ATKINS

West Sussex County Council

East Grinstead Stage 3 Traffic Management Study

Stage 1 Road Safety Audit

February 2012

Plan Design Enable

West Sussex County Council

East Grinstead Stage 3 Traffic Management Study

Stage 1 Road Safety Audit

February 2012

Notice

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Document History

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Appendices

1. Introduction

Commission and Terms of Reference

1.1 Atkins has been commissioned by West Sussex County Council (WSCC) to undertake a Stage 1 Road Safety Audit (RSA) of the proposals to introduce improvement along the A22 London Road in East Grinstead as part of the Stage 3 Traffic Management Study.

1.2 The audit has been conducted with reference to the procedures and scope set out in the Highways Agency's 'Design Manual for Roads and Bridges' (DMRB), Volume 5, Section 2, Parts 2 and 3, 'Road Safety Audit' Standard HD 19/03.

Audit Team

1.3 The Audit Team membership was as follows:

- **Audit Team Leader:** Paul Gannon BEng CEng MICE MCIHT
  Managing Consultant
  Atkins Highways and Transportation, Euston Tower
- **Audit Team Member:** Samantha Grant MTechEng MCIHT
  Managing Consultant
  Atkins Highways and Transportation, Euston Tower

Procedure

1.4 The audit comprised an examination of the preliminary design drawing, RSA brief and site visit. The site visit was carried out on Wednesday 15 February 2012 in dry and overcast conditions.

1.5 The brief was provided by the Atkins Design Team, and consisted of scheme drawings and an audit request form.

1.6 Appendix A of this report lists the contents of the audit brief. Appendix B contains the design drawings used in this audit. The locations of the problems raised are illustrated on the Problem Location Plan in Appendix C.

1.7 The problems identified through this Stage 1 are detailed in Section 3. Section 4 comprises the Audit Team Statement.

1.8 Atkins has examined and reported on only the road safety implications of the measures as presented. The designs were not specifically examined or verified for compliance to any other criteria. However, to clearly explain a safety problem or the recommendation to resolve a problem, the Audit Team may, on occasion, refer to a design standard without undertaking a technical audit.

Issues

1.9 The RSA brief did not provide the following details and as a result, the audit does not take these into account:

- Vehicle speeds;
- Lighting;
- Antiskid;
- Drainage; and
- Any departures from Standard.

2. Scheme Description

Location

2.1 The sites are located along the A22 London Road, between A264 Copthorne Road and A264 Moat Road in East Grinstead. The A22 London Road is a single carriageway with direct access to properties as well as side road access. There is one section of on-street parking located between Station Road and Moat Road.

2.2 The speed limit within the area is mostly 30mph, with a section of 40mph on the western approach to Copthome Road junction, with no restricted movements to general traffic.

Scheme Description

2.3 The aim of the scheme is to provide additional capacity along this section of the A22 London Road. A number of the junctions has, at least, two options with the main alterations including:

- A22/A264 Copthorne Road Junction:
  - Provision of an additional short exit lane on A22 London Road southbound;
  - Remarking the A264 Copthorne Road approach to allow a double right turn;
  - Extending the left turn lane on the A22 London Road northbound approach by widening the western side of the road;
  - Provision of new traffic islands on all approaches to the junction;
- A22/Imberhorne Lane Junction:
  - Provision of additional southbound lane on the approach to the Imberhorne Lane junction;
  - Additional short exit lane on A22 London Road southbound;
  - Reconfigure the Imtherhorne Lane approach to the junction by providing a reverse staggered pedestrian crossing as part of a committed scheme associated with the redevelopment on Imberhorne Lane;
  - Provision of a wider traffic island on the A22 London Road south approach;
- A22/Lingfield Road Junction:
  - Removal of mini roundabout junction control and installing traffic signals;
  - Provision of traffic islands on all approaches;
  - Provision of staggered pedestrian crossings;
  - Carriageway widening on the bridge across the dismantled railway;
- A22/Station Road and A22/Moat Road junctions:
  - Additional lane capacity; and
  - Provision of pedestrian crossing at the A22 London Road/Station Road junction.

Departures from Standards

2.4 The brief does not indicate any departures from standards.

3. Problems Raised by this Stage 1 RSA

3.1 Unless general to the scheme, the annotated plan in Appendix C indicates the locations of the safety problems raised in this section and are cross-referenced to the location reference numbers attributed to each problem.

General Issues to all Proposals

Location Reference No: 1	
Location: Drg Nos. 5107918/TP/PD/301 & 303	
Problem:	General - Reduced lane widths
Summary:	There are also lanes indicated to be 2.5m wide. This is considered insufficient given that site observations indicate that this road carries a high number of HGVs as well as being served by double decker buses.
Recommendation:	Consider adjusting lane widths to suit the traffic that is expected to use the carriageway.

Location Reference No: 2	
Location: Drg Nos. 5107918/TP/PD/201 & 202, 5107918/TP/PD/301 & 302	
Problem	General - Access to properties on eastern side of carriageway
Summary	Vehicles turning right from A22 London Road northbound to access private properties on the eastern side of the carriage will have to cross two oncoming traffic lanes. This may increase the likelyhood of head-on collisions and pedestrian/vehicle conflicts across the accesses, as drivers concentrate on crossing the two lanes of oncoming traffic.
Recommendation	Assess the usage of accesses to the affected properties.

Location Reference No: 3	
Location: Drg Nos. 5107918/TP/PD/103 & 5107918/TP/PD/201,	
Problem	General - Relocation of advance direction signs following carriageway alignment changes.
Summary	There is insufficient detail on the drawings as to where the advance direction signs will be relocated to. The reduced footway widths seem insufficient to accommodate signs and will result in a reduced effective footway width for pedestrians. The locating of the advanced direction signage could lead to driver missing the sign and making sudden manoeuvres further along the carriageway.
Recommendation	Consider the location of the advanced directional signage, to ensure that there is enough effective public highway available for all road users.

Location Reference No: 4	
Location: Drg Nos. 5107918/TP/PD/101 & 102, 5107918/TP/PD/301 & 302, 303, 5107918/TP/PD/41	
Problem	Non Motorised User Provision - Lack of 'tails' on tactile paving
Summary	The provision of 'tails' on the tactile paving at junctions can lead to confusion for the sight impaired as they will not be able to determine the direction leading to the pedestrian crossings.
Recommendation	Provide 'tails' on tactile paving on the approaches to pedestrian crossings.

A22/A264 Copthorne Road Junction

3.2 General

Location Reference No: 5	
Location: Pedestrian crossing on A22 Eastbourne Road approach (Drg Nos: 5107918/TP/PD/101 & 102)	 Photo taken looking eastwards at the pedestrian crossing on the A22 Eastbourne Road approach to the A264 Copthorne Road junction
Problem:	Junctions - Vehicles exiting the properties on the eastern side of the carriageway making use of the pedestrian crossing
Summary:	There is an extended dropped kerb in front of the properties on the eastern side of the pedestrian crossing. Vehicles exiting these properties have been observed to exit the properties by using the dropped kerb on the pedestrian crossing, thereby crossing the pedestrian area to access the junction, past the stop line. This could lead to both vehicle/vehicle conflicts and pedestrian/vehicular conflict within the signals controlled area.
Recommendation:	Consider relocating the pedestrian crossing, or ensure that vehicles cannot exit the property within this area of the carriageway.

Location Reference No: 6	
Location: A22 Eastbourne Road west side (Drg Nos: 5107918/TP/PD/101 & 102)	 Photo taken looking north along A22 Eastbourne Road
Problem:	Non Motorised User Provision - The alignment of the kerb creates a pinchpoint for pedestrians as well as on-carriageway drainage concerns
Summary:	Although the alignment of the kerb currently creates a pinchpoint for pedestrians at this location, by amending the footway in this area, it is increasing the likelihood that pedestrians will take the desire line approach, and enter the carriageway to continue along the footpath. It was also noted that water ponds at a low point, in this desire line, and when freezing conditions exist, pedestrians could slip in the live carriageway.
Recommendation:	Adjust the western kerbline to widen the footway, providing additional footway width for pedestrians, whilst also removing the low point in the channel line.

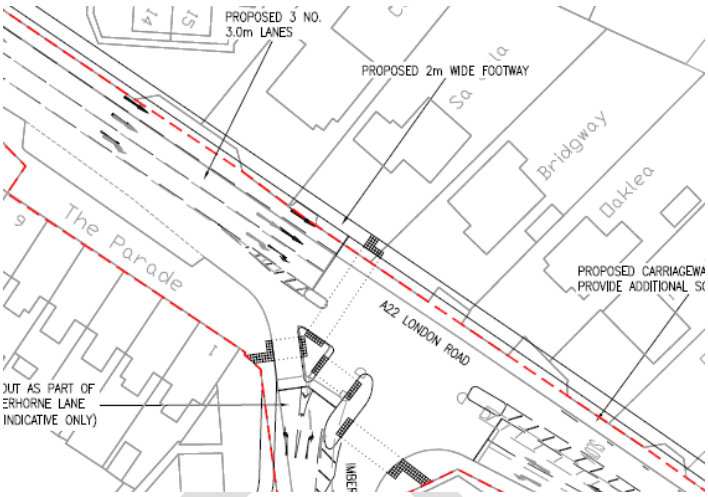
Location Reference No: 7	
Location: A22 London Road southbound exit lane (Drg Nos: 5107918/TP/PD/101 & 102)	 Photo taken looking north on the A22 London Road southern approach exit lane
Problem:	Junctions - Provision of short exit lanes accommodating a HGV and other vehicle turning at the same time
Summary:	The drawings indicate the provision of two short lanes merging into one lane on the southbound exit of the junction. The right turn from A264 Copthorne Road seems to be a main route for HGVs and articulated trucks. Although the turning analysis indicates that there is sufficient carriageway space available for a HGV and a large van to make this right turn together, at higher speeds these vehicles would be in conflict, causing side swipe collisions.
Recommendation:	Check that adequate provision has been made for these vehicles by confirming that appropriate speeds have been used when undertaking analysis.

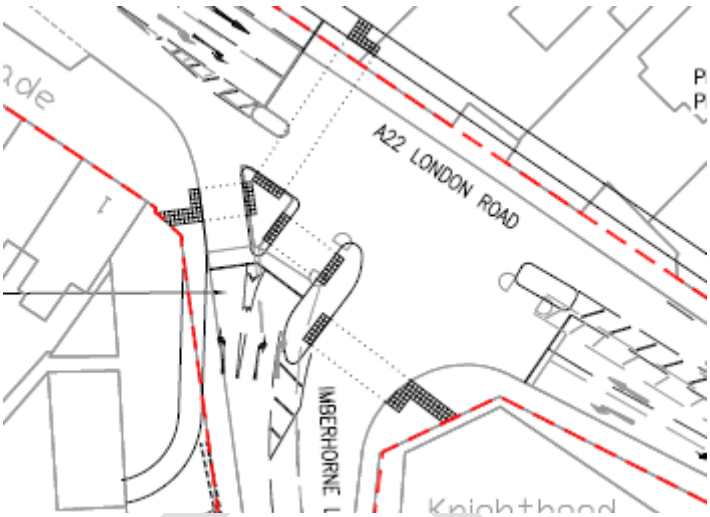
Location Reference No: 8	
Location: A22 London Road western kerb alignment (Drg No: 5107918/TP/PD/103)	 Photo taken looking south onto the A22 London Road northbound from The Feld
Problem:	Local Alignment - Widening of western kerbline reduces visibility
Summary:	The widening of the western kerbline will result in the give way line on The Feld approach to be moved back. This can reduce the visibility splay for vehicles exiting as it may be obstructed by mature trees and street furniture.
Recommendation:	Assess and provide sufficient south visibility for vehicles at The Feld and insure that agreements are in place for sight lines to be maintained.

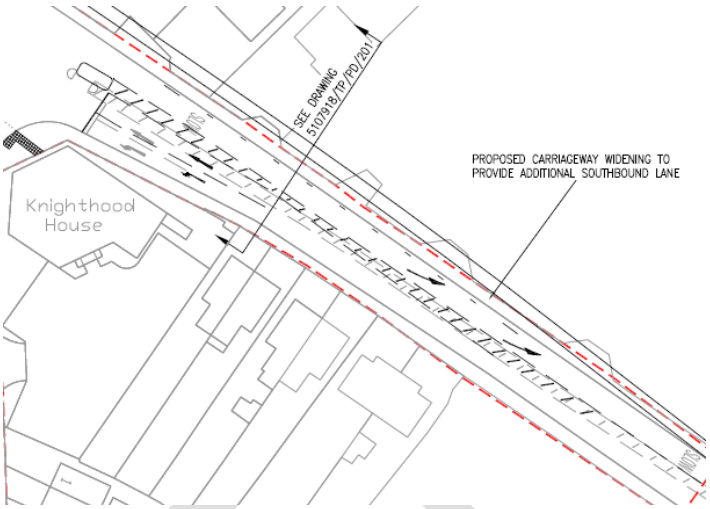
Location Reference No: 9	
Location: Bus stop on western side of A22 London Road (Drg No: 5107918/TP/PD/103)	
Problem:	General - Relocation of bus stop shelter
Summary:	Owing to the widening of the western side of A22 London Road, the current northbound bus stop shelter will need to be relocated to provide sufficient width for the footway and clearance from the carriageway.
Recommendation:	Relocate the bus stop shelter to an appropriate location.

A22/Imtherhorne Lane Junction

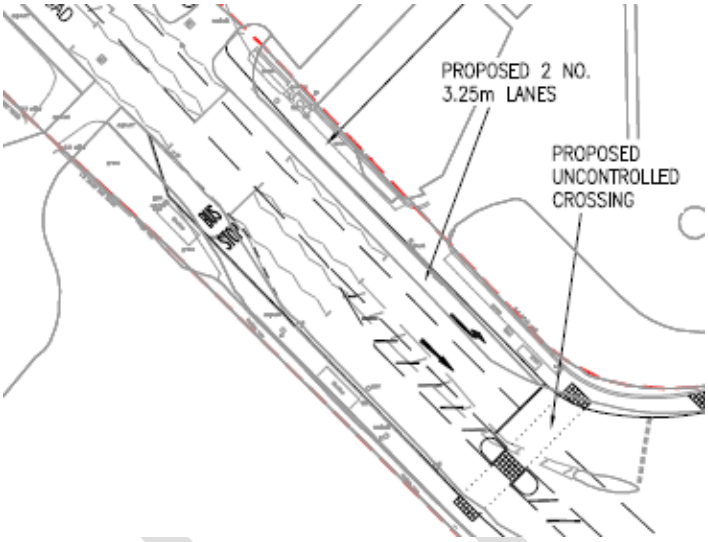
Location Reference No: 10	
Location: Eastern back of footway on A22 London Road (Drg No: 5107918/TP/PD/201)	
Problem:	General - Proximity of building edge to highway boundary
Summary:	The proposal shows the back of the footway to be in close proximity to the corner building edge and could be close to building services that have not been designed to withstand live traffic loading. Damaged services could cause severe maintenance issues both for adjacent properties and the general public, which in turn could lead to vehicle conflicts if failure of services/ highway occurs.
Recommendation:	Ensure that there is sufficient clearance between the back of footway and the building edge and that any private service within this area is protected or redesigned to take any additional loading.

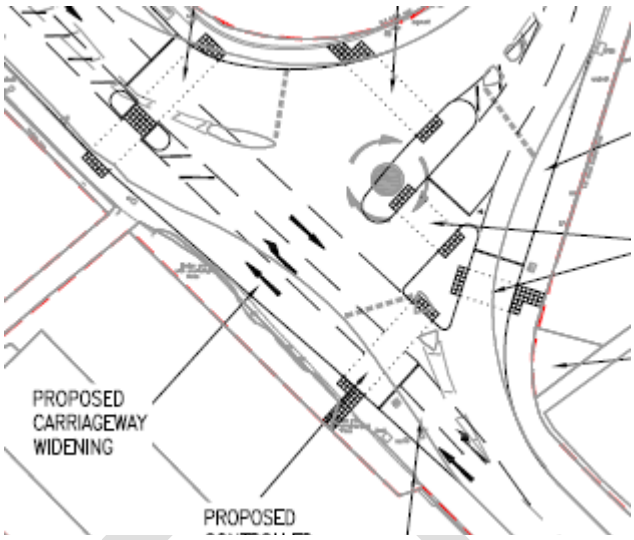
Location Reference No: 11	
Location: Eastern footway at A22 London Road/Imtherhorne Lane junction (Drg No: 5107918/TP/PD/201 & 202)	
Problem:	Non Motorised User Provision - Insufficient footway width on northern footway
Summary:	The proposal does not show the location of the traffic signal pole or proposed street furniture, however it would be expected that at least the traffic signal pole would be placed at the front of the footway to accommodate any pedestrian crossing at this location. This would reduce the footway width even further than is proposed, making it difficult for wheelchair users and people with pushchairs to make safe use of the footway. This could lead to pedestrians encroaching into the carriageway and being in conflict with vehicles.
Recommendation:	Consider additional widening of the footway.

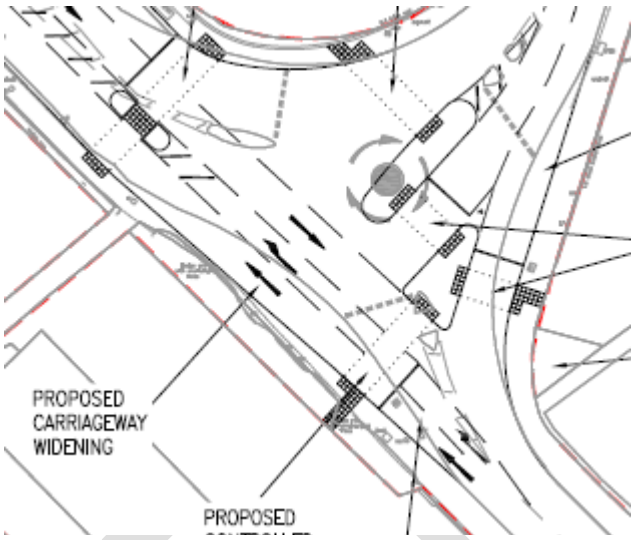
Location Reference No: 12	
Location: Northbound approach and exit to junction on A22 London Road (Drg No: 5107918/TP/PD/201 & 202)	
Problem:	Junctions - A22 London Road Northbound alignment
Summary:	The proposed alignment does not take into account the vehicle desire lines. Vehicles in the offside lane travelling straight on the A22 London Road will be guided into the pedestrian island and eastern kerbline on exiting the junction. If a vehicle were to travel through the junction at speed and the driver was to misjudge the carriageway alignment, this could lead to a vehicle/pedestrian conflict on the island or collision of the vehicle with street furniture on the footway.
Recommendation:	Improve the alignment for vehicles travelling northbound.

Location Reference No: 13	
Location: Northbound approach and exit to junction on A22 London Road (Drg No: 5107918/TP/PD/201 & 202)	
Problem:	Local Alignment - A22 London Road south approach central hatching
Summary:	The central hatching on the southern approach to junction is not consistent in width as it widens, then narrows then widens again. This could be hazardous to drivers as they use these marking to guide them towards an approaching junction. This could cause conflicts with larger vehicles and vehicles/cyclists as they approach the two lane stop line.
Recommendation:	Consider having a consistent smooth alignment for the central hatching.

A22/Lingfield Road Junction

Location Reference No: 14	
Location: Northbound bus stop (Drg No: 5107918/TP/PD/301 & 302)	 Extract of drawing 301
Problem:	General - Length of bus stop reduced
Summary:	The design drawings illustrate a shortened bus stop in comparison to what is currently provided. There is insufficient space for a bus to stop at this stop and not block the northbound lane away from the junction. This could lead to vehicles crossing over the hatch markings to overtake stationary buses.
Recommendation:	Lengthen the bus stop to accommodate double decker buses. Adjust road markings to enable vehicles to overtake stationary buses, without the need to enter the hatch markings.

Location Reference No: 15	
Location: A22/Lingfield Road junction (Drg No: 5107918/TP/PD/301)	
Problem:	Junctions - Southbound lane through junction could be obstructed by right turning traffic
Summary:	The southbound traffic on A22 London Road travels in the offside lane. The alignment tends to deviate slightly to the left, and then swing right, quite sharp, to align with the kerb exiting Lingfield Road. The sharp deviation could cause drivers to misjudge the kerb alignment and there is a risk of hte kerb being struck. This situation is made worse due to a right turn lane arrangement where there is a risk of vehicle side swipes.
Recommendation:	Alter the alignment of the junction to remove the conflict.

Location Reference No: 16	
Location: Southeast corner of junction (Drg No: 5107918/TP/PD/301)	
Problem:	Junctions - Southbound traffic from the north approach is aligned to the southeast corner of the junction.
Summary:	Southbound traffic from the northern approach of the junction is aligned to travel into the southeast corner of the junction when right turning stationary vehicles are waiting to turn in the middle of the junction. This could lead to pedestrian vehicle conflict of vehicles mounting the footway and striking the parapet. In addition, there is a possibility of side swipe collisions with right turning stationary traffic and ahead vehicles.
Recommendation:	Adjust alignment to reduce the risk of vehicles mounting the southeastern kerb.

Location Reference No: 17	
Location: Electrical sub-station on southeast corner of junction (Drg No: 5107918/TP/PD/303)	 Electrical Sub-station on southeast corner of junction
Problem:	Non Motorised User Provision - Pedestrians walking in live carriageway
Summary:	Although the provision of a cantilever pedestrian footway located behind the electrical sub-station could improve safety for pedestrians, they could perceive walking on the live carriageway as a more convenient route.
Recommendation:	Assess slightly adjusting the fencing boundary of the electrical sub-station to accommodate pedestrians on the south-eastern turn.

A22/Station Road and A22/Moat Road junctions

Location Reference No: 18	
Location: Short southbound lane infront of Fire Station on A22 London Road (Drg No: 5107918/TP/PD/401)	
Problem:	Non Motorised User Provision - The central crossing area on the western approach for access to Fire Station.
Summary:	The tactile and provision of pedestrian crossing area within the central hatched could be confusing for visually impaired pedestrians as they would not be sure if it was controlled or uncontrolled. Visually impaired pedestrians would also not be aware of when it would be safe to cross.
Recommendation:	Consider the movement of partially sighted persons across this unsignalised section of the island and make provisions for their safe crossing within the island

Location Reference No: 19	
Location: Pedestrian crossing on approach to Moat Road junction (Drg No: 5107918/TP/PD/401)	
Problem:	Non Motorised User Provision - Pedestrians crossing location
Summary:	The proposed crossings are located adjacent to one another, and could lead to confusion of partially sighted and blind persons with an array of tactile paving directing them in different directions.
Recommendation:	Consider the locations of the crossings in conjunction with one another.

Location Reference No: 20	
Location: HGV left turn (Drg No: 5107918/TP/PD/401)	 Autotrack at A22 London Road/Moat Road junction
Problem:	Overrun of HGV into pedestrian area
Summary:	The Autotracks show that in order for HGVs to successfully execute the left turn into and out of Moat Road they would need to overrun the pedestrian areas on Moat Road. Alternatively, HGVs would need to straddle two lanes on A22 London Road conflicting with straight ahead traffic.
Recommendation:	Consider removing the central lane or widening the short left turn lane for the left turn into Moat Road. For the left turn out of Moat Road, consider reducing the size of the central refuge or ban HGVs from turning left into A22 London Road or reduce the proposed kerb buildout.

Location Reference No: 21	
Location: A22 London Road between Station Road and Moat Road(Drg No: 5107918/TP/PD/402)	 A22 London Road/ Moat Road junction
Problem:	Non Motorised User Provision - Provision of controlled crossings at a signalised junction
Summary:	The proposed layout of the junction may encourage pedestrians to cross the junction away from the crossing facilities and risk coming into conflict with vehicles.
Recommendation:	Consider relocating the crossings to suit pedestrian desire lines or either provide guard railing to guide pedestrians to dedicated crossing points.

4. Audit Team Statement

4.1 I certify that this audit has been carried out in accordance with Highways Agency's DMRB, Volume 5, Section 2, Parts 2 and 3, 'Road Safety Audit' Standard HD 19/03.

Audit Team

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Signed:

Date: 11 January 2012

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Appendix A – List of Drawings and Documents Provided as RSA Brief

Stage 1 and 2 RSA Brief

Documents

- Road Safety Audit Brief Form – February 2012

Scheme Drawing

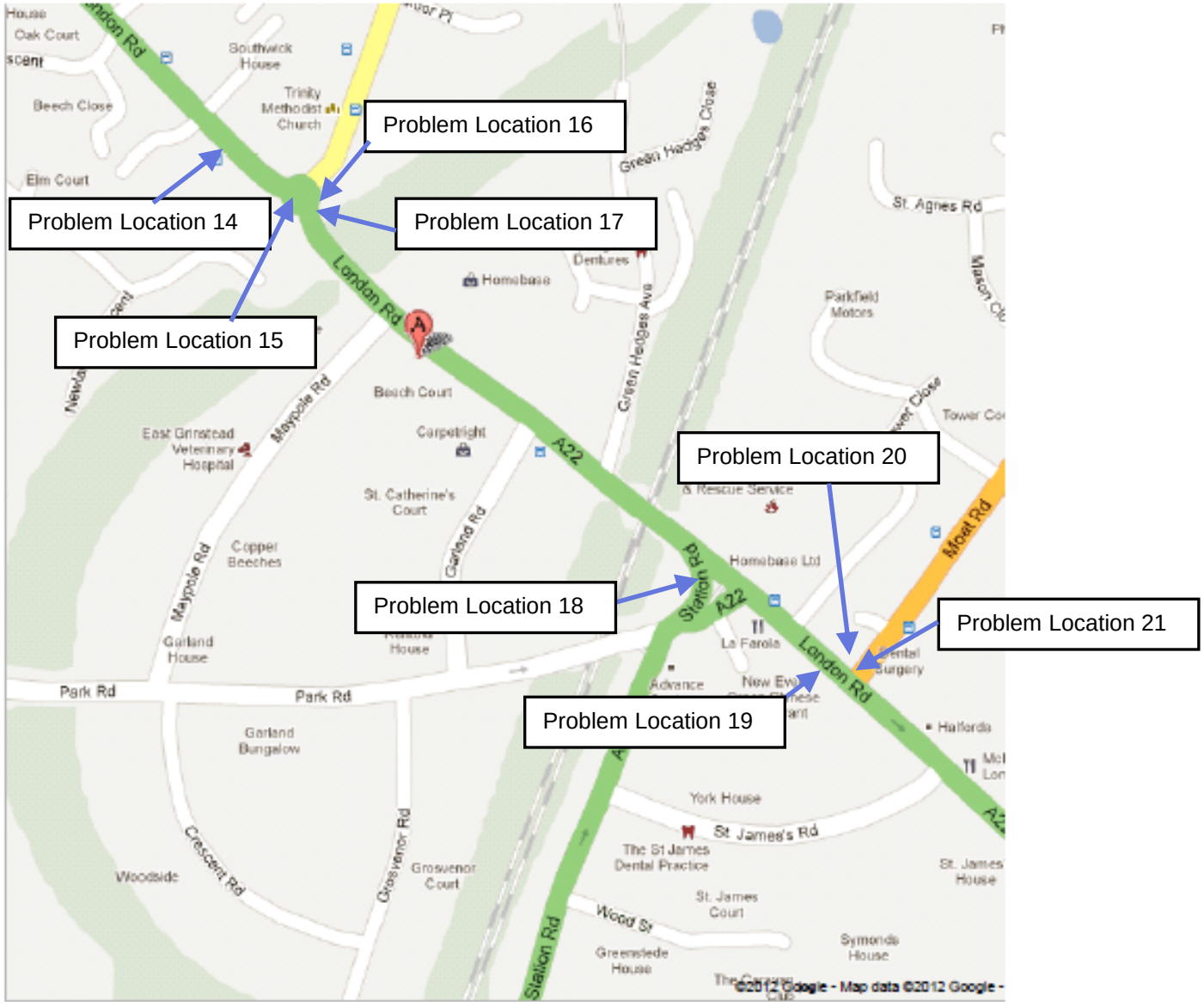
- 5107918/TP/TD/101 Rev B – A22/A264 Copthorne Road Junction Do Minimum
- 5107918/TP/TD/102 Rev B – A22/A264 Copthorne Road Junction Do Something
- 5107918/TP/TD/103 Rev B – A22/A264 Copthorne Road Junction Do Something
- 5107918/TP/TD/201 Rev B – A22/Imberhorne Lane Junction Do Something
- 5107918/TP/TD/202 Rev B – A22/Imberhorne Lane Junction Do Something
- 5107918/TP/TD/301 Rev A – A22/Lingfield Road Junction Do Minimum WSCC Scheme Without ASLs
- 5107918/TP/TD/302 Rev A – A22/Lingfield Road Junction Do Something
- 5107918/TP/TD/303 Rev B – A22/Lingfield Road Junction Do Something
- 5107918/TP/TD/401 Rev A – A22/Station Road and A22/MoatLingfield Road Junction Do Minimum WSCC Scheme Without ASLs Road Junctions Do Something
- 5107918/TP/TD/402 Rev A – Moat Road Junction Do Something

Appendix B – Proposed Design Drawings

Appendix C – Stage 1 RSA Problem Location Plan

Problem Location Plan No 1

Problem Location Plan No 2



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Technical Note

ATKINS

Project:	East Grinstead Stage 3 Traffic Management Study	**To:**	Chris Owen
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Date:	02 March 2012	**cc:**	Chris Cary

Prepared By: John Malyon

Checked By: Steve Dimmock

Authorised By: Senthuran Sritharan

1. Introduction

This technical note details the Clients Organisation's response to the Stage 1 Road Safety Audit Report carried out on the feasibility design of schemes along the A22 London Road corridor as part of the East Grinstead Stage 3 Traffic Management study; design by Atkins. The safety audit was carried out on 15 February 2012 and the results were issued in report reference "West Sussex County Council – East Grinstead Stage 3 Traffic Management Study: Stage 1 Road Safety Audit".

This technical note was compiled by John Malyon (Transport Planner) of Atkins Highways and Transportation on behalf of West Sussex County Council (WSCC).

The terms of reference of this response report are as described in HD19/03.

Where a safety audit recommendation is accepted, this technical note details the actions proposed to comply with the recommendation. Where a safety audit recommendation is rejected, the technical note details the justification for rejection.

2. Response to Items Raised at the Stage 1 Road Safety Audit

The Design Team's response is provided in Table 2.1.

Table 2.1 – Designer's Response to Road Safety Audit

Location Ref.	Problem	Recommendation	Accepted/ Rejected	Designer's Response
1	Location: Drg Nos. 5107918/TP/PD/301 & 303 Problem: General - Reduced lane widths Summary: There are also lanes indicated to be 2.5m wide. This is considered insufficient given that site observations indicate that this road carries a high number of HGVs as well as being served by double decker buses.	Consider adjusting lane widths to suit the traffic that is expected to use the carriageway.	Rejected	The proposed scheme, including lane widths, on Drawing No. 5107918/TP/PD/301 is taken directly from the WSCC scheme for the A22 / Lingfield Road junction. 2.5m wide lanes are also proposed on some approaches for the scheme shown on 5107918/TP/PD/303 due to the restricted nature of the site. 2.5m is minimum lane width It is expected that larger vehicles would need to straddle two lanes where the lanes widths are restricted. However, smaller vehicles (e.g. cars, which comprise approximately 87% of traffic at this junction) would be able to use the lanes as marked.
2	Location: Drg Nos. 5107918/TP/PD/201 & 202, 5107918/TP/PD/301 & 302 Problem: General - Access to properties on eastern side of carriageway Summary: Vehicles turning right from A22 London Road northbound to access private properties on the eastern side of the carriage will have to cross two oncoming traffic lanes. This may increase the likelyhood of head-on collisions and pedestrian/vehicle conflicts across the accesses, as drivers concentrate on crossing the two lanes of oncoming traffic.	Assess the usage of accesses to the affected properties.	Accepted	Vehicles turning right will need to cross an additional lane of traffic at some locations. The majority of properties are residential and therefore usage is expected to be low. However, this can be investigated further at the later stages of design.
3	Location: Drg Nos. 5107918/TP/PD/103 &	Consider the location of the advanced directional signage,	Accepted	The existing footway is around 1.8m wide, with the proposed footway at 2m wide, so

Location Ref.	Problem	Recommendation	Accepted/ Rejected	Designer's Response
	5107918/TP/PD/201 Problem: General - Relocation of advance direction signs following carriageway alignment changes. Summary: There is insufficient detail on the drawings as to where the advance direction signs will be relocated to. The reduced footway widths seem insufficient to accommodate signs and will result in a reduced effective footway width for pedestrians. The locating of the advanced direction signage could lead to driver missing the sign and making sudden manoeuvres further along the carriageway.	to ensure that there is enough effective public highway available for all road users.		minor improvements have been made. The location of the advance direction signs will be considered in more detail in subsequent design stages. They will be placed to ensure they are visible whilst providing sufficient footway space.
4	Location: Drg Nos. 5107918/TP/PD/101 & 102, 5107918/TP/PD/301 & 302, 303, 5107918/TP/PD/401 Problem: Non Motorised User Provision - Lack of 'tails' on tactile paving Summary: The provision of 'tails' on the tactile paving at junctions can lead to confusion for the sight impaired as they will not be able to determine the direction leading to the pedestrian crossings.	Provide 'tails' on tactile paving on the approaches to pedestrian crossings.	Rejected	Tails have been provided on tactile paving where the crossing is controlled. Where the crossing is uncontrolled tails have not been provided.
5	Location: Pedestrian crossing on A22 Eastbourne Road approach (Drg Nos: 5107918/TP/PD/101 & 102) Problem: Junctions - Vehicles exiting the properties on the eastern side of the carriageway making use of the pedestrian crossing Summary: There is an extended dropped kerb in	Consider relocating the pedestrian crossing, or ensure that vehicles cannot exit the property within this area of the carriageway.	Accepted	The implementation of a kerb with a standard upstand will be considered in the future design stage to discourage vehicles exiting across the pedestrian crossing.

Location Ref.	Problem	Recommendation	Accepted/ Rejected	Designer's Response
	front of the properties on the eastern side of the pedestrian crossing. Vehicles exiting these properties have been observed to exit the properties by using the dropped kerb on the pedestrian crossing, thereby crossing the pedestrian area to access the junction, past the stop line. This could lead to both vehicle/vehicle conflicts and pedestrian/vehicular conflict within the signals controlled area.			
6	Location: A22 Eastbourne Road west side (Drg Nos: 5107918/TP/PD/101 & 102) Problem: Non Motorised User Provision - The alignment of the kerb creates a pinchpoint for pedestrians as well as on-carriageway drainage concerns Summary: Although the alignment of the kerb currently creates a pinchpoint for pedestrians at this location, by amending the footway in this area, it is increasing the likelihood that pedestrians will take the desire line approach, and enter the carriageway to continue along the footpath. It was also noted that water ponds at a low point, in this desire line, and when freezing conditions exist, pedestrians could slip in the live carriageway.	Adjust the western kerbline to widen the footway, providing additional footway width for pedestrians, whilst also removing the low point in the channel line.	Accepted	The proposed scheme does not alter the footway provision at the pinch point. There is an opportunity to realign the footway at this location and this will be investigated at later design stages. The investigation will need to consider if this carriageway space is currently used for any specific purpose (e.g. loading / unloading associated with the adjacent pub).
7	Location: A22 London Road southbound exit lane (Drg Nos: 5107918/TP/PD/101 & 102) Problem: Junctions - Provision of short exit lanes accommodating a HGV and other vehicle turning at the same time	Check that adequate provision has been made for these vehicles by confirming that appropriate speeds have been used when undertaking	Accepted	The swept path analysis indicates an HGV and large car can complete the right turn manoeuvre simultaneously. However, in reality it is expected that an HGV would straddle the two lanes on the A264 Copthorne Road approach when completing both the

Location Ref.	Problem	Recommendation	Accepted/ Rejected	Designer's Response
	Summary: The drawings indicate the provision of two short lanes merging into one lane on the southbound exit of the junction. The right turn from A264 Copthorne Road seems to be a main route for HGVs and articulated trucks. Although the turning analysis indicates that there is sufficient carriageway space available for a HGV and a large van to make this right turn together, at higher speeds these vehicles would be in conflict, causing side swipe collisions.	analysis.		right and left turn manoeuvres.
8	Location: A22 London Road western kerb alignment (Drg No: 5107918/TP/PD/103) Problem: Local Alignment - Widening of western kerbline reduces visibility Summary: The widening of the western kerbline will result in the give way line on The Feld approach to be moved back. This can reduce the visibility splay for vehicles exiting as it may be obstructed by mature trees and street furniture.	Assess and provide sufficient south visibility for vehicles at The Feld and insure that agreements are in place for sight lines to be maintained.	Accepted	As part of the design a new footway will be provided, the stone wall relocated and vegetation cleared. At detailed design the proposals will ensure appropriate visibility will be provided.
9	Location: Bus stop on western side of A22 London Road (Drg No: 5107918/TP/PD/103) Problem: General - Relocation of bus stop shelter Summary: Owing to the widening of the western side of A22 London Road, the current northbound bus stop shelter will need to be relocated to provide sufficient width for the footway and clearance from the carriageway.	Relocate the bus stop shelter to an appropriate location.	Accepted	This will be completed as part of work in future design stages.
10	Location: Eastern back of footway on A22	Ensure that there is sufficient clearance between the back of	Accepted	C2 and C3 statutory undertakers' enquires have been completed. Future design stages

Location Ref.	Problem	Recommendation	Accepted/ Rejected	Designer's Response
	London Road (Drg No: 5107918/TP/PD/201) Problem: General - Proximity of building edge to highway boundary Summary: The proposal shows the back of the footway to be in close proximity to the corner building edge and could be close to building services that have not been designed to withstand live traffic loading. Damaged services could cause severe maintenance issues both for adjacent properties and the general public, which in turn could lead to vehicle conflicts if failure of services/ highway occurs.	footway and the building edge and that any private service within this area is protected or redesigned to take any additional loading.		will investigate further the potential services that may be affected and that will require protection / diversion
11	Location: Eastern footway at A22 London Road/Imberhorne Lane junction (Drg No: 5107918/TP/PD/201 & 202) Problem: Non Motorised User Provision - Insufficient footway width on northern footway Summary: The proposal does not show the location of the traffic signal pole or proposed street furniture, however it would be expected that at least the traffic signal pole would be placed at the front of the footway to accommodate any pedestrian crossing at this location. This would reduce the footway width even further than is proposed, making it difficult for wheelchair users and people with pushchairs to make safe use of the footway. This could lead to pedestrians encroaching into the carriageway and being in conflict with vehicles.	Consider additional widening of the footway.	Rejected	The proposed footway width (2m) is greater than the existing footway width and meets the requirements for minimum preferred obstacle free footway width in the DfT Inclusive Mobility guide. The minimum obstacle free width of 1.5m should be maintained at signal poles. Wider footways could be provided but this would require additional third party land and would need to be balanced against expected pedestrian demand.
12	Location: Northbound approach and exit to junction on A22 London Road (Drg No:	Improve the alignment for vehicles travelling northbound	Accepted	The traffic island has been relocated to provide greater lane widths for northbound

Location Ref.	Problem	Recommendation	Accepted/ Rejected	Designer's Response
	5107918/TP/PD/201 & 202) Problem: Junctions - A22 London Road Northbound alignment Summary: The proposed alignment does not take into account the vehicle desire lines. Vehicles in the offside lane travelling straight on the A22 London Road will be guided into the pedestrian island and eastern kerbline on exiting the junction. If a vehicle were to travel through the junction at speed and the driver was to misjudge the carriageway alignment, this could lead to a vehicle/pedestrian conflict on the island or collision of the vehicle with street furniture on the footway.			traffic with the kerb alignment of the proposed island designed to guide vehicles through the junction without conflict. This can be reviewed at the next stage of design when a more detailed topographic survey should be available..
13	Location: Northbound approach and exit to junction on A22 London Road (Drg No: 5107918/TP/PD/201 & 202) Problem: Local Alignment - A22 London Road south approach central hatching Summary: The central hatching on the southern approach to junction is not consistent in width as it widens, then narrows then widens again. This could be hazardous to drivers as they use these marking to guide them towards an approaching junction. This could cause conflicts with larger vehicles and vehicles/cyclists as they approach the two lane stop line.	Consider having a consistent smooth alignment for the central hatching.	Accepted	The alignment of the hatch markings will be reviewed at the next stage of the design.
14	Location: Northbound bus stop (Drg No: 5107918/TP/PD/301 & 302) Problem: General - Length of bus stop reduced	Lengthen the bus stop to accommodate double decker buses. Adjust road markings to enable vehicles to overtake	Accepted	This is a replication of the WSCC proposal for the A22 / Lingfield Road scheme. However, extension of the bus stop should be considered at the next design stage.

Location Ref.	Problem	Recommendation	Accepted/ Rejected	Designer's Response
	Summary: The design drawings illustrate a shortened bus stop in comparison to what is currently provided. There is insufficient space for a bus to stop at this stop and not block the northbound lane away from the junction. This could lead to vehicles crossing over the hatch markings to overtake stationary buses.	stationary buses, without the need to enter the hatch markings		
15	Location: A22/Lingfield Road junction (Drg No: 5107918/TP/PD/301) Problem: Junctions - Southbound lane through junction could be obstructed by right turning traffic Summary: The southbound traffic on A22 London Road travels in the offside lane. The alignment tends to deviate slightly to the left, and then swing right, quite sharp, to align with the kerb exiting Lingfield Road. The sharp deviation could cause drivers to misjudge the kerb alignment and there is a risk of the kerb being struck. This situation is made worse due to a right turn lane arrangement where there is a risk of vehicle side swipes.	Alter the alignment of the junction to remove the conflict	Accepted	This is a replication of the WSCC proposal for the A22 / Lingfield Road scheme. There is a risk of collision for southbound traffic on the A22 with the traffic island and with vehicles turning right into Lingfield Road. The proposed alignment will need to be reviewed at the next design stage.
16	Location: Southeast corner of junction (Drg No: 5107918/TP/PD/301) Problem: Junctions - Southbound traffic from the north approach is aligned to the southeast corner of the junction. Summary: Southbound traffic from the northern approach of the junction is aligned to travel into the southeast corner of the junction when right turning stationary vehicles are waiting to turn in	Adjust alignment to reduce the risk of vehicles mounting the southeastern kerb.	Accepted	This is a replication of the WSCC proposal for the A22 / Lingfield Road scheme. There is a risk of collision for southbound traffic on the A22 with the south-east kerb. The proposed alignment will need to be reviewed at the next design stage.

Location Ref.	Problem	Recommendation	Accepted/ Rejected	Designer's Response
	the middle of the junction. This could lead to pedestrian vehicle conflict of vehicles mounting the footway and striking the parapet. In addition, there is a possibility of side swipe collisions with right turning stationary traffic and ahead vehicles.			
17	Location: Electrical sub-station on southeast corner of junction (Drg No: 5107918/TP/PD/303) Problem: Non Motorised User Provision - Pedestrians walking in live carriageway Summary: Although the provision of a cantilever pedestrian footway located behind the electrical sub-station could improve safety for pedestrians, they could perceive walking on the live carriageway as a more convenient route.	Assess slightly adjusting the fencing boundary of the electrical sub-station to accommodate pedestrians on the south-eastern turn.	Accepted	Guard rail could be implemented on the footway immediately south of the crossing across Lingfield Road to prevent pedestrian access to the vehicular bridge. This can be considered in more detail at the next design stage.
18	Location: Short southbound lane infront of Fire Station on A22 London Road (Drg No: 5107918/TP/PD/401) Problem: Non Motorised User Provision - The central crossing area on the western approach for access to Fire Station. Summary: The tactile and provision of pedestrian crossing area within the central hatched could be confusing for visually impaired pedestrians as they would not be sure if it was controlled or uncontrolled. Visually impaired pedestrians would also not be aware of when it would be safe to cross.	Consider the movement of partially sighted persons across this unsignalised section of the island and make provisions for their safe crossing within the island	Accepted	It is expected that traffic demand on this approach would be low as it is intended for emergency vehicles only, which would be returning to the fire station. The unsignalised section of the crossing could be signalised to reduce confusion for visually impaired pedestrians. This can be considered in more detail at the next design stage.
19	Location: Pedestrian crossing on approach to Moat Road junction (Drg No: 5107918/TP/PD/401)	Consider the locations of the crossings in conjunction with one another.	Accepted	The proposal retains the crossings in their current location. The pelican crossing on A22 London could be relocated northwards to

Location Ref.	Problem	Recommendation	Accepted/ Rejected	Designer's Response
	Problem: Non Motorised User Provision - Pedestrians crossing location Summary: The proposed crossings are located adjacent to one another, and could lead to confusion of partially sighted and blind persons with an array of tactile paving directing them in different directions.			reduce confusion for visually impaired users.
20	Location: HGV left turn (Drg No: 5107918/TP/PD/401) Problem: Overrun of HGV into pedestrian area Summary: The Autotracks show that in order for HGVs to successfully execute the left turn into and out of Moat Road they would need to overrun the pedestrian areas on Moat Road. Alternatively, HGVs would need to straddle two lanes on A22 London Road conflicting with straight ahead traffic	Consider removing the central lane or widening the short left turn lane for the left turn into Moat Road. For the left turn out of Moat Road, consider reducing the size of the central refuge or ban HGVs from turning left into A22 London Road or reduce the proposed kerb buildout.	Accepted	The proposed island cannot be reduced in width due to the need to provide tactile paving and maintain the crossing on the pedestrian desire line associated with the alignment of the A22 London Road. Additional land take would be required to permit an HGV to turn left from the A22 London Road nearside lane onto Moat Road. In the proposed layout an HGV would be able to complete the left turn onto Moat Road from the central lane on the A22 London Road. To enable HGVs to complete the left turn from Moat Road land take will be required.
21	Location: A22 London Road between Station Road and Moat Road(Drg No: 5107918/TP/PD/402) Problem: Non Motorised User Provision - Provision of controlled crossings at a signalised junction Summary: The proposed layout of the junction may encourage pedestrians to cross the junction away from the crossing facilities and risk coming into conflict with vehicles.	Consider relocating the crossings to suit pedestrian desire lines or either provide guard railing to guide pedestrians to dedicated crossing points.	Accepted	Due to the alignment of the A22 London Road it is necessary to provide a staggered crossing across Moat Road to avoid northbound pedestrians being directed into the carriageway. Therefore, the proposed crossing is staggered. Guard railing could be implemented at this location and will be considered further at the next design stage.

3. Client Organisation Statements

3.1 Project Sponsor's Statement

In accordance with HD 19/03, I certify that I have reviewed the items in the Stage 1 Safety Audit Report. I have given due consideration to each issue raised and have stated my proposed course of action for each in this report. I seek the Project Director's endorsement of my proposals.

Name:

Position:

Organisation:

Signed: Dated:

3.2 Project Director's Statement

I accept these proposals by the Project Sponsor.

Name:

Position:

Organisation:

Signed Dated: