

## **A21 Forward Programme – 2018-2020**

August 2018



### **Executive Summary**

- i. This document outlines Highways England's programme of works for the A21 covering the 2018/19 and 2019/20 Financial Years.
- ii. An A21 Kent & East Sussex Safety Scoping Study has been undertaken as part of our ongoing commitment to improve the overall safety of the network. The findings of this study form the basis of this document.
- iii. This document outlines small scale safety interventions which have been identified for the A21 that will be delivered during the current Roads Period (2015-2020).
- iv. This document also details the agreed programme of renewal works for the A21 for the 2018/19 Financial Year.
- v. The A21 features extensive stretches of single carriageway and has been identified as one of the worst performing routes in terms of safety.
- vi. There have been 470 recorded Personal Injury Collisions [PICs] on the study route in the five year period from 1st January 2012 to 31st December 2016, with 14 classed as fatal, 97 serious and 359 slight.
- vii. Highways England aim to improve the A21 to a minimum 3-star EuroRAP standard.
- viii. With a focus upon identifying smaller scale safety interventions this document complements the larger scale safety interventions which are being considered for funding as part of the second Road Investment Strategy (RIS2).

## 1. INTRODUCTION

### Background

- 1.1 Highways England operates, maintains and improves England's motorways and major A roads. Highways England has a five year Strategic Business Plan (SBP) to deliver five strategic outcomes:
  - Supporting economic growth
  - Providing a safe and serviceable network
  - Providing a more free flowing network
  - Improving the environment
  - Providing a more accessible and integrated network
- 1.2 Making the network safer with the aim of no-one being harmed when travelling or working on it is a key outcome of Highways England's Strategic Business Plan and the Roads Investment Strategy (RIS).

## 2. LOCATION

### A21

- 2.1 The A21 All Purpose Trunk Road (APTR) forms a north-south link between the M25 at Junction 5 near Sevenoaks in West Kent and the Hastings Borough boundary on the south-coast in East Sussex. It is almost 38km in length. The A21 in Kent serves the main urban areas of Sevenoaks, Tonbridge and Royal Tunbridge Wells. It serves as the main access route to Hastings from London and the north.
- 2.2 For the majority of its route, the A21 is subject to the National Speed limit. Hence the majority of traffic is subject to a speed limit of 70mph and 60mph on the dual and single carriageway sections respectively.

### A21 Kent

- 2.3 The route within Kent is split into five sections of two lane 7.3 metre wide dual carriageway and four sections of single carriageway, varying in widths between 7 metres and 9 metres.
- 2.4 There is limited street lighting on the A21. However, the major junctions are illuminated together with the Pembury Bypass. The principal junctions along the route are situated at:
  - M25 / A21 Sevenoaks Bypass/A25 Westerham Road, a grade separated interchange
  - A21 / A225 Morleys Roundabout, a grade separated interchange
  - A21 Tonbridge Bypass / A26 Quarry Hill Road, a grade separated interchange
  - A21 / A2014 Vauxhall Lane, a grade separated interchange
  - A21 Tonbridge Road Junction with Longfield Road Roundabout
  - A21 / A264 / A228 Pembury Road, a grade separated interchange
  - A21 / B2160 Maidstone Road, Kipping's Cross Roundabout
  - A21 / A262 Goudhurst Road, Forstal Farm Roundabout
  - A21 / B2169 Hastings Road, Scotney Castle Roundabout

## **A21 East Sussex**

- 2.5** The A21 through East Sussex serves the main urban areas of Flimwell, Hurst Green, Robertsbridge, John's Cross and Whatlington.
- 2.6** The section of the A21 in East Sussex is almost 22km in length, is single carriageway and generally rural in nature with a number of urban / semi-urban sections.
- 2.7** The A21 in Sussex is unlit apart from the following four short lengths:
- A21 junction with the A268, Flimwell Traffic Lights.
  - The roundabout junction and the immediate approaches at Northbridge Street, Robertsbridge.
  - The junction of John's Cross Road and the A21, at the southern end of Robertsbridge Bypass.
  - The John's Cross Roundabout and the immediate approaches to the roundabout.

## **3. A21 KENT & EAST SUSSEX SAFETY SCOPING STUDY**

- 3.1** We have undertaken an A21 Kent & East Sussex Safety Scoping Study. The geographical scope of the study was defined as the length of the A21 from the M25/A25 Junction in Kent to its junction with the A28 Westfield Lane in East Sussex. It also considered and included (where appropriate) adjoining junctions / roundabouts / roads where interventions may be made to improve safety on the A21. For example, where there would be safety benefits for the strategic road network but interventions may encroach onto the local road network managed by the local authorities.
- 3.2** Personal Injury Collision (PICs) cluster sites and other known safety problems are identified through routine collision investigation work and safety interventions are developed to address any inherent problems with the road layout.
- 3.3** The study considered safety in the broadest sense and looked at those safety issues that are identified within Killed & Seriously Injured (KSI) PIC (Personal Injury Collision) trends and slight injury collisions. It has also identified more proactive and preventative approaches to improving safety. This includes ascertaining where network layouts or characteristics may be key PIC causation factors.
- 3.4** We have identified multiple and consistent small-scale interventions targeting similar problems along the entire route, rather than looking solely at individual interventions targeting specific problems at given locations.
- 3.5** Future major improvements and route treatments are being considered as part of the RIS2 programme.

## **4. SAFETY SCOPING STUDY - DISCUSSION OF ISSUES**

- 4.1** The following section considers the findings and any known local factors which may explain the results.
- 4.2** The rate for fatal accidents per 10<sup>8</sup> vehicle miles and the accident / casualty severity ratios are higher than the investigation level for all single carriageway sections of the route, including roundabouts and slip roads. Serious accident rate is higher for all road types. Higher PIC severity will be addressed by improving route safety, with a key aim being to reduce the severity of outcome for the high numbers of loss of control incidents through:
- The removal or protection of verge hazards including trees
  - The replacement of non-passively safe traffic sign posts with passively safe versions
  - Carriageway resurfacing and the replacement of high friction surfacing

- Improved road markings and road studs
  - Improved highway drainage
  - Where feasible, the installation of speed enforcement measures
- 4.3** The data shows a high proportion of PICs occurred at night on unlit sections of the road (dual and single carriageway sections of the route), with vehicle loss of control being the predominant collision type. Improving drainage, road markings, and road studs would help to reduce these types of collisions.
- 4.4** Taking the route as a whole; collisions at a T or Y junction account for 18.1% of junction collisions which is lower than the national average of 31.2% for non-built up roads. However, PICs are more likely to be as a result of the frequency of junctions. Improving road markings and installation of road studs will increase visibility at junctions beyond minimum requirements. Removing trees / foliage will also help to reduce these types of collisions.
- 4.5** There are currently eight roundabout junctions located on the A21. Roundabout junctions tend to have a number of multi-vehicle shunt collisions, with a national average of 16.3%; however, just 4% of the recorded collisions are indicated to have occurred at a roundabout junction when the route is considered as a whole. There are roundabouts (eg.Scotney Castle) that have a higher number of PICs where vehicles attempt to merge from two lanes into one on the A21. Providing lane destination markings on the approach to the roundabout and on the circulatory carriageway will help to reduce the number of collisions.
- 4.6** For the A21 as a whole, the percentage of collisions taking place at a private drive or access is below national average for a comparable route. However, incidences of collisions on single carriageway sections of the A21 are above the national average for private drives or accesses. These collision cluster sites are characterised by poor geometry and visibility.
- 4.7** There is a high incidence of PICs involving a stopping/slowing, turning or waiting to turn right or going ahead on a bend on the single carriageway section of the route. Since the single carriageway section is subject to a changeable alignment and poor geometry in places, in addition to the high frequency of private access points and junctions there are limited options for safe overtaking. Driver/rider frustration and unsafe vehicle manoeuvres are exacerbated when high numbers of slower-moving HGVs, caravans, motor homes and agricultural vehicles are also using the route.
- 4.8** Collisions involving three or more vehicles were high for all single carriageway sections of the route. This may be a result of inappropriate vehicle speeds, defective carriageway surface condition, and/or poor road alignment/forward visibility.
- 4.9** Dry weather collisions are above average along the single carriageway sections of the route within East Sussex boundaries.
- 4.10** The number of powered two wheelers involved in in the collisions is highlighted as significant for the single carriageway sections of the route. PTW riders/pillion passengers account for 64 of the recorded casualties and represent 6.5% of vehicles involved. Collision types include T-bone, vehicle loss of control and sideswipes.
- 4.11** Twenty seven (5.7%) PICs involved a driver/rider or pedestrian that was under the influence of alcohol and/or drugs (illicit or medicinal).
- 4.12** Driver/rider fatigue is a factor in 17 PICs, with *'illness or disability, mental or physical'* attributed to another twelve PICs.
- 4.13** 'Failed to judge other person's path or speed' and/or 'failed to look properly' or 'following too close' are attributed to 158 (33.6%) of the PICs.
- 4.14** Two parking laybys have been identified which have potential collision problems, one on the A21 Tonbridge by-pass southbound carriageway approximately 2/3 of a mile from the

off slip road for the A26 and the other located on the Sevenoaks bypass, northwest of the A225 off slip road.

- 4.15** The data does not indicate a collision problem association with vehicles turning into or out of the A265 Station Road junction at Hurst Green; however, it is understood from third party reports and customer engagement that traffic congestion is an issue at the junction together with vehicles exceeding the speed limit when driving through the village.
- 4.16** The data indicates an increasing road safety problem associated with vehicles waiting to turn right from the A21 into Moat Lane at Ebdens Hill near Hastings and impatient drivers attempting dangerous manoeuvres. The A21 speed limit changes from 50 mph to national speed limit at the junction, with vehicles accelerating on the approach. The area in the vicinity of the junction has been subject to a number of road safety improvements in previous years, including the provision of red high friction surfacing; however, a collision problem still remains.

## **5. SAFETY SCOPING STUDY - RECOMMENDATIONS**

- 5.1** The following section groups together problems identified and the solutions proposed to address them:
- Improve visibility for vehicles joining the A21 by removing vegetation and hardening junction verges
  - Reduce the risk to drivers should vehicles leave the carriageway by removing or protecting large and mature trees, telephone and electricity poles, upgrading sign posts to passively safe types and upgrading terminals on safety barriers to current standards
  - Improve driver understanding and lane usage at roundabouts by widening exits, and providing approach lane destination and circulatory carriageway road markings
  - Improve driver perception of roundabouts by providing enhanced chevron signing
  - Reduce risk of driver confusion by removing of unnecessary/un-authorised signs and amalgamate signs where possible to reduce sign clutter and the number of road side objects
  - Improve driver perception of bends by providing enhanced bend warning signs
  - Improve driver visibility of road layout at night by providing of solar road studs along unlit sections of the route
  - Review speed limit to improve consistency and ensure the speed limit remains appropriate for the roads characteristics.

## A21 Forward Programme – 2018-20

### 6. PLANNED IMPROVEMENTS

**6.1** The following table details improvements and their locations to be delivered as part of the 2018/19 and 2019/20 Financial Year programmes.

Location	Issue	Detail	Output	Delivery Timescale (Financial Year)
Whole Route Extent - Signs & Lines Review	Deterioration of lining and signage, sign clutter & accumulation, changes in road use or environment etc.	Comprehensive review of all sign and line assets from Kippings Cross to Lamberhurst and from Scotney Castle roundabout to the southern boundary.	Review detailing unnecessary or inappropriate signage and lining, identification of required updates / refreshes / renewals / alterations / changes etc.	2018/19 (i.e. April 2018 - March 2019)
Whole Route Extent - Road Alignment	Road alignment is not always clear on approach to bends.	Some bends can be deceptive and the route line is not always clear. This can cause vehicles to stray out of lane.	Addition of solar powered road studs where appropriate.	2019/20 (i.e. April 2019 - March 2020)
Whole Route Extent - Deviation	Warning of deviation of route not always clear.	Traffic approaches bends and roundabouts too quickly, sudden braking, loss of control.	Improve chevron signs to increase / improve bend conspicuity. Use chevreflex or similar to highlight risk.	2019/20
Scotney Castle roundabout approach	Two lanes on southbound approach to roundabout, merge happens on roundabout or just after, conflict after roundabout and on single carriageway merge.	Mark lanes approaching roundabout with arrows and sign right lane for Lamberhurst / Tunbridge Wells, and left lane for A21 / Hastings to encourage early merge. New road markings and appropriate signage.	Improved lane discipline, improved forward visibility to the roundabout and reduced collision risk generally.	2018/19
Kippings Cross roundabout approach	Two lanes on southbound approach to roundabout, merge happens on roundabout or just after, conflict after roundabout and on single carriageway merge.	Mark lanes approaching roundabout with arrows and sign right lane for A21 Hastings, and left lane for Matfield / Paddock Wood to encourage early lane choice.	Feasibility study recommending most appropriate markings to achieve improved lane discipline, reduced opportunity for unsafe overtaking manoeuvres and reduced collision risk generally.	2018/19
A21 between Scotney Castle and Baldslow (near Hastings)	Risk of trees, telephone/electricity poles, traffic signs and other roadside hazards being struck by vehicles.	Tree protection and/or tree removal to create a 4.5 minimum clear zone. Pole protection or relocation to create a 4.5 minimum clear zone. Replace traffic signs with passively safe option or protect non-passively safe sign posts.	Will reduce the severity outcome of any errant vehicle impacts.	Feasibility Study 2018/19
A21 / A265 Station Road junction at Hurst Green.	Congestion and rear end shunts at a wide T junction in village location where busy routes combine. A change to a roundabout would slow the traffic through the village, make the turns safer, and reduce queuing traffic and associated risk.	Replace bollard and island in junction mouth with small roundabout, associated lane alignment and signage.	Improve congestion at the junction.	2020+
A21 / A229 Coopers Corner junction	High number of minor collisions at busy junction.	Visibility is not very good in one direction, making right turn onto A21 high risk. Traffic turning off the A21 is often struck by vehicles from behind.	Widen junction mouth and align lanes appropriately to accommodate construction of a roundabout where there is currently a bollard and island.	2019/20
A21 / B2090 Park Lane junction at Whatlington	Difficult junction, high risk of shunts.	Ban right turn, improve junction layout. No right turn order and signage, improved sight lines, addition of bend chevrons.	Will highlight the junction to road users and reduce collision risk generally.	2019/20

## A21 Forward Programme – 2018-20

A21 / Marley Lane junction	High level of collisions, associated with right turn across traffic from A21.	Clearer signage giving advanced warning of junctions and possibility of standing traffic turning right.	Will improve destination signing at and on approach to the junction and reduce collision risk generally.	2019/20
A21 / B2079 Lady Oak Lane	Traffic turning the wrong way onto dual carriageway.	Install mandatory turn left directional arrow with a supplementary plate 'dual carriageway'.	Will warn road users they must turn left and prevent from traffic turning opposite direction on a dual carriageway road.	2019/20
Ashdene BP garages, North of Hurst Green	Lack of visibility of northbound carriageway services mean unnecessary right turn manoeuvres being undertaken.	Raise visibility of services both sides, review of options available. Additional signage indicating services on both sides of the road.	Will highlight the location of the garage on the east side of the road when heading southbound and reduce collision risk generally.	2019/20
Whole Route Extent - Residential Areas	Highlight residential areas.	Addition / renewal of village gateways where appropriate.	Raise awareness of changes to speed limit for villages.	2019/20
Whole Route Extent - Junction Visibility	Junction isn't easily visible on approach.	Addition of VAS warning signs where appropriate.	Raise awareness of approaching traffic that there is a junction ahead.	2019/20
Whole Route Extent - Upgrade P1 Barrier Ends	P1 barrier ends still in situ. Sloped and concrete boot barrier ends represent elevated risk.	Replace all P1 barrier ends with P4 ends.	Will reduce the severity outcome of any errant vehicle impacts.	2019/20
Whole Route Extent - Layby Approaches	Sudden braking and late decision making approaching layby locations.	Addition of "Layby Ahead" signage.	Provide advanced warning of layby locations to enable earlier decision making.	2019/20

## 7. PLANNED RENEWALS (2018-19 FY)

7.1 The following table outlines the planned renewals for the A21 for the 2018-19 Financial Year.

Workstream	Location	Estimated Completion on Site
Drainage	A21 North of Flimwell Bypass	June 2018
Lighting & Technology	A21 Flimwell Traffic Signals Renewal	March 2019
Lighting & Technology	Hurst Green School Vehicle Activated Sign	December 2018
Pavements	A21 Silver Hill to Silverdale	July 2018
Pavements	A21 Stonecrouch Combwell Lodge to Bewl Bridge	June 2018
Pavements	A21 Flimwell Junction with B2079	June 2018
Pavements	A21 Vinehall Farm to Whatlington Junction	March 2019
Pavements	A21 Lower Street Bridge (DESIGN)	October 2018
Structures	A21 Riverhead Joints	November 2018
Structures	A21 Quarry Hill	April 2019