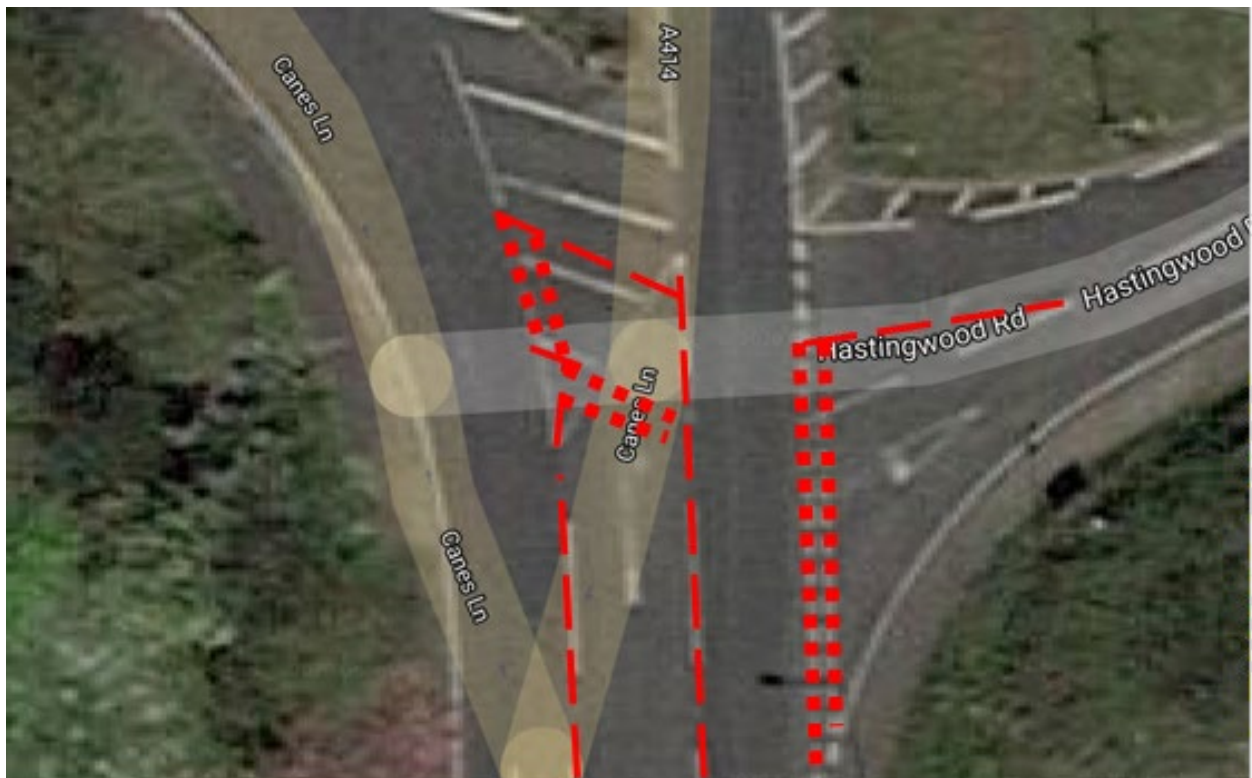


Location: Site 004 – A414 jw M11 Harlow (Hastingwood Rd)
District: Epping Forest
Collision Investigation Period: 01/01/2017 and 31/12/2019
Site Ranking: 004 (Rural Site)

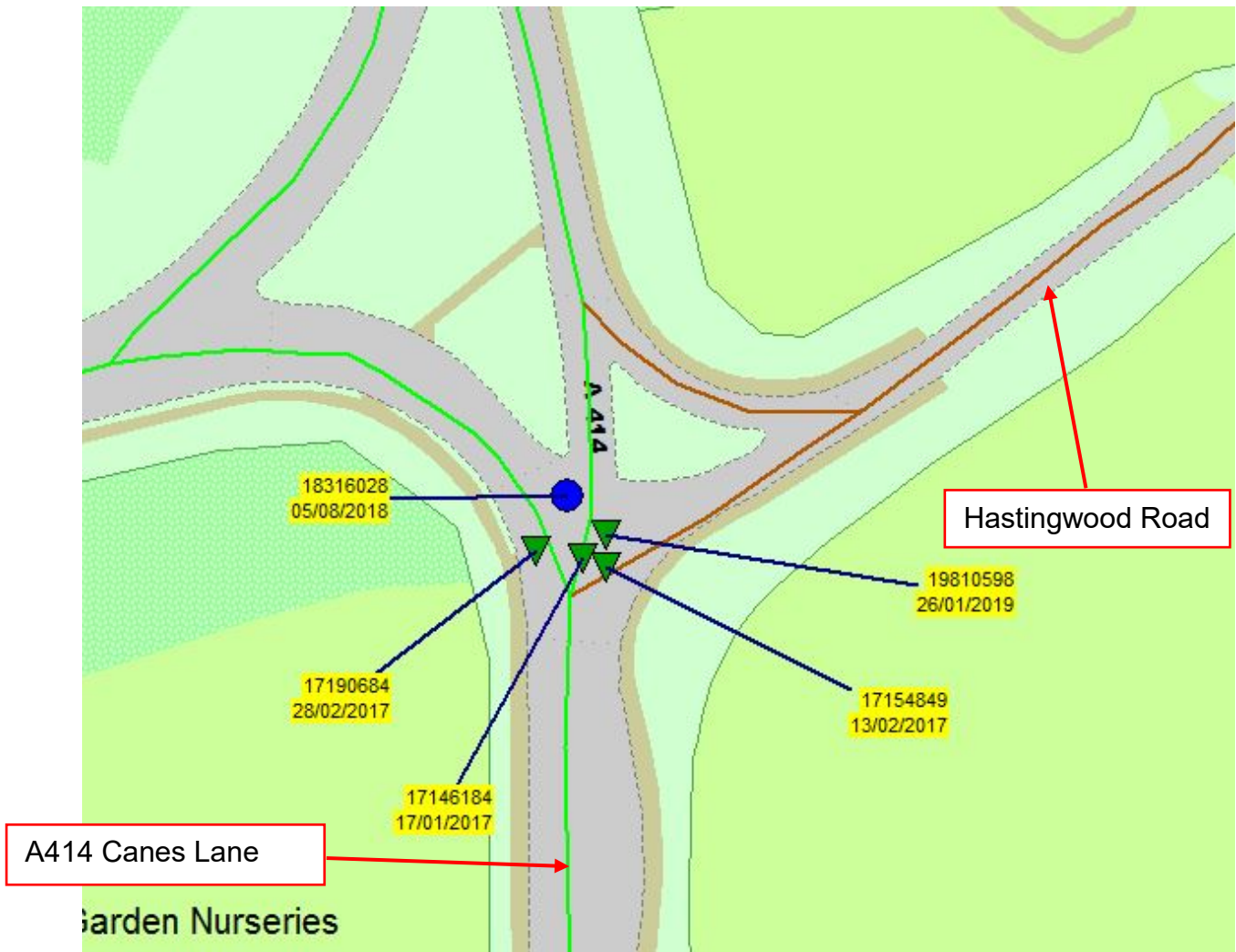
EXECUTIVE SUMMARY

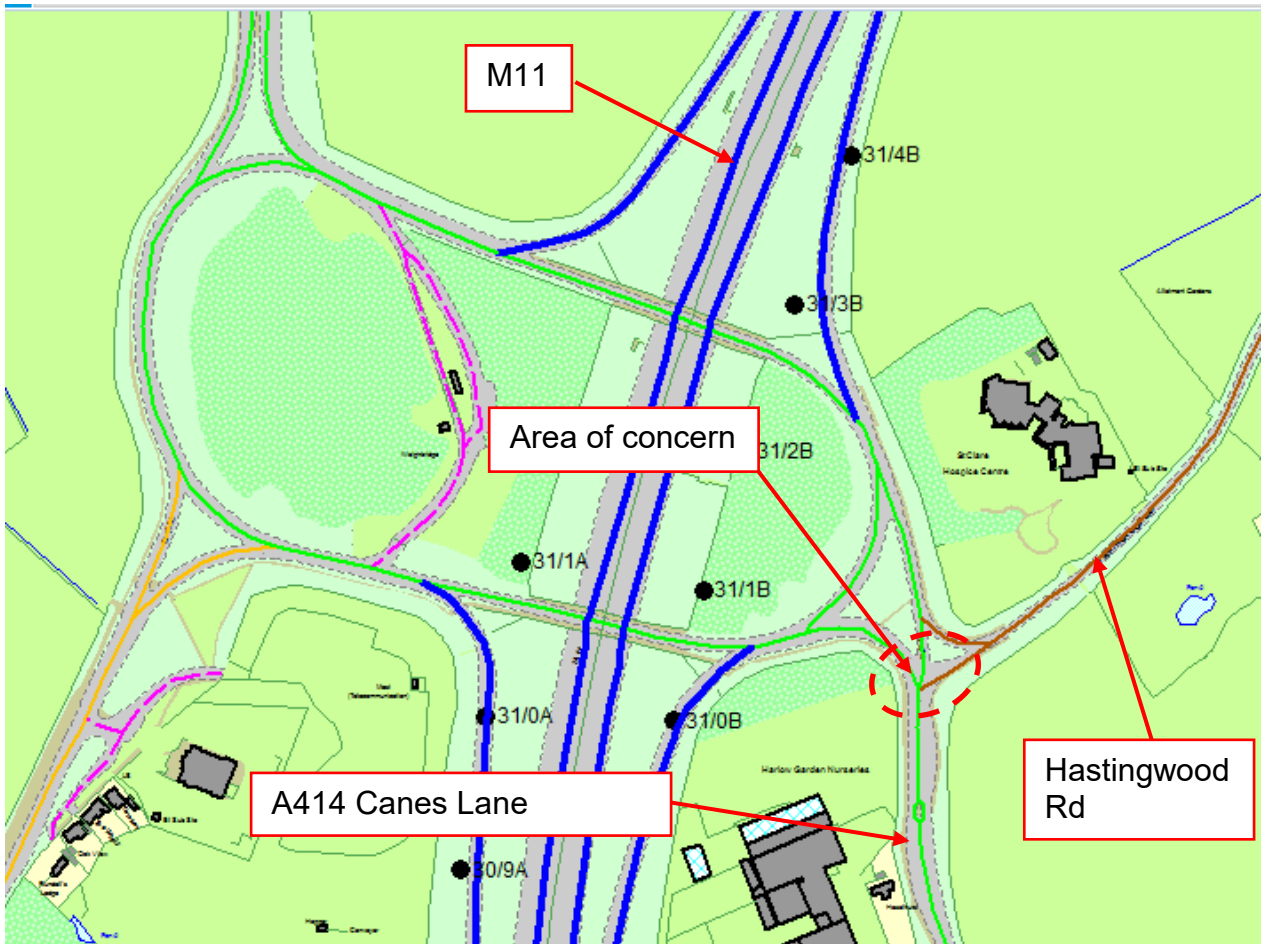
Intervention works: Provide a right turn facility within the centre hatching on the A414 northbound approach to the roundabout to enable traffic turning right from Hastingwood Rd to perform the manoeuvre in two stages.




Principle: A study of personal injury collisions at this location indicates a pattern of collisions resulting traffic turning right from Hastingwood Rd into the path of southbound traffic on the A414 exiting the roundabout.

1.0 Site Plan with Collision Plot





2.0 Site Description & Observations

Details	Description/Observations
Road Name (s)	A414 Canes Lane jw Hastingwood Road
Grid Reference	547834 , 206997
Speed Limit	National
Street Lit	Yes
Carriageway type	A414 at this location is single lane for southbound traffic and dual lane for northbound traffic approaching the roundabout.
Gradient	The gradient is slightly downward from north to south.
Traffic Management / Existing Traffic Calming	The junction approach from Hastingwood Road is controlled by Give Way signing and carriageway markings.
Utilities Present	Potentially. However, this should not affect the proposed scheme.
Existing TRO's	None
Road Surface	 <p>SCRIM data from 2019-20 indicates the southbound carriageway on the approach to the junction with as being at 'Investigatory Level'. However, at the time of the site visit, it was noted that the carriageway surface was in good condition and the carriageway markings had been refreshed.</p>
Signing	There are Give Way signs to TSRGD Diag. 501 on the Hastingwood Rd approach to the junction.
Road Markings	Existing road markings are in good condition throughout this section.
Visibility	Forward visibility towards the junction is good on both approaches.

	The visibility splays at the junction (Hastingwood Road) are good with no obstructions present.		
Vegetation	No vegetation at the site is considered to cause any issues.		
Highway Boundary / Land & Ownership Check?	N/a – On carriageway only	Is the scheme within Highway boundary or on land owned by ECC(*)	Yes (*if the land is not highway the scheme should only proceed to feasibility design & land acquisition/dedication stage)
Does the scheme require change to an existing TRO or Speed Limit	No		
Other	None		

3.0 Personal Injury Collision Analysis

Cluster Site Collision Information	COLLISIONS			CASUALTIES		
	FATAL	SERIOUS	SLIGHT	FATAL	SERIOUS	SLIGHT
	0	1	4	0	1	6

Identified Collision Pattern(s) at Cluster Site	COLLISIONS			CASUALTIES		
Pattern of collisions resulting traffic turning right from Hastingwood Rd into the path of southbound traffic on the A414 exiting the roundabout.	FATAL	SERIOUS	SLIGHT	FATAL	SERIOUS	SLIGHT
	0	1	3	0	1	5

Additional information	
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4.0 Site Photographs



Image 1 – Hastingwood Rd approach to junction with Canes Lane



Image 2 – View to right from Hastingwood Road



Image 3 – View to left from Hastingwood Road



Image 4 – Area of junction to be reconfigured

5.0 Recommendations

Remedial Measures

- 1) It is recommended that a right turn facility within the centre hatching on the A414 northbound approach to the roundabout, to enable traffic turning right from Hastingwood Rd to perform the manoeuvre in two stages.

6.0 Estimated Costs

Total Scheme Design and Implementation	£25000.00
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7.0 Predicted Collision Cost Saving from remedial measure

Remedial Measures	Reduction in Collisions (RoSPA)
Junction Improvements	44%

8.0 Other engineering options for consideration

N/A	-
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9.0 Scheme Approval

Safety Engineering Team:	Tel No.	Date

Appendix A: FYRR

Assumptions:

	Fatal	Serious	Slight
Average annual collision cost (£)	£2,422,598	£292,513	£31,937
Collisions treated	0	1	3
Casualties treated	0	1	5
Investigation time period (years)		3	

Estimated cost of recommended remedial measures (including Design, Audit and Traffic Management)

As per recommendations in Section 6

£25,000.00

Collision saving produced by proposed treatment (%)

44

%FYRR fatal

0

%FYRR serious

172

%FYRR slight

56

Total % FYRR 228

Number of collisions that would not have occurred had the remedial actions been implemented at the start of the collision period

1.76 or **0.59** each year

Number of casualties that would not have occurred had the remedial actions been implemented at the start of the collision period

2.64 or **0.88** each year

Location: Site 44 – LONDON ROAD A113 NEAR JW HOE LANE
District: Epping Forest
Collision Investigation Period: 01/01/2017 and 30/06/2020
Site Ranking: 44 (Single Site)

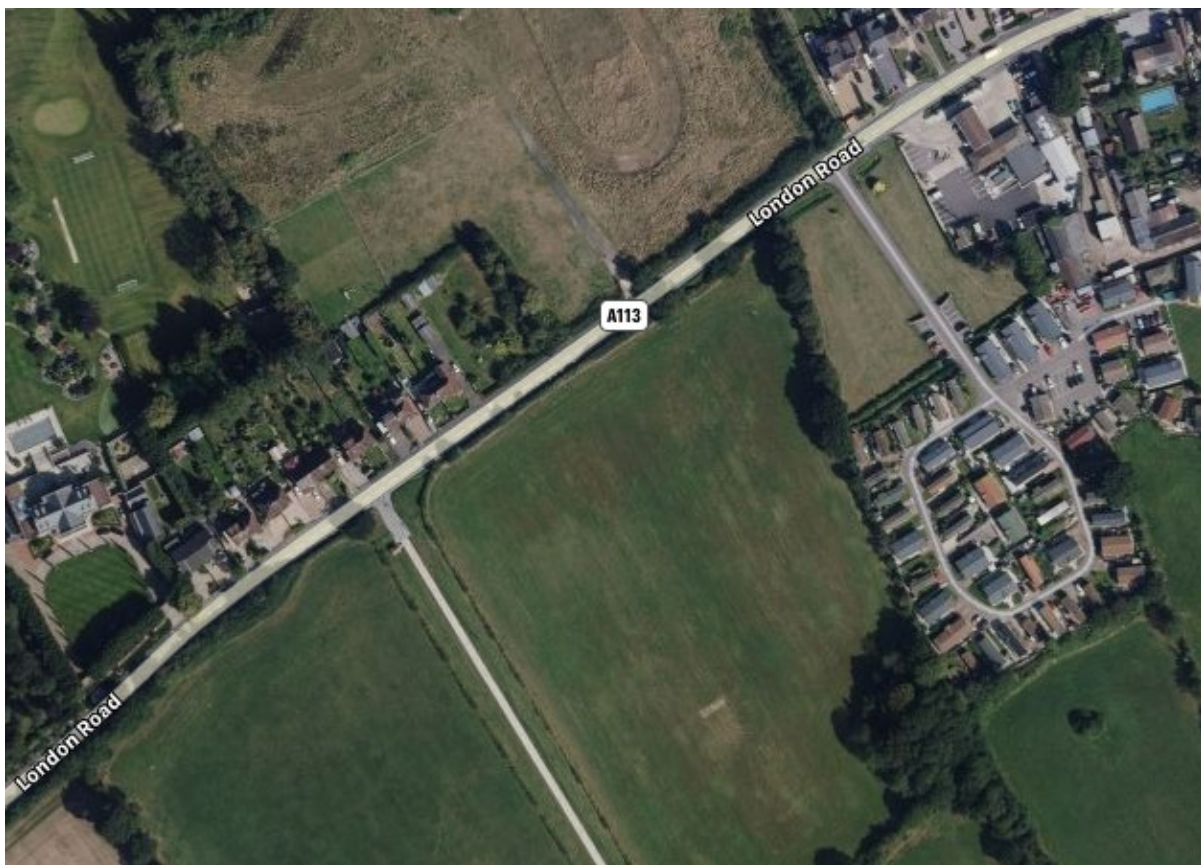
EXECUTIVE SUMMARY

Intervention works: Provision of enhanced (yellow backing) 30 Terminal and extend the 30 speed restriction on north-east bound approach to Abridge to encourage compliance with posted speed restriction.


Principle: A study of personal injury collisions at this location indicates a pattern of north-east bound vehicles on the A113 colliding with stationary vehicles or slower moving vehicles turning into the petrol station or queueing traffic on London Road.

1.0 Site Plan with Collision Plot





2.0 Site Description & Observations

Details	Description/Observations
Road Name (s)	A113 London Road, Abridge
Grid Reference	546196 , 196554
Speed Limit	30
Street Lit	Yes
Carriageway type	A113 at this location is single lane.
Gradient	None on this section
Traffic Management / Existing Traffic Calming	This section is within a 30mph limit
Utilities Present	Potentially. However, this should not affect the proposed scheme.
Existing TRO's	For 30mph speed restriction
Road Surface	 <p>SCRIM data from 2019-20 indicates the southbound carriageway on the approach to the junction with as being at 'Investigatory Level'.</p>
Signing	There is a single large dia. 30 terminal sign on a backing board to the off side (adjacent to the entrance to Abridge Park) and 30 roundels on the eastbound carriageway
Road Markings	Existing road markings are in good condition throughout this section.
Visibility	Forward visibility of the road layout is good on both approaches.
Vegetation	No vegetation at the site is considered to cause any issues.

Highway Boundary / Land & Ownership Check?	N/a – On carriageway only	Is the scheme within Highway boundary or on land owned by ECC(*)	Yes (*if the land is not highway the scheme should only proceed to feasibility design & land acquisition/dedication stage)
Does the scheme require change to an existing TRO or Speed Limit	Yes, an extension of the current 30mph speed limit.		
Other	None		

3.0 Personal Injury Collision Analysis

Cluster Site Collision Information	COLLISIONS			CASUALTIES		
	FATAL	SERIOUS	SLIGHT	FATAL	SERIOUS	SLIGHT
	0	1	5	0	1	7

Identified Collision Pattern(s) at Cluster Site	COLLISIONS			CASUALTIES		
	FATAL	SERIOUS	SLIGHT	FATAL	SERIOUS	SLIGHT
Pattern of nose-to-tail and loss of control PIC's all north-east bound on London Road						
	0	1	5	0	1	7

Additional information	Information from traffic survey in 2019 indicates 85 th ile speeds of 34.8mph.
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4.0 Site Photographs



Image 1 – A113 London Rd north-east approach to 30 limit.



Image 2 – A113 London Rd north-east approach to filling station



Image 3 – Approach to filling station access

5.0 Recommendations

Remedial Measures

- 1) It is recommended that provision of enhanced (yellow backing) 30mph Terminals signs and extend the 30 speed restriction on north-east bound approach to encourage compliance with posted speed restriction.
- 2) The addition of 'Gateway' features are also considered if there is sufficient highway space.

6.0 Estimated Costs

Total Scheme Design and Implementation	£17,500.00
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7.0 Predicted Collision Cost Saving from remedial measure

Remedial Measures	Reduction in Collisions (RoSPA)
Junction Improvements	44%

8.0 Other engineering options for consideration

N/A	-
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9.0 Scheme Approval

Safety Engineering Team:	Tel No.	Date

Appendix A: FYRR

First Year Rate of Return (FYRR) Calculation: Built Up Rds (other than Motorways) with Speed Limit of 40mph or Less

$$\% \text{ FYRR} = \frac{\text{Annual Collision Savings} \times 100}{\text{Scheme Cost}}$$

Assumptions:

Average annual collision cost (£)

Collisions treated

Casualties treated

Investigation time period (years)

Fatal	Serious	Slight
£2,227,264	£257,975	£26,312
0	1	5
0	1	7
	3	

**Estimated cost of recommended remedial measures
(including Design, Audit and Traffic Management)**

As per recommendations in Section 6

£17,500.00

Collision saving produced by proposed treatment (%)

41

%FYRR fatal

0

%FYRR serious

201

%FYRR slight

103

Total % FYRR 304

Number of collisions that would not have occurred had the remedial actions been implemented at the start of the collision period

2.46 or **0.82** each year

Number of casualties that would not have occurred had the remedial actions been implemented at the start of the collision period

3.28 or **1.09** each year

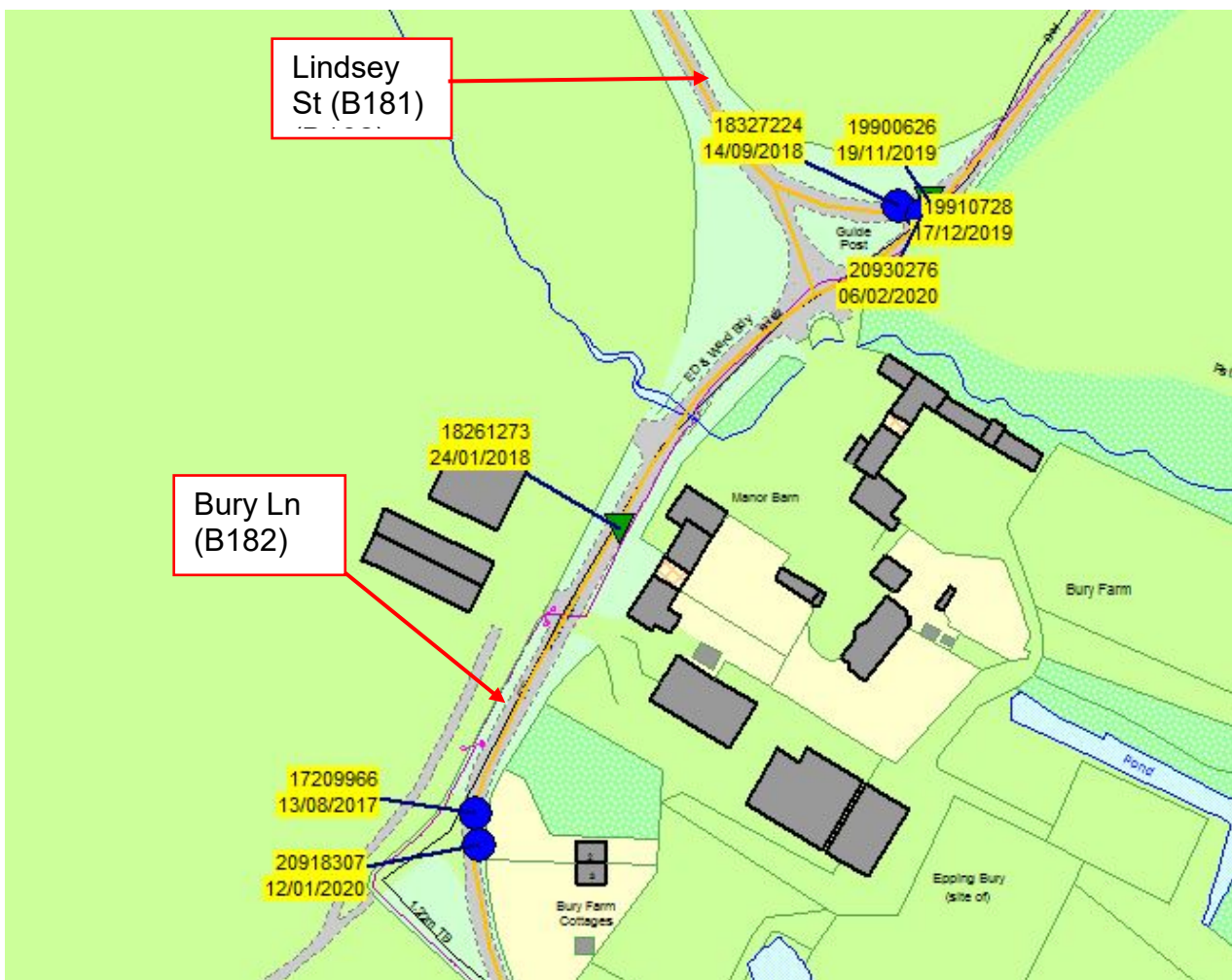
Location: Site 081 –B181 Lindsey St jw B182 Bury Ln Near Epping
District: Epping Forest
Collision Investigation Period: 01/01/2017 and 30/06/2020
Site Ranking: 081 (Rural Site)

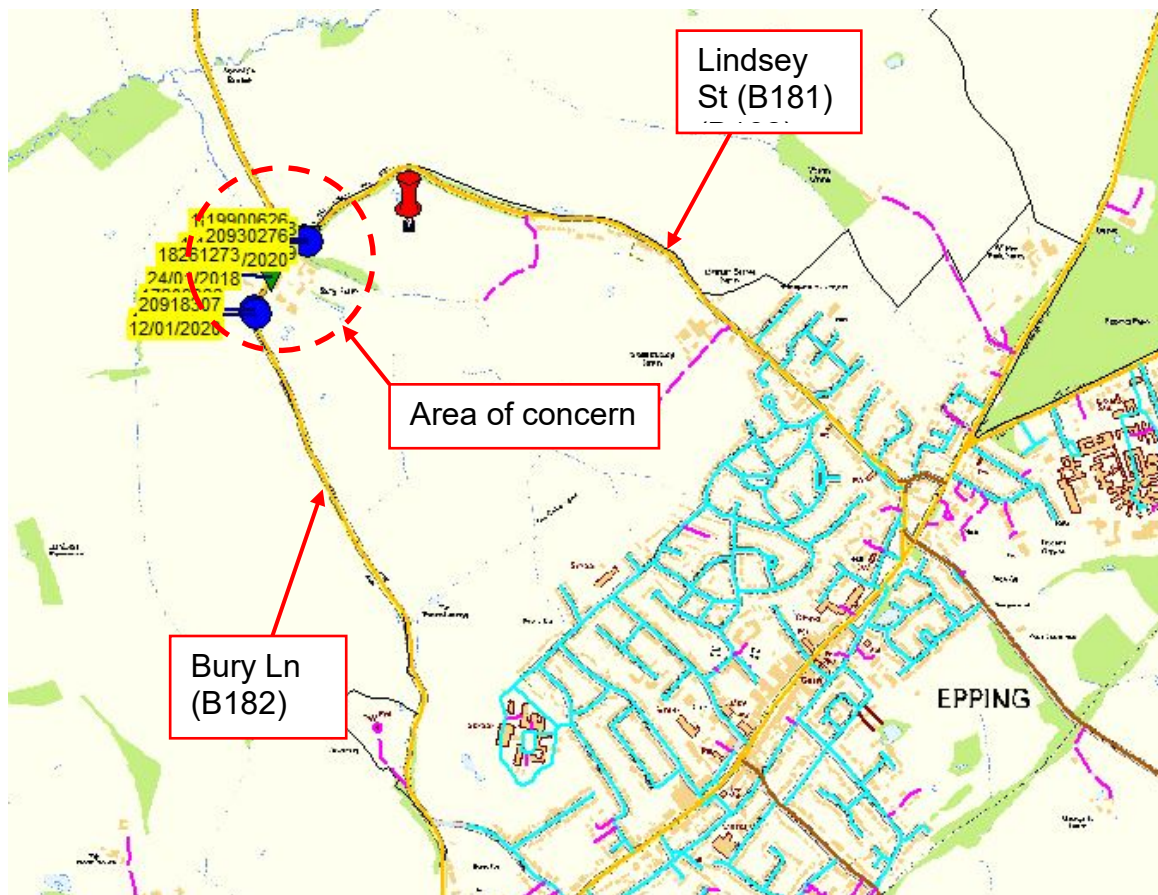
EXECUTIVE SUMMARY

Intervention works: Provide advanced bend warning sign and chevron signs on the approaches to the bend on Bury Lane. Provide additional Give Way signing at the junctions of Bury Lane with Lindsey Street.

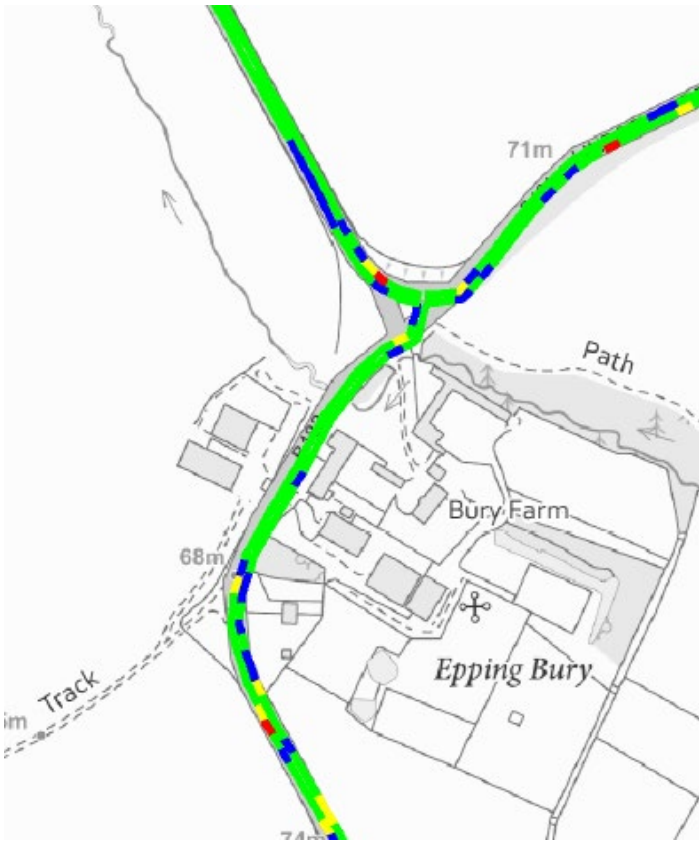
Principle: A study of personal injury collisions at this location indicates a pattern of Loss of Control on Bury Ln and 'Failing to Give Way' at the junction of Bury Ln and Lindsey St. The direction of travel for the Failing to Give Way collisions were south-west to north-east. The direction of travel for the Loss of Control collisions was north-east to south.

1.0 Site Plan with Collision Plot





2.0 Site Description & Observations

Details	Description/Observations
Road Name (s)	B181 Lindsey Street jw B182 Bury Lane, Epping
Grid Reference	544813 , 203359
Speed Limit	60
Street Lit	No
Carriageway type	B181 and B182 at this location are single carriageway.
Gradient	B181 Lindsey St south-west bound approach to junction is a downward gradient. B182 Bury Lane north and north-east bound approaches have an upward gradient.
Traffic Management / Existing Traffic Calming	The junction is controlled Give Way marking and signing on the B182 (Bury Lane) approaches to the B181 (Lindsey Street)
Utilities Present	Potentially. However, this should not affect the proposed scheme.
Existing TRO's	For National (60mph) speed restriction.
Road Surface	 <p>There is no SCRIM data available for these sections. However, the Scanner data from 2019-20 indicates the carriageway on the approaches to the junction with as being generally in good condition.</p>

Signing	B181 South-west bound approach: a junction on bend ahead warning sign to TSRGD Diag. 512.1 on a yellow backing board and an advanced directional sign. B181 North-east bound approach: There is a single Give Way sign to TSRGD Diag. 501 on a yellow backing board to the near side.		
Road Markings	Existing road markings are in good condition throughout this section.		
Visibility	Forward visibility of the road layout is good on both approaches.		
Vegetation	No vegetation at the site is considered to cause any issues.		
Highway Boundary / Land & Ownership Check?	N/a – On carriageway only	Is the scheme within Highway boundary or on land owned by ECC(*)	Yes (*if the land is not highway the scheme should only proceed to feasibility design & land acquisition/dedication stage)
Does the scheme require change to an existing TRO or Speed Limit	No		
Other	None		

3.0 Personal Injury Collision Analysis

Cluster Site Collision Information	COLLISIONS			CASUALTIES		
	FATAL	SERIOUS	SLIGHT	FATAL	SERIOUS	SLIGHT
	0	5	2	0	6	6

Identified Collision Pattern(s) at Cluster Site	COLLISIONS			CASUALTIES		
	FATAL	SERIOUS	SLIGHT	FATAL	SERIOUS	SLIGHT
Pattern of Loss of Control on Bury Ln (SW bound) and 'Failing to Give Way' (NE bound) at the junction of Bury Ln and Lindsey St.						
	0	4	1	0	5	5

Additional information	
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4.0 Site Photographs



Image 1 – B181 (Lindsey St) South-west bound approach to junction (junction on bend and advanced directional signs)



Image 2 – B181 (Lindsey St) South-west bound approach to junction



Image 3 – B182 (Bury Lane) North-east bound approach to junction



Image 4 – B182 (Bury Lane) North bound approach to bend

5.0 Recommendations

Remedial Measures

- 1) Provide advanced bend warning sign and chevron signs on the both approaches to the bend on Bury Lane.
- 2) Provide additional Give Way signing at the east junction of Bury Lane with Lindsey Street.

6.0 Estimated Costs

Total Scheme Design and Implementation	£18000.00
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7.0 Predicted Collision Cost Saving from remedial measure

Remedial Measures	Reduction in Collisions (RoSPA)
Warning sign improvements	46%

8.0 Other engineering options for consideration

N/A	-
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9.0 Scheme Approval

Safety Engineering Team:	Tel No.	Date

Appendix A: FYRR

First Year Rate of Return (FYRR) Calculation: Non Built Up Rds (other than Motorways) with Speed Limit of 40mph or greater

$$\% \text{ FYRR} = \frac{\text{Annual Collision Savings} \times 100}{\text{Scheme Cost}}$$

Assumptions:

	Fatal	Serious	Slight
Average annual collision cost (£)	£2,422,598	£292,513	£31,937
Collisions treated	0	4	1
Casualties treated	0	5	5
Investigation time period (years)		3.5	

Estimated cost of recommended remedial measures (including Design, Audit and Traffic Management)

As per recommendations in Section 6

£18,000.00

Collision saving produced by proposed treatment (%)

46

%FYRR fatal

0

%FYRR serious

854

%FYRR slight

23

Total % FYRR 878

Number of collisions that would not have occurred had the remedial actions been implemented at the start of the collision period

2.3 or 0.66 each year

Number of casualties that would not have occurred had the remedial actions been implemented at the start of the collision period

4.6 or 1.31 each year

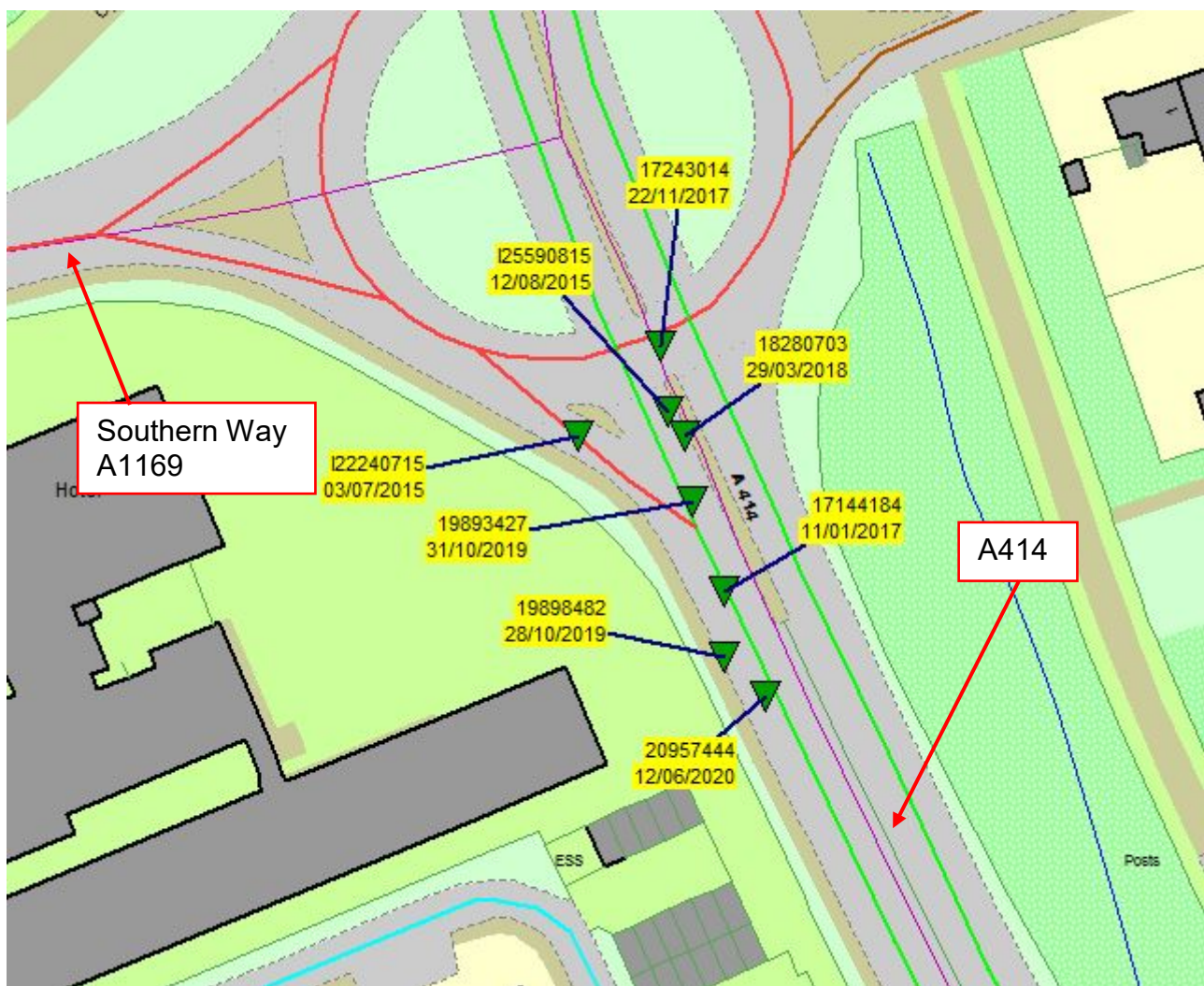
Location: Site 95 – A414 jw A1169 SOUTHERN WAY HARLOW
District: Harlow
Collision Investigation Period: 01/01/2017 and 30/06/2020
Site Ranking: 95 (Single Site)

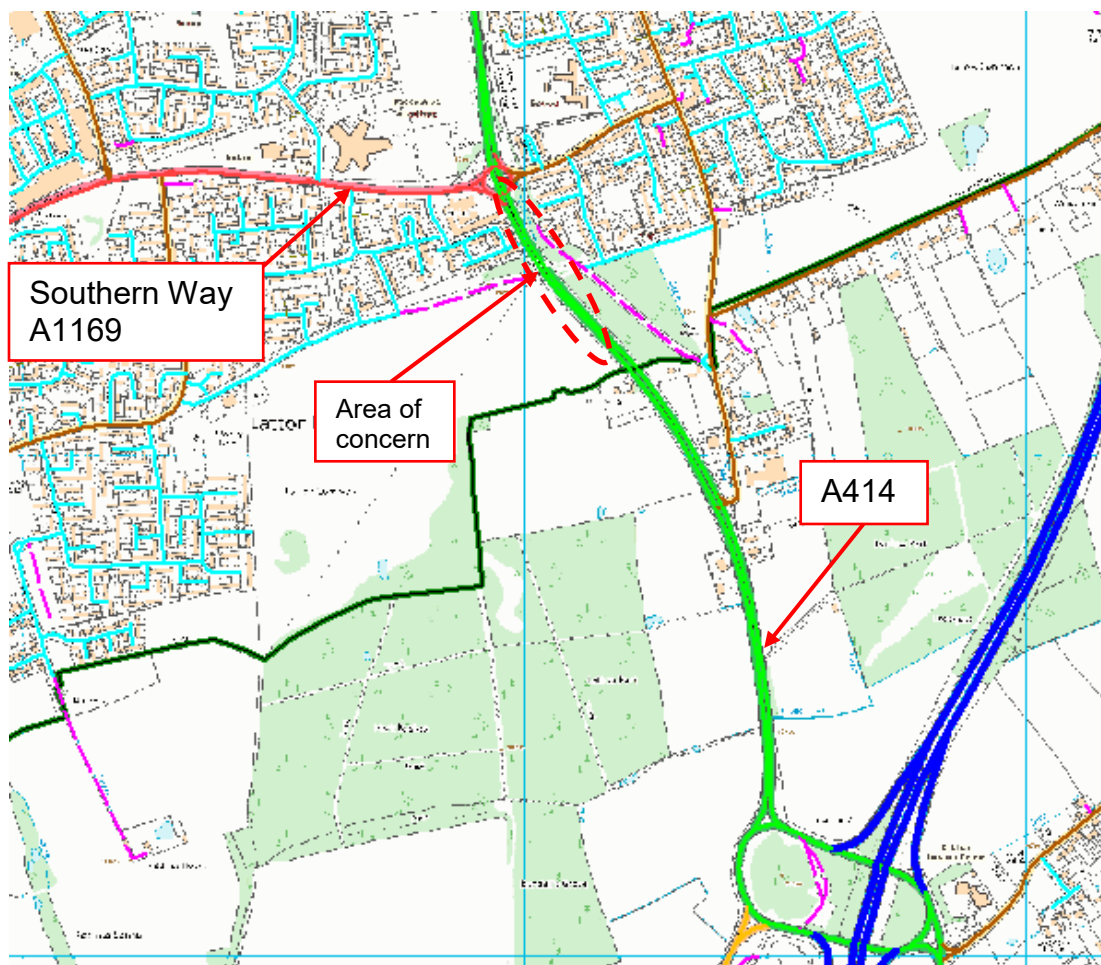
EXECUTIVE SUMMARY

Intervention works: Replace existing traffic signals ahead signs with enhanced (yellow backing) signs and provide 'Traffic queues likely on road ahead' Diagram 584 with Queues likely sub-plate to both sides of the carriageway, on north bound approach traffic signals at the roundabout.

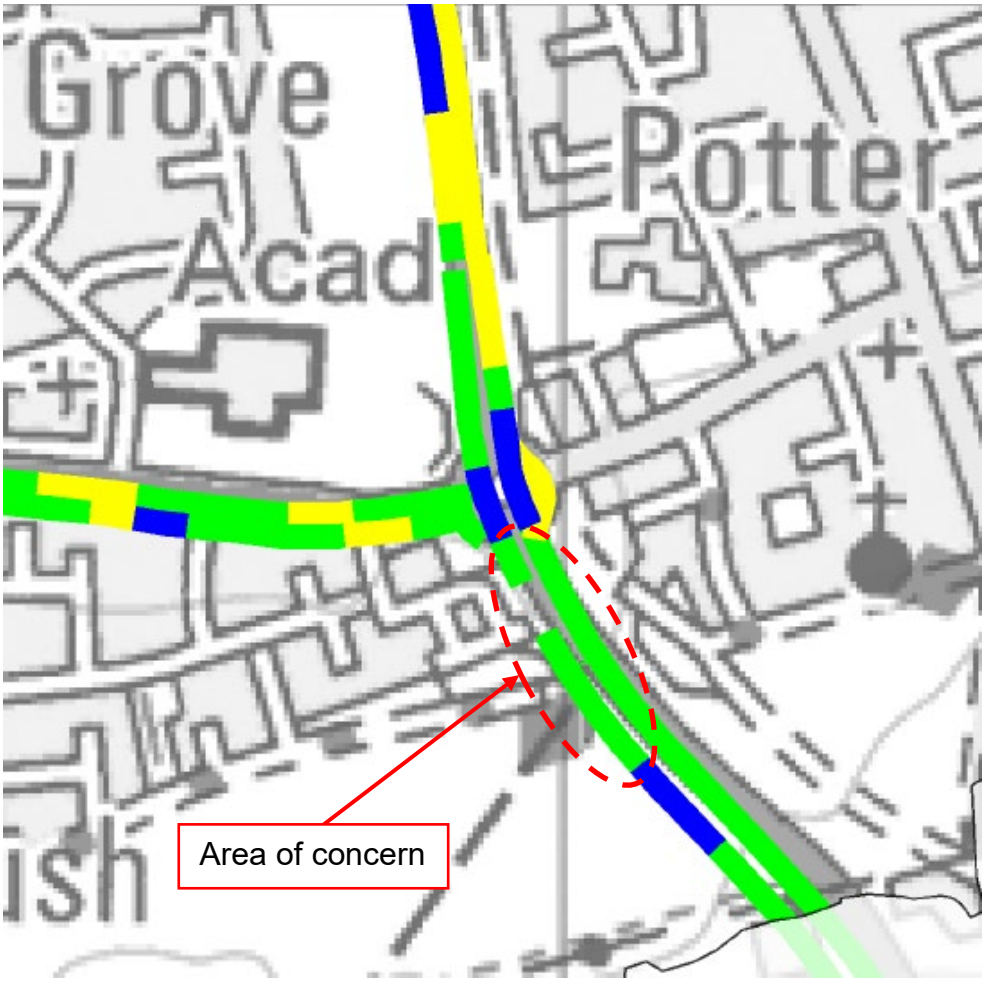
Principle: A study of personal injury collisions at this location indicates a pattern of north bound vehicles on the A414 colliding with stationary vehicles queueing or slower moving vehicles on the approach to the traffic signals.

1.0 Site Plan with Collision Plot





2.0 Site Description & Observations

Details	Description/Observations
Road Name (s)	A414 Northbound Approach to Southern Way (A1169) Roundabout
Grid Reference	546963 - 208518
Speed Limit	40mph
Street Lit	yes
Carriageway type	Dual
Gradient	Slight downward grade northbound to roundabout.
Traffic Management / Existing Traffic Calming	There are Clearway regulatory signs, Traffic Signals Ahead warning signs with a distance sub-plate, there are directional signs prior to the roundabout.
Utilities Present	Unknown
Existing TRO's	40mph maximum speed limit.
Road Surface	<p>SCRIM Data 2019 shows the carriageway on the approach to the roundabout is in good (green) condition.</p>  <p>The map shows a road network with a roundabout. The road is color-coded: green for good condition, yellow for fair, and blue for poor. A red dashed line and an arrow point to a specific area on the road, labeled 'Area of concern'.</p>

Signing	There are Clearway regulatory signs, Traffic Signals Ahead warning signs with a distance sub-plate, there are directional signs prior to the roundabout.		
Road Markings	The appropriate carriageway markings are present. However, the lane markings are partially worn. No road studs were observed.		
Visibility	Forward visibility of road layout good.		
Vegetation	No Issues		
Highway Boundary / Land & Ownership Check ?	No	Is the scheme within Highway boundary or on land owned by ECC(*)	Yes (*if the land is not highway the scheme should only proceed to feasibility design & land acquisition/dedication stage)
Does the scheme require change to an existing TRO or Speed Limit	No		
Other			

3.0 Personal Injury Collision Analysis

Cluster Site Collision Information	COLLISIONS			CASUALTIES		
	FATAL	SERIOUS	SLIGHT	FATAL	SERIOUS	SLIGHT
	0	0	6	0	0	8

Identified Collision Pattern(s) at Cluster Site	COLLISIONS			CASUALTIES		
	FATAL	SERIOUS	SLIGHT	FATAL	SERIOUS	SLIGHT
Pattern of nose-to-tail PIC's all north bound on A414						
	0	0	6	0	0	8

Additional information	Information from a traffic survey in 2020 indicates 85 th ile speeds in excess of 50mph (Posted speed limit 40mph)
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4.0 Site Photographs



Image 1 - A414 northbound approach to roundabout showing Clearway signs.



Image 2 – A414 northbound approach to roundabout showing Traffic Signals Ahead warning sign.



Image 3 – A414 northbound approach to roundabout showing Advanced Directional sign.



Image 4 – A414 northbound approach to roundabout showing destination carriageway markings

5.0 Recommendations

Remedial Measures

A study of personal injury collisions at this location indicates a pattern of north bound vehicles on the A414 colliding with stationary vehicles queueing or slower moving vehicles on the approach to the traffic signals.

2019 SCRIM data regarding the skidding resistance of the carriageway surface shows the surface to be in good condition within the area of concern.

To raise awareness of the roundabout and to encourage compliance with the posted speed limited it proposed to implement the following measures on north bound approach to the traffic signals at the roundabout.:

- Replace existing traffic signals ahead signs with enhanced (yellow backing) signs to both sides of the carriageway.
- Provide 'Traffic queues likely on road ahead' Diagram 584 with Queues likely sub-plate to both sides of the carriageway,

6.0 Estimated Costs

Total scheme Design and Construction	£15000.00
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7.0 Predicted Collision Cost Saving from remedial measure

Remedial Measures	Reduction in Collisions (RoSPA)
Enhanced signing	46%

8.0 Other engineering options for consideration

NA	
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9.0 Scheme Approval

Safety Engineering Team:	Tel No.	Date

Appendix A: FYRR

First Year Rate of Return (FYRR) Calculation: Built Up Rds (other than Motorways) with Speed Limit of 40mph or Less

$$\% \text{ FYRR} = \frac{\text{Annual Collision Savings} \times 100}{\text{Scheme Cost}}$$

Assumptions:

	Fatal	Serious	Slight
Average annual collision cost (£)	£2,227,264	£257,975	£26,312
Collisions treated	0	0	6
Casualties treated	0	0	8
Investigation time period (years)		3.5	

Estimated cost of recommended remedial measures (including Design, Audit and Traffic Management)

As per recommendations in Section 6

£15,000.00

Collision saving produced by proposed treatment (%)

46

%FYRR fatal

0

%FYRR serious

0

%FYRR slight

138

Total % FYRR 138

Number of collisions that would not have occurred had the remedial actions been implemented at the start of the collision period

2.76 or 0.79 each year

Number of casualties that would not have occurred had the remedial actions been implemented at the start of the collision period

3.68 or 1.05 each year

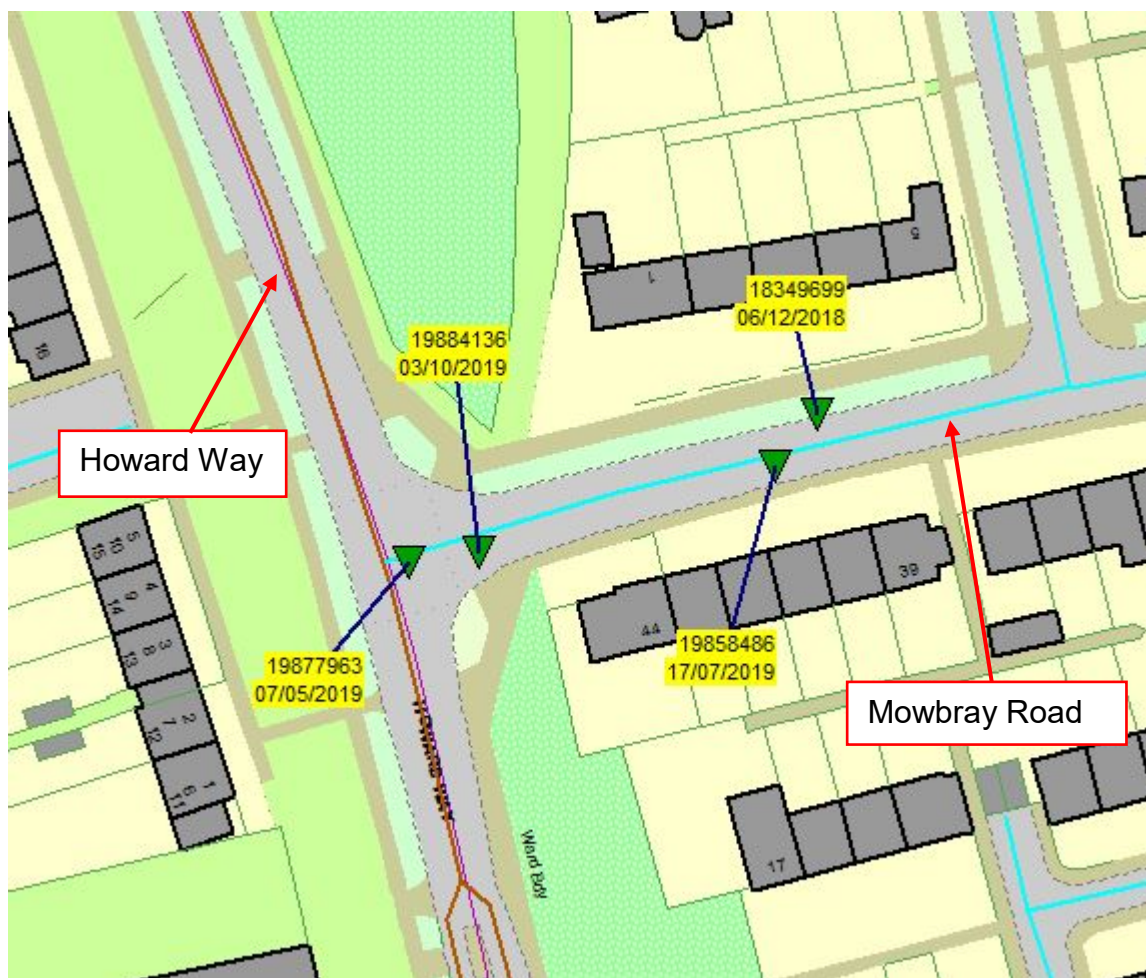
Location: Site 197 – MOWBRAY ROAD NEAR JUNCTION WITH HOWARD WAY
District: Harlow
Collision Investigation Period: 01/01/2017 and 30/06/2020
Site Ranking: 197 (Single Site)

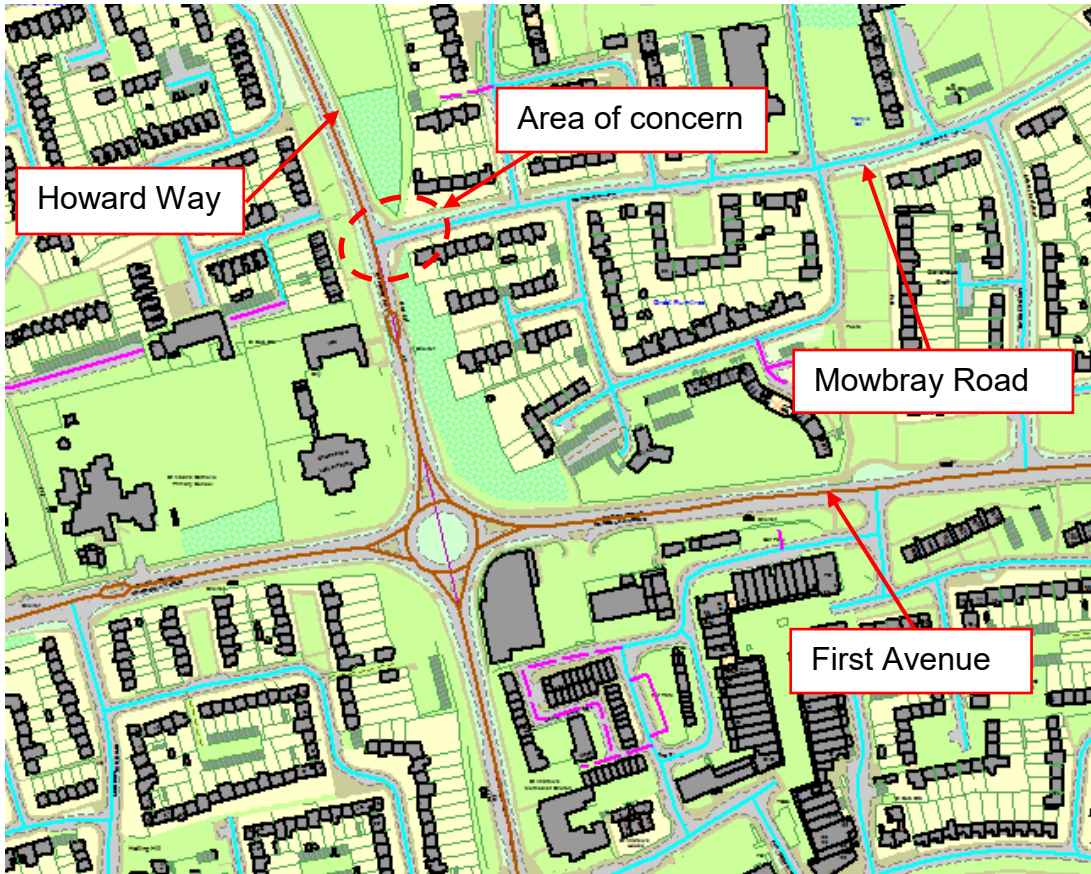
EXECUTIVE SUMMARY

Intervention works: Implement Waiting Restrictions (No Waiting At Any Time) at junction of Howard Way and Mowbray Road to provide access width.

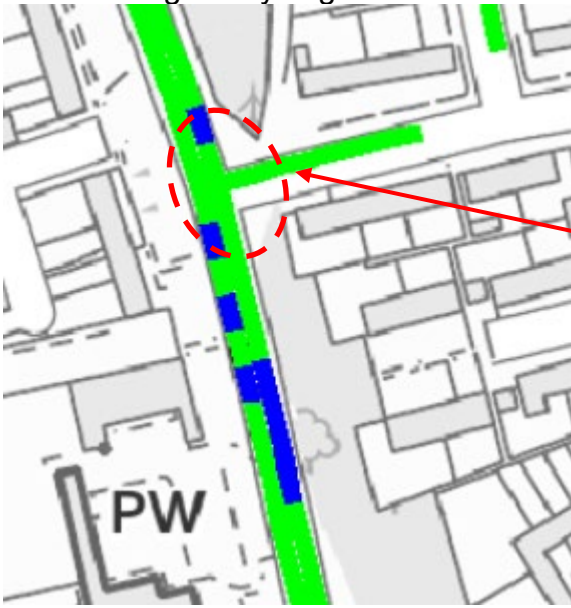
Principle: A study of personal injury collisions at this location indicates a pattern of collisions resulting from passing parked vehicles or restricted access due to parked vehicles.

1.0 Site Plan with Collision Plot





2.0 Site Description & Observations

Details	Description/Observations
Road Name (s)	Howard Way jw Mowbray Road
Grid Reference	545763 , 210925
Speed Limit	40mph on Howard Way and 30mph on Mowbray Road
Street Lit	Yes
Carriageway type	Single
Gradient	None
Traffic Management / Existing Traffic Calming	There is a right lane facility for northbound traffic on Howard Way. The junction itself is controlled by Give Way markings on Mowbray Road.
Utilities Present	Unknown
Existing TRO's	TRO for 40mph and 30mph speed restrictions. There is also a Clearway order on this section Howard Way.
Road Surface	<p>No SCRIM Data is available currently. However, Scanner data from 2019 shows the junction to be generally in good condition.</p>  <p>It should be noted that at the time of the site visit it was observed that the junction had recently been resurfaced and the carriageway marking had been refreshed.</p>
Signing	There are 'Side Road Ahead' and 'Children Crossing' warning signs on Howard Way on both approaches to the junction. On Mowbray Road there is a '30 zone ends' sign for westbound traffic.
Road Markings	There are warning centre line markings on all approaches to the junction. There Give Way marking in Mowbray Road. All carriageway marking are appropriate and visible
Visibility	Forward visibility of road layout adequate but this would be improved by removing some on-street parking.

Vegetation	No issues		
Highway Boundary / Land & Ownership Check ?	No	Is the scheme within Highway boundary or on land owned by ECC(*)	Yes (*if the land is not highway the scheme should only proceed to feasibility design & land acquisition/dedication stage)
Does the scheme require change to an existing TRO or Speed Limit	No		
Other			

3.0 Personal Injury Collision Analysis

Cluster Site Collision Information	COLLISIONS			CASUALTIES		
	FATAL	SERIOUS	SLIGHT	FATAL	SERIOUS	SLIGHT
	0	0	4	0	0	5

Identified Collision Pattern(s) at Cluster Site	COLLISIONS			CASUALTIES		
Pattern of nose-to-tail collisions involving road users turning into Mowbray Rd and vulnerable road user being masked by parked vehicles	FATAL	SERIOUS	SLIGHT	FATAL	SERIOUS	SLIGHT
	0	0	4	0	0	5

Additional information	
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Image 1 – Warning signs on Howard Way northbound approach



Image 2 – Warning signs on Howard Way southbound approach



Image 3 – View of Mowbray Road from Howard Way

5.0 Recommendations

Remedial Measures

A study of personal injury collisions at this location indicates a pattern of collisions resulting from passing parked vehicles or restricted access due to parked vehicles.

To provide increased forward visibility of oncoming vehicles on Mowbray Road and space to allow vehicles to give way to oncoming vehicles it is proposed to implement Waiting Restrictions (No Waiting At Any Time) at junction of Howard Way and Mowbray Road.

6.0 Estimated Costs

Total scheme Design and Construction	£8500.00
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7.0 Predicted Collision Cost Saving from remedial measure

	<i>Reduction in Collisions (RoSPA)</i>
<i>Waiting Restrictions</i>	41%

8.0 Other engineering options for consideration

NA	
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9.0 Scheme Approval

<i>Safety Engineering Team:</i>	<i>Tel No.</i>	<i>Date</i>

Appendix A: FYRR

First Year Rate of Return (FYRR) Calculation: Built Up Rds (other than Motorways) with Speed Limit of 40mph or Less

$$\% \text{ FYRR} = \frac{\text{Annual Collision Savings} \times 100}{\text{Scheme Cost}}$$

Assumptions:

Average annual collision cost (£)

Collisions treated

Casualties treated

Investigation time period (years)

Fatal	Serious	Slight
£2,227,264	£257,975	£26,312
0	0	4
0	0	5
	3.5	

Estimated cost of recommended remedial measures (including Design, Audit and Traffic Management)

As per recommendations in Section 6

£8,500.00

Collision saving produced by proposed treatment (%)

41

%FYRR fatal

0

%FYRR serious

0

%FYRR slight

145

Total % FYRR 145

Number of collisions that would not have occurred had the remedial actions been implemented at the start of the collision period

1.64 or **0.47** each year

Number of casualties that would not have occurred had the remedial actions been implemented at the start of the collision period

2.05 or **0.59** each year

Site Report Essex Highways Casualty Reduction Site Report 2021/22



Location: B1010 Lower Burnham Rd j/w B1010 Fambridge Rd (S of Kits Hill), North Fambridge
District: Maldon
Collision Investigation Period: 01/01/2017 – 30/06/2020 (3½ years)
Site Ranking: Site 038 (Rural Site)

EXECUTIVE SUMMARY

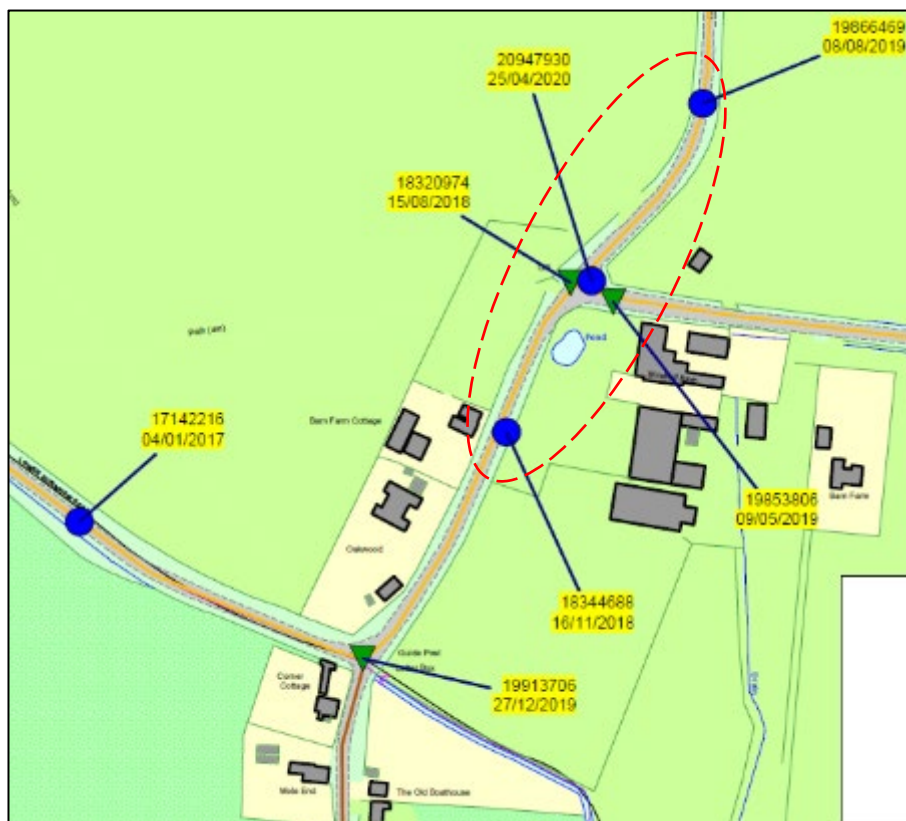
Intervention works (Feasibility Study only in current year):

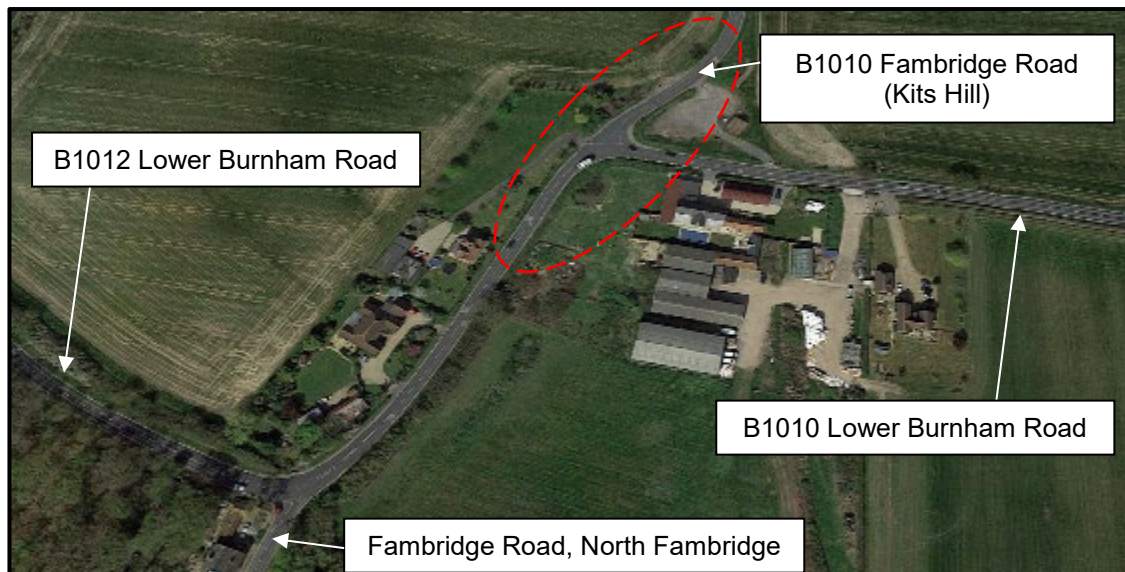
Feasibility study for junction improvements to reduce speeds and improve driver behaviour/discipline. Consider potential for junction conversion, with associated speed limit reduction, signs and street lighting.

Principle: A study of personal injury collisions at the Fambridge bends on the B1010 Lower Burnham Road indicates that there have been 5 collisions in the vicinity of the Kits Hill junction in the investigation period. Three of these incidents involved turning manoeuvres at the junction; all involved one vehicle turning across the path of another, one resulting in slight injury to a motorcyclist (15/08/2018) and another resulting in serious injury to a cyclist (25/04/2020).

The other two serious injury incidents (16/11/2018 and 08/08/2019) are not associated with the junction and, after detailed review of the circumstances of each, are not considered pertinent in this analysis.

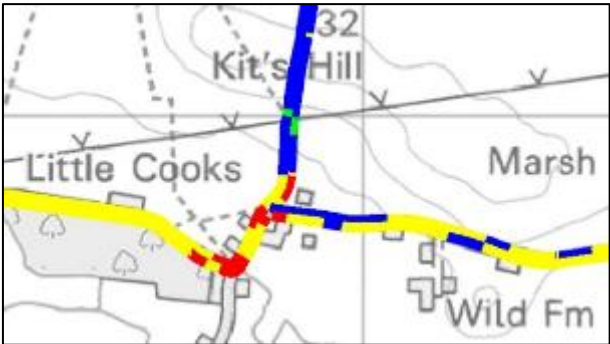
1.0 Site Plan with Collision Plot





2.0 Site Description & Observations

Details	Description/Observations
Road Name (s)	B1010 Fambridge Road (Kits Hill), B1012 Lower Burnham Road, B1010 Lower Burnham Road, North Fambridge
Grid Reference	E 585734, N 198749
Speed Limit	National Speed Limit
Street Lit	No (one private/parish street light on telegraph pole at junction)
Carriageway type	Each road is a rural single carriageway with one lane in each direction, all subject to the National Speed Limit. The B1012/B1010 Lower Burnham Road (running generally east-west) is the through route; traffic approaching south from Kits Hill meets Lower Burnham Road at a conventional T-junction with 'Give Way' markings on a 90-degree bend.
Gradient	Level Gradient
Traffic Management / Existing Traffic Calming	T-junction on 90-degree bend.
Utilities Present	Potentially – may require alteration/relocation depending on design
Existing TRO's	None

<p>Road Surface</p>	 <p>Latest SCRIM data (2019/20) shows critical areas (red) on each approach to the bends and junction, indicating that surface treatment should be prioritised. Sections coloured yellow are below the investigatory level, suggesting further assessment is required, and areas coloured blue are at warning level, suggesting lesser deterioration.</p>
<p>Signing</p>	<p>Lower Burnham Road eastbound – a ‘Double Bends Ahead’ sign (TSRGD Diag.513) with a ‘Max speed 20’ subplate, all on a yellow backing board, in the nearside verge. At the first (left-hand) bend is a series of three single chevron signs (TSRGD Diag.515), each with a yellow border, emphasising the severity of the bend. Beyond the bend, heading northwards, there is another map-type ADS sign in the offside verge, somewhat obscured by a large oak tree, and two single chevron signs with much narrower yellow borders in the nearside verge denoting the right-hand bend at the junction ahead.</p> <p>Lower Burnham Road westbound – there is a map-type ADS sign to the offside approximately 100 metres prior to the bend/junction, and a ‘Double Bends Ahead’ sign (TSRGD Diag.513) with a ‘Max speed 20’ subplate, all on a yellow backing board, in the nearside verge. Directly ahead, in the driver’s eyeline, is a yellow-bordered flexible single chevron sign (“Chevroflex”), although at the time of inspection the chevron marking was missing. Beyond the bend, there is a further map-type ADS sign and further yellow-backed/bordered warning signs for the next bend/junction.</p> <p>B1010 Fambridge Road (Kits Hill) southbound – there is a map-type ADS sign in the nearside verge and a ‘Give Way’ warning sign at the junction. There are no other warning signs for the junction ahead on this approach.</p> <p>Other than the ADS sign partially obscured by the oak tree as described above, and the damaged chevron sign, all signs were clearly visible and in serviceable condition. Those signs installed in the offside verge, which appear to have been placed due to lack of space to the nearside, could be concealed by any large vehicle travelling in the opposite direction.</p>
<p>Road Markings</p>	<p>Lower Burnham Road eastbound - continuous white lines denoting the edge of the carriageway to both sides, and a centre hazard warning line (long line with short gaps) and three SLOW markings, all before the left-hand bend and junction for North Fambridge village. At the bend, the centre line changes to centre hatching, although the markings are quite faded on the eastbound side. Beyond the bend, heading north towards the junction with B1010 Fambridge Road (Kits Hill), the centre hatching changes back to a centre hazard warning line. There are a further two SLOW markings</p>

	<p>on the approach to the next (right-hand) bend/junction. At the right-hand bend, the nearside edge of carriageway line deviates to create a slight deflection, but continues ahead into Fambridge Road towards Kits Hill; a broken line continues to follow Lower Burnham Road around the bend and forms the 'Give Way' line across the junction with Fambridge Road.</p> <p>Lower Burnham Road westbound - continuous white lines denoting the edge of the carriageway to both sides, and a centre hazard warning line (long line with short gaps) with reflective road studs. There is one, quite faded, SLOW marking approximately 50m prior to the bend/junction, around which point the centre hazard warning line becomes faded and indistinct. Beyond the bend/junction, the centre line becomes visible again although further SLOW markings have deteriorated.</p> <p>B1010 Fambridge Road (Kits Hill) southbound – there is a centre hazard warning line (long lines with short gaps) with reflective road studs, and edge of carriageway markings to both sides. There are two SLOW markings on the approach to the junction. The centre markings are faded where over-run close to the junction.</p> <p>The road markings are generally in good condition, other than being faded/worn by vehicle over-run at the bends.</p>		
Visibility	<p>There is good forward visibility to the bend/junction on each of the approaches, although visibility to the left through the bend, for those turning right from Lower Burnham Road into Fambridge Road (northbound), may be limited by vegetation growth within the property boundary. Similarly, visibility to the right for those turning right from Fambridge Road (Kits Hill) towards Fambridge/South Woodham Ferrers may be limited by large vehicles travelling westbound, due to the offset position of the 'Give Way' line, potentially obscuring approaching eastbound vehicles.</p>		
Vegetation	<p>There is a well-maintained boundary hedge around the inside of the bend opposite the junction, affording a view across, although there is other vegetation within the property boundary. Established mature trees partially obscure one ADS sign.</p>		
Highway Boundary / Land & Ownership Check?	Required as part of feasibility study.	Is the scheme within Highway boundary or on land owned by ECC(*)	Yes (*if the land is not highway the scheme should only proceed to feasibility design & land acquisition/dedication stage)
Does the scheme require change to an existing TRO or Speed Limit	Yes – potentially reduce speed limit to implement other traffic management measures.		
Other	None		

3.0 Personal Injury Collision Analysis

Cluster Site Information	Collision	COLLISIONS			CASUALTIES		
		FATAL	SERIOUS	SLIGHT	FATAL	SERIOUS	SLIGHT
Total incidents at Cluster Site		0	4	3	0	4	4

Identified Collision Pattern(s) at Cluster Site	COLLISIONS			CASUALTIES		
	FATAL	SERIOUS	SLIGHT	FATAL	SERIOUS	SLIGHT
Collisions involving vehicles turning into or emerging from the junctions on the bends across the path of vehicles on Lower Burnham Road.	0	1	2	0	1	2

Additional information	None.
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4.0 Site Photographs



Image 1 – B1012 Lower Burnham Road, eastbound (northwards) approach to bend/junction



Image 2 – B1012 Lower Burnham Road, eastbound (northwards) approach to bend/junction.
Note absence of entry deflection into Fambridge Road (towards Kits Hill)



Image 3 – B1010 Lower Burnham Road, westbound, approximate location at which the
bend/junction ahead first comes into view



Image 4 – B1010 Lower Burnham Road, westbound, approaching the bend/junction



Image 5 – B1010 Lower Burnham Road, westbound approach
(NB – the grey car after the lorry also emerged before the video car reached the junction)



Image 6 – B1010 Fambridge Road (Kits Hill) southbound
Illustrating the extensive forward view from the brow of Kits Hill



Image 7 – B1010 Fambridge Road (Kits Hill) southbound
Illustrating wide view of approaching westbound traffic prior to junction



Image 8 – Fambridge Road (Kits Hill) southbound – approaching ‘Give Way’ line at junction.



Image 9 – Fambridge Road (Kits Hill) southbound – at ‘Give Way’ line at junction.
Illustrating offset alignment of ‘Give Way’ line and limited visibility due to other road users.

5.0 Recommendations

Remedial Measures

Feasibility study for junction improvements to reduce speeds and improve driver behaviour/discipline. Consider potential for junction conversion, with associated speed limit reduction, signs and street lighting

6.0 Estimated Costs

Feasibility Study	£4000
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7.0 Predicted Collision Cost Saving from remedial measure

Remedial Measures	Reduction in Collisions (RoSPA)
Package of measures	42%

8.0 Other engineering options for consideration

N/A	-
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9.0 Scheme Approval

Safety Engineering Team:	Tel No.	Date

Not required at this stage.

Site Report Essex Highways Casualty Reduction Site
Report 2020/21



Location: Maypole Road, 30m North West j/w Back Lane
District: Maldon
Collision Investigation Period: 01/01/2016 – 31/12/2018
Site Ranking: 169 Single Site

EXECUTIVE SUMMARY

Intervention works Feasibility Study. To review various junction options (mini roundabout, staggered arrangement, potential rerouting of side road)

The feasibility study determined that various junction options such as mini roundabout / staggered arrangement would exceed the FYRR calculations on a cost / benefit ratio.

The following remedial works are therefore recommended:

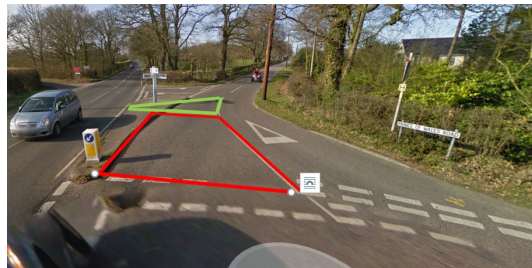
That through the use of minor kerb amendments and temporarily bolt down kerbing, the junction layout be amended to formalise turning manoeuvres to reduce driver confusion and conflict potential.

The existing island is realigned to prohibit entry into Kelvedon Road from the Prince of Wales Road side of the junction.

Access into Kelvedon Road should only be permitted from the most northerly of the access points from Maypole Road.

Appropriate Signing and Lining amendments will also be required.

(*)The ability to egress from the northern side of the junction should be removed by amending the kerb lines and reducing the area down to one running lane width

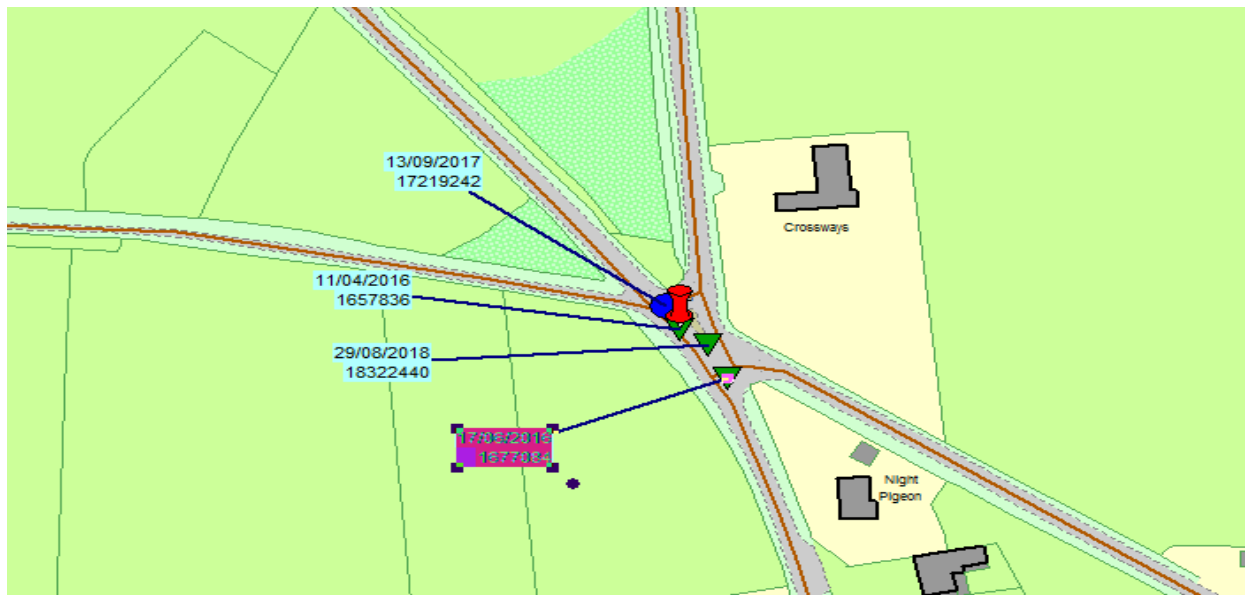


(*) Subject to further review once origin and destination survey is returned to determine the current number of southbound road users exiting Kelvedon Road

Principle: A study of personal injury collisions at location shows a pattern North bound road users turning across the path of Southbound users as well as South bound road users failing to

give way at the junction.

1.0 Site Plan with Collision Plot



2.0 Site Description & Observations

Details	Description/Observations
Road Name (s)	Maypole Road
Grid Reference	585002 211739
Speed Limit	Derestricted
Street Lit	No
Carriageway type	Single
Gradient	North bound – Slight uphill gradient
Traffic Management /	N/A

Existing Traffic Calming			
Utilities Present	None		
Existing TRO's	None		
Road Surface	No SCRIM data is available but the condition data indicates a sound condition.		
Signing	Finger post on junction island. Yellow backed Equestrian sign on Southbound Maypole Road. On Kelvedon Road, there is a Give Way Sign at the junction of Prince of Wales Road.		
Road Markings	On the North and South Bound approach to the junction on Maypole Road, there are two sets of slow markings. There are Give Way markings at the junction of Kelvedon Road and Prince of Wales Road, on Maypole Road junction with Kelvedon Road and Maypole Road junction with Prince of Wales Road.		
Visibility	Prince of Wales Road has restricted visibility		
Vegetation	No issue with vegetation		
Highway Boundary / Land & Ownership Check?	No	Is the scheme within Highway boundary or on land owned by ECC(*)	No (*if the land is not highway the scheme should only proceed to feasibility design & land acquisition/dedication stage)
Does the scheme require change to an existing TRO or Speed Limit	No		
Other	None		

3.0 Personal Injury Collision Analysis

Cluster Site Collision Information	COLLISIONS			CASUALTIES		
	FATAL	SERIOUS	SLIGHT	FATAL	SERIOUS	SLIGHT
	0	1	3		1	4

Identified Collision Pattern(s) at Cluster Site	COLLISIONS			CASUALTIES		
	FATAL	SERIOUS	SLIGHT	FATAL	SERIOUS	SLIGHT
Northbound road users turning right across the path of Southbound users. Southbound users failing to give way at the junction.	0	1	3	0	1	4

Additional information	None.
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4.0 Site Photographs



Image 1 –



Image 2 –



Image 3 –

5.0 Recommendations

Remedial Measures

That through the use of minor kerb amendments and temporarily bolt down kerbing, the junction layout be amended to formalise turning manoeuvres to reduce driver confusion and conflict potential.

The existing island is realigned to prohibit entry into Kelvedon Road from the Prince of Wales Road side of the junction.

Access into Kelvedon Road should only be permitted from the most northerly of the access points from Maypole Road.

Appropriate Signing and Lining amendments will also be required.

(*)The ability to egress from the northern side of the junction should be removed by amending the kerb lines and reducing the area down to one running lane width

6.0 Estimated Costs

Design and Implement	£30,000
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7.0 Predicted Collision Cost Saving from remedial measure

Remedial Measures	Reduction in Collisions (RoSPA)
Package of Measures	42%

8.0 Other engineering options for consideration

N/A	-
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9.0 Scheme Approval

Safety Engineering Team:	Tel No.	Date

Appendix A: FYRR – NA Feasibility

$$\% \text{ FYRR} = \frac{\text{Annual Collision Savings} \times 100}{\text{Scheme Cost}}$$

Assumptions:

Average annual collision cost (£)

Collisions treated

Casualties treated

Investigation time period (years)

**Estimated cost of recommended remedial measures
(including Design, Audit and Traffic Management)**

As per recommendations in Section 6

Collision saving produced by proposed treatment (%)

%FYRR fatal

%FYRR serious

%FYRR slight

Total % FYRR **181**

Number of collisions that would not have occurred had the remedial actions been implemented at the start of the collision period

1.68 or **0.56** each year

Number of casualties that would not have occurred had the remedial actions been implemented at the start of the collision period

2.1 or **0.70** each year

Fatal	Serious	Slight
£2,422,598	£292,513	£31,937
0	1	3
0	1	4
	3	

£30,000.00

42

0

137

45

Site Report Essex Highways Casualty Reduction Site
Report 2021/22



Location: Hall Road/Ashingdon Road/West Street, Rochford
District: Rochford
Collision Investigation Period: 01/01/2017 – 31/12/2019
Site Ranking: Site 190 (Single Site)

EXECUTIVE SUMMARY

Intervention works:

Traffic surveys to determine collision causation, and feasibility study in current year.

Principle: A study of personal injury collisions in the vicinity of the mini-roundabout junction of Hall Road/Ashingdon Road/West Street indicates that there have been 4 separate collisions involving turning movement conflicts within the investigation period, all resulting in slight injury. One collision involved a cyclist struck by a vehicle while negotiating the junction from West Street towards Ashingdon Road, another two involved conflict between vehicles turning into or out of Hall Road, one of which resulted in slight injury to three occupants of one vehicle. The fourth incident also involved vehicles joining the mini-roundabout from Hall Road, but one driver alleged a mechanical fault with their vehicle causing unintended acceleration.


1.0 Site Plan with Collision Plot





2.0 Site Description & Observations

Details	Description/Observations
Road Name (s)	Mini-roundabout junction of Hall Road, Ashingdon Road and West Street, Rochford
Grid Reference	E 587260, N 190566
Speed Limit	30mph
Street Lit	Yes
Carriageway type	<p>Urban single carriageways, within 30mph speed limit with street lighting, close to town centre and passenger transport interchange (bus stops/railway station), with a zebra crossing, primary school/day nursery and local hospital in close proximity.</p> <p>Short two-lane approaches on each arm of the mini-roundabout at the junction.</p> <p>Marked cycle lane on Hall Road, crossing the carriageway via an uncontrolled refuge island just south of the railway bridge to Church Walk and the station.</p>
Gradient	Level Gradient
Traffic Management /	<p>Three-arm mini-roundabout.</p> <p>Height, weight and width restrictions on Hall Road (for the railway bridge).</p>

Existing Traffic Calming	
Utilities Present	Potentially – shouldn't affect any scheme proposals
Existing TRO's	Height, width and weight restrictions on Hall Road (TROs to be confirmed). Waiting restrictions/urban clearway on Ashingdon Road and West Street (verified on TraffWeb).
Road Surface	 <p>Latest SCRIM data (2019/20) indicates a warning level (blue) or below investigatory level (yellow) for Ashingdon Road/West Street, with a short section shown critical (red) in the vicinity of the zebra crossing on the southbound approach to the mini-roundabout.</p> <p>No SCRIM data is available for Hall Road.</p>
Signing	<p>Hall Road (eastbound) – 4.1m (13'6") height restriction sign on lamp column prior to junction with St Andrew's Road, with a further sign to the offside. Map-type ADS sign in nearside verge at the left-hand bend prior to passing under the railway bridge, however this sign is obscured by tree branches. Reflectorised 'Keep Left' bollards on the refuge island in the centre of the carriageway on the bend prior to the railway bridge, where a cycle lane crosses. To the nearside, there is a brown tourism sign for the Essex Marina and ferry, although this was also obscured by tree branches; just beyond this is a 'Roundabout ahead' warning sign (TSRGD Diag.510), prior to the railway bridge. Immediately after the railway bridge, at the mini-roundabout, there are HGV restriction end signs to both sides of the road, a triangular 'Give Way' sign, and a circular mini-roundabout sign (TSRGD Diag.611.1) and 'Children crossing' warning sign (TSRGD Diag.545) with 'Patrol' subplate all on the same post, but again somewhat concealed by vegetation. Just beyond these warning signs, in Ashingdon Road but within the same line of sight, is an Urban Clearway sign (TSRGD Diag.646). Opposite Hall Road, against a wall and visually busy background, are several flag-type signs and other unofficial banners strung to the railings. Turning into Hall Road westbound (ie from the mini-roundabout) on both sides of the road are combination restriction signs, comprising (from top to bottom) 4.1m height restriction, 7.5t weight limit restriction, 6'6" width restriction, and 'Except for access' subplate.</p>

	<p>Ashingdon Road (southbound) – visually busy urban streetscene; there is a map-type ADS sign, with additional sign for weight and width restriction ahead, positioned to the offside, behind a telegraph pole and lighting column and with the flank wall of the adjacent property as the backdrop. Outside Rochford Primary School and Day nursery, there is a Zebra crossing with belisha beacons, on a gentle right-hand bend prior to the mini-roundabout, followed by a 'Roundabout ahead' warning sign with a yellow backing board. Set in the back of the verge beside the give way line at the mini-roundabout is a circular mini-roundabout sign on a yellow backing board, with an 'Urban clearway End' sign affixed beneath.</p> <p>West Street (westbound) – map-type ADS sign, together with HGV weight and width restriction signs, to the nearside, although set back within the access to the railway station. Bus stop and shelter to nearside, before (and somewhat masking) a 'Roundabout ahead' warning sign. At the mini-roundabout is a circular mini-roundabout sign to the nearside, although its conspicuity is diminished by temporary yellow new development signs on the same post. Opposite West Street, against a fence, is a large flag-type sign with multiple destinations, together with a brown tourism sign for the Essex Marina and ferry.</p> <p>Overall, the signs for the mini-roundabout were visible, however when considered in conjunction with the many other restriction and direction signs in this visually busy environment, there appears to be a risk of information overload and potential driver distraction/confusion.</p>
Road Markings	<p>Hall Road - centre hazard warning line, widening to centre hatching at the left-hand bend prior to the railway bridge to accommodate a pedestrian refuge. Edge of carriageway marking (continuous white line) to both sides of the road passing under the railway bridge; the centre hatching tapers back to a centre hazard warning lane, with a SLOW marking beside the 'Roundabout ahead' warning sign. Two short lanes at the Give Way line at the mini-roundabout, each with a 'Give Way' inverted triangle marking.</p> <p>Ashingdon Road (southbound) – single yellow lines to both sides of the road (Urban clearway); centre hazard warning line (long line with short gaps), changing to zig-zag markings for the zebra crossing beside Rochford Primary School. At the conclusion of the zig-zag markings, the single yellow lines and centre hazard warning lines resume; the southbound lane then widens to provide two marked lanes at the mini-roundabout, the nearside lane marked with a 'Turn Left' arrow and the offside lane marked with an 'Ahead' arrow.</p> <p>West Street (westbound) – Bus stop cage marking (quite faded) followed immediately by a SLOW marking and two marked lanes approaching the roundabout; the nearside lane is marked by a series of two 'Turn left' lane arrows. Road markings in the westbound lane are quite faded..Opposing traffic on West Street is separated by centre hazard warning lines (long lines with short gaps); there are faded single yellow lines to both sides of the road.</p> <p>Other than as described above, the centre markings on all approaches were generally visible, however the circulatory markings and centre island</p>

	of the mini-roundabout were rather worn, suggesting regular vehicle over-run.		
Visibility	There is good forward visibility on each of the approaches to the roundabout. Visibility to the right from the Hall Road approach is restricted due to vegetation and the wall/guardrailing around the adjacent ditch.		
Vegetation	Trees to the nearside of Hall Road obscure some of the signs, as described above. Trees to the nearside at the mini-roundabout (between Hall Road and Ashingdon Road) partially obscure some of the warning signs and create areas of shadow with reduced contrast across the circulatory area. Vegetation along the top of the enclosed ditch limits the view to the right from Hall Road.		
Highway Boundary / Land & Ownership Check?	Yes – may be required for vegetation trimming.	Is the scheme within Highway boundary or on land owned by ECC(*)	Yes (*if the land is not highway the scheme should only proceed to feasibility design & land acquisition/dedication stage)
Does the scheme require change to an existing TRO or Speed Limit	No		
Other	None		

3.0 Personal Injury Collision Analysis

Cluster Site Collision Information	COLLISIONS			CASUALTIES		
	FATAL	SERIOUS	SLIGHT	FATAL	SERIOUS	SLIGHT
Total incidents at Cluster Site:	0	0	4	0	0	6

Identified Collision Pattern(s) at Cluster Site	COLLISIONS			CASUALTIES		
	FATAL	SERIOUS	SLIGHT	FATAL	SERIOUS	SLIGHT
Turning movement conflict at the junction of Hall Road/ Ashingdon Road/West Street.	0	0	4	0	0	6

Additional information	None.
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4.0 Site Photographs



Image 1 – Hall Road eastbound, forward view to mini-roundabout



Image 2 – Hall Road eastbound, two-lane approach to mini-roundabout



Image 3 – view to right at mini-roundabout from Hall Road (from Google Streetview, 2019)



Image 4 – West Street westbound approach.
Note ADS sign set well back, and bus stop shelter obscuring signs beyond



Image 5 – West Street (westbound) at mini-roundabout
Note faded road markings, prominent temporary signs, and vegetation to nearside



Image 6 – West Street, looking north to Ashingdon Road
(from Google Streetview, 2019)



Image 7 – Ashington Road (southbound) approach
Obscured map-type sign to the offside and zebra crossing outside the primary school ahead



Image 8 – Ashington Road (southbound) at mini-roundabout

5.0 Recommendations

Remedial Measures

Traffic surveys and feasibility study in the current year.

6.0 Estimated Costs

Surveys and Feasibility Study only	£6500
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7.0 Predicted Collision Cost Saving from remedial measure

Remedial Measures	Reduction in Collisions (RoSPA)
Package of measures	42%

8.0 Other engineering options for consideration

N/A	-
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9.0 Scheme Approval

Safety Engineering Team:	Tel No.	Date

Site Report Essex Highways Casualty Reduction Site
Report 2021/22



Location: A1245 Battlesbridge Bypass j/w Chelmsford Road, Battlesbridge
District: Rochford
Collision Investigation Period: 01/01/2017 – 31/12/2019
Site Ranking: Site R110 (Rural Site)

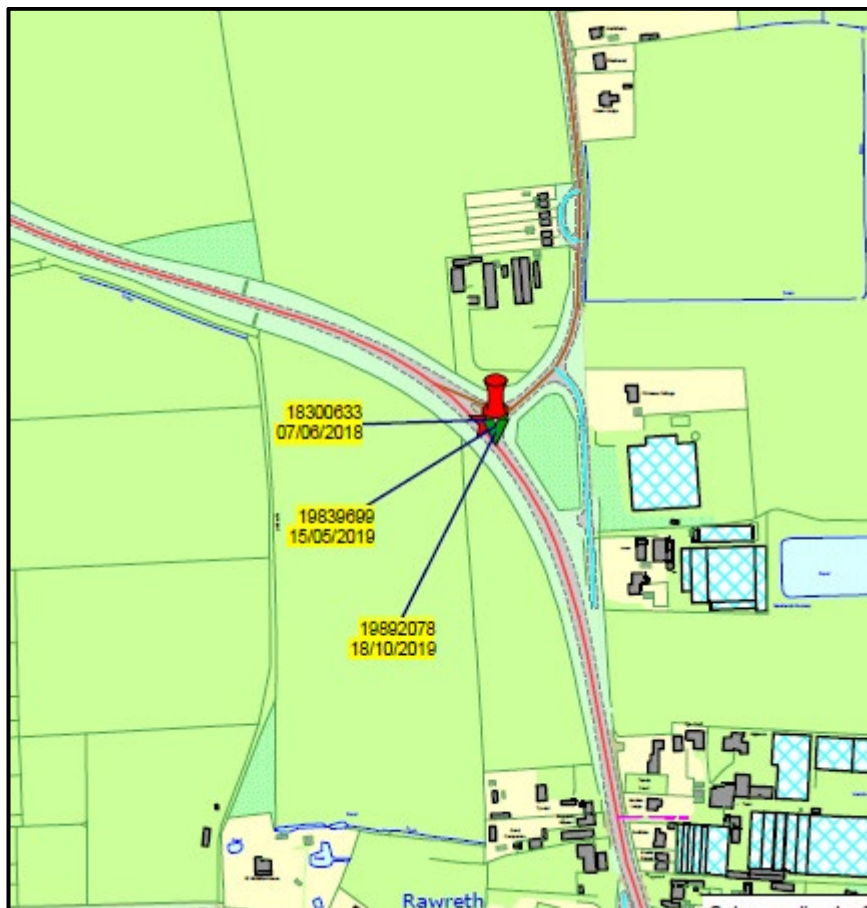
EXECUTIVE SUMMARY

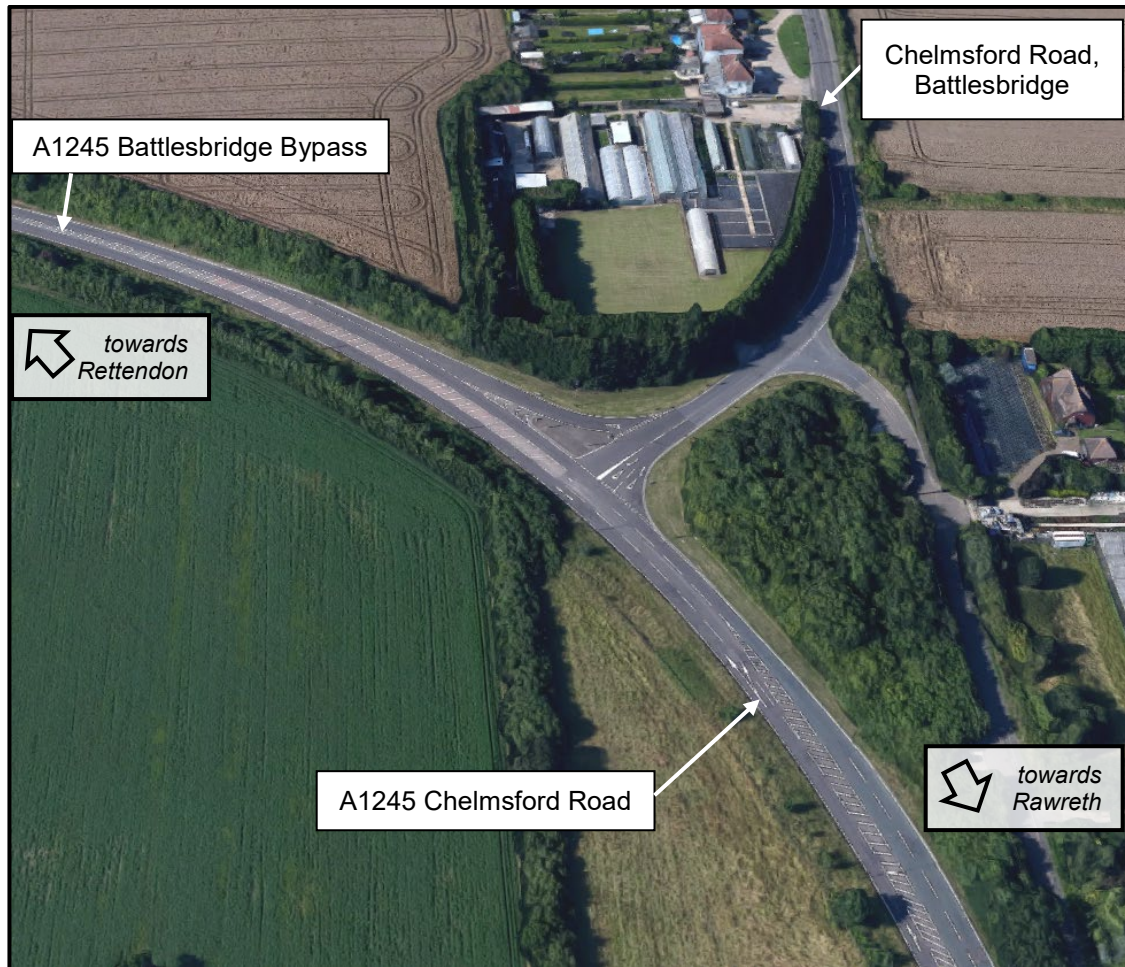
Intervention works:

Junction warning signs, road markings and vegetation clearance to improve intervisibility.

Principle: A study of personal injury collisions in the vicinity of the junction of the A1245 and Chelmsford Road, Battlesbridge, indicates that there have been 3 separate collisions involving turning movements at the junction within the investigation period. One collision resulted in a fatality, when a cyclist emerging from the side road was struck by a van travelling northbound. The other two collisions involved conflict between vehicles turning into or out of Chelmsford Road across the path of southbound vehicles. Initial observations would suggest it is difficult for road users waiting to emerge from the side road to adequately assess the speed of approaching vehicles on the principal road.

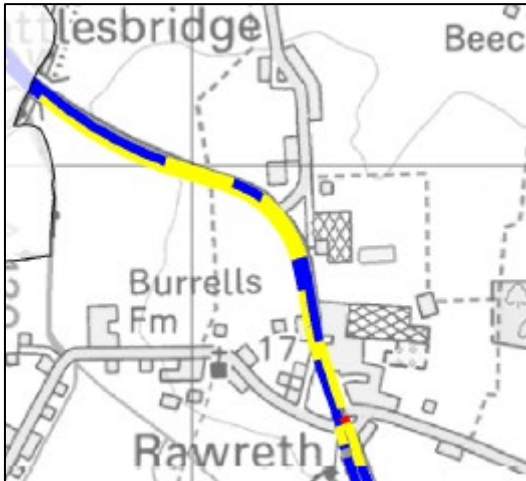
1.0 Site Plan with Collision Plot





2.0 Site Description & Observations

Details	Description/Observations
Road Name (s)	A1245 Battlesbridge Bypass, junction with Chelmsford Road, Battlesbridge
Grid Reference	E 578234, N 193869
Speed Limit	Derestricted (National Speed Limit)
Street Lit	Yes
Carriageway type	The A1245 Battlesbridge Bypass is a 2-lane single carriageway with centre hatching, subject to the National Speed Limit, passing through a rural landscape with established trees and vegetation forming the boundary to both sides. The centre hatching widens at the junction with Chelmsford Road (Battlesbridge) to provide a ghost right-turn lane, and there is a left-turn auxiliary lane for southbound traffic at that junction.
Gradient	Slight downhill gradient (northbound)
Traffic Management / Existing Traffic Calming	Faded red-coloured surfacing within the centre hatching to the north of the ghost right-turn lane.
Utilities Present	Potentially – unlikely to affect any scheme proposals
Existing TRO's	None

<p>Road Surface</p>	 <p>Latest SCRIM data indicates a below investigatory level (yellow) for the A1245 in both directions. No SCRIM data is available for Chelmsford Road (Battlesbridge).</p>
<p>Signing</p>	<p>A1245 northbound approach: there is a stack-type advanced directional sign (ADS) in the nearside verge, followed by a corresponding flag-type sign opposite the junction, although this was partially concealed by overgrowth. North of the junction, there is a 'Two-way traffic' warning sign (TSRGD Diag.521) in the nearside verge, again partially concealed by overgrowth.</p> <p>A1245 southbound approach: there is a stack-type directional sign for lorry routes in the nearside verge at the commencement of the left-turn slip lane to Chelmsford Road (Battlesbridge). There is no other advance warning or indication of the presence of the nearside junction ahead. Plain-faced internally illuminated bollards are installed in the triangular island at the end of the left-turn lane.</p> <p>National Speed Limit repeater signs are mounted back-to-back at regular intervals on lighting columns along the A1245 where required.</p> <p>Chelmsford Road is subject to a 40mph Speed Limit, changing to the National Speed Limit approximately 20 metres prior to the junction with the A1245, and denoted by speed limit terminal signs both sides of the road. Just prior to the speed limit change, Clearway terminal signs (TSRGD Diag. 642) are installed on posts both sides of the road.</p> <p>A 'Give Way' sign (TSRGD Diag. 602) is present in the nearside verge facing south/west bound road users approaching the junction from the side road, and there are flag-type direction signs located in the grass verge opposite the junction, although those signs were also partially obscured by overgrown vegetation.</p>
<p>Road Markings</p>	<p>Centre hatching throughout on the A1245, widening to accommodate a ghost right-turn lane at the junction with Chelmsford Road, together with associated bifurcation and lane arrow markings, although these were worn and faded at the junction. Red-coloured surfacing has been applied in the centre hatching north of the ghost right turn lane at some time in the past,</p>

	<p>although this has deteriorated considerably and now provides poor contrast for the hatch markings, reducing their conspicuity somewhat.</p> <p>Centre hazard warning line in the side road, together with left turn and right turn lane arrows and 'Give Way' triangle markings at the give way line.</p> <p>Edge of carriageway markings are present throughout, including the junction and side road, changing to broken white lines where appropriate along the southbound nearside slip lane and junction.</p> <p>Other than the areas of centre hatching as described above, the road markings were generally clearly visible.</p>		
Visibility	<p>Forward visibility along the A1245, and intervisibility at the junction, is somewhat limited by the overgrown vegetation on the inside of the bend, following the curvature of the road.</p> <p>For road users waiting to emerge from the side road, the limited extent of the available view makes it difficult to judge the approach speed of vehicles on the A1245, which may be 60mph or greater.</p>		
Vegetation	There is well established vegetation growth to both sides of the A1245. This limits the forward visibility through the bend, for northbound road users potentially masking a slower vehicle just emerged from the side road.		
Highway Boundary / Land & Ownership Check?	Yes – will need to verify extent of highway for vegetation clearance	Is the scheme within Highway boundary or on land owned by ECC(*)	Yes (*if the land is not highway the scheme should only proceed to feasibility design & land acquisition/dedication stage)
Does the scheme require change to an existing TRO or Speed Limit	No		
Other	None		

3.0 Personal Injury Collision Analysis

Cluster Site Collision Information	COLLISIONS			CASUALTIES		
	FATAL	SERIOUS	SLIGHT	FATAL	SERIOUS	SLIGHT
Total incidents at Cluster Site:	1	0	2	1	0	2

Identified Collision Pattern(s) at Cluster Site	COLLISIONS			CASUALTIES		
	FATAL	SERIOUS	SLIGHT	FATAL	SERIOUS	SLIGHT
Turning movement conflict at the junction of A1245 Battlesbridge Bypass with Chelmsford Road.	1	0	2	1	0	2

**Additional
information**

The fatal collision referred to above involved a cyclist emerging from Chelmsford Road, Battlesbridge, crossing the path of a van travelling north on the A1245.

4.0 Site Photographs



Image 1 – A1245 Northbound approach to junction



Image 2 – A1245 Southbound approach to junction



Image 3 – looking north from Chelmsford Road, southbound vehicles approaching



Image 4 – looking south from Chelmsford Road, northbound vehicles approaching

5.0 Recommendations

Remedial Measures

- 1) Face back/trim vegetation on all sides of junction, and substantially on south-west side (inside of bend) to improve forward visibility for A1245 road users and to extend the available view from the Give Way line in Chelmsford Road (Battlesbridge).
- 2) Provide 'Side Road Ahead' warning signs on A1245 (both directions).
- 3) Refresh road markings (centre hatching).
- 4) Install vergemarker posts in offside verge north of the junction, to provide reference points for drivers waiting to emerge from the side road to aid assessment of speed of southbound approaching vehicles.

6.0 Estimated Costs

Total Scheme Design and Implementation	£10,500
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7.0 Predicted Collision Cost Saving from remedial measure

Remedial Measures	Reduction in Collisions (RoSPA)
Package of measures	42%

8.0 Other engineering options for consideration

N/A	-
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9.0 Scheme Approval

Safety Engineering Team:	Tel No.	Date

Appendix A: FYRR

First Year Rate of Return (FYRR) Calculation: Non Built Up Rds (other than Motorways) with Speed Limit of 40mph or greater

$$\% \text{ FYRR} = \frac{\text{Annual Collision Savings} \times 100}{\text{Scheme Cost}}$$

Assumptions:

Average annual collision cost (£)

Collisions treated

Casualties treated

Investigation time period (years)

Fatal	Serious	Slight
£2,422,598	£292,513	£31,937
1	0	2
1	0	2
	3	

**Estimated cost of recommended remedial measures
(including Design, Audit and Traffic Management)**

As per recommendations in Section 6

£10,500.00

Collision saving produced by proposed treatment (%)

42

%FYRR fatal

3230

%FYRR serious

0

%FYRR slight

85

Total % FYRR 3315

Number of collisions that would not have occurred had the remedial actions been implemented at the start of the collision period

1.26 or **0.42** each year

Number of casualties that would not have occurred had the remedial actions been implemented at the start of the collision period

1.26 or **0.42** each year

Site Report Essex Highways Casualty Reduction Site
Report 2020/21



Location: Poynters Lane J/w Waking Road, Great Waking
District: Rochford
Collision Investigation Period: 01/01/2016 – 31/12/2018
Site Ranking: 180 (Single Site)

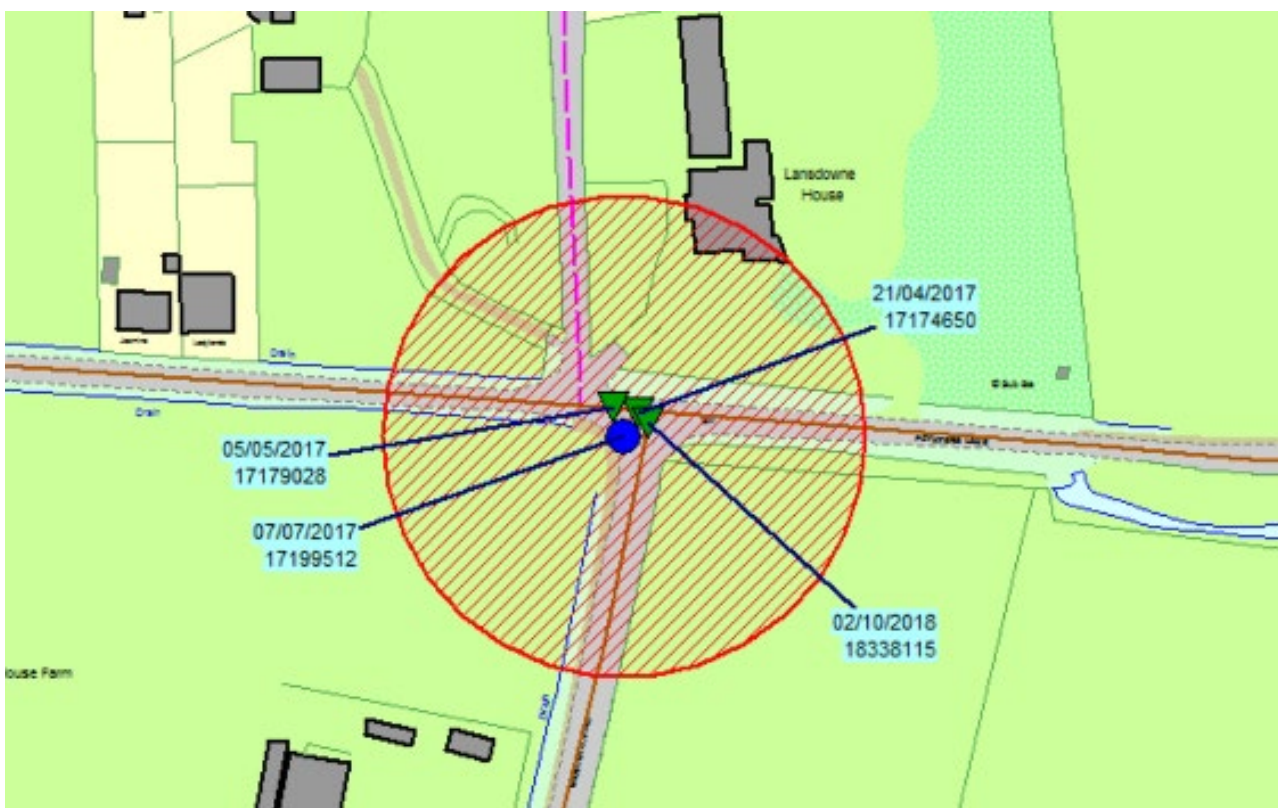
EXECUTIVE SUMMARY

Intervention works: Investigate options for improving layout of existing junction priority junction to provide more space for vehicles to turn at the junction and improve the visibility splays for motorists.

Updated 03/03/2021 – following intervention work study the following measures are to be implemented. Poynters Lane eastbound Vehicle Activated sign with junction ahead warning sign and reduce speed subplate. Give-way lining and signing is to be removed and replaced with a physical 'STOP' sign and marking.

Principle: A study of personal injury collisions at this location indicates a pattern of northbound motorists on Waking Road failing to give way, turning left or right into the path of eastbound motorists on Poynters Lane.

1.0 Site Plan with Collision Plot





2.0 Site Description & Observations

Details	Description/Observations
Road Name (s)	Poynters Lane J/w Waking Road, Great Waking
Grid Reference	594681, 186613
Speed Limit	National speed limit (60mph)
Street Lit	No
Carriageway type	Poynters Lane and Waking Road are both single carriageway roads.
Gradient	Level Gradient

Traffic Management / Existing Traffic Calming	Existing priority junction		
Utilities Present	Potentially – Existing telegraph poles located throughout the junction. Unclear if these or any other utilities may affect the scheme proposals		
Existing TRO's	None		
Road Surface	There is no Scrim data available for this location. As none of the collisions recorded at this junction occurred in wet/damp conditions, or involved vehicles losing control the surface condition is not considered to be an issue at this location.		
Signing	<p>There are grey backed 'Side road ahead' warning signs present on both Poynters Lane approaches to the junction.</p> <p>There is a 'Give way' sign at the junction, and a 'Give way ahead' warning sign provided in advance of the junction on Waking Road.</p>		
Road Markings	Existing road markings are generally in good condition throughout the junction.		
Visibility	Forward visibility towards the junction on both Poynters Lane approaches is partially limited due to the presence of a boundary wall to the southeast corner, as well as dense vegetation and multiple telegraph poles to both corners of the junction. Visibility splays for motorists waiting at the give way lines on Waking Road are also partially restricted by these same obstructions.		
Vegetation	As above, vegetation to the southeast and southwest corners of the junction partially obscures forward visibility and visibility splays.		
Highway Boundary / Land & Ownership Check?	Yes.	Is the scheme within Highway boundary or on land owned by ECC(*)	Possibly not all highway (*if the land is not highway the scheme should only proceed to feasibility design & land acquisition/dedication stage)
Does the scheme require change to an existing TRO or Speed Limit	No		
Other	None		

3.0 Personal Injury Collision Analysis

Cluster Site Collision Information	COLLISIONS			CASUALTIES		
	FATAL	SERIOUS	SLIGHT	FATAL	SERIOUS	SLIGHT
	0	1	3	0	1	7

Identified Collision Pattern(s) at Cluster Site	COLLISIONS			CASUALTIES		
	FATAL	SERIOUS	SLIGHT	FATAL	SERIOUS	SLIGHT
Northbound motorists on Waking Road failing to give way	0	1	3	0	1	7

Additional information	Scheme is 'Design only' for 2020/21.
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4.0 Site Photographs



Image 1 – Poynters Lane eastbound approach to junction.



Image 2 – Poynters Lane westbound approach to junction



Image 3 – Sudden 'kink' in the alignment of Poynters Lane at the junction.



Image 4 – Waking Road northbound approach to junction.



Image 5 – Visibility splay to the left (West) when waiting at the give way lines on Waking Rd



Image 6 – Visibility splay to the right (East) when waiting at the give way lines on Waking Rd

5.0 Recommendations

Remedial Measures

- 1) Following the feasibility study undertaken previous year, it was determined due to highway land ownership issues and proximity of Utilities (BT) that an extension of the kerb line, and moving of the give-way line would not be possible without a high level of cost, and potential land purchase issues.
- 2) Following the intervention work study the following measures are to be implemented. Poynters Lane eastbound Vehicle Activated sign with junction ahead warning sign and reduce speed subplate. Give-way lining and signing is to be removed and replaced with a physical 'STOP' sign and marking.

6.0 Estimated Costs

Total Scheme	£20,000
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7.0 Predicted Collision Cost Saving from remedial measure

Remedial Measures	Reduction in Collisions (RoSPA)
Package of Measures	42%

8.0 Other engineering options for consideration

N/A	-
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9.0 Scheme Approval

Safety Engineering Team:	Tel No.	Date

Appendix A: FYRR

$$\% \text{ FYRR} = \frac{\text{Annual Collision Savings} \times 100}{\text{Scheme Cost}}$$

Assumptions:

Average annual collision cost (£)

Collisions treated

Casualties treated

Investigation time period (years)

Fatal	Serious	Slight
£2,422,598	£292,513	£31,937
0	1	1
0	3	7
	3	

**Estimated cost of recommended remedial measures
(including Design, Audit and Traffic Management)**

As per recommendations in Section 6

£20,000.00

Collision saving produced by proposed treatment (%)

42

%FYRR fatal

0

%FYRR serious

205

%FYRR slight

22

Total % FYRR 227

Number of collisions that would not have occurred had the remedial actions been implemented at the start of the collision period

0.84 or **0.28** each year

Number of casualties that would not have occurred had the remedial actions been implemented at the start of the collision period

4.2 or **1.40** each year

**Site Report Essex Highways Casualty Reduction Site
Report 2020/21**



Location: A133 Main Road jw B1029 Bromley Road
District: Tendring
Collision Investigation Period: 01/01/2016 – 31/12/2018
Site Ranking: 044 (Single Site)

EXECUTIVE SUMMARY

Intervention works:

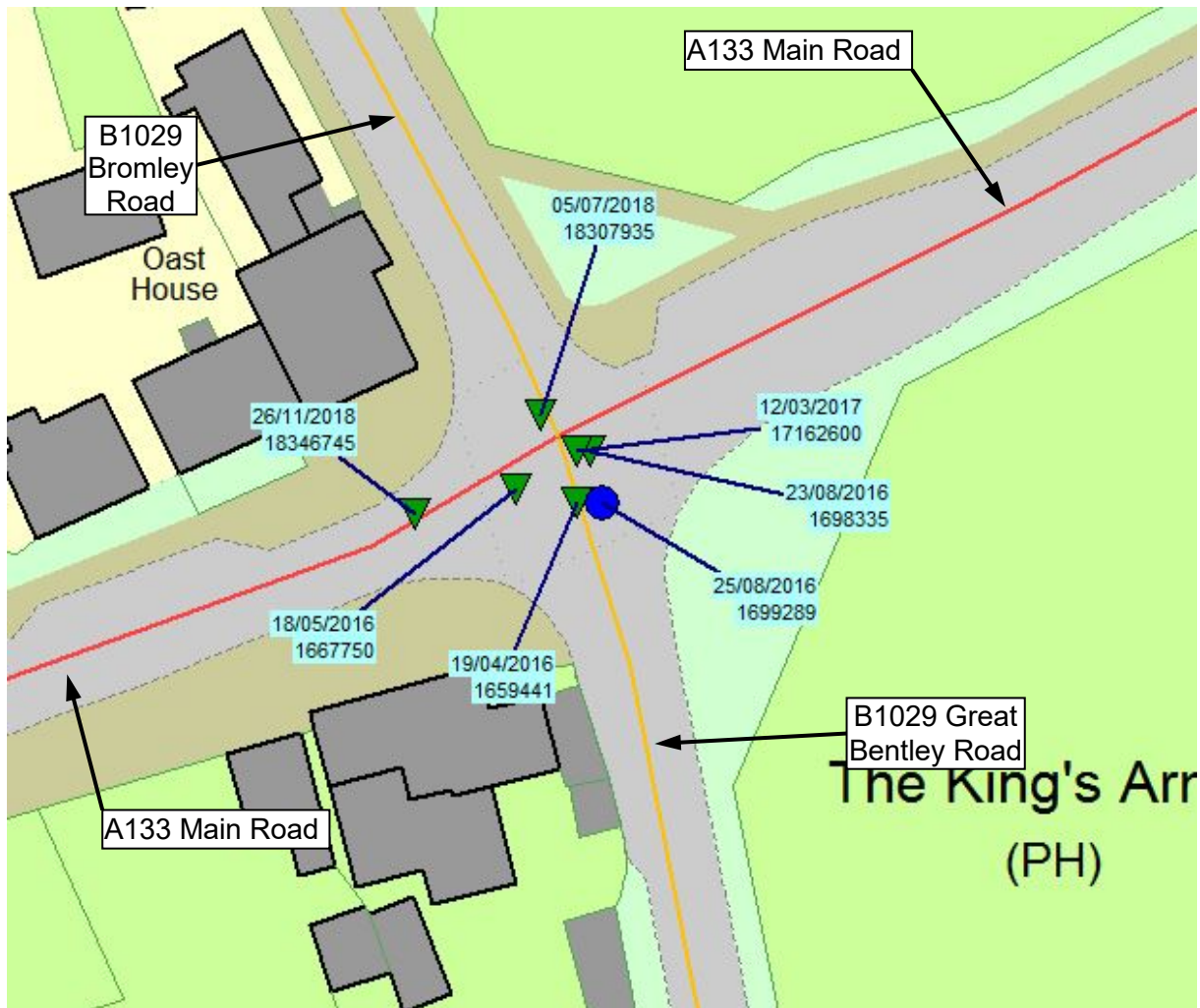
Update from Feasibility Study undertaken in 2020_2021

The feasibility study undertaken by ITS has demonstrated that the B1029 Great Bromley Road can indeed be split into two separate signalled stages which would still allow the junction to operate within capacity, and would improve the safety for NB road users turning right onto the A133. Road users travelling north along B1029 wishing to turn right onto A133 will now do so under their own signal stage.

The design for the signal amendments will be commissioned in 2021_2022

Principle: A study of personal injury collisions at this location indicates a pattern of northbound road users turning right across the path of southbound road users at the signalised junction. None of the collisions involved road users disobeying a red signal on the junction. An additional collision in September 2019 of similar nature has been recorded.

1.0 Site Plan with Collision Plot



2.0 Site Description & Observations

Details	Description/Observations		
Road Name (s)	A133 Main Road jw B1029 Bromley Road		
Grid Reference	609136, 223304		
Speed Limit	40 mph		
Street Lit	Yes		
Carriageway type	A133 Main Road: Wide 2 way single carriageway. B1029: 2 way single carriageway		
Gradient	No discernible gradient		
Traffic Management / Existing Traffic Calming	Crossroads signalised junction		
Utilities Present	Potentially – may impact on proposed provision of right turn signals phase		
Existing TRO's	Parking restrictions on B1029 Bromley Road		
Road Surface	Essex Highways Road Condition survey 2019/2020 indicates that the A133 and B1029 are in generally good/fair condition. Scrim data for A133 indicates the latest SCRIM data indicates that the eastbound approach and through the junction is below investigatory level and the westbound approach is recorded at SCRIM warning level. There is no SCRIM data available for B1029.		
Signing	All arms of the junction have 1 lane at the signalised stop lines.		
Road Markings	On A133, centre of carriageway hatch markings are provided on both approaches to the junction. The stop lines at the junction are worn. On the Bromley Road southbound approach to the junction, a centre line marking and parking restriction markings are provided. The centre line and signals stop line are worn On Great Bentley Road northbound approach to the junction, centre line markings and edge of carriageway markings are provided. The centre line and signals stop line are worn in the vicinity of the junction. There are no "guidance markings within the junction for vehicles waiting to turn.		
Visibility	Forward visibility to the traffic signals on all approaches, is considered good for a route subject to a 40mph speed limit. The collision data implies a possible visibility issue for road users from B1029 Great Bentley Road turning right on to A133 Main Street eastbound. This is likely due to vehicles traveling from A1029 Bromley Road waiting to turn right within the junction, masking north/south bound straight ahead road users.		
Vegetation	N/A		
Highway Boundary / Land & Ownership Check?	No	Is the scheme within Highway boundary or on land owned by ECC(*)	Yes
Does the scheme require change to an existing TRO or Speed Limit	No		
Other	None		

3.0 Personal Injury Collision Analysis

Cluster Site Collision	COLLISIONS	CASUALTIES
------------------------	------------	------------

Information						
	FATAL	SERIOUS	SLIGHT	FATAL	SERIOUS	SLIGHT
	0	1	6	0	3	11

Identified Collision Pattern(s) at Cluster Site	COLLISIONS			CASUALTIES		
	FATAL	SERIOUS	SLIGHT	FATAL	SERIOUS	SLIGHT
Four right turn collisions at signalised junction	0	0	4	0	0	8

Additional information	None.
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4.0 Site Photographs



Image 1 – A133 Westbound approach to signalised junction



Image 2 – A133 Westbound at signalised junction



Image 3 – A133 Eastbound approach to signalised junction



Image 4 – A133 Eastbound at signalised junction



Image 5 – B1029 Bromley Road southbound approach to signalised junction



Image 6 – B1029 Bromley Road southbound at signalised junction



Image 7 – B1029 Great Bentley Road northbound approach to signalised junction



Image 8 - B1029 Great Bentley Road northbound at signalised junction

5.0 Recommendations

Remedial Measures

Update from Feasibility Study undertaken in 2020_2021

The feasibility study undertaken by ITS has demonstrated that the B1029 Great Bromley Road can indeed be split into two separate signalled stages which would still allow the junction to operate within capacity, and would improve the safety for NB road users turning right onto the A133. Road users travelling north along B1029 wishing to turn right onto A133 will now do so under their own signal stage.

The design for the signal amendments will be commissioned in 2021_2022

6.0 Estimated Costs

ITS Design	£10,000
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7.0 Predicted Collision Cost Saving from remedial measure

Remedial Measures	Reduction in Collisions (RoSPA)
Accident at Signals: Signals Improvement	21%

8.0 Other engineering options for consideration

N/A	
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9.0 Scheme Approval

Safety Engineering Team:	Tel No.	Date

Location: Skelmersdale Rd jw Vista Rd, Clacton-on-Sea
District: Tendring
Collision Investigation Period: 01/01/2017 – 31/12/2019
Site Ranking: 103 (Single Site)

EXECUTIVE SUMMARY

Intervention works:

Vista Road (North):

- Re-apply junction Give Way markings
- Provide 5 centre line marks on Vista Road approach to junction give way line.
- Erect Give way sign on yellow backing board on existing post.

Skelmersdale Road:

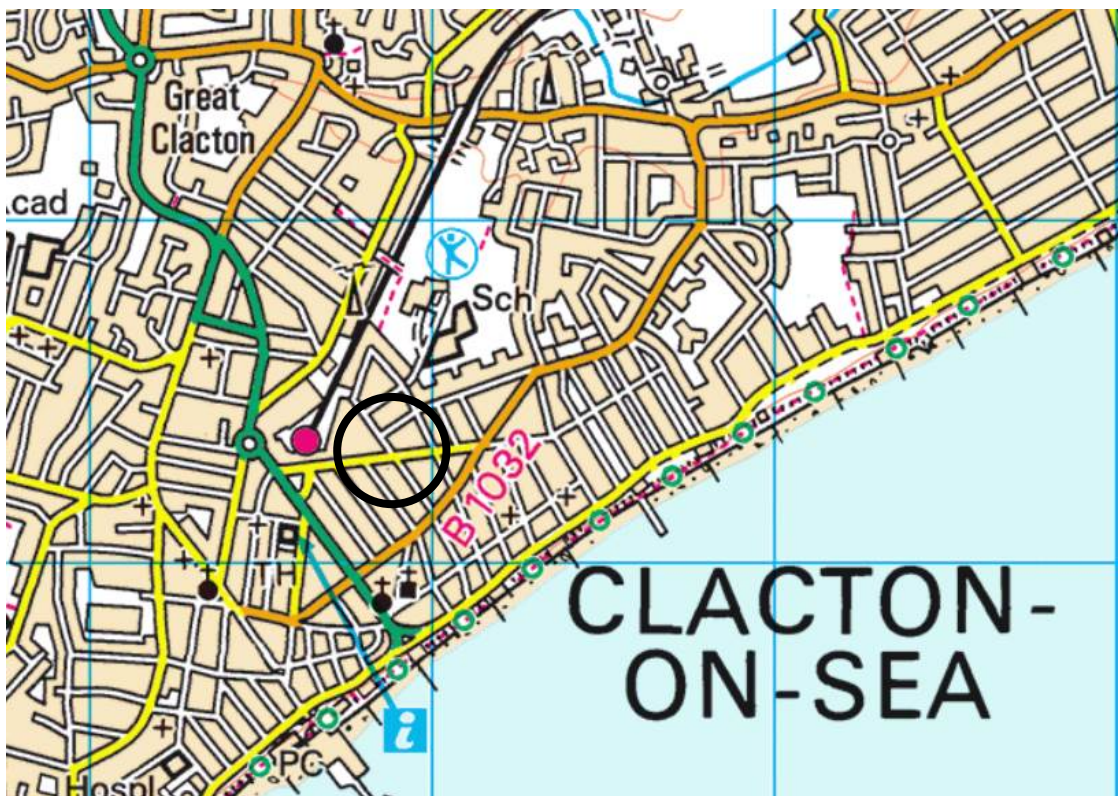
- Provide 2 solid thermoplastic screed islands either side of the junction
- Apply 4 no centre line markings on approach to painted islands
- Apply tapered edge of carriageway markings at junction radii.

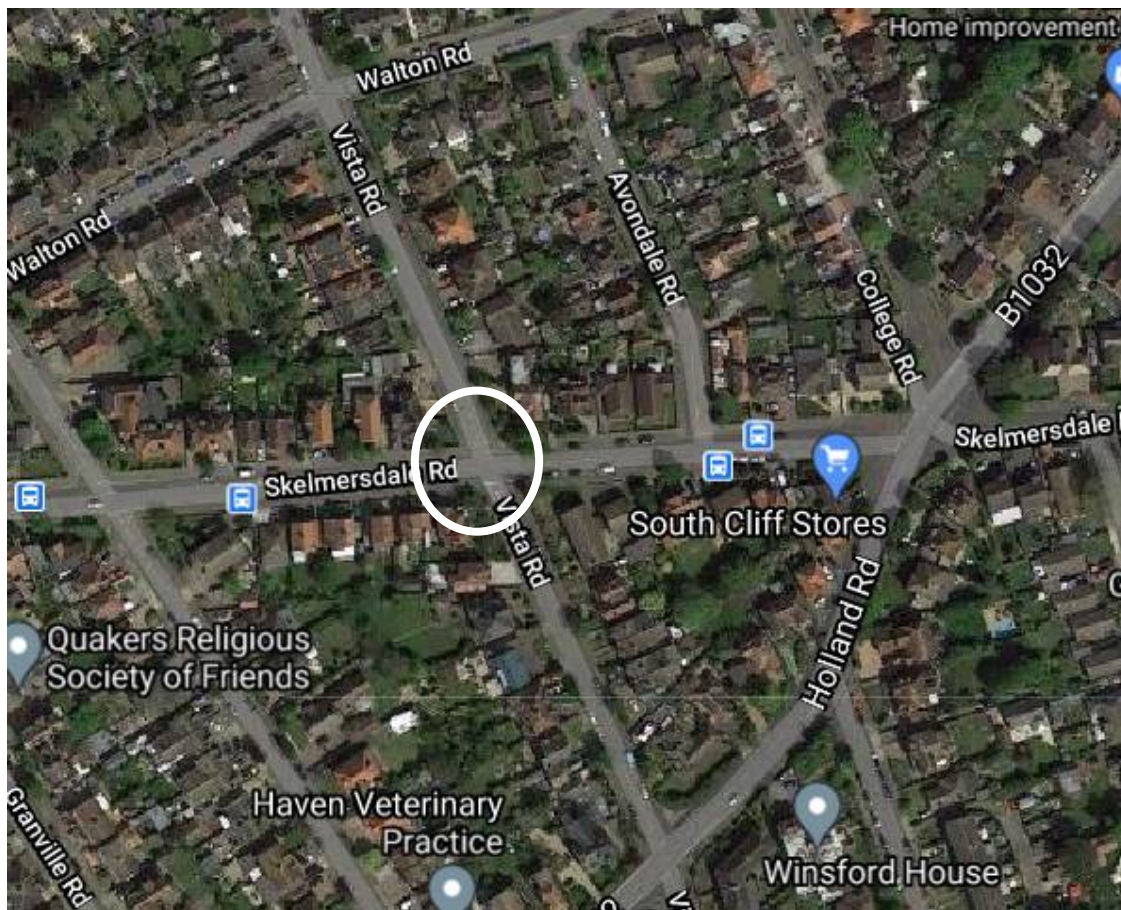
Sketch of road marking proposals



Principle: A study of personal injury collisions at this location indicates a pattern of 3 collisions involving southbound vehicles entering Skelmersdale Road (From Vista Rd) in to the path of oncoming vehicles.

1.0 Site Plan with Collision Plot





2.0 Site Description & Observations

Details	Description/Observations
Road Name (s)	Skelmersdale Road jw Vista Road, Clacton-on-Sea
Grid Reference	618020, 215340
Speed Limit	30mph
Street Lit	Yes
Carriageway type	Skelmersdale Road is a wide 2 way single carriageway in a residential area. Vista Road is a 2 way single carriageway in a residential area.
Gradient	Level Gradient
Traffic Management / Existing Traffic Calming	Existing crossroads junction
Utilities Present	Potentially
Existing TRO's	None
Road Surface	Carriageway surface at the junction appears in poor condition (refer to Image 5)

Signing	Crossroads warning signs on yellow backing boards located on Skelmersdale Road in both directions in advance of crossroads junction. Give Way post (sign missing) on Vista Road (north) at junction (refer to Image 6).		
Road Markings	Skelmersdale Road: <ul style="list-style-type: none"> 5 No centre line markings on eastbound approach to junction. The centre line continues eastward after the junction to B1032 Holland Road Vista Road (north): <ul style="list-style-type: none"> Centre line on approach to junction (badly faded) Give Way markings at junction (badly faded) Double yellow parking restrictions at junction to maintain visibility 		
Visibility	.Visibility to the right from Vista Road is good. Visibility to the left is partially obscured by sign post and existing tree in footway.		
Vegetation	N/A		
Highway Boundary / Land & Ownership Check?		Is the scheme within Highway boundary or on land owned by ECC(*)	Yes (*if the land is not highway the scheme should only proceed to feasibility design & land acquisition/dedication stage)
Does the scheme require change to an existing TRO or Speed Limit	No		
Other			

3.0 Personal Injury Collision Analysis

Cluster Site Collision Information	COLLISIONS			CASUALTIES		
	FATAL	SERIOUS	SLIGHT	FATAL	SERIOUS	SLIGHT
	0	0	5	0	1	9

Identified Collision Pattern(s) at Cluster Site	COLLISIONS			CASUALTIES		
	FATAL	SERIOUS	SLIGHT	FATAL	SERIOUS	SLIGHT
A pattern of 3 collisions involving southbound vehicles entering Skelmersdale Road (From Vista Rd) in to the path of oncoming vehicles.	0	0	3	0	0	5

Additional information	N/a
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4.0 Site Photographs



Image 1 – Visibility to the left from Vista Road.



Image 2 – Visibility to the right from Vista Road



Image 3 – Vista Road approx. 50m. from junction



Image 4 – Vista Road/Skelmersdale Road junction



Image 5: Carriageway condition at junction



Image 6: Missing Give Way sign

5.0 Recommendations

Remedial Measures

Vista Road (North):

- Re-apply junction Give Way markings
- Provide 5 centre line marks on Vista Road approach to junction give way line.
- Erect Give way sign on yellow backing board on existing post.

Skelmersdale Road:

- Provide 2 solid thermoplastic screed islands either side of the junction
- Apply 4 no centre line markings on approach to painted islands
- Apply tapered edge of carriageway markings at junction radii.

Sketch of road marking proposals



6.0 Estimated Costs

Total Scheme Design and Implementation	£10,000
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7.0 Predicted Collision Cost Saving from remedial measure

Remedial Measures	Reduction in Collisions (RoSPA)
Road Markings & signs	41%

8.0 Other engineering options for consideration

N/A	-
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9.0 Scheme Approval

Safety Engineering Team:	Tel No.	Date

Appendix A: FYRR

$$\% \text{ FYRR} = \frac{\text{Annual Collision Savings} \times 100}{\text{Scheme Cost}}$$

Assumptions:

	Fatal	Serious	Slight
Average annual collision cost (£)	£2,227,264	£257,975	£26,312
Collisions treated	0	0	3
Casualties treated	0	0	5
Investigation time period (years)		3	

**Estimated cost of recommended remedial measures
(including Design, Audit and Traffic Management)**

As per recommendations in Section 6

£10,000.00

Collision saving produced by proposed treatment (%)

41

%FYRR fatal

0

%FYRR serious

0

%FYRR slight

108

Total % FYRR 108

Number of collisions that would not have occurred had the remedial actions been implemented at the start of the collision period

1.23 or 0.41 each year

Number of casualties that would not have occurred had the remedial actions been implemented at the start of the collision period

2.05 or 0.68 each year

Location: Site 192 – Hatfield Hth A1060 - 460m NE of Sparrows Lane
District: Uttlesford
Collision Investigation Period: 01/01/2017 and 31/12/2019
Site Ranking: 192 (Rural Site)

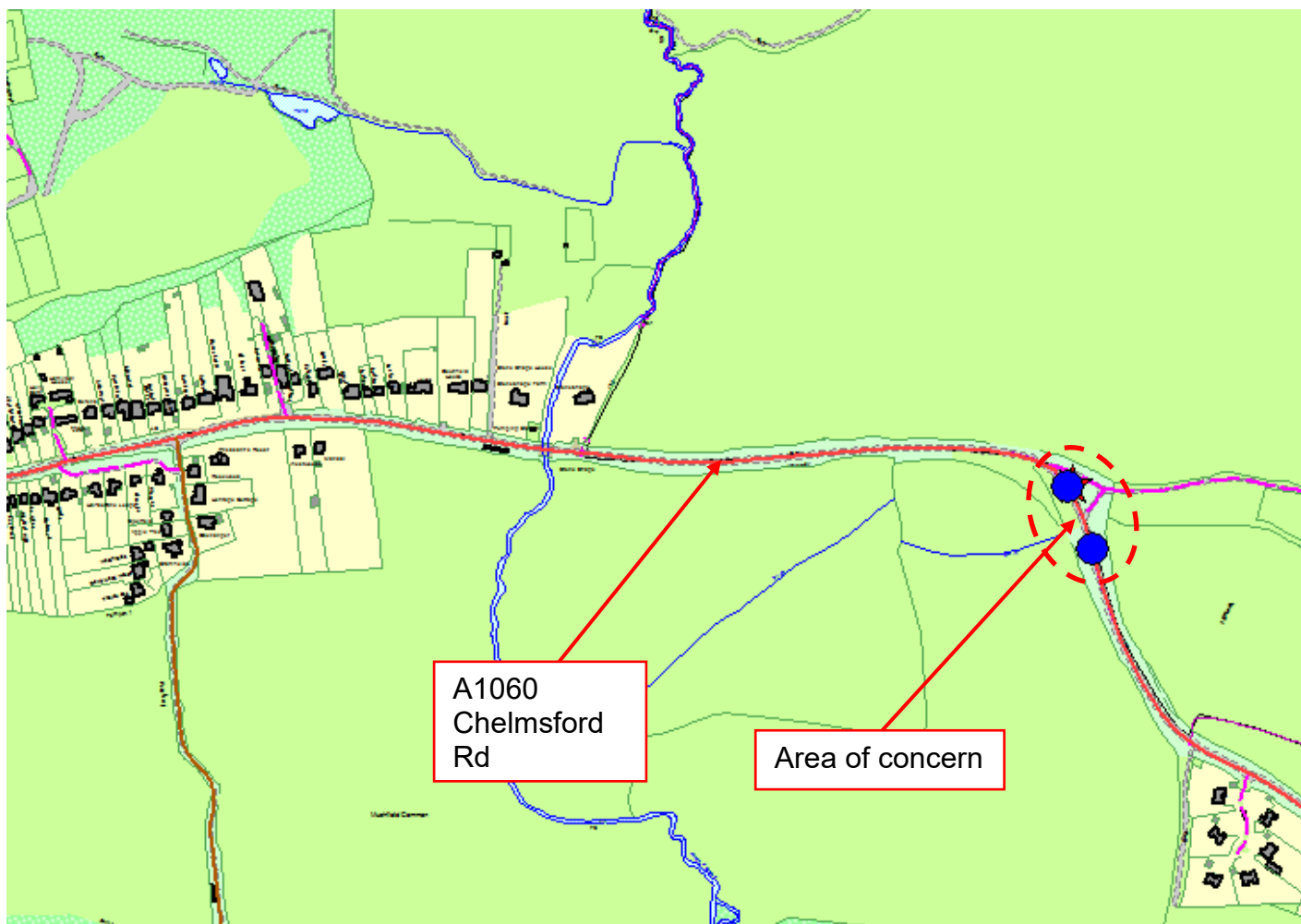
EXECUTIVE SUMMARY

Intervention works: Provide enhanced (yellow backing boards) advanced 'Series of Bends Ahead' warning signs on both approaches, a (right hand) bend warning sign with an advisory 40mph speed limit sub-plate on the eastbound approach to this section of Chelmsford Road A1060. The existing chevron signs to be replaced with yellow backed chevron signs to improve conspicuity.

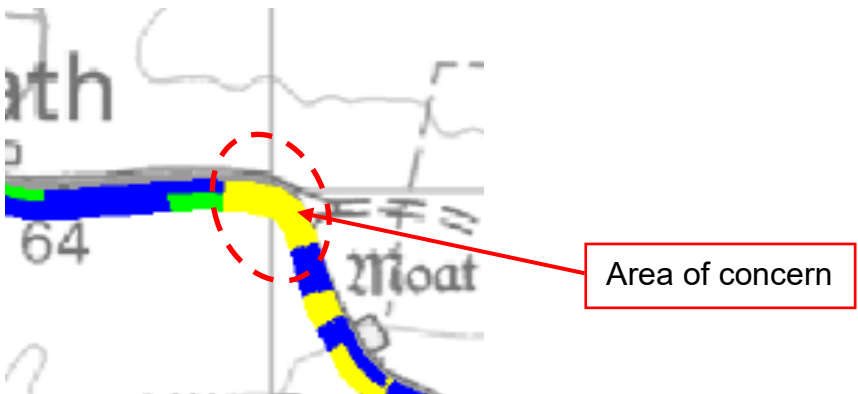
Principle: A study of personal injury collisions at this location indicates a pattern of Loss of Control due to travelling too fast for conditions. The enhanced warning signs and advisory maximum speed signing will encourage road users to traverse the bend at an appropriate speed.

1.0 Site Plan with Collision Plot





2.0 Site Description & Observations

Details	Description/Observations
Road Name (s)	A1060 Chelmsford Road Hatfield Heath
Grid Reference	554100 - 214690
Speed Limit	National (60mph) on this section of A 1060.
Street Lit	No
Carriageway type	Single
Gradient	Slight downward grade eastbound to bends
Traffic Management / Existing Traffic Calming	There are warning signs, the appropriate carriageway markings and road studs through this section.
Utilities Present	Unknown
Existing TRO's	None
Road Surface	<p>SCRIM Data 2019 shows the carriageway surface through bend (area of concern) to be 'Below Investigatory Level' (yellow) condition.</p> 
Signing	There is a 'Series of Bends' warning sign on both approaches in advance of the bends. There are also a number of single chevron signs that delineate the bends
Road Markings	There are warning centre line markings and edge of carriageway lining on the approaches and through the extents of the bends. There is also centre hatching through the bends themselves. All carriageway marking are appropriate and visible
Visibility	Forward visibility of road layout good although there is vegetation close to the carriageway edge.
Vegetation	On the eastbound approach forward visibility of the warning sign is partially obscured by adjacent vegetation at the time of the site visit.

Highway Boundary / Land & Ownership Check ?	No	Is the scheme within Highway boundary or on land owned by ECC(*)	Yes (*if the land is not highway the scheme should only proceed to feasibility design & land acquisition/dedication stage)
Does the scheme require change to an existing TRO or Speed Limit	No		
Other			

3.0 Personal Injury Collision Analysis

Cluster Site Collision Information	COLLISIONS			CASUALTIES		
	FATAL	SERIOUS	SLIGHT	FATAL	SERIOUS	SLIGHT
	1	2	0	1	3	0

Identified Collision Pattern(s) at Cluster Site	COLLISIONS			CASUALTIES		
Pattern of Loss of Control due to travelling too fast for conditions.	FATAL	SERIOUS	SLIGHT	FATAL	SERIOUS	SLIGHT
	1	2	0	1	3	0

Additional information	All three collisions involved vehicles travelling in the direction of Chelmsford.
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4.0 Site Photographs



Image 1 – Eastbound approach, straight section warning centre line



Image 2 – Eastbound approach to bends showing 'Series of bends' warning sign and guidance arrow.



Image 3 – Eastbound entering the bend, showing single chevron signs and centre hatching



Image 4 – Westbound approach to bends showing 'Series of bends' warning sign

5.0 Recommendations

Remedial Measures

A study of personal injury collisions at this location indicates a pattern of Loss of Control due to travelling too fast for conditions. Two of the three collisions occurred in 'wet/damp' conditions and two occurred during daylight.

2019 data regarding the condition of the carriageway shows deficiencies in the skidding resistance of the carriageway surface on the bend within the area of concern.

To provide improved visibility of the warning signs on the eastbound approach, improved forward visibility of chevron signs and encourage appropriate approach speeds through the bends it is proposed to provide the following measures to reduce the number of casualties at this location:

- Provide enhanced (yellow backing boards) advanced 'Series of Bends Ahead' warning signs on both approaches
- Provide a (right hand) bend warning sign with an advisory 40mph speed limit sub-plate on the eastbound approach
- Replace existing chevron signs with yellow backed chevron signs to improve conspicuity.

6.0 Estimated Costs

Total scheme Design and Construction	£20,000.00
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7.0 Predicted Collision Cost Saving from remedial measure

Remedial Measures	Reduction in Collisions (RoSPA)
Enhanced signing and chevron signs	46%

8.0 Other engineering options for consideration

NA	
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9.0 Scheme Approval

Safety Engineering Team:	Tel No.	Date

Appendix A: FYRR

$$\% \text{ FYRR} = \frac{\text{Annual Collision Savings} \times 100}{\text{Scheme Cost}}$$

Assumptions:

	Fatal	Serious	Slight
Average annual collision cost (£)	£2,422,598	£292,513	£31,937
Collisions treated	1	2	0
Casualties treated	1	3	0
Investigation time period (years)		3	

Estimated cost of recommended remedial measures (including Design, Audit and Traffic Management)

As per recommendations in Section 6

£20,000.00

Collision saving produced by proposed treatment (%)

46

%FYRR fatal

1857

%FYRR serious

449

%FYRR slight

0

Total % FYRR 2306

Number of collisions that would not have occurred had the remedial actions been implemented at the start of the collision period

1.38 or 0.46 each year

Number of casualties that would not have occurred had the remedial actions been implemented at the start of the collision period

1.84 or 0.61 each year