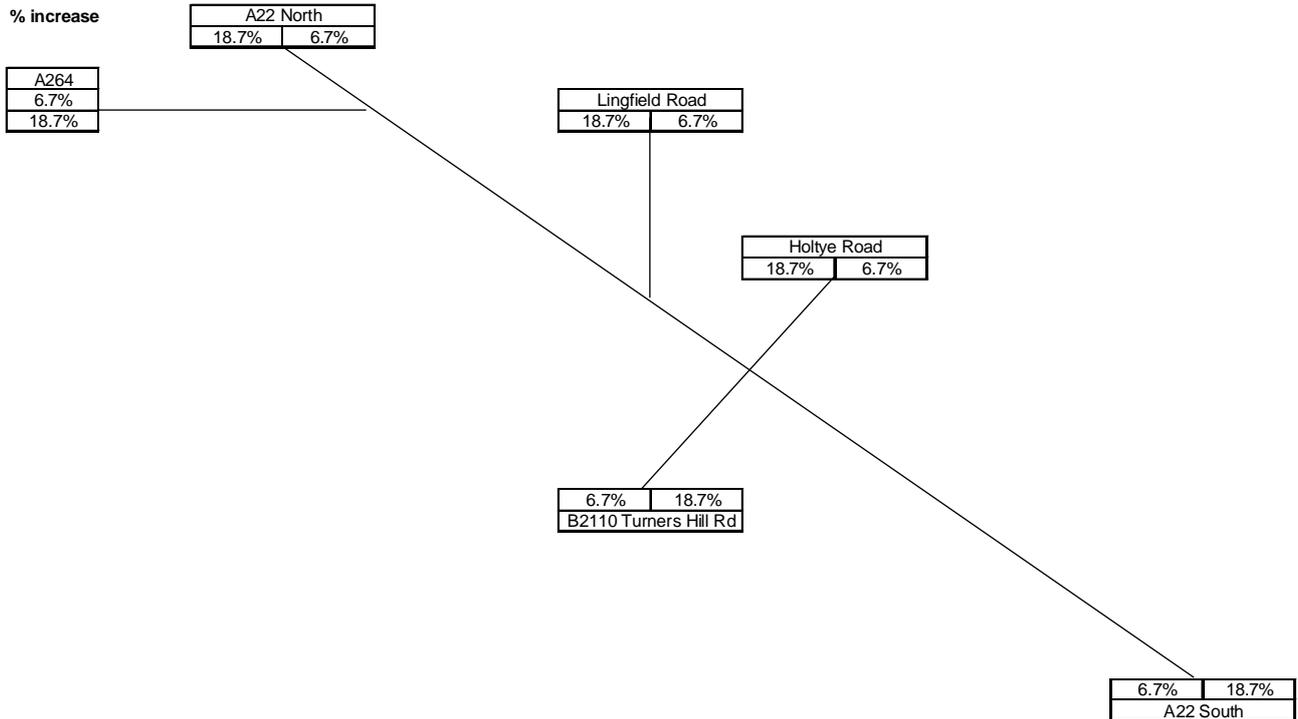
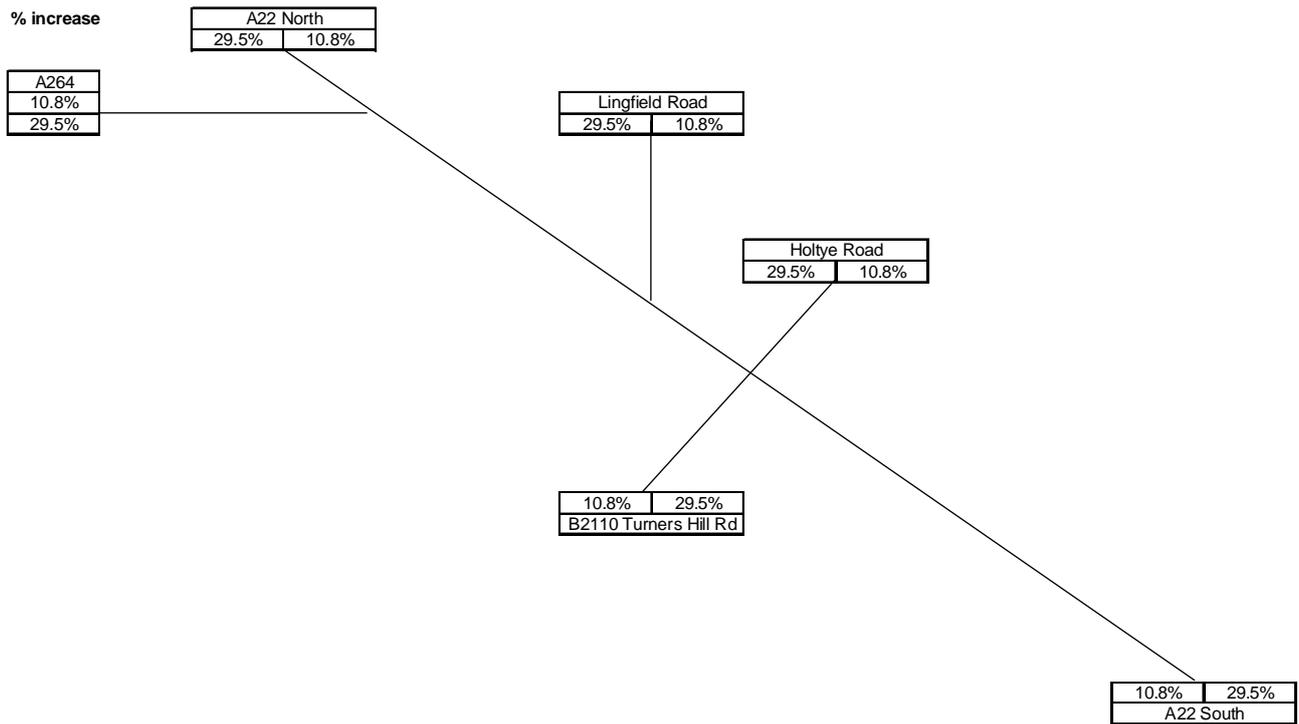


Figure 3.4 – “Full Development” % impacts – AM peak hour



Scenario 2: Increased Sustainable Mode Share

Existing 2001 census mode share

- 3.16 In order to derive the development trips associated with other modes, 2001 Census Journey to Work data was used. As the strategic development is residential led, data for residents based in the East Grinstead South and West wards (covering the strategic development) has been used. The data was averaged and is shown in Table 3.5 below.

Table 3.5 – 2001 Census Journey to Work modal split – East Grinstead Residents

Mode of Transport	%
Train	9.8%
Bus, minibus or coach	1.1%
Driving a car or van	65.5%
Passenger in a car or van	5.5%
Bicycle	1.9%
On foot	14.9%
Motorcycle, scooter or moped	0.9%
Taxi or minicab	0.5%
Total	100%

- 3.17 It should be noted that the percentages relate to journeys originating in the East Grinstead South and West wards, and thus the 10% of residents who work from home have been discounted, as have people not currently working.
- 3.18 Table 3.5 shows that vehicle trips represent approximately 66% of total trips, with approximately 6% car sharing, 10% travelling to work by train, 1% by bus, 2% by pedal cycle and 15% on foot. Journeys to work by taxi and motorcycle are minimal.

LMVR Mode Share

- 3.19 The LMVR identified a ratio of cars to bus and rail trips as shown in Table 3.6 below. It should be noted that the LMVR made no reference to walking and cycling trips or car sharing.

Table 3.6 – Number of bus / rail trips per 100 car vehicle trips (AM peak hour)

Bus		Rail	
Origin	Destination	Origin	Destination
6.28	6.28	4.37	0.89

- 3.20 Table 3.7 below shows these ratios converted to percentages, based on bus, rail and vehicle trips only.

Table 3.7 – LMVR Modal split based on vehicle, bus and rail trips only (AM peak hour)

Bus		Rail		Vehicles	
Origin	Destination	Origin	Destination	Origin	Destination
5.7%	5.9%	3.9%	0.8%	90.4%	93.3%

- 3.21 It has been assumed that the combined LMVR vehicle, bus and rail trips are equivalent to the combined share for car drivers, bus and rail users in the 2001 census data shown in Table 3.5 above (i.e. 76.4% of trips).
- 3.22 By multiplying the percentages in Table 3.7 by 76.4%, it is possible to calculate the mode share for LMVR car drivers, bus users and rail users in comparison to total journeys to work. The resulting shares are shown in Table 3.8 below, with the modal splits for remaining modes taken straight from Table 3.5.

Table 3.8 – Calculated LMVR modal splits (AM peak hour)

Mode of Transport	Origin %	Destination %
Train	3.0%	0.6%
Bus, minibus or coach	4.3%	4.5%
Driving a car or van	69%	71.3%
Passenger in a car or van	5.5%	5.5%
Bicycle	1.9%	1.9%
On foot	14.9%	14.9%
Motorcycle, scooter or moped	0.9%	0.9%
Taxi or minicab	0.5%	0.5%
Total	100%	100%

Increasing Public Transport mode share

- 3.23 The existing 2001 census rail mode share in East Grinstead, at almost 10%, already represents a high mode share and probably reflects East Grinstead's situation as a commuter town. Therefore, it is anticipated that it will not be possible to achieve a significantly higher mode share than at present. However the intermediate trips made to access the railway station can be made sustainable by providing good pedestrian and cycle links along Worth Way.
- 3.24 The existing 2001 census bus mode share for journeys to work in East Grinstead of 1% is very low compared to the national average (7%). It needs to be related to the demographic of the town and compact nature of the current form of East Grinstead, which encourages walk and cycle trips. The nature of the current bus network also needs to be borne in mind. Most services run only hourly and some parts of East Grinstead do not have a bus at all during the peak. Whilst the current dominant operator (Go-Ahead-owned Metrobus) is highly regarded (it has achieved a reported 65% increase in patronage in Crawley since 2001), it took over the territory from another operator which had suffered significant difficulty.
- 3.25 New development offers scope to improve public transport provision and mode share through the provision of higher frequencies, new 'low floor' vehicles, and matching infrastructure such as Real Time Passenger Information systems. The proximity to Crawley offers the scope to develop bus links to this major employment centre, and to integrate with the Crawley Fastway, a Bus Rapid Transit system linking Crawley with Gatwick Airport and Horley. Fastway gives access to major employment sites in Crawley and to Gatwick Airport.
- 3.26 At the same time, the need to provide links to East Grinstead town centre, rail station and other key sites should be considered. The emphasis on providing public transport linkages out from East Grinstead, or within, should be considered in relation to the level of internalisation that the development can achieve.
- 3.27 An example of how bus patronage can be encouraged within the context of sustainable travel planning is the Queen Elizabeth Park development in Guildford, Surrey, which is a 23ha mixed use site with residential development as the main component. It has achieved a reported 12%

bus mode share. At the time of planning this bus service a 'bespoke' service was considered but rejected in favour of a package which implemented a minor diversion to an existing bus route. This gave good access to key sites around Guildford (not just the town centre), and increased the frequency from 1 bus per hour to 3, while introducing a services during the evenings and on Sundays.

- 3.28 Thus, it is considered that a public transport mode share of 20% is achievable for the new development, comprised of 10% rail users and 10% bus users.

Walking and Cycling

- 3.29 The 14.9% of residents who travel to work on foot already represents a high share for this mode and may reflect the limited geographical extent of the town. However, a recent site visit to East Grinstead has highlighted that there is scope to improve the infrastructure for pedestrians and cyclists, and thus it anticipated that the combined mode share for pedestrians and cyclists can be improved from 17% to 20%. This would be comprised of 15% pedestrians and 5% cyclists (not including those accessing the railway station).

- 3.30 In order to increase cycling it is necessary to develop a hierarchy of routes that are attractive to cyclists of all abilities and journey purposes. A network of strategic direct routes connecting key destinations, that some times follow the main highway network, should be provided. These routes should be supported by a lattice of more informal routes that penetrates the urban areas using less traffic routes. At all major destinations there should be high quality and secure cycle parking facilities.

- 3.31 For the most part, pedestrians are well catered for along the key pedestrian routes. However, the potential for schemes to improve crossing points on desire lines, address any areas of existing or potential conflict and bridge any physical barriers to reduce walking distances between major destinations should be investigated.

Car Sharing

- 3.32 The existing 2001 census shows that 5.5% of journeys to work are through car sharing. It is anticipated that this level of car sharing can be replicated at the new strategic development by establishing a car share database for new residents and promoting car sharing for workers at the employment sites within the new development. To maximise the use of car sharing consideration should be given to the establishment of a car sharing website for East Grinstead.

Revised mode share

- 3.33 Table 3.9 below shows the resulting modal split and that a mode share of 55% for vehicle trips should be the aim. This can be compared to the assumed 69% used in the LMVR. Journeys to work made by taxi and motorcycle have not been calculated as they are considered minimal.

Table 3.9 - Scenario 2 mode share

Mode of Transport	Proportion
Train	10%
Bus, minibus or coach	10%
Passenger in a car or van	5%
Bicycle	5%
On foot	15%
Driving a car or van	55%
Total	100%

- 3.34 Based on the above, the resulting development traffic and 2021 percentage impacts are shown in Figure 3.5 and Figure 3.6 below.

Figure 3.5 – “Reduced Development” traffic flows and % impact for Scenario 2: AM peak hour

Development Flows

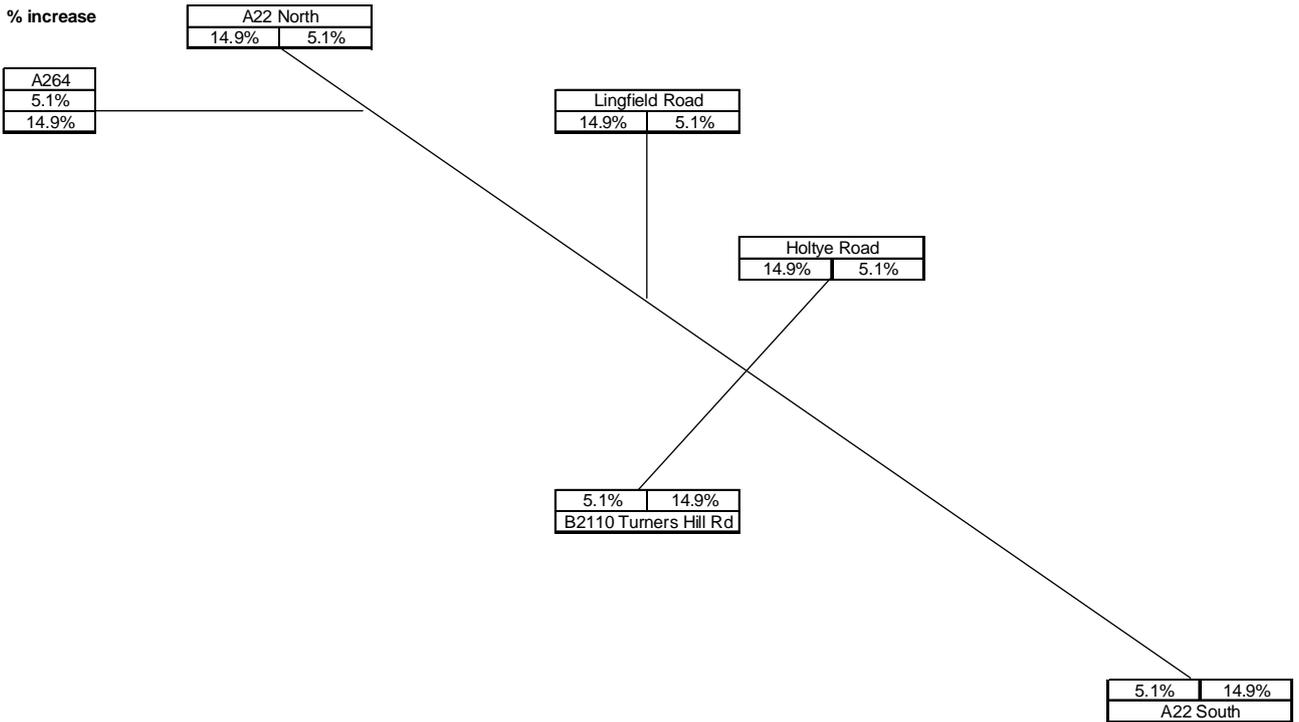
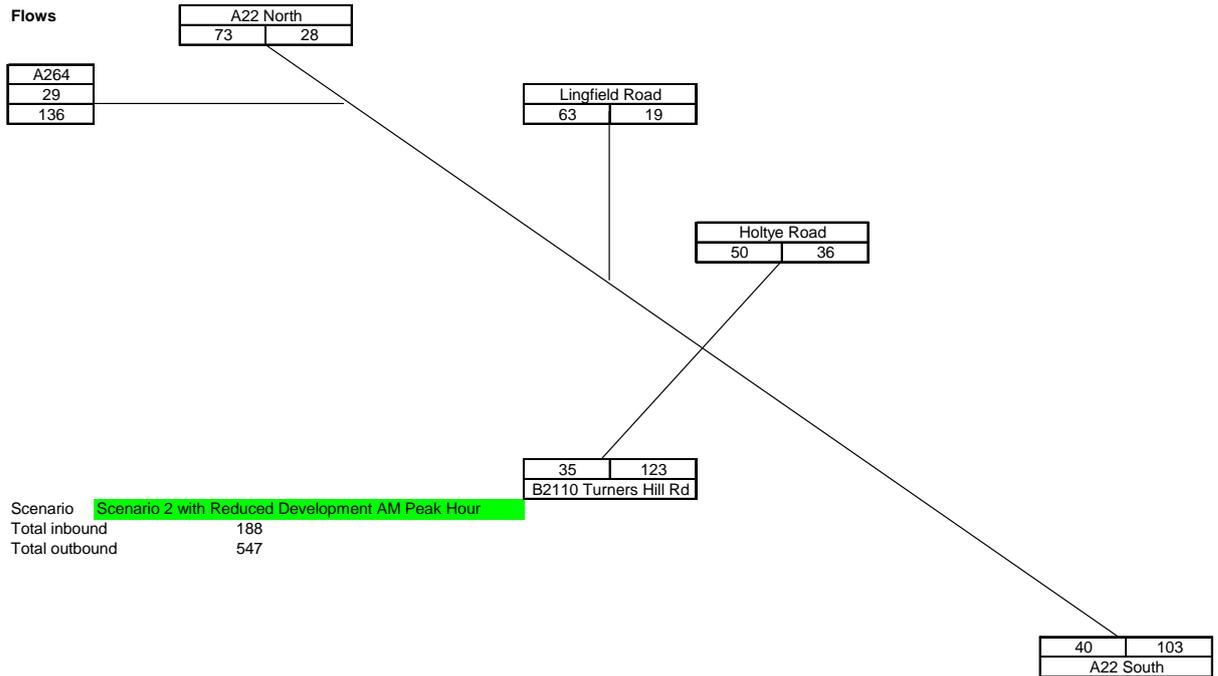
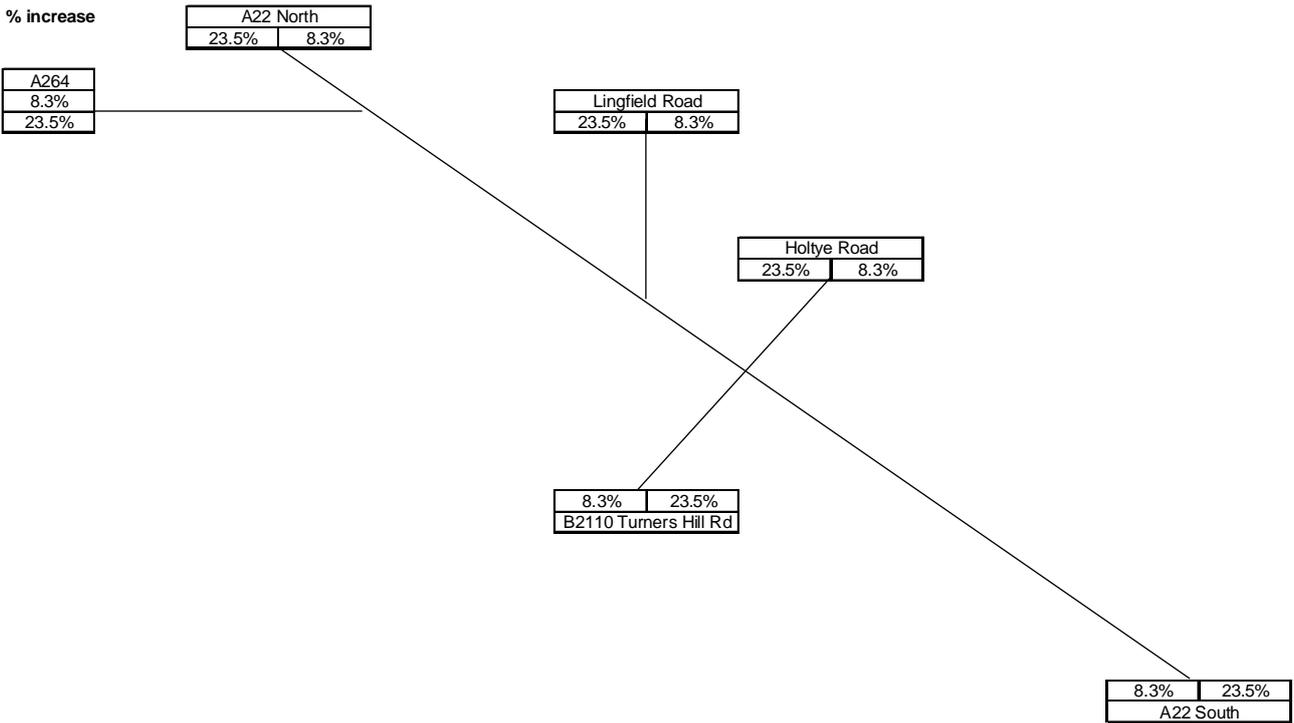
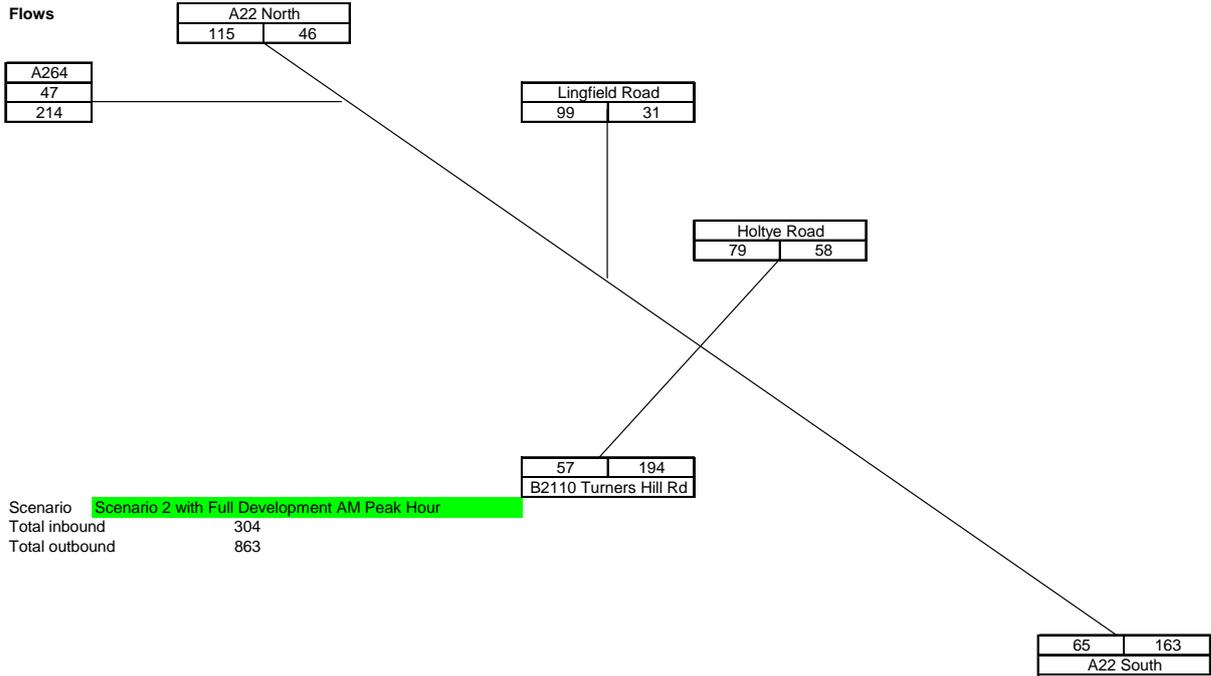


Figure 3.6 – “Full Development” traffic flows and % impact for Scenario 2: AM peak hour

Development Flows



Scenario 3: Increased Internalisation of Trips

3.35 As a new development, the strategic development should be planned in a way that maximises sustainability and travel by sustainable modes. This can be achieved by creating new jobs on site (as is being planned) thereby maximising trips within the site (internalised trips). It is considered that the internalisation factor used in the LMVR could be increased to take account of the large number of jobs that are planned to be delivered on the site. Scenario 2 has thus been further developed with an increased internalisation (i.e. a higher proportion of residents of the new development filling the new jobs planned) figure to create scenario 3 as shown in Table 3.10 below:

Table 3.10 – Scenario 3 internalisation factors

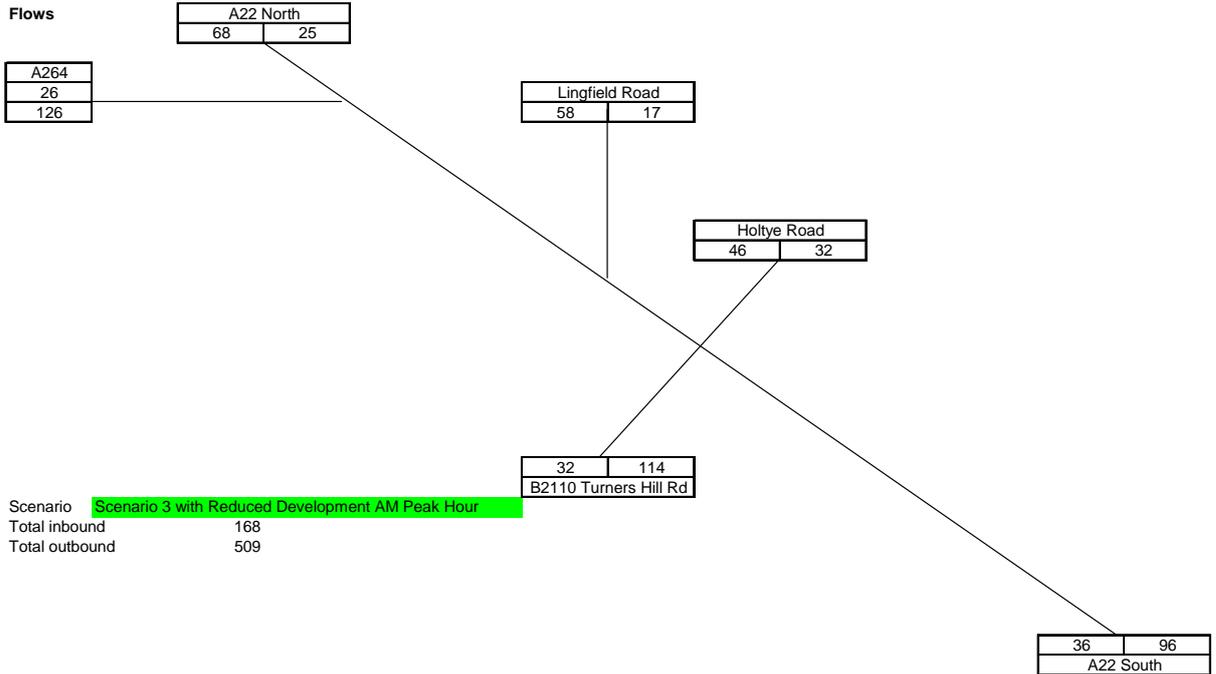
Land Use	Internalisation factor	
	Scenario 1 and 2	Scenario 3
New housing	20%	20%
Primary school	70%	90%
Secondary school	50%	80%
Offices	10%	20%
Industrial estate	10%	20%

3.36 Based on the above, the resulting development traffic and percentage impacts are shown in Figure 3.7 and Figure 3.8 below.

Figure 3.7 – “Reduced Development” traffic flows and % impact for Scenario 3: AM peak hour

Development Flows

Flows



% increase

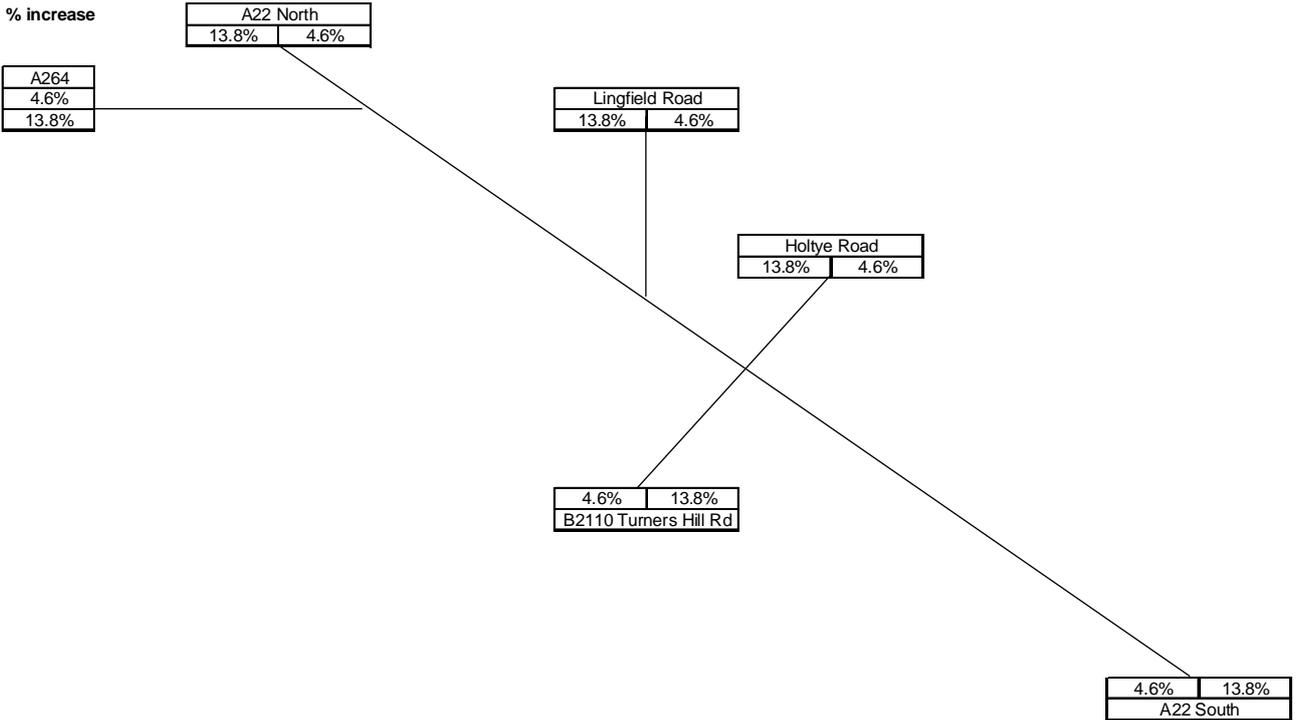
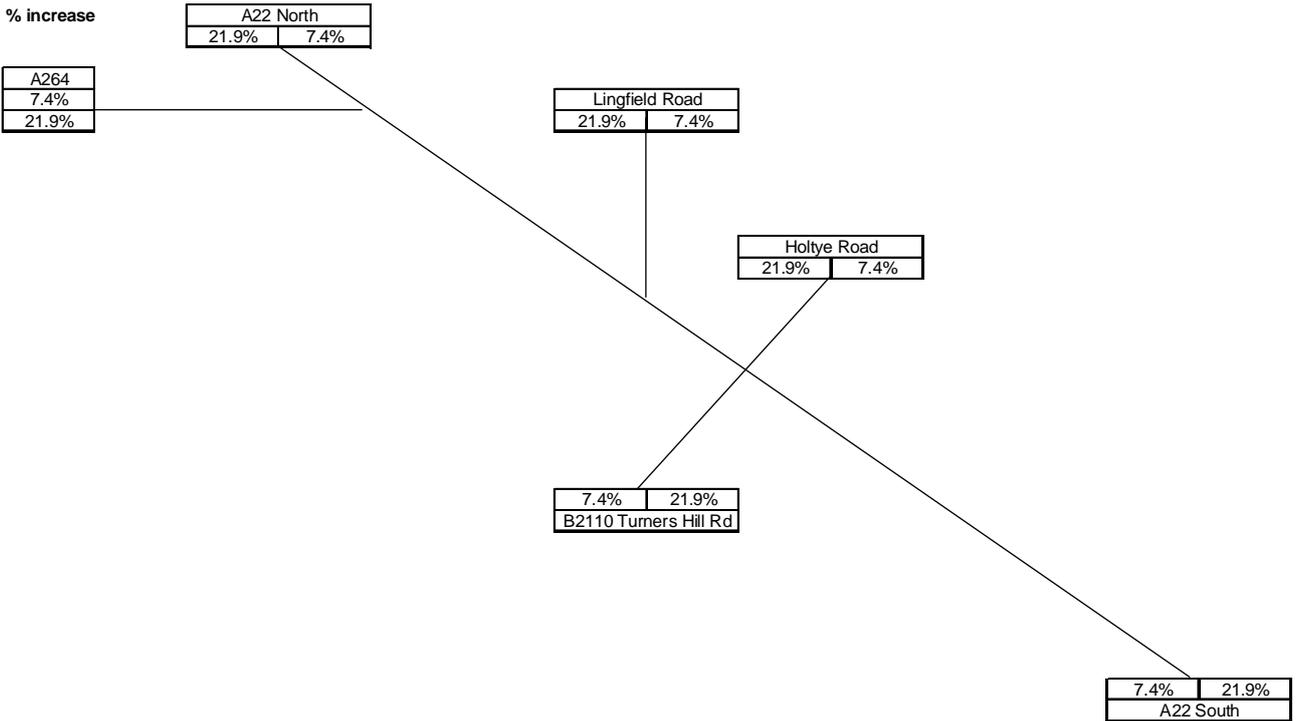
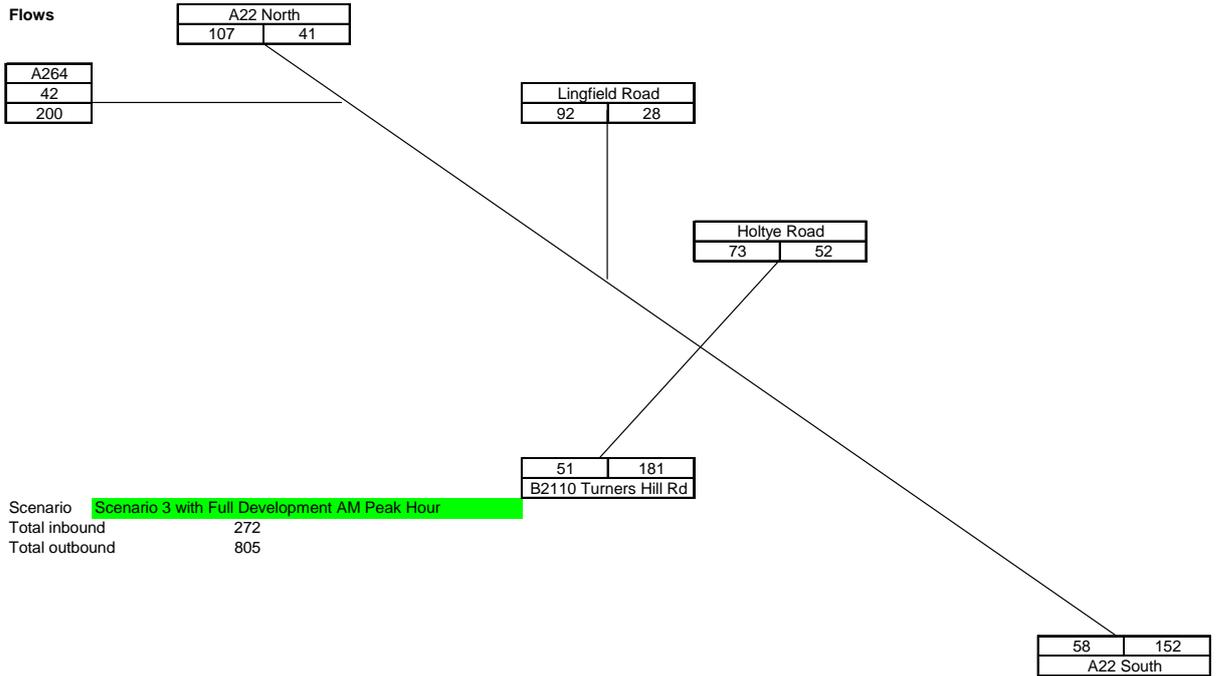


Figure 3.8 – “Full Development” traffic flows and % impact for Scenario 3: AM peak hour

Development Flows



Scenario 4: Maximum Scale of Development without Major Transport Interventions

- 3.37 In order to determine the maximum scale of development possible at the new site without the need for major transport interventions, an indicative ceiling of five percent was set for acceptable growth on the 2021 total inbound and outbound flows shown in Figure 3.2. These were calculated for the AM and PM peak hours and are shown in Table 3.11 below.

Table 3.11 – Five Percent Increase on 2021 Inbound and Outbound Flows

Peak hour	Inbound	Outbound	Total
AM	183	184	367
PM	167	169	336

- 3.38 This indicative increase in vehicular traffic as a result of development is considered to be a reasonable level that can be accommodated given the strategic context of this study and provides a reasonable estimate of maximum development. However, more detailed transport modelling which examines junction capacity will need to be undertaken to refine this assumption. The maximum development possible in order to remain within the five percent ceiling is associated with the AM peak hour departures as this period is the busiest and presents a 'worst case' scenario.
- 3.39 Two options have been considered, one using the original ratios of land use (option 1) and one providing the full quantum of employment on site (option 2).

Option 1

- 3.40 Option 1 considers the maximum scale of development possible for all land uses. The percentage of total trips represented by each land use was calculated from scenario 3. These were then multiplied by the maximum total trips shown in Table 3.11 to determine the maximum scale of development for each land use, which are shown in **Error! Reference source not found.**

Table 3.12 – Maximum Scale of Development using ratios of land use

Land use	Max Scale of development
New Housing (households)	571
Primary School (pupils)	140
Secondary School (pupils)	122
Offices (employees)	198
Industrial estate (employees)	143

- 3.41 Option 1 demonstrates that if the maximum trips are distributed across all land uses, 571 dwellings and 341 jobs could be provided within the five percent growth ceiling.

Option 2

- 3.42 Option 2 assumes that the full quantum of employment will be provided on site to maximise the internalisation of trips from the development. The volume of trips associated with the employment land uses (offices and industrial estate) was calculated using the increased sustainable modes share from scenario 2 and increased internalisation from scenario 3.
- 3.43 School trips were discounted as it is assumed that these trips originate from the new housing within the development and any school trips from outside the development would be minimal.
- 3.44 Thus, the employment trips were subtracted from the maximum total trips shown in Table 3.11 to determine the maximum number of trips associated with the new housing. These trips were

converted to scale of development using trip rates from scenario 2 and internalisation factors from scenario 3.

- 3.45 Table 3.13 shows the maximum scale of development possible in order to ensure that it does not contribute to more than a five percent increase in 2021 traffic flows.

Table 3.13 – Option 2: Maximum Scale of Development with Full Quantum of Employment Provided

Land Use	Max scale of development for the “Reduced Development” Option	Max scale of development for the “Full Development” Option
New Housing (dwellings)	313	215
Offices (employees)	695	868
Industrial estate (employees)	500	626

- 3.46 For the “Reduced Development” option, a total of 313 dwellings could reasonably be constructed without the need for a major transport intervention. For the “Full Development” option, this figure is reduced to 215.

Impact of Wider Modal Shift & Broader Planning Policy Strategy

- 3.47 This scenario testing exercise has been undertaken on the assumption that the modal split for existing trips remains unchanged. This can be considered as a worst case scenario because, in reality, the implementation of a package of sustainable measures is likely to affect the modal split of non-development related trips i.e. those already on the network. The potential for modal shift of non-development trips is considered below.
- 3.48 Examination of the 2001 Census Travel to Work data for the East Grinstead Town ward shows that out of a total of 2,186 East Grinstead residents in employment 1,185 are driving to work (54.2%). Furthermore, 209 of those who drive to work are not travelling outside of East Grinstead (9.6% of total trips). Therefore, it is reasonable to assume that a high proportion of these trips could be undertaken by sustainable means following improvements to sustainable travel options in the town.
- 3.49 It has been assumed that a modal shift of approximately 10% to sustainable modes could reasonably be achieved for all those trips already on the network as a result of the introduction of a package of sustainable measures. This would have a significant impact on the quantum of development with the reduction in vehicular traffic being equivalent to an additional 1,122 dwellings.
- 3.50 Furthermore, a significantly higher number of dwellings could be delivered if there was a focus of providing greater levels of employment and services within East Grinstead persuading more residents to work within the town and make those journeys in a sustainable manner.

4. Transport measures and action list

4.1 As a result of the strategic assessment, a list of possible measures and actions has been developed below, which are subsequently described in more detail.

- Undertake a study into travel patterns and attitudes within the town;
- Develop a high quality and high frequency public transport network & facilities;
- Develop a comprehensive network of cycle routes & facilities;
- Produce a car parking management and standards strategy; and
- Town-wide Travel Planning initiative

Travel survey

4.2 Traffic surveys undertaken to date have only provided a limited understanding of the patterns of vehicle movements on the main routes into and out of East Grinstead.

4.3 Thus, it would be valuable to gain a more detailed understanding of the origin and destination of people driving through the town, and the travel patterns of people at the key trip attractors (for example, the town centre, hospital and railway station).

4.4 In addition, it would be useful to gain an understanding of the attitude of East Grinstead residents towards travel, and the use of sustainable transport modes for their journeys.

Develop Public Transport network

4.5 West Sussex County Council should consider the extent to which demand from the development will be internalised or to external destinations, and based on the likely quantum of demand and fares revenue (derived from mode split forecasts), plan a public transport service which:

- Connects to key work and non-work destinations in East Grinstead and Crawley, with attractive connections to key local employment sites and rail services. Integration into Fastway should be considered;
- Integrates as far as reasonably practical (i.e. in a way that does not detract from the attractiveness of the existing offer) into existing services in order to maximise access to key locations (for instance Queen Victoria Hospital). This will have the benefit of improving services across the town, hence maximising patronage across the network;
- Is likely to be commercially sustainable in the medium to long-term, and which will only require external funding during the build-out phase; and
- Provides the best image and utility to users and potential users, for instance through the use of high quality vehicles, the provision of high quality roadside infrastructure and interchanges, and Real Time Passenger Information systems.

4.6 It is noted that the public transport network described by Savell Bird Axon has not been costed or tested, and it is recommended that feasibility work along the lines described above is undertaken. West Sussex County Council should also consider the role it wishes to undertake in developing and promoting public transport. The restrictions in local authority involvement in bus network operation have been eased in the Local Transport Act 2008, and the authority may wish to consider the opportunities for funding and control of the networks such as those in East Grinstead where (through no fault of their own) commercial operators struggle to provide an attractive offer.

4.7 As a brief example of the type of work that could be undertaken (and the benefits that might accrue to East Grinstead), Savell Bird Axon report 13% of work trips being made to Crawley. With 10% mode share, this yields only 19 bus trips (assumed to be peak hour). But – if the same level of mode share were achieved throughout East Grinstead – then one might expect around 80 peak

hour trips by bus. Doubling this to represent discretionary journeys, annualising this figure, and applying a fare of £2.50 each way, yields over £250,000 per annum in revenue. This is likely to be a conservative assessment since bus mode share to Crawley should be higher than bus mode share to a settlement without a bus service. Now, if the buses can cycle in 90 minutes then 3 vehicles would be able to offer a 30 minute headway service. This is normally considered quite low, but with good operational attention to detail and presentation (and highway measures to ensure that the bus can operate reliably) this could represent an attractive bus service offer. This is the sort of assessment that should be undertaken, but in a more robust manner.

Develop cycle network and facilities

4.8 The following measures could be implemented to develop the cycle network:

- Develop a network of strategic cycle routes providing direct connections between key destinations. This network would be supported by a more widespread network of leisure and quieter routes through side-streets; and
- Provide high quality supporting infrastructure, including adequate crossing points and signage, together with secure cycle parking for residential properties and at key destinations, such as community facilities.
- Provide information and marketing, such as residents' welcome packs, walking and cycling maps.
- Set up cycle training and personalised travel planning programmes.

Car parking management strategy

4.9 The provision of alternative modes to the car is fundamental to delivering modal shift and also a higher modal share in the new development. However, this should be supported by a reduction or management of car parking availability at key destinations.

Park & Ride

4.10 One measure that could provide significant benefit is park & ride.

4.11 As previously indicated, surveys undertaken to date appear to indicate that a high proportion of traffic on the A22 through East Grinstead has its origin or destination in East Grinstead, which are likely to include shoppers attracted from the surrounding villages. Given East Grinstead's geographical location, it is likely to have a large catchment area to the northeast and southeast, with Crawley and Haywards Heath limiting the catchment area to the northwest and southwest.

4.12 Thus, a Park & Ride site to the east of East Grinstead, capturing traffic from the A22 Lewes Road and A264 Holtze Road could significantly reduce traffic entering the town from these directions. Such a scheme would need to be attractive to users and thus would need to be cheap and easy to use and find, and could be maximised by increasing parking charges within the town centre.

4.13 As previously mentioned, a more comprehensive travel survey would provide a better understanding of origin and destination of trips and the feeling of residents towards a Park & Ride scheme.

Town-wide Travel Planning initiative

4.14 A town wide Travel planning initiative could be developed that incorporates:

- Workplace travel planning;
- Individual travel planning and marketing; and
- Co-ordination of marketing campaigns for all alternative modes.

Car Parking Strategy

- 4.15 A key influencing factor on modal choice, in addition to the availability of alternatives, is the availability of car parking at the destination. An initial investigation of car parking within East Grinstead shows that given the size of the town and town centre there is a considerable amount of car parking available. The availability of car parking within the town centre could be contributing to the level of traffic on the major routes.
- 4.16 Consideration should be given to a parking strategy that limits the availability of car parking, particularly for commuters, in order to assist with securing higher levels of travel by sustainable modes. Restricting opportunities for commuters will need to be balanced with the need to serve shoppers, especially those travelling in from the surrounding villages and settlements.

Appendix A

Study Methodology

Technical Note

Project: DfT Transport Consultancy Advice: East Grinstead	To: Ying Stanton
Subject: Proposed Methodology -	From: Huw Nicholas
Date: 02 nd March 2009	cc:

1. Introduction

Atkins Transport Planning have been engaged by the Department for Transport's (DfT) Housing Growth and Eco-Town team to provide strategic transport planning consultancy advice to selected Local Planning Authorities and to compile a 'Lessons Learnt' document for the DfT.

Atkins Transport Planning attended a meeting on the 27th of February 2009 with Officers from West Sussex County Council (WSSC), Mid-Sussex District Council (MSDC), Three Tiers Group (3TG) (known as the partners) and the DfT. At this meeting the scope of the project was discussed and the services that Atkins can provide to the partners were explored. Following this meeting Atkins agreed with the DfT to provide a working methodology for its interaction with the Council's.

This document sets out Atkins' understanding of the services that will be provided to the partners in the period to the 31st of March 2009. This proposed methodology is complementary to the overall deliverable of a 'Lesson Learnt' document that will be provided by Atkins at the end of this project.

One of the key early emerging challenges for the overall project is for Atkins to assist in determining through the wider project what information do the Local Planning Authority and both the Local and Strategic Highway Authorities require in order to support the growth point strategy being put forward and convince and Inspector that their LDF is sound?

With regards to East Grinstead the main challenge for Atkins to provide assistance with is determining at a strategic level the likely maximum capacity of the growth point site within the operational constraints of A22 as it passes through the town and to provide an outline package of measures to maximise dwelling yield on the site.

2. Proposed Methodology

There are two distinct parts to the methodology that has been devised following discussions with the partners and the DfT.

2.1 Services to be Offered

In undertaking its consultancy role to assist the partners, Atkins will undertake to provide the following services to the Council. These services have been formulated as a result of the meeting on the 27th of February 2009.

- Review of background information including previous transport studies, modelling and transport schemes;
- Provision of a high level advice on sustainable transport strategy to deliver lower modal share for private car. This will include advice from the following Atkins specialists:
 - Highways Engineer (Junction layout)
 - Transport Planning (Trip Generation Analysis)
 - Public Transport (Buses & Rail)
 - Smarter Choices/Travel Planning

2.2 Deliverables

At the completion of the project Atkins Transport Planning will provide the following deliverables to DfT and/or the partners;

- Spreadsheet base trip generation scenario testing and a qualitative assessment of impact upon key junctions on the A22 corridor through the town.
- Strategic level sustainable transport strategy to achieve lower modal share for cars.
- An overview of key junctions along the A22 through the town and technical note proposing measures to improve the capacity and/or operational efficiency and possible further areas of investigation.
- Gap analysis of the tasks undertaken to date by the Authority and identify the tasks still to be undertaken.
- Day to day transport consultancy and capacity provision.
- A summary lessons learned document from the project for the DfT.

3. Resources

Table 3.1 below puts forward a resourcing structure for the East Grinstead project that is based upon the discussions to date and the revised methodology set out above.

Table 3.1 – Proposed Resources

Task	Resource	Days
Project Co-ordination & Transport Planning Advice	Farshid Kamali	4
	Huw Nicholas	6
Background Research	Rich Franklin	4
Public Transport Advice	Matt Gamble	3
Transport Planning (Trip Generation Analysis)	Myles Kidd	5
Smarter Choices/Travel Planning	Rachel Evans	4
Highways Engineer	Phil Evans	7

Appendix B

Workshop Minutes

Meeting Notes

Project:	DfT Consultancy Advice		
Subject:	Strategic development for East Grinstead		
Date & Time:	19th March 2009 1pm	Meeting No:	1
Meeting Place:	HCA, 110 Buckingham Palace Road, Victoria	Minutes By:	Rich Franklin
Present:	Karl Fitzgerald Kelvin Hinton Chris Owen Duncan Barratt Nathan Spilsted Claire Tester Graham Arr-Jones Roger New Lawrence Stringer William Bryans Rich Franklin Colin Calver Matt Gamble Farshid Kamali	Representing:	HCA / ATLAS HCA / ATLAS West Sussex County Council West Sussex County Council Mid Sussex District Council Mid Sussex District Council East Sussex County Council East Sussex County Council East Sussex County Council Surrey County Council Atkins Atkins Atkins Atkins

Next Meeting:	Friday 24th April 2009 at 10am		
Distribution:	All Attendees Project Team		
Date Issued:	20th March 2009	File Ref:	Meeting Minutes_190309

NOTE TO RECIPIENTS:

These meeting notes record Atkins understanding of the meeting and intended actions arising therefrom. Your agreement that the notes form a true record of the discussion will be assumed unless adverse comments are received in writing within five days of receipt.

Meeting Notes

Sheet 2 of 6

Item	ACTION
<p>1. Introductions</p> <p>Advisory Team for Large Applications (ATLAS) - Action from meeting in February: follow up funding from Department for Transport (DfT). Successful. Atkins appointed.</p> <p>2. Atkins work: background to their brief, progress and intended outputs</p> <p>Atkins – Brief confirmed for Atkins work. Short 4 week study to be completed by the end of March following meeting held with 3 Tier Group on 27th February. Scenario testing to be carried out. Main objectives are:</p> <ul style="list-style-type: none">▪ To increase sustainable modeshare for the development and propose how this will be achieved;▪ Look at the maximum size of development that can be accommodated on the site without a bypass;▪ Look at five main junctions within the town centre to identify improvements that can be made to improve the operation of the junctions for more vulnerable road users; and▪ A gap analysis. <p>Atkins are reporting to West Sussex County Council (WSSC) but the study is funded by the DfT, and are also undertaking similar studies for 2 other sites (Coalville and Charnwood).</p> <p>WSSC – Atkins spreadsheet to show impact on neighbouring authorities.</p> <p>Atkins – Due to the limited timescale available, Atkins are not looking at modelling issues, but purely providing a strategic overview of the situation.</p> <p>Surrey County Council (SCC) – Can Atkins summarise their intended outputs?</p> <p>Atkins – Outputs will be:</p> <ul style="list-style-type: none">▪ Sketches of the 5 main junctions in East Grinstead (EG) along with a descriptive note on the proposed improvements;▪ A spreadsheet and technical note for the 3 scenarios tested; and▪ A note summarising this workshop. <p>SCC – What are the 3 scenarios?</p> <p>Atkins – The scenarios are to be developed with WSSC. One will be to look at what level of development can take place without a bypass. The other two will be different degrees of sustainable transport modeshare and the measures required to achieve this. The issues to be addressed from previous transport studies are:</p> <ul style="list-style-type: none">▪ Why are there so few internalised trips in 2026?▪ Will the employment development generate enough jobs to keep people within EG? <p>East Sussex County Council (ESCC) – Raised the issue of whether the development will increase the sustainability of EG as a whole.</p> <p>Atkins –</p> <ul style="list-style-type: none">▪ The Savell Bird Axon (SBA) report uses a different approach in terms of trip generation to Peter Brett Associates (PBA) report. The distribution of traffic needs to be understood – this is not obvious from the previous reports.	

Meeting Notes

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Item	ACTION
<ul style="list-style-type: none">▪ Re. scale of development, if say only 700 houses are built, there will only be around 400 trips, which is a different prospect than trying to reduce car modeshare substantially with larger development.▪ Horley is an example of public transport improvements reducing car modeshare (Fastway was extended into the development).▪ From our site visit, the perception is that it is possible to walk to most places in EG.▪ It should be possible to develop public transport in EG by 2026 if developer thinks long-term. <p>ESCC – Will the Atkins report consider the situation using EG multi-modal model?</p> <p>Atkins – The report will only consider the development; it's potential, shape, connections, public transport links and green routes. SBA and PBA have made different assumptions regarding modeshare.</p> <p>ESCC – Will Atkins be providing case studies to prove that the modeshare is feasible?</p> <p>Atkins – Aim should be to change attitude towards transport mode to increase sustainable transport modeshare, based on existing studies.</p> <p>WSCC – Starting point will be to understand the impact on the network using traditional development / trip rates, then reconsider with increased sustainable transport modeshare and what measures would be required to achieve this.</p> <p>ATLAS – It is up to the stakeholders to suggest how change could be achieved. It is imperative that the partner authorities should have a say in what is required to demonstrate that there is agreement among the partner authorities and thus ensure that more funding can be secured, if available.</p>	
<p>3. Modelling</p> <p>It was agreed that modelling issues would be dealt with in a separate meeting amongst the authorities.</p>	
<p>4. Workshop</p> <p>ATLAS – The plan for the rest of the workshop is to split into 2 groups (highway measures & alternative modes) for the following sessions:</p> <ul style="list-style-type: none">▪ The issues and constraints to movement in and around EG, followed by feedback from each group; and▪ The potential opportunities / interventions to solve these issues, followed by feedback from each group.	
<p>5. Issues and Opportunities</p> <p><i>General discussion on issues (mainly alternative mode group)</i></p> <p>ESCC – EG journeys can be split into 3 groups: internal; to / from Crawley and Gatwick; and to / from London.</p> <p>Atkins – Journey to work data is key. A section 106 could provide public transport links to the town centre and to the station (1-2km away). Fastway could be extended.</p> <p>ESCC – Crawley / Gatwick have a draw on EG.</p> <p>Atkins – New employment needs to be compatible with EG residents to</p>	

Meeting Notes

Sheet 4 of 6

Item	ACTION
<p>maximise internal trips.</p> <p>ESCC – Sceptical about ability of planning process to influence residents' place of work.</p> <p>Mid Sussex District Council (MSDC) – A study is being undertaken into station investment – regarding improvements to connectivity and signing.</p> <p>Atkins – EG station needs to perform a bigger role.</p> <p>MSDC – Worth Way runs past the development and ends up by EG station and Three Bridges station. Worth Way and Forest Way need to be connected.</p> <p>ESCC – Cycle storage facilities should be developed at EG station.</p> <p>WSCC – There is no north-south cycle route and few cycle routes within EG. Sustrans is interested in developing the St Margaret's loop, which has local support.</p> <p>MSDC – The station interchange is not ideal. Buses need to be rerouted to the station forecourt.</p> <p>WSCC – Buses get stuck in traffic queues.</p> <p>ESCC – There is commuting out of EG; there is not enough employment within EG.</p> <p>MSDC – There would be employment as part of the development.</p> <p>WSCC – Traffic congestion is a constraint on businesses.</p> <p>ESCC – EG has a skilled workforce, so there is an opportunity to develop employment.</p> <p>Development should not be a satellite to Crawley / Gatwick, otherwise it should be located closer.</p>	
<p><u>Feedback on constraints</u></p>	
<p>Highway measures</p>	
<ul style="list-style-type: none">▪ There are 5 junctions where there is concern regarding congestion. The junctions are car-dominated and need refreshing to make pedestrian / cycle friendly.▪ Only 10% of traffic is through traffic▪ Schools, the hospital, EG railway station and the shops are all attractors.▪ There is a tidal flow westwards in the AM peak and Eastwards in the PM peak.▪ Rat running takes place as a result of congestion.▪ If the development is to work, congestion issues in EG need to be addressed.	
<p>Sustainable transport</p>	
<ul style="list-style-type: none">▪ There are 2 cycle routes (Sustrans national routes) on disused railway tracks west of EG and SE from EG. These routes need to be linked through town centre.▪ There is an opportunity to link EG station to the development via Worth Way.▪ There is poor connectivity between EG station and the town centre	

Meeting Notes

Sheet 5 of 6

Item	ACTION
<p>and signing at the station is poor (this is work in progress through the Investment in Stations Programme).</p> <ul style="list-style-type: none">▪ The town centre masterplan also looks at connectivity between the station and town centre.▪ The Bluebell Railway presents a possible future link to Haywards Heath, which could be an alternative route to the constrained Balcombe viaduct / tunnel route.▪ The pedestrian environment is poor due to the speed and volume of traffic.▪ There is a low level / frequency of bus services from ESCC and the link to Crawley / Gatwick is weak. Traffic congestion is an inhibitor. <p>There is a lack of a north-south cycle route.</p> <p>6. Option Generation</p> <p><i>General discussion on options</i></p> <p>SCC – Provision of transport links through the development to the town need to be developed. These would also be attractive to existing residents nearer the town (Horley is a good example). Walking, cycling and bus routes are all required along with facilities to cross main roads. Difficult to justify P & R in EG.</p> <p>Atkins – We believe that residents of the new development going to London should not drive to the station. Thus, the development needs to provide attractive routes for pedestrians and cyclists connecting to the town centre.</p> <p><u>Feedback on Options</u></p> <p>Highway measures</p> <ul style="list-style-type: none">▪ A balanced package of measures is required. i.e. not banning the car but not making matters worse.▪ Consideration of the 5 key junctions and how they work is key. Traffic management measures should be introduced to reduce rat running. So far, this has mainly revolved around the relief road.▪ Development should be integrated with the town and be orientated towards the town, rather than stand alone / orientated towards the bypass.▪ EG station should be enhanced and the signage improved. <p>Sustainable transport</p> <ul style="list-style-type: none">▪ Role of EG needs considering. The transport intervention work should fit with the current role of EG – essentially a dormitory town – and consider to what extent the new development maintains this role. More housing suggests that the existing role will be maintained. If it is to be a dormitory town, it is better to have a sustainable link than distribute development across the hinterland with less sustainable links.▪ There is an excellent opportunity to develop links using the old railway lines. This should be a priority for the town centre and there is an opportunity to link the new development to Worth Way.▪ There is potential for a sustainable route into town from the North.▪ A Station Improvement Study is being undertaken. The station needs to be made attractive to sustainable modes and act as a public transport interchange, with cycle and pedestrian facilities. <p>There is a constraint to pedestrian movements with the severance at the key junctions; more priority needs to be given to pedestrians at junctions.</p> <p>7. Next steps</p>	

Meeting Notes

Sheet 6 of 6

Item	ACTION
<p>WSCC – Even with sustainable transport provision, there will still be residual car trips from the development, so there needs to be an element of highway improvement, otherwise the development will fail.</p> <p>ATLAS – The really difficult bit will be to persuade existing car users away from their vehicles and gain member support.</p> <p>WSCC – WSCC is concerned at how highway issues will be resolved.</p> <p>Atkins – Increasing priority for sustainable modes at junctions in EG will affect highway capacity until traffic settles down.</p> <p>WSCC - MSDC will be against development if it results in traffic congestion.</p> <p>ESCC – The perception of highway improvement is if journey times are cut, but there is a need to look at the situation holistically. New road capacity provided by a bypass would not remove the problem, but merely create it somewhere else.</p> <p>ATLAS – Has a park and ride option been considered?</p> <p>WSCC – Chichester quoted as an example of a similar sized town where studies have been done – it is not easy to make P & R work in a town of this moderate size. The danger is that shoppers may be frightened away.</p> <p>ATLAS – Are there many potential sites?</p> <p>WSCC – Not a great amount of work has been done on P & R in EG.</p> <p>WSCC – One approach would be to improve the A22 junctions for traffic then improve them for pedestrians and cyclists later.</p> <p>Atkins – The proposals for junction improvements will be drafted schematically and forwarded to WSCC.</p> <p>ATLAS – Proposed that the next meeting should be in early April to discuss the Atkins report. MSDC need to feedback to the LDF / core strategy group by June / July, so has to be written by the end of May.</p> <p>ATLAS – Further DfT funding is uncertain. ATLAS will enquire about situation. There is an opportunity to influence the DfT.</p> <p>WSCC – Atkins report will suggest proposals and the options that can work which address concerns of neighbours.</p>	
<p>8. Date for next meeting</p> <p>Next meeting arranged for Friday 24th April at 10am.</p>	

Appendix C

Summary of previous work undertaken

Technical Note

Project: DfT Transport Consultancy Advice	To: DfT / WSCC
Subject: East Grinstead Background information Technical Note	From: Rich Franklin
Date: 03 April 2009	cc: Project Group

1. Introduction

The aim of this technical note is to provide a summary of background work undertaken in assessing the strategic development in East Grinstead.

1.1 Information received from West Sussex County Council

The following information has been received from Chris Owen, West Sussex County Council:

- East Grinstead Traffic Studies Review of Bypass Options Junction Improvements Studies, produced by Atkins (November 1995);
- Notes from WSCC Mid Sussex member meeting on Strategic Development at East Grinstead - 22nd January 2008;
- Presentation to East Grinstead Three Tiers Group by Chris Owen on 11th September 2008, outlining deliverability of relief road, funding, planning constraints, cross boundary issues, impact on Forest Row and modelling update;
- Notes from ATLAS (Advisory Team for Large Applications) Transport Meeting regarding WSCC Position Summary on East Grinstead Strategic Location - 14 November 2008;
- Design drawing for proposed A22 London Road / Lingfield Road junction (signalisation) to provide better facilities for pedestrians and cyclists (in works programme for implementation in 2009/10 financial year using S106 funding); and
- Notes from WSCC Mid Sussex member meeting on Strategic Development at East Grinstead - 22nd January 2009.

These are summarised in more detail below:

East Grinstead Traffic Studies Review of Bypass Options Junction Improvements Studies, produced by Atkins (November 1995) – hard copy only.

- Over 32,000 vehicles per day (1993) use the section of the A22 between the Felbridge junction and Imberhorne Lane.
- There is heavy traffic during the AM and PM peak hours and on holiday weekends resulting in pressure on A22 junctions in East Grinstead (Imberhorne Lane, Lingfield Road, Station Road and Moat Road). There are also impacts on surrounding villages as drivers seek alternative rural routes.
- WSCC has promoted a bypass for the town to reduce traffic levels in East Grinstead. Original proposals linking the bypass to M23 were dropped following public consultation. ESCC are concerned about the potential traffic impact on the A22 south of East Grinstead and a bypass for Forest Row has been rejected by ESCC because of the impact on Ashdown Forest.
- Government policy has been revised to reduce non-essential car usage to constrain traffic growth, congestion and air pollution, so WSCC identified that a bypass should be single carriageway, designed to relieve East Grinstead of through traffic and should improve access for local residents, without attracting additional traffic to the A22 route.

- WSCC have identified a 3 pronged strategy as follows:
 - Short-term: improvements for pedestrians, addition of signing and cycle parking;
 - Medium-term: development and implementation of Local Transport Plan, including improvements to junctions on the A22, traffic calming on residential routes and pedestrianisation of all or part of the town centre shopping area; and
 - Long-term: construction of a bypass / relief road.
- The report reviews long term bypass options and considers and assesses junction improvements at:
 - A22 / Imberhorne Lane;
 - A22 / Lingfield Road;
 - A22 / Station Road / Moat Road / Park Road; and
 - A22 / Herontyne Drive, as well as A22 / Bourg-de-Peage Avenue and A22 / Woodbury Avenue junctions.
- The East Grinstead “town model” was developed by Atkins as part of a previous review of the bypass. Additional RSI survey data was collected in 1989 via a cordon survey around the town and at several town centre car parks. The “Town model” included a strategic network of routes.
- The Town model was updated by WSCC and revalidated to a 1994 base year as the “A22 Route model”. This is the basis for the report. It assumes that most traffic able to make use of A23 / A27 trunk road will do so.
- The report considers options for a bypass and improvements at a number of key junctions on the A22 within East Grinstead, and combines these in a strategy.
- The report recommends:
 - Widening of the A22 northbound approach to Imberhorne Lane and retiming of signals to increase capacity;
 - Conversion of the roundabout at the A22 / Lingfield Road junction to traffic signals and widening of northbound approach to accommodate longer right turn facility with provision of a new footbridge adjacent to road bridge;
 - Signalisation and linking of the A22 / Station Road / Park Road / Moat Road system – possibly to Lingfield Road;
 - Signalisation and linking the A22 / Bourg de Peage / Herontyne Drive / Woodbury Avenue junctions; and
 - Traffic calming measures on Imberhorne Lane, Heathcote Drive and Gardenwood Road.
- The report states that cycle lanes cannot be justified due to the limited land available, the low volume of cyclists and the impact it would have on other road users.
- The report assumes a growth in traffic of 1.5% per annum. Thus, medium term solutions do not offer a long term solution (no relief to the A22 through the town).
- The effects of pedestrianising the High Street and London Road (to King Street) were considered.
- Effective long term relief to traffic is most likely to be achieved by a bypass / relief road. This would result in a significant decrease in traffic on the existing A22 route and also on the Imberhorne Lane / Heathcote Drive / Gardenwood Road rat run. The relief road puts some additional pressure on Imberhorne Lane (south of Heathcote Drive), Turners Hill Road, Brooklands Way and West Hill, but offers significant time savings to local as well as longer distance trips.

Notes from WSCC Mid Sussex member meeting on Strategic Development at East Grinstead - 22nd January 2008.

- Current position regarding strategic development and proposed approach of WSCC outlined.
- The West Sussex Structure Plan could accommodate 2,500 homes by 2016 providing that a package of transport improvements, including a relief road, can be delivered.
- The developers in control of land west of East Grinstead (the developer consortium) have stated that a development of 2,500 units cannot deliver the complete infrastructure package, including the relief road and other transport measures, as the development is no longer financially viable.
- Delivery of the relief road requires land in ESCC that is currently outside the control of the developer. If a Compulsory Purchase Order (CPO) were required, ESCC, as the highway authority, would need to support the CPO process. The indications are very clear that ESCC would not support a CPO to deliver the relief road.
- Despite the traffic modelling demonstrating benefits from the relief road, it is clear that a high percentage of traffic on the A22 and A264 in the peak periods has its origin or destination in East Grinstead and hence will not be diverted from the town by the relief road.
- Due to the difficulties associated with delivering the relief road, MSDC is now considering alternative options, including a reduced level of development west of East Grinstead, supported by a full range of alternative transport improvements.
- WSCC will work with MSDC to develop infrastructure plans establishing the infrastructure required to support different levels of development in and around East Grinstead and seek financial support from DCLG to assist the development of the required infrastructure plans.

Presentation to East Grinstead Three Tiers Group by Chris Owen on 11th September 2008, outlining deliverability of relief road, funding, planning constraints, cross boundary issues, impact on Forest Row and modelling update.

- The key issues were identified as:
 - Funding;
 - Planning constraints; and
 - Cross boundary issues.
- April 2007 - developers indicated cost of transport package could be met with 30% affordable housing, but there is greater uncertainty now.
- Other potential sources of funding include:
 - A Community Infrastructure Levy; and
 - A bid to SEERA / RTB for Regional Funding Allocation or Regional Infrastructure Fund.
- The preferred bypass route includes sections in Green Belt and High Weald AONB, but neither rules out a relief road in principle. Need for the bypass and mitigation measures will need to be demonstrated through planning process.
- It was made clear in SE plan and GOSE meeting in October 2007 that it is the duty of adjoining authorities to co-operate. Surrey CC is not opposed to the relief road in principle, but ESCC is on traffic impact grounds
- Further analysis regarding the impact on Forest Row and mitigation is required along with working alongside ESCC.

- The current County and District Council policies require a relief road. 2007 modelling concluded that only full relief road could meet the needs of the new development and deliver the required traffic relief. It also showed reduced development with partial relief road creates less relief than 2500 homes with full relief road.
- Route from A22 Wych Cross to M23 J10a using rural roads considered (12.5km). Cost would be £80M and would be remote from development, so would be difficult to fund. It would be difficult / costly to meet the design standards. The route was not considered feasible so has not been tested.
- The modelling approach is sound because it complies with the DfT's required methodology; the strategic development is fully represented in the correct locations and the 2008 tests have included updated assumptions on junction design, employment and bus routes.

Notes from ATLAS (Advisory Team for Large Applications) Transport Meeting regarding WSCC Position Summary on East Grinstead Strategic Location - 14 November 2008.

The main issues were identified as follows:

- The existing highway infrastructure is inadequate causing acute congestion and rat-running (urban and rural);
- Rail services are overcrowded, especially at peak times, and are not able to serve local journeys or Crawley / Gatwick trips;
- Bus services are affected by congestion, are unattractive and thus there is scope for bus priority; and
- There are cross-boundary issues in terms of the impact on Forest Row in ESCC and general impact in Surrey especially with MSDC's preferred relief road Option 1b.

Design drawing for proposed A22 London Road / Lingfield Road junction (signalisation) to provide better facilities for pedestrians and cyclists (in works programme for implementation in 2009/10 financial year using S106 funding).

Notes from WSCC Mid Sussex member meeting on Strategic Development at East Grinstead - 22nd January 2009.

The key transport issues and members' primary concerns in East Grinstead were identified as follows:

- The A22 London Road bridge over St Margaret's Loop should be widened or a new footbridge constructed alongside;
- The London Road / Lingfield Road junction should be converted to signals, which should start as soon as possible (using S106 funding). This junction is the worst pinch point on the A22 through East Grinstead;
- Either provide more lanes at the A22 / A264 Felbridge junction or replace it with a roundabout. If signals are retained at Felbridge, they should be linked with the Imberhorne Lane signals;
- An engineering study is required to establish the deliverability and cost of an alternative relief road route (A22 Wych Cross to M23 J10A); and
- There is local member consensus that the A22 junction improvements should be part of any transport package for East Grinstead. A technical assessment is needed to establish the extent of benefits.

1.2 Information downloaded from Mid Sussex District Council (MSDC) website

1.2.1 East Grinstead Area Action Plan

The purpose of the Area Action Plan (AAP) is to provide the planning framework for strategic development and to allocate land for mixed-uses, a transport package and associated infrastructure. The AAP, once adopted, will be one of a number of Development Plan Documents that will form part of the Local Development Framework (LDF) for Mid Sussex. Background studies have been undertaken for the AAP. This information is available from the MSDC website via the following link: <http://www.midsussex.gov.uk/page.cfm?pageid=3749>

The following information has been downloaded:

- Topic papers;
- Peter Brett Associates East Grinstead Relief Road options Costings Report;
- Savell Bird and Axon Updated Strategic Transport Assessment Report (STAR);
- Peter Brett Associates Detailed and Summary Appraisal Reports (for West Sussex County Council);
- Report to Better Environment Advisory Group; and
- WSCC technical note on weekday & weekend traffic survey comparison.

These are summarised in more detail below:

Topic papers

- Topic Papers were prepared in response to comments received following publication of the East Grinstead Area Action Plan Pre-Submission document and Sustainability Appraisal. These included papers on:
 - Highways and transport (General);
 - Relief road (general);
 - Impact on (surrounding settlements);
 - Relief road option 1a;
 - Relief road option 1b;
 - Relief road option 2c;
 - Relief road option 2e;
 - Relief road option 3b;
 - Alternative routes;
 - Major junctions;
 - Other road issues; and
 - Other measures (transport).
- Issues raised by the topic papers helped to inform the progression of the modelling work and further transport assessment that was carried out in the months following the end of the consultation. Therefore, officer responses within the transport Topic Papers provided additional information and responded to many points raised, but did not attempt to provide answers to all questions.

Peter Brett Associates East Grinstead Relief Road options Costings Report – February 2007

PBA were commissioned by West Sussex County Council (acting on behalf of Mid Sussex District Council) to provide comparative costs between different relief road options under consideration by Mid Sussex District Council as part of their Local Development Framework preparation.

Savell Bird and Axon Updated Strategic Transport Assessment Report (STAR) – June 2007

- Savell Bird and Axon were commissioned by the developer consortium for the strategic development to the west / south west of East Grinstead (Taylor Woodrow, David Wilson Homes, Linden Homes and Persimmon Homes).
- The STAR was originally produced in April 2006 to interpret PBA modelling results at a strategic level as a background technical document to the AAP.
- The STAR was updated in June 2007, reporting on work undertaken to further assess the transportation implications of strategic development to the west of East Grinstead. It supports Topic Papers that MSDC have produced to reply to the issues raised in the consultation responses.
- PBA were commissioned by WSCC to undertake further work to update the model following additional data collection in 2006, changes in bus services and to then use the model to test options for the strategic development to the west of East Grinstead proposed in the AAP and the associated relief road. The results from this further modelling work are included in this report.
- Options tested using the Transport Model have been agreed by the Model Steering Group that consists of WSCC and MSDC officers, SBA and PBA.
- Results of the testing undertaken using the Transport Model have been assessed on a strategic level to compare the impact on traffic flows predicted at key locations to allow the various transport package options to be compared. More detailed work will be required at a local level should the draft Area Action Plan be adopted and a single preferred option selected.
- Extensive discussions have been held with WSCC, and MSDC, as well as the Highways Agency (as the highway authority for the M23) and with Surrey and East Sussex County Councils as the neighbouring highway authorities
- The future assessment year is 2021 and traffic growth allows for all other planned development in and around the town.
- Town Centre Masterplan proposals have been allowed for in the Transport Model in terms of the potential increases in transport demand associated with the re-development.
- Elements of the transport package proposed include public transport improvement, better facilities for pedestrians and cyclists, junction improvements, a relief road and traffic management measures.
- Impacts of both the strategic development and a reduced strategic development have been assessed.
- Analysis of 2001 Census data has shown that East Grinstead does not act as a dormitory settlement for Crawley and confirms that the modal split in terms of bus usage is low;
- Two options for the strategic development at East Grinstead are recommended to MSDC for further consideration in the wider context of environmental, economic and other issues. These are:

- A strategic development of 2,500 units with an associated transport package of new bus services and junction improvements, a full relief road, improvements for pedestrians and cyclists and traffic management.
- A strategic development of 1,500 units with an associated transport package of new bus services, junction improvements, improvements for pedestrians and cyclists and traffic management.
- The Report recommends that improvements in facilities for walking and cycling and traffic management measures to ensure that traffic uses the appropriate roads should also form key elements of the package of measures associated with both of these options.

Peter Brett Associates Detailed and Summary Appraisal Reports (for West Sussex County Council) – June 2007

- In 2004, West Sussex County Council (WSCC) commissioned Peter Brett Associates (PBA) to develop a multi modal transport model for the wider East Grinstead area to assess the impact of traffic flows under a number of different future year scenarios to inform the planning process. Extensive data collection was undertaken during 2004, which was used as the base year for the assessment, and the model was constructed during 2004/2005.
- During development of the model, extensive discussions were held between MSDC, WSCC, PBA, SBA and neighbouring planning and highways authorities. Discussions were also undertaken with local transport operators and other groups such as national and local environmental organisations.
- Transport packages considered include a combination of:
 - a relief road of varying lengths and route alignments;
 - junction improvements on the A22, A264 and M23;
 - new and improved bus services; and
 - bus priority schemes.
- Resulting from topic papers, further survey work was undertaken in 2006, including a number plate / cordon survey that was undertaken on the main roads into East Grinstead to try to establish the level of traffic passing through the town and the proportion of traffic that has either an origin or destination in the town. Further survey work has helped to provide information on journeys to work, modal split, queue lengths and journey times.
- Thus the model is calibrated against a 2006 base and used to assess transport conditions in the morning (AM) and evening (PM) peak hours in 2021 - the assumed year of completion of the proposed strategic development.
- Following a review of the draft STAR, West Sussex County Council officers concluded that in order to fully check and challenge the work and the conclusions drawn from it an independent report was required. A review of the STAR identified that the proposed improvement to the A22 / A264 Felbridge junction actually reduced the capacity of the junction for traffic turning south from the A22 into either the A264 or southbound into East Grinstead. Therefore, the junction was redesigned to ensure no capacity was lost. All future year scenarios were then re-run and these model outputs are presented in this report.
- Thirteen options were tested, ranging from a 'do minimum' scenario (traffic growth and committed highways improvements but no development or wider junction improvement strategy), through to full development scenarios (2,500 houses, full relief road, junction improvement strategy etc). This included options for a reduced strategic development of 1,500 homes and associated uses with a partial relief road or no relief road. It should be noted that a reduced development would not be able to fund a full relief road.

- Within all options tested, the levels of traffic growth to 2021 include the traffic associated with the 2,000 houses expected to come forward through small scale allocations and windfall development in East Grinstead.
- All scenarios include the following highway improvements identified as schemes programmed for delivery by WSCC and/or HA at the time of enquiry:
 - A22 Lewes Road - Speed Management Measures;
 - M23 junction 10 – improvements to off-slips and access from southbound motorway slip to A264; and
 - A264 Copthorne Way – eastbound capacity improvements.
- All the scenarios, except the 2021 Do-Minimum also include a set of improvements to five key junctions along the A22 in East Grinstead. The traffic signals are optimised at Felbridge Junction and Imberhorne Lane. Traffic signals are introduced at the junctions with Lingfield Road, Station Road and Moat Road.
- The report contains journey times, junction delays and link flows chosen to illustrate highway conditions for each of the scenarios tested.
- The conclusion summarises the issues for each of the scenarios tested.
- The general conclusions are as follows:
 - There will be a major deterioration in traffic conditions in East Grinstead by 2021 if no improvements are made to the highway network;
 - Improving key junctions on the A22 can considerably reduce delays in the town;
 - Other junctions are also causing considerable delay and efforts should be made to see if they can also be improved;
 - The highway network cannot support either the reduced or full levels of strategic development without the provision of new road links;
 - The provision of a relief road does reduce congestion in the town, particularly at Felbridge junction; and
 - Providing a reduced level of development and only part of the relief road does not provide as much relief to the town as providing the full relief road with the full level of strategic development.
- Thus the report recommends a single option for the strategic development at East Grinstead:
 - A strategic development of 2,500 units with an associated transport package of new bus services and junction improvements, a relief road using links 1b, 2c and 3b, improvements for pedestrians and cyclists and traffic management.
- Members of the Better Environment Advisory Group asked for a further scenario to be tested through the East Grinstead Transport Model on 3rd July 2007.

Report to Better Environment Advisory Group – 3rd July 2007

- The report summarises the situation and transport work undertaken to date. It sets out officer conclusions regarding a single route for the relief road.
- This report and the associated transport assessments expand on a number of transport issues referred to within the Topic Papers.
- It provides an overview of transport work undertaken and summarises the findings of the transport assessments. It goes on to report the views of West Sussex County Council, as

the highways authority, on the interpretation of the model outputs and other issues relating to the transport package.

- The report sets out a number of officer recommendations, including a single preferred option for the relief road.
- Following completion of the transport assessments, MSDC asked WSCC, in their 'checking and challenging' role to respond to a number of transport questions. It was requested that WSCC provide assurance that the process undertaken in assessing the transport elements is 'sound' and provided guidance as to how various elements and conclusions from the transport assessments need to be interpreted and taken forward. This relates to the following issues:
 - The Transport model;
 - The Assessment year;
 - The Area of Outstanding Natural Beauty;
 - The Benefits to East Grinstead of the full scheme compared to the reduced development and partial relief road;
 - Whether the partial development with no relief road would be acceptable in transport terms; and
 - The cross boundary implications and considerations for 'preferred options'.
- Further Transport Assessment / Work
 - Further more detailed assessment of the junction strategy (including 'secondary' junctions that have not, as yet, been assessed in detail) and road alignment will be undertaken when a single relief road option is being worked up for inclusion within the Submission document and to support the examination of the Area Action Plan.
 - Further consideration of how to mitigate any significant increases will be required. Mitigation measures could include a review of junction layouts and parking locations coupled with route management treatment and improved signing to ensure drivers are directed to the most appropriate route for their destination.
 - Discussion needs to continue with Surrey County Council focussing on traffic management measures required on the minor roads in Surrey and with East Sussex County Council focussing on traffic management measures required in Forest Row.
- In the light of findings from both transport reports and advice from West Sussex County Council Highways officers, District Council officers believe that the full development with the full relief road provides the greatest benefits for East Grinstead and the surrounding area and the East Grinstead Area Action Plan would be revised to reflect this. Adoption of the Area Action Plan is now expected in June 2009.
- The following appendices are included in the report:
 - Appendix A – Scenarios tested through the transport model
 - Appendix B – Comparison of relief road options 1a and 1b based on sustainability appraisal objective 9
 - Appendix C – Timetable for the progression of the Area Action Plan

WSCC technical note on weekday & weekend traffic survey comparison - July 2007

- Transport appraisals for the Area Action Plan have only considered the weekday situation. MSDC members expressed concern that the weekend situation had not been considered.

West Sussex County Council agreed to carry out weekend traffic surveys and compare the findings against the weekday cordon data collected in 2006.

- July 2007 weekend survey has demonstrated that, whilst journey purpose and traffic mixture changes at the weekend, flow levels do not significantly exceed the weekday peak situation. Therefore, as the weekday peaks are representative of the 'worst case' situation, modelling of the weekday peaks only is considered sufficient to fully represent traffic situation in East Grinstead. Modelling weekend scenarios would not be sufficiently different from weekday to warrant construction of a separate weekend model in terms of potential cost and delay.

1.2.2 Core Strategy

A background study has been undertaken for the Core Strategy, and is available from the MSDC website via the following link: <http://www.midsussex.gov.uk/page.cfm?pageID=8059>

The following information has been downloaded:

- Mid Sussex Transport Study; and
- WSCC Summary note on the Mid Sussex Transport Study.

These are summarised in more detail below:

Mid Sussex Transport Study

- In January 2008, MSDC commissioned MVA to assess transport implications of the emerging Core Strategy. The main objectives of the work were to:
 - Test the impact of strategic development locations on the road network in and around the district; and
 - Inform where transport infrastructure improvements are likely to be required to enable individual development to go ahead.
- At the request of East Sussex County Council, the study was extended to assess the impact of development options on the highway network of neighbouring authorities.
- Details of the report are summarised in the section on the WSCC Summary note on the Mid Sussex Transport Study 2008 below.

WSCC Summary note on the Mid Sussex Transport Study 2008

- At the request of MSDC, WSCC produced a non-technical summary of the Mid Sussex LDF Transport Study report prepared by MVA in August 2008.
- The document examines the results of the option tests which have been performed to date and provides guidance and suggestions as to further analysis that may be of benefit in the next round of tests.
- The study examined seven options for allocation of the Housing Allocation for Mid Sussex by 2026 and has compared this to a 2026 Baseline of 9000 dwellings to be provided on non-strategic sites. The options vary in the quantum of housing numbers across the District from 14,900 to 16,000, inclusive of the 9000 from the baseline. The sites are located at:
 - Burgess Hill;
 - Haywards Heath;
 - Crabbet Park; and
 - East Grinstead.

- The assessment was based on the West Sussex County Model – a strategic multi-modal model for the weekday AM peak (0800–0900 hours). The model does not simulate operation of traffic through individual junctions, but gives a general indication of the capacity of highway corridors, and models strategic public transport services, indicating how much travel would be attracted to them, but does not model over-capacity / crowding effects.
- The results should be regarded as indicative of the areas where impacts are likely to take place and where further investigation and analysis will be necessary in order to establish more detailed mitigation strategies. The model indicates relative scales of impacts from different patterns of development and likely hotspots, thus identifying least impact scenarios as well as information to discard those with unnecessarily high levels of transport impacts.
- For each option the study has reported graphically on three key indicators:
 - Changes in highway traffic flows;
 - The ratio of traffic flow to highway capacity; and
 - Changes in travel mode from highway to public transport.

East Grinstead – Site V/W

- The site is located to the south and west of the town and does not involve progression of an East Grinstead Relief road scheme.
- All options show an adverse impact to the A22 at Felbridge and the A264 west of Felbridge. Two options also show some impact to the A264 at Copthorne. These will be difficult to mitigate, but public transport improvements on the corridor including priority measures could be investigated.
- A local road access link from the site to the A264 west of Felbridge would benefit these areas, but could lead to increased rural ratrunning to the south by through traffic.
- Further model tests should be undertaken to ascertain the effect of the partial relief road. This is likely to mitigate impacts at Felbridge, but the results for A264 to Copthorne and for roads to the south of East Grinstead town centre should be analysed closely. Public transport improvements on the Crawley to East Grinstead corridor should also be modelled.

1.3 MTRU

A draft report has been received from MTRU, who are assisting East Grinstead Town Council in their assessment of the transport implications of new housing development. MTRU's brief is to provide an evidence based assessment of what changes could be made to transport provision and how much new development this would facilitate.

The report essentially summarises and reviews the PBA and MVA reports outlined above. It also :

- identifies that lane weaving is necessary on through routes around the gyratory;
- supports previous findings that junctions on the A22 should be signalised using a linked system;
- does not consider the relief road as it is understood that the relief road is no longer viable, has environmental consequences and there are conflicting results concerning how much relief the new road would provide; and
- States that it is clear from the modelling that a greenfield development of 1,500 homes, with an access road using part of the route of the proposed bypass, would cause major traffic problems for the town.