Bracknell Forest Council

Bracknell Forest
Junction Improvements and Measures Paper

October 2011

CONTENTS

1 JUNCTION IMPROVEMENTS

1.1 This technical note has been prepared to support the Journey Times Report for Bracknell Forest. It provides a detailed analysis of each of the junctions subject to improvements.

2 COPPID BEECH ROUNDABOUT
PROPOSAL: SIGNALISATION AND WIDENING

2.1 Coppid Beech junction is a partially signalised four arm grade separated roundabout that links Bracknell and Wokingham via the A329 and B3408, with the A329 continuing over and through the junction as a flyover.

2.2 Currently only the down-slip exit from the A329(M) is signalised, allowing traffic to be held on the circulatory heading towards the B3408 London Road. This also allows pedestrians to cross heading in and out of Bracknell and Wokingham.

2.3 The junction experiences queuing in the peak hours, with traffic entering and leaving the A329(M) on the main corridors heading into Bracknell (A329) and Wokingham (B3408).

2.4 This junction is also included in the Amen Corner Supplementary Planning Document and is listed as a junction requiring mitigation. Possible improvements include signalising the roundabout and widening the entry flares on the approaches from Wokingham and Bracknell, and also increasing the circulatory width to four lanes as shown in **Figure 1**.

2.5 The proposals would also include formal crossing points for pedestrians and cyclists on both up-slips and down-slips to the A329(M), providing much needed facilities for cross-boundary trips by more sustainable modes.

2.6 In addition to the extra trips generated by the Amen Corner development, this junction is expected to see a significant growth in traffic due to the residential site allocations proposed in Wokingham.

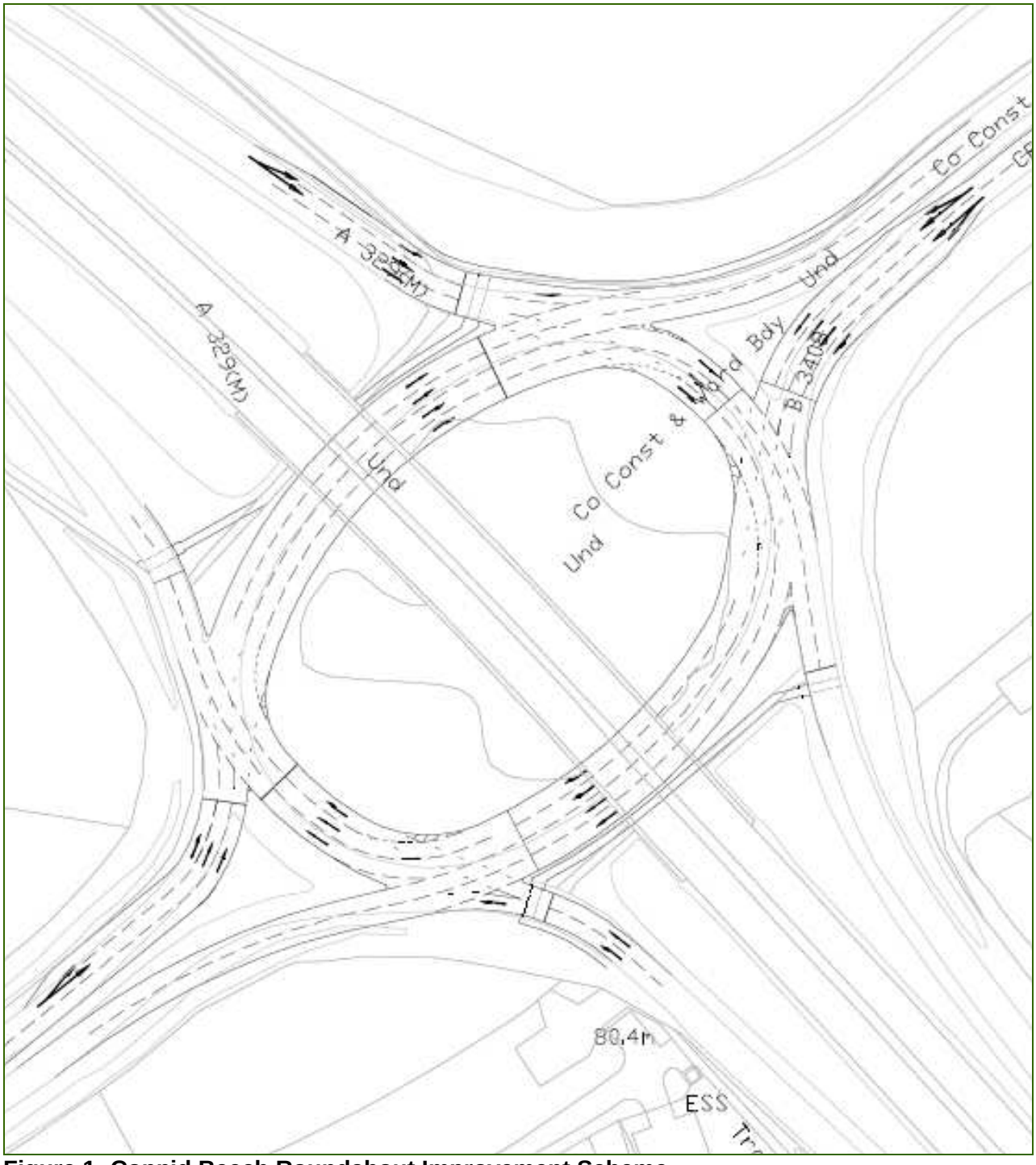

Figure 1: Coppid Beech Roundabout Improvement Scheme

3 PEACOCK FARM ROUNDABOUT
PROPOSAL: SIGNALISATION OF EASTERN ARM

3.1 Peacock Farm roundabout is a new junction, constructed in 2011, serving the Jennett's Park development. It is located on a western stretch of the A329 Berkshire Way between the Doncastle Road and Coppid Beech roundabouts. The A329 is a strategic route subject to a 70mph speed limit, that carries high loads of local and through traffic each day.

3.2 The junction is a three arm priority roundabout with a jet lane on the A329 Berkshire Way eastbound. The Peacock Farm roundabout serves a new residential and commercial site south of the A329 Berkshire Way.

3.3 With extra demand in 2026, the junction experiences lengthy queues and delays especially on the eastern approach. Westbound traffic intending to continue along Berkshire Way is blocked by high volumes of right turners from Berkshire Way (west).

3.4 To enable traffic from the eastern approach of the A329 to enter the circulatory more easily, signalisation of this arm is proposed. This will stop right turning traffic, giving traffic from Berkshire Way (east) the opportunity to progress across the roundabout. This improvement proposal is shown in **Figure 2**.

3.5 Signalisation of the roundabout will not increase capacity, however it will provide a fairer distribution of queues and network benefits. Signals are modelled on fixed timings, meaning any fluctuation in traffic demand throughout the peak hour has an impact on queue levels and therefore delay times at the junction. In reality, many signalised junctions use adaptive signal-control systems such as SCOOT or MOVA, which

continuously monitor traffic demand and queue build-up and optimise green times accordingly. This enhances the efficiency of the junction by balancing traffic demand and queues, increasing traffic throughput and reducing delays.

3.6 Adaptive signal-control systems are currently delivering proven benefits across many junctions in the UK and can potentially improve the efficiency of junction operation in Bracknell, over and above the modelled results which are based on fixed signal operation. An improvement in delays of around 12% - 27% (over good fixed time plans) could be achieved which would reduce journey times across the Borough further.

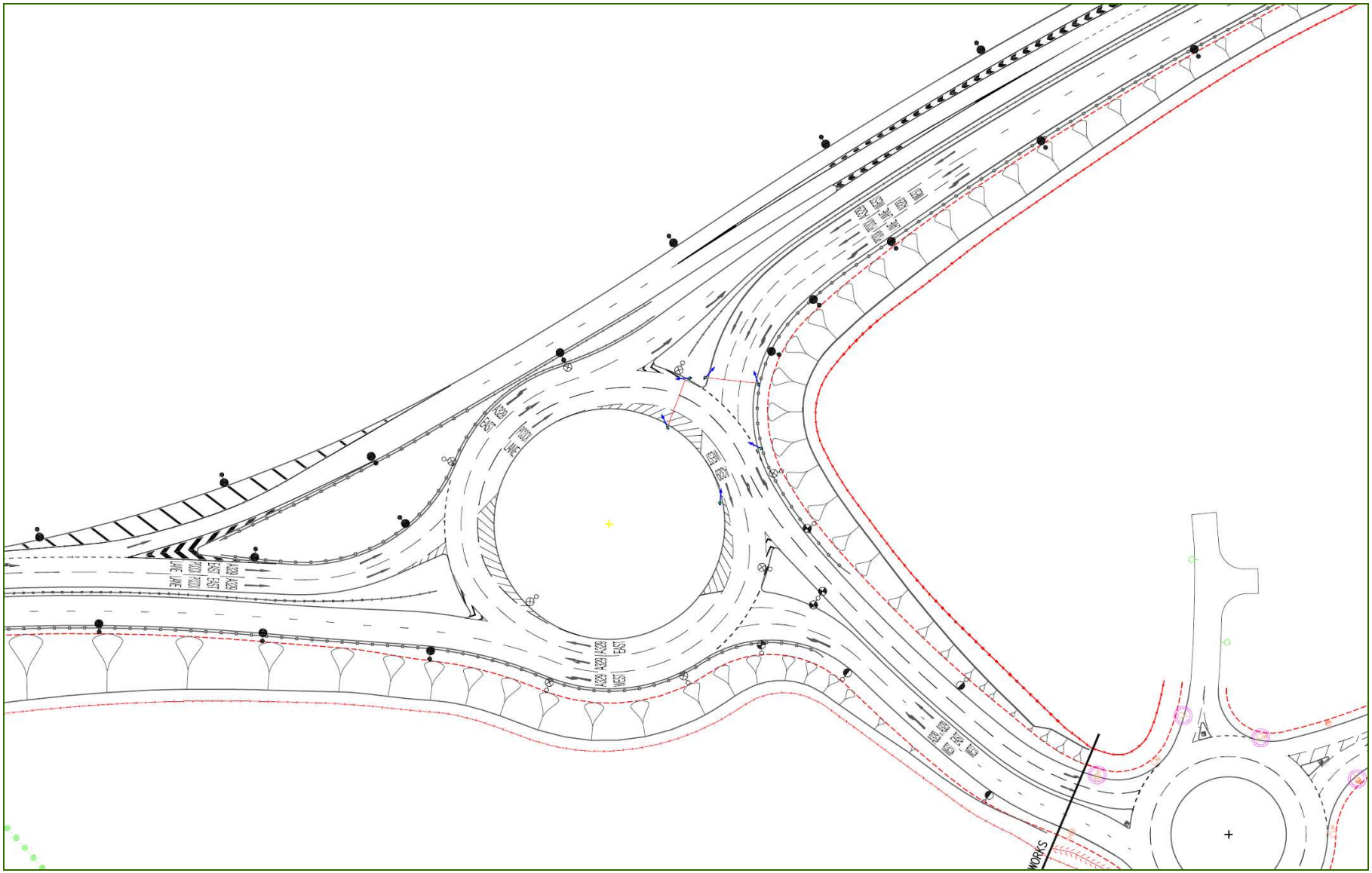

Figure 2: Peacock Farm Roundabout Improvement Scheme

4 TWIN BRIDGES GYRATORY PROPOSAL: ADJUSTMENTS TO SIGNAL TIMINGS

4.1 The Twin Bridges gyratory is situated at the intersection of the A322, A329 and A3095 and occupies a strategic position within the central Bracknell highway network. This major junction is an intersection of corridors into Bracknell from the North, East, South and West, with high volumes of traffic passing through it throughout the day. It is part of a major freight route that also carries commuters through to Reading and destinations further afield to the west, and to Ascot, Guildford and destinations further east.

4.2 The southern part of the roundabout has four arms that are fully signal–controlled and operating under fixed–time Urban Traffic Control (UTC). The northern section comprises three give way arms. All arms forming the southern part of the junction are dual carriageways and are classed as ‘A’ roads.

4.3 There is no direct interaction between traffic and pedestrians or cyclists, as footways and cycleways are located on a subway network beneath the junction.

4.4 Site visits focusing on the traffic patterns, lane usage, queue lengths and measurement of saturation flows have been carried out to achieve the most realistic scenarios for both morning and evening peaks. These have been supported by a queue length survey undertaken in 2009.

4.5 The junction currently suffers from extensive internal queuing which is one of the causes of its poor performance, with long queues and delays also present on the approaches. It would benefit from optimised signal timings, however due to the sheer volume of traffic and limited physical capacity, this would not provide enough additional capacity to improve the junction’s performance satisfactorily.

4.6 In particular, Mill Lane and Berkshire Way are at or above capacity throughout both peaks. Lengthy delays also occur on Downshire Way (AM) as well as Easthampstead Road (PM peak) and Downshire Way North (AM), where traffic gives way to over 2,000 vehicles heading north and on the Gyratory Northern Approach (AM) where a signal-control helps reduce delay in giving way to the heavy A329 – A322 demand.

4.7 Traffic growth in 2026 is predicted to increase during both peaks. The effects this growth will be mitigated by proposed improvements. These include full signalisation and geometrical enhancements to the junction layout such as widening of the circulatory, entries and exits. Details of the proposed improvements are presented in **Figure 3.**

4.8 LinSig modelling for 2026 clearly shows that, despite improvements, the junction will operate over capacity, although signals were modelled on fixed timings. This means any fluctuation in traffic demand throughout the peak hour has an impact on queue levels and resultant delay times at that junction. In reality, many signalised junctions use adaptive signal-control systems such as SCOOT or MOVA, which continuously monitor traffic demand and queue build-up and optimise green times accordingly. This enhances the efficiency of the junction by balancing traffic demand and queues, increasing traffic throughput and reducing delays.

4.9 Adaptive signal-control systems are currently delivering proven benefits across many junctions in the UK and can potentially improve the efficiency of junction operation in Bracknell, over and above the modelled results which are based on fixed signal operation. An improvement in delays of around 12% - 27% (over good fixed time plans) could be achieved which would reduce journey times across the Borough further.

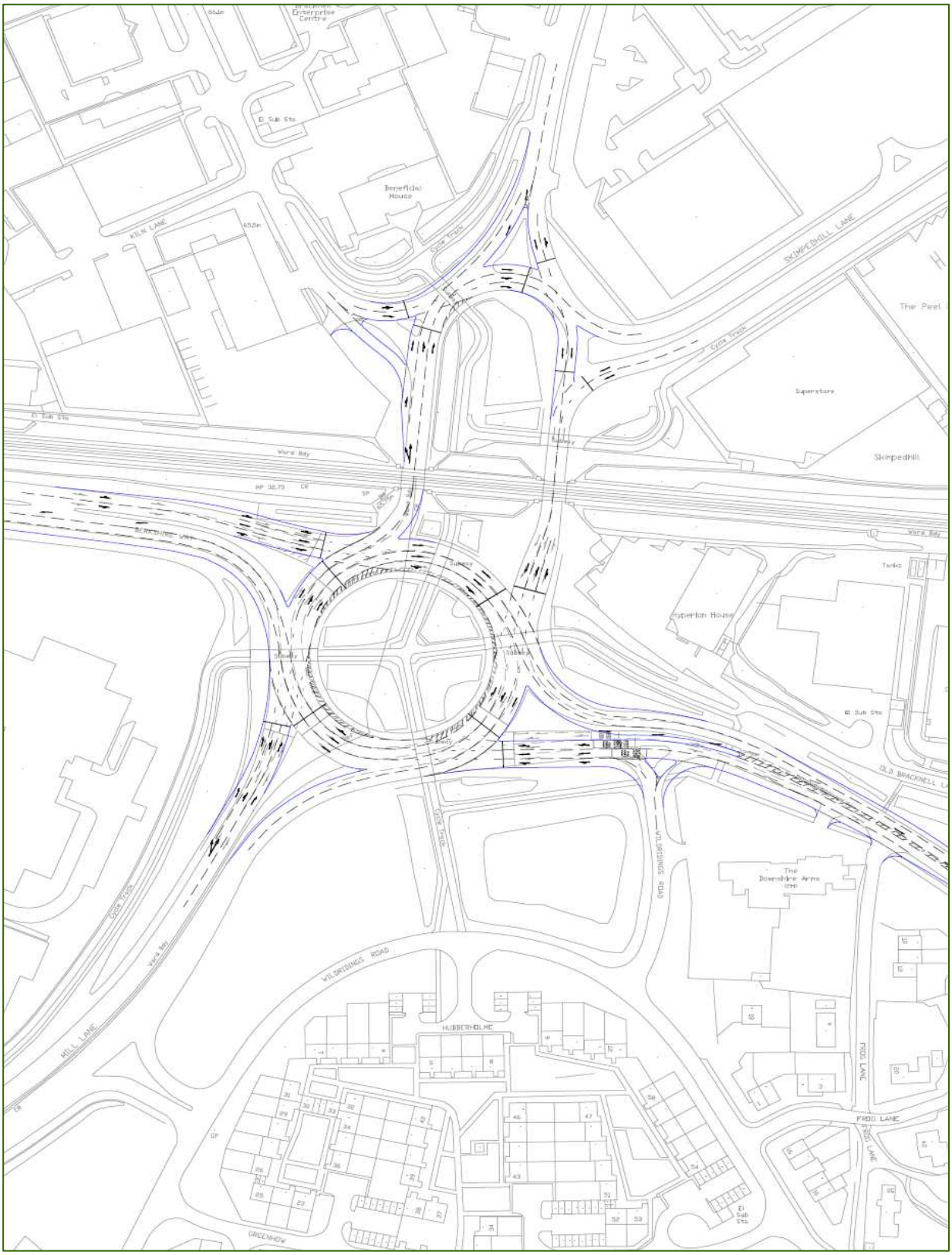

Figure 3: Twin Bridges Improvement Scheme

5 CORAL REEF ROUNDABOUT
PROPOSAL: SIGNALISED CROSSROADS

5.1 Coral Reef is a large four arm priority roundabout located on the busy A322 route from the M3 towards the town centre. Although the route serves as a primary means of access into Bracknell, it is also used by through traffic as an “outer orbital” link between the M3 and M4 motorways with up to 21% of the total vehicles in the PM peak travelling from the Swinley gyratory and out of the Borough towards the M4.

5.2 The main feeder to the junction is the A322 (both approaches), however the B3430 Nine Mile Ride also carries high volumes of traffic. Nine Mile Ride traffic encounters difficulties entering the roundabout due to blocking by northbound traffic on the A322. Nine Mile Ride is subject to a 50mph speed limit, New Forest Ride to a 40mph limit and the A322 has a derestricted limit. Each arm has three entry lanes, and a footbridge for pedestrians and cyclists north of the junction provides access to leisure facilities on Nine Mile ride.

5.3 It is clear from observations on site and from modelling that the roundabout operates at or over capacity in the base year. In the AM peak, Nine Mile Ride operates over the design maximum and exhibits queues, whilst Bagshot Road heading towards the town centre is at capacity. In the evening peak, the junction experiences queues on Bagshot Road South and Nine Mile Ride in particular.

5.4 In both peaks, vehicles encounter difficulties joining the roundabout from New Forest Ride and Nine Mile Ride due to high volumes of north-south/south-north traffic on Bagshot Road. In 2026, traffic flows on this junction are estimated to increase against 2007 levels during both peak hours.

5.5 In 2026, the existing junction will not cope with the predicted traffic growth. To accommodate this growth, various design options have been considered and a signalised crossroads provides the best option for this intersection to cope with 2026 flows. Details of the proposed junction are presented in **Figure 4.**

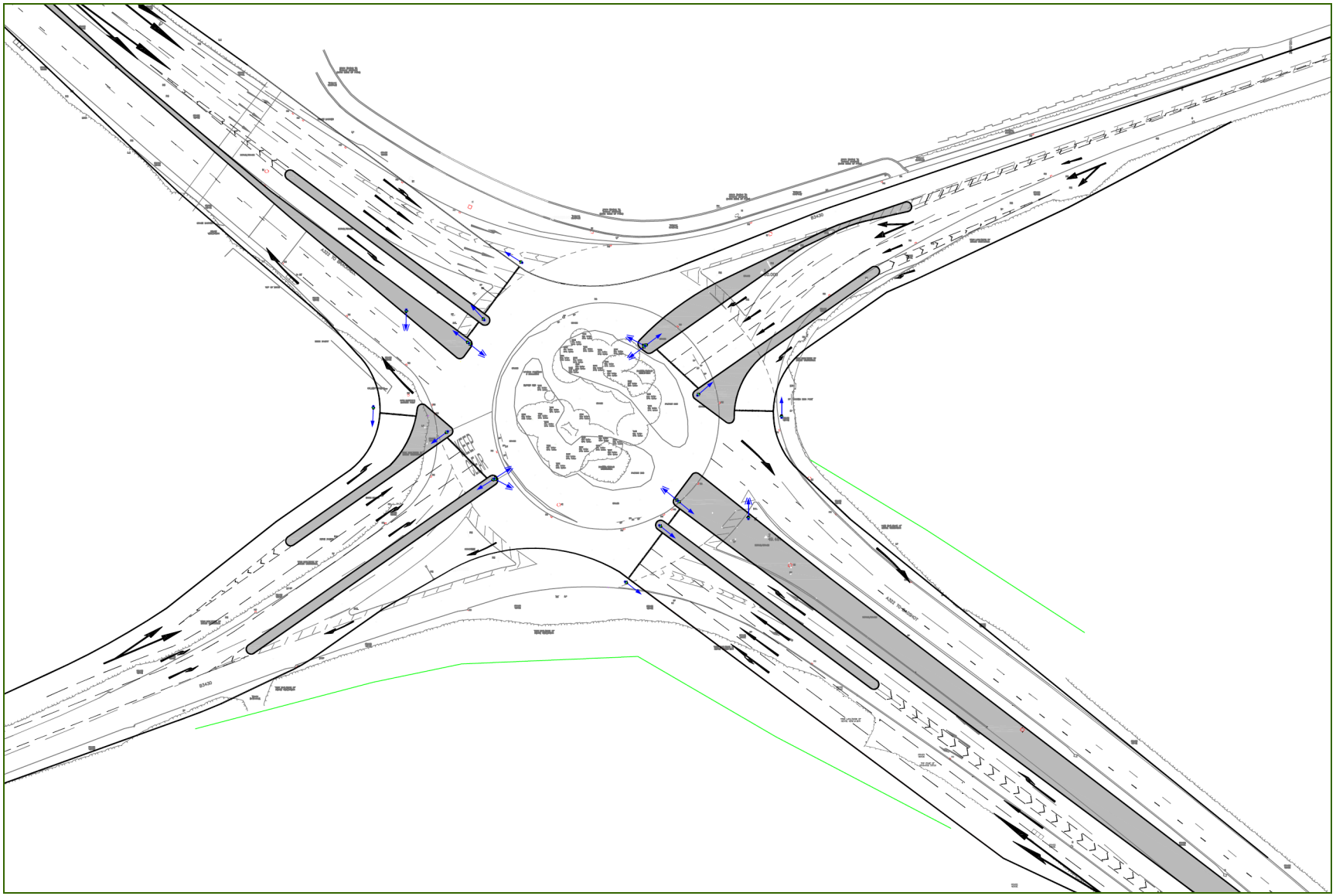

Figure 4: Coral Reef Junction Improvement Scheme

6 MARTINS HERON ROUNDABOUT
PROPOSAL: SIGNALISED CROSSROADS

6.1 This roundabout is located on the A329 London Road, which is a busy route between Ascot and Bracknell town centre. It is a conventional priority roundabout with four flared approaches. London Road is the main feeder route to the junction. White lines and hatching are present on the circulatory carriageway to improve junction legibility and enhance safety. Informal, non-signalised pedestrian and cycle crossings are present on each arm.

6.2 New Forest Ride serves the Martins Heron area, which has a railway station and a major supermarket. It also provides a link to Coral Reef junction and the A322. Long Hill Road serves northern areas of the Borough, Warfield and Winkfield.

6.3 Site visits to this junction and historical observation indicate that both London Road approaches are liable to long queues that extend upstream and affect adjacent junctions. This junction encounters capacity and delay issues and is liable to significant queuing.

6.4 Without any improvements, the junction will struggle with delays, especially during PM peak. A signalised crossroads is proposed as an improvement scheme, with the layout including three entry lanes on each arm. Pedestrian facilities would be upgraded to signalised, demand responsive crossings on A329 London Road (west) and Long Hill Road. The remaining arms have informal pedestrian crossings with dropped kerbs and tactile paving.

6.5 The proposed scheme has been assessed, and the modelling results show that in 2026 the junction will operate within capacity and provide a

safe pedestrian and cycle environment. In addition, UTC and CCTV infrastructure will be installed and appropriate technology applied in order to achieve the most effective operation of the junction and progression of traffic across the network.

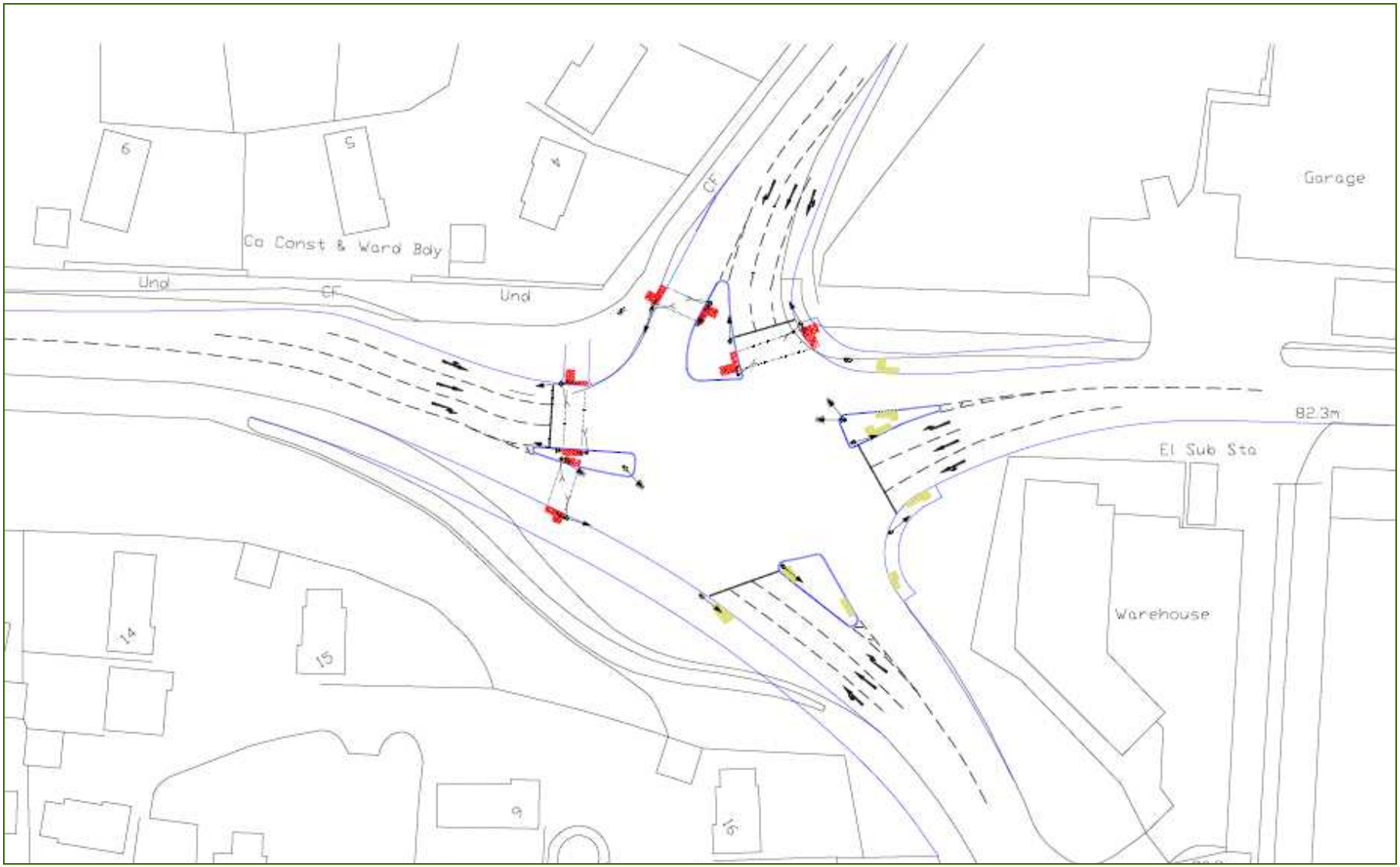

Figure 5: Martins Heron Junction Improvement Scheme

7 HANWORTH ROUNDABOUT
PROPOSAL: WIDENING OF FLARES

7.1 This roundabout is currently partially signalised during peak hours. It has five arms of which Crowthorne Road and Mill Lane are the main feeder arms. The junction is located on the A3095, a strategic route linking the south of the Borough with Bracknell town centre, its employment areas, the M4 and Windsor and Maidenhead to the north. The junction serves local, regional (coming into Bracknell from Crowthorne and Sandhurst) and through traffic.

7.2 Hanworth Road and Crowthorne Road are the signalised arms, with two and three entry lanes respectively. In general, the junction serves the whole area south of South Hill Road (Birch Hill and Hanworth). Great Hollands Road is a three lane entry approach operating on a priority basis and serving the Great Hollands area. South Hill Road has a priority two lane approach, and serves the southern part of Easthampstead. It is also used as an alternative route between the A322 and A329 corridors.

7.3 In 2026, the existing junction is predicted to experience queues and delays due to being at or over capacity. The signals are modelled on fixed timings however, meaning any fluctuation in traffic demand throughout the peak hour can impact on queue levels and thus delays at that junction. Modern signal programming often needs regular adaptation of a junction's signal plans to accommodate specific traffic demands. The accepted methodology for doing this, is to implement Urban Traffic Control (UTC) fixed time plans that switch set signal timings at pre determined times.

7.4 The ability to override and manipulate signals manually is also available, in the event of an incident. When traffic flows are more sporadic and less predictable, such as in off peak periods, many signalised junctions use adaptive signal-control systems such as SCOOT or MOVA. These continuously monitor traffic demand and queue build-up and optimise

green times accordingly. This enhances the efficiency of the junction by balancing traffic demand and queues, increasing throughput and reducing delays.

7.5 Adaptive signal-control systems are currently delivering proven benefits across many junctions in the UK and can potentially improve the efficiency of junction operation in Bracknell, over and above the modelled results which are based on fixed signal operation. An improvement in delays of around 12% - 27% (over good fixed time plans) could be achieved which would reduce journey times across the Borough further.

7.6 Details of the improvement scheme, which includes flare enhancement on Great Hollands Road, are presented in **Figure 6.**

7.7 As part of a modernisation programme for Bracknell Forest Council, signal improvements have been proposed at several key junctions along Bracknell's main corridors. Many junctions will be upgraded and put onto UTC control, and where applicable either MOVA or SCOOT systems will be integrated. The aim of the programme is to gain better overall control of the network by manipulating key points to allow an efficient flow of traffic into and out of the Borough. It is therefore proposed to include this junction in this modernisation programme.

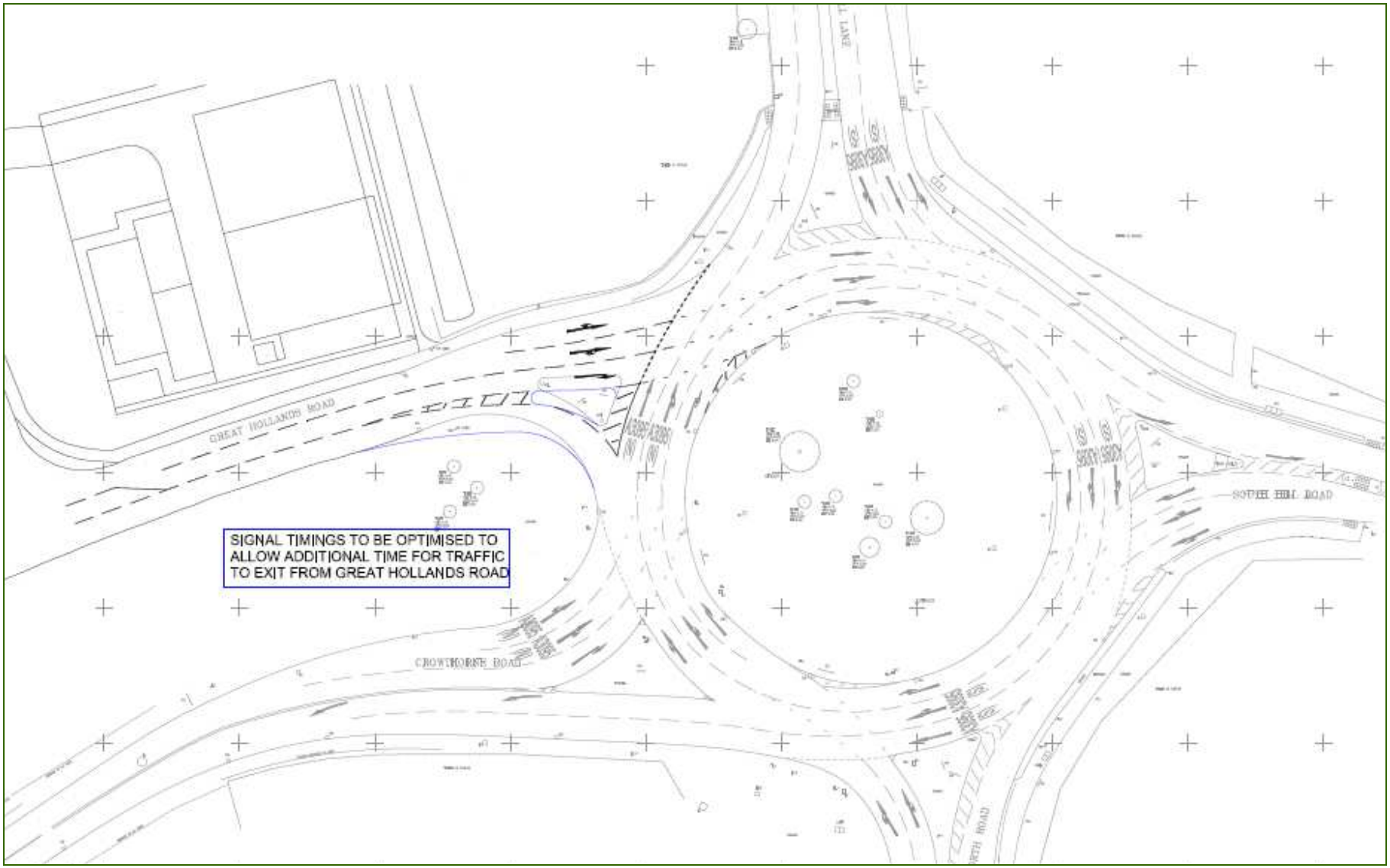

Figure 6: Hanworth Roundabout Improvement Scheme

8 HANWORTH ROAD / RINGMEAD JUNCTION PROPOSAL: ROUNDABOUT

8.1 This priority junction is busy during peak periods and is located on Hanworth Road, 70 metres south of Hanworth roundabout. Ringmead is a minor arm with just one entry lane. The northbound approach of Hanworth Road has an additional right turn lane, and the straight ahead lane immediately splits into two approach lanes to the Hanworth roundabout. Ringmead serves the Birch Hill and Hanworth residential areas.

8.2 Currently the junction encounters delays as traffic from Ringmead struggles to exit the junction and join traffic on Hanworth Road. This causes lengthy queues.

8.3 Site visits confirmed this problem is caused by traffic approaching the Hanworth roundabout 70 meters north of the junction. Not only are high volumes of traffic approaching and leaving the Hanworth roundabout, they are also queuing on Hanworth Road and backing up beyond the junction with Ringmead. This makes it difficult for Ringmead traffic to join the main road. The site visits also identified a peak within a peak, occurring between 08:30 and 08:50. This resulted in a lengthy queue along Ringmead, caused by local traffic leaving the area at around the same time.

8.4 A roundabout has been designed to give Ringmead more priority. The proposed design, details of which are shown in **Figure 7,** includes a two lane approach on both arms of Hanworth Road and a one lane approach on Ringmead.

Figure 7: Hanworth Road / Ringmead Junction Improvement Scheme

9 BRACKNELL ROAD / OLD WOKINGHAM ROAD ROUNDABOUT PROPOSAL: WIDENING OF FLARES

9.1 This junction is situated north–east of Crowthorne High Street along a busy route between the A3095 and the A321. It is a four arm roundabout, with the B3348 Bracknell Road being the main feeder road. The junction is located in the vicinity of two proposed development sites at TRL (Transport Research Laboratory) and Broadmoor.

9.2 Old Wokingham Road serves traffic associated with the TRL and Wokingham, as well as residential areas to the west. The approach from Old Wokingham Road has a single lane entry to the roundabout. Bracknell Road southbound also has a single lane approach but with a flare able to accommodate one to two vehicles. Bracknell Road northbound carries traffic from Finchampstead and Sandhurst. It too has a single lane approach with a flare that can accommodate up to two vehicles. The remaining arm of the junction is an access road serving a few houses. It leads to woodland and is narrow and quiet.

9.3 In the base year (2007), the junction operates well during both peaks. By 2026, traffic levels are expected to increase by approximately 24% during the PM peak. The existing junction layout will therefore struggle with capacity during evening peak, with Bracknell Road southbound suffering the most.

9.4 To tackle the capacity issues on the Old Wokingham Road and Bracknell Road southbound approaches, it is proposed to widen the flares. Details of this improvement scheme are shown in **Figure 8.** Modelling shows these improvements will mitigate the effects of traffic growth and the junction will operate well in 2026.

Figure 8: Bracknell Road / Old Wokingham Road Roundabout Improvement Scheme

10 B3018 BINFIELD ROAD / MOORDALE AVENUE JUNCTION PROPOSAL: MINI ROUNDABOUT

10.1 This is a T-junction located on the B3018 Binfield Road. Moordale Avenue is the minor arm serving Priestwood and is a typical residential road that also links Binfield Road to Wokingham Road. Binfield Road is a busy route especially during peak periods, acting as a spine road for numerous residential access roads. It also connects the north of the Borough to the town centre.

10.2 By 2026, traffic flows at this junction will have increased in both peak hours. Binfield Road is expected to see the highest growth in traffic flows, which will have a further impact on the delay on Moordale Avenue.

10.3 Flows from the 2026 transport model were used to analyse the future performance of the junction in the 'no improvements' scenario. The results of this assessment show lengthy queues for the southern approach of Binfield Road during both peaks.

10.4 The aim of the proposed mini-roundabout is to reduce delays and improve the performance of the minor road. Details of these improvements are shown in **Figure 9**.

10.5 Tests have shown that in 2026, the proposed scheme will result in the junction performing well within capacity on all arms, including Moordale Avenue.

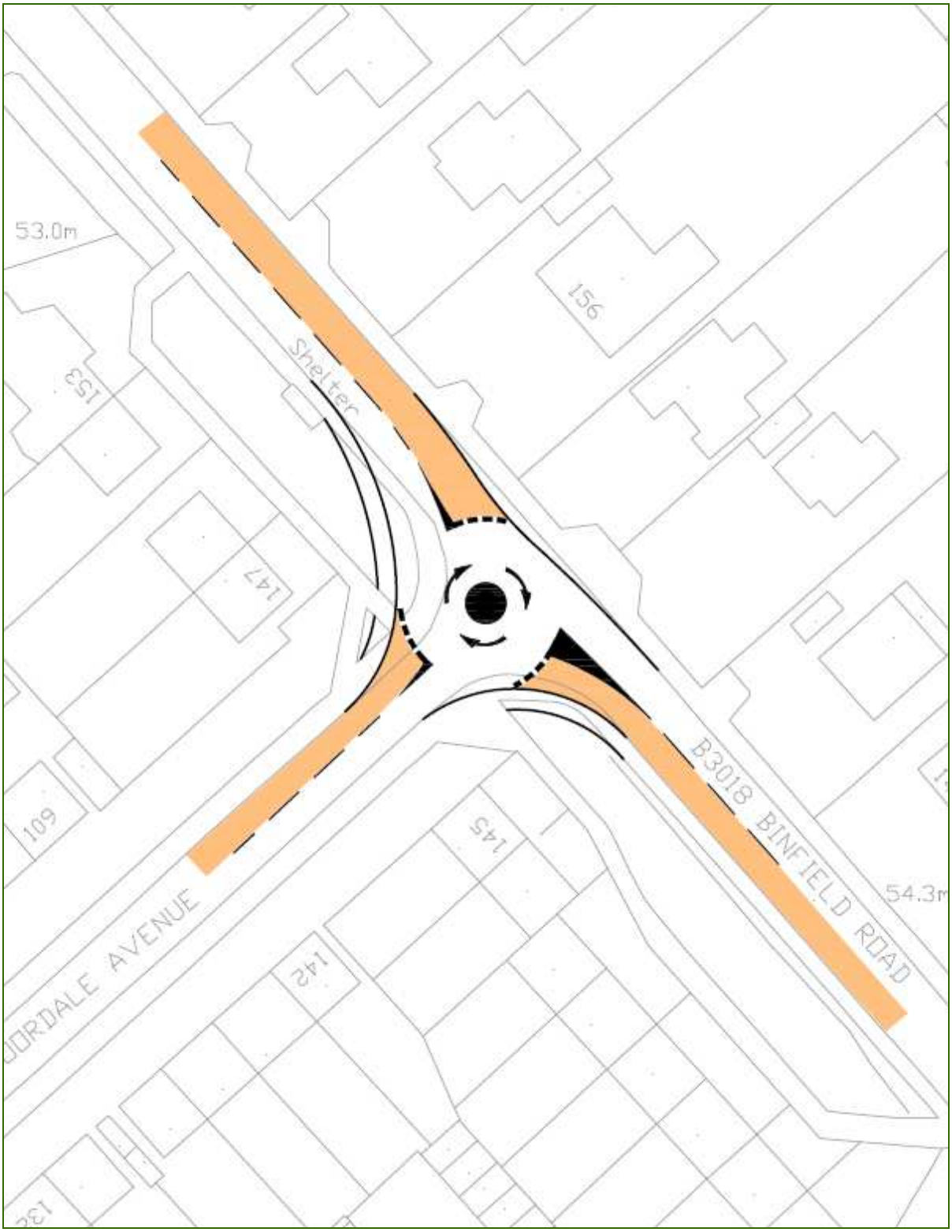

Figure 9: Binfield Road / Moordale Avenue Junction Improvement Scheme

11 B3408 WOKINGHAM ROAD / STONEY ROAD JUNCTION PROPOSAL: SIGNALISATION

11.1 This junction is located on the strategic B3408 route, which is an alternative to the A329 corridor in this part of the town. Stoney Road is a residential road that also links Wokingham Road to Binfield Road. Wokingham Road provides a link between the town centre and the M4, via London Road and the A329(M). It also serves a petrol station, Homebase and office buildings that are located in close proximity to the junction.

11.2 The current layout is a T-junction, with the major arms on Wokingham Road and the minor arm on Stoney Road. There is a toucan crossing on the Wokingham Road eastbound approach. Stoney Road has an informal crossing with tactile paving and dropped kerbs.

11.3 Wokingham Road is particularly busy during peak hours, and this impacts on Stoney Road. Observations have shown that Stoney Road experiences serious delays and queues during the morning peak.

11.4 The concept design for this junction, shown in **Figure 10**, proposes minor changes to the layout and signalisation. The existing toucan crossing will be incorporated in the new scheme and a similar facility will be installed on the Stoney Road arm.

11.5 LinSig modelling of the proposed improvements with 2026 traffic flows shows that signalisation will be beneficial for Stoney Road, with the other arms operating within capacity.

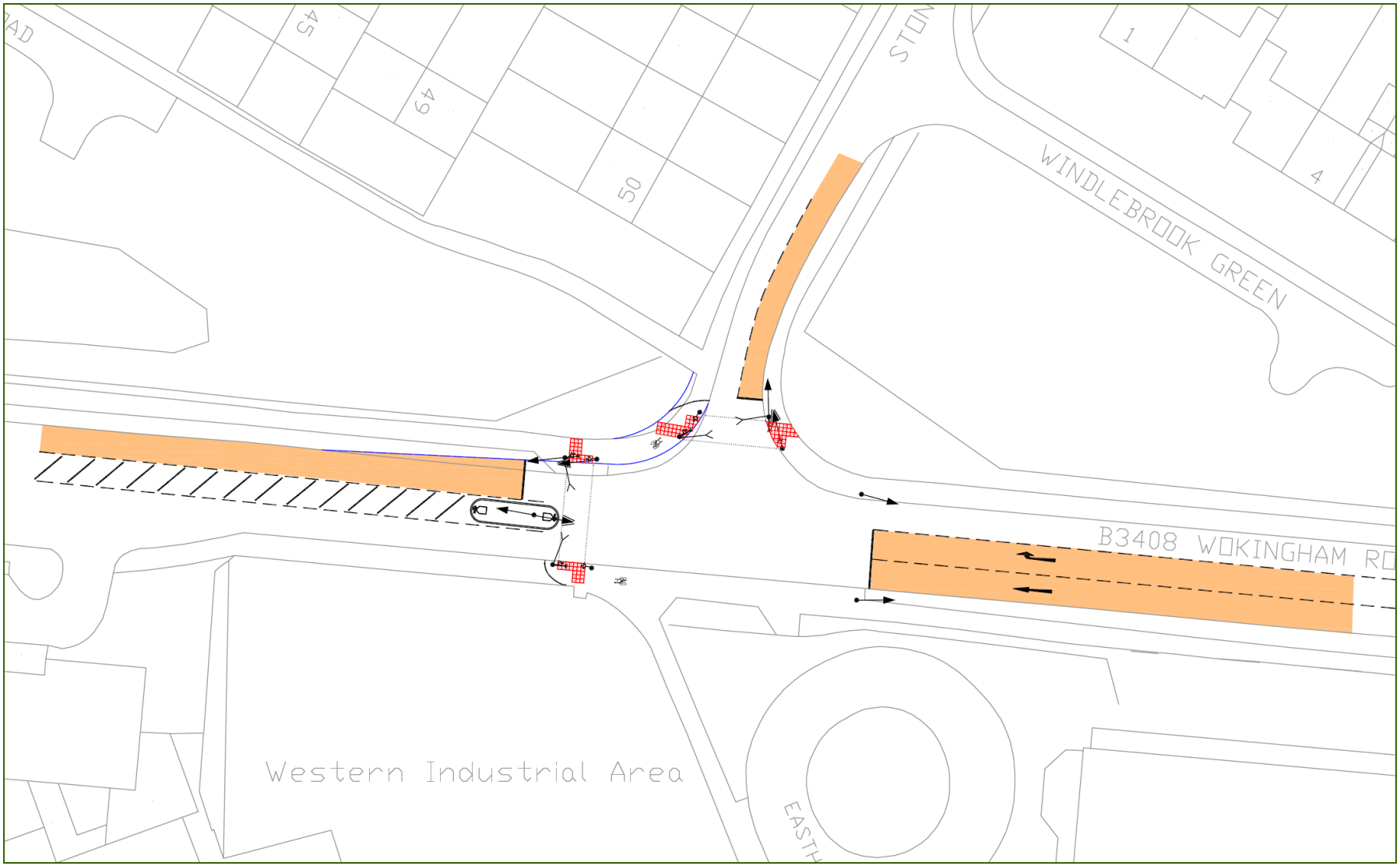

Figure 10: Wokingham Road / Stoney Road Junction Improvement Scheme

12 A3095 RACKSTRAW ROAD / OWLSMOOR ROAD JUNCTION PROPOSAL: SIGNALISATION

12.1 This junction is located on the strategic A3095 corridor that connects the A30 and M3 to the A329 and the M4 beyond. It is also a main route from the south of the Borough into Bracknell.

12.2 It is a priority junction with the minor arm, Owlsmoor Road serving a large residential area. The junction currently has an informal crossing facility with a refuge island on the eastern approach of Rackstraw Road. There are also safety considerations here due to the high speeds and traffic volumes on the major road. This causes delays and queues on Owlsmoor Road for drivers, pedestrians and cyclists using the junction.

12.3 South Road which could form a staggered crossroads with Rackstraw Road and Owlsmoor Road is a no through road for vehicles. It does however provide a pedestrian and cycle link between Owlsmoor and Crowthorne.

12.4 Owlsmoor Road currently struggles with capacity during the AM peak. Observations on site show queues nearly four times higher than those modelled by PICADY. This arm is also subject to long delays. These issues are in part due to the derestricted speed limit on the major road. Both traffic flows and pedestrian/cycle movements are expected to increase significantly here by 2026.

12.5 The improvement proposal for this junction involves signalisation, which will include provision of a demand responsive crossing facility, and widening of the Owlsmoor approach to accommodate two entry lanes. Details of the proposed scheme are shown in **Figure 11.**

12.6 LinSig tests for 2026 show that the junction will operate within capacity with shorter queues on Owlsmoor Road. The Rackstraw Road approaches will experience some delays and queues that are not present under the existing design. This is because the current arrangement allows almost free flowing traffic on the major arms. The new scheme will also provide a safer environment for traffic from Owlsmoor Road and for pedestrians and cyclists.

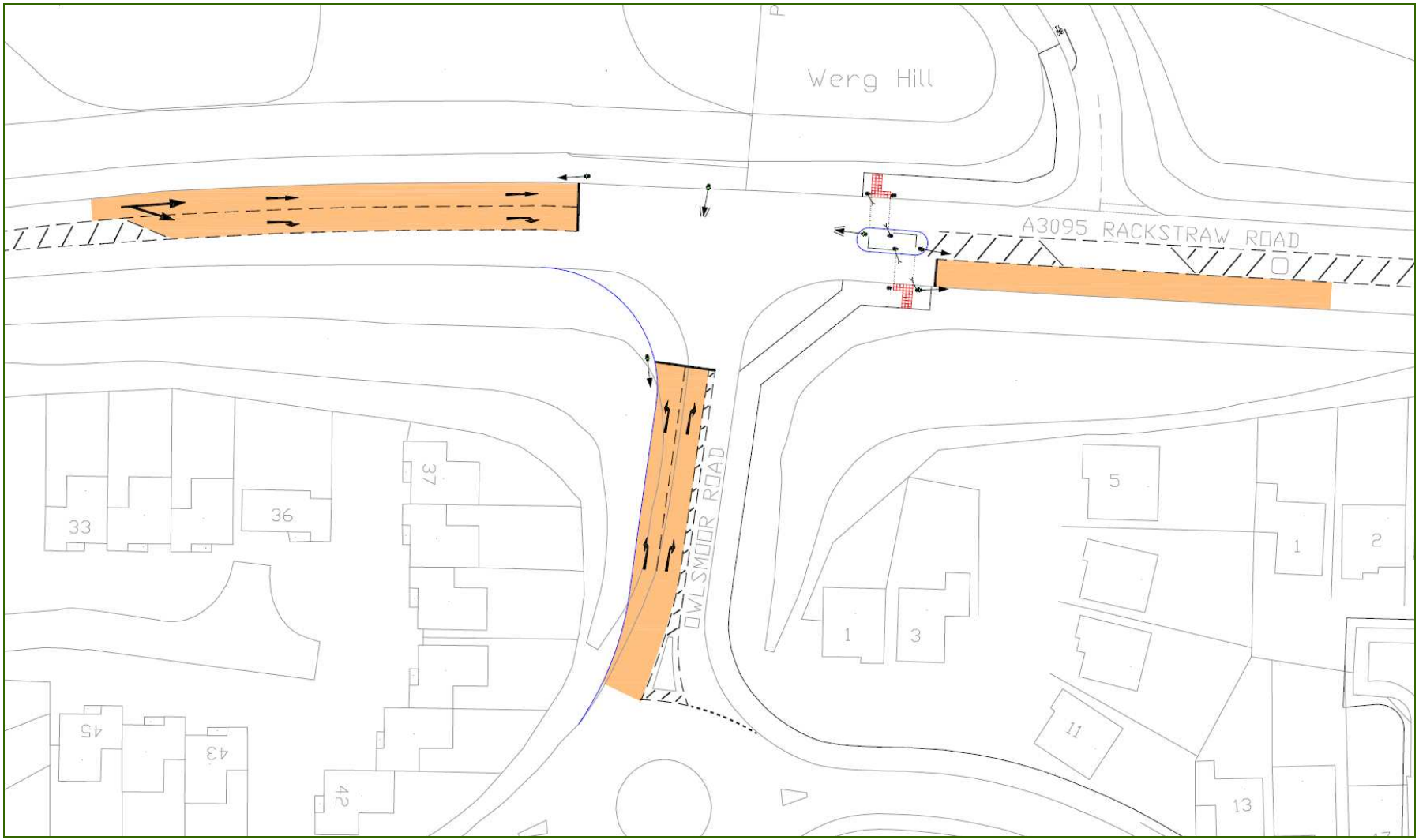

Figure 11: Rackstraw Road / Owlsmoor Road Junction Improvement Scheme

13 FOREST ROAD / BINFIELD ROAD JUNCTION PROPOSAL: SIGNALISATION

13.1 The B3034 Forest Road/ B3018 Binfield Road junction is located to the north-west of the town centre and east of Binfield village. Two future development sites, Warfield and Blue Mountain, will be in close proximity.

13.2 The junction is a staggered crossroads with Forest Road (B3018) forming the main through route, and Binfield Road (B3018) forming the southern arm. Both of these are single carriageway roads with a speed limit of 40 mph. The northern arm of the junction (Hazelwood Lane) is a single carriageway road of reduced width and a country lane character. It is subject to the national speed limit.

13.3 Visibility for vehicles turning out of Hazelwood Lane is restricted to the right by a telegraph pole. This is of particular concern as a high proportion of vehicles entering and exiting Hazelwood Lane are HGVs accessing the sewage treatment works further down this road. Visibility from Binfield Road is also restricted. There is currently an informal right turn lane provided for traffic turning into Binfield Road from Forest Road, however this is very narrow (1.0–1.5m). This can result in right turning vehicles blocking traffic behind them travelling straight ahead.

13.4 Traffic levels in 2026 will cause a deterioration in the junction's performance on each arm, in particular Forest Road during the PM peak. It is evident that the junction will operate over capacity.

13.5 To provide more capacity and improve performance, it is proposed to signalise the junction, as shown in **Figure 12**.

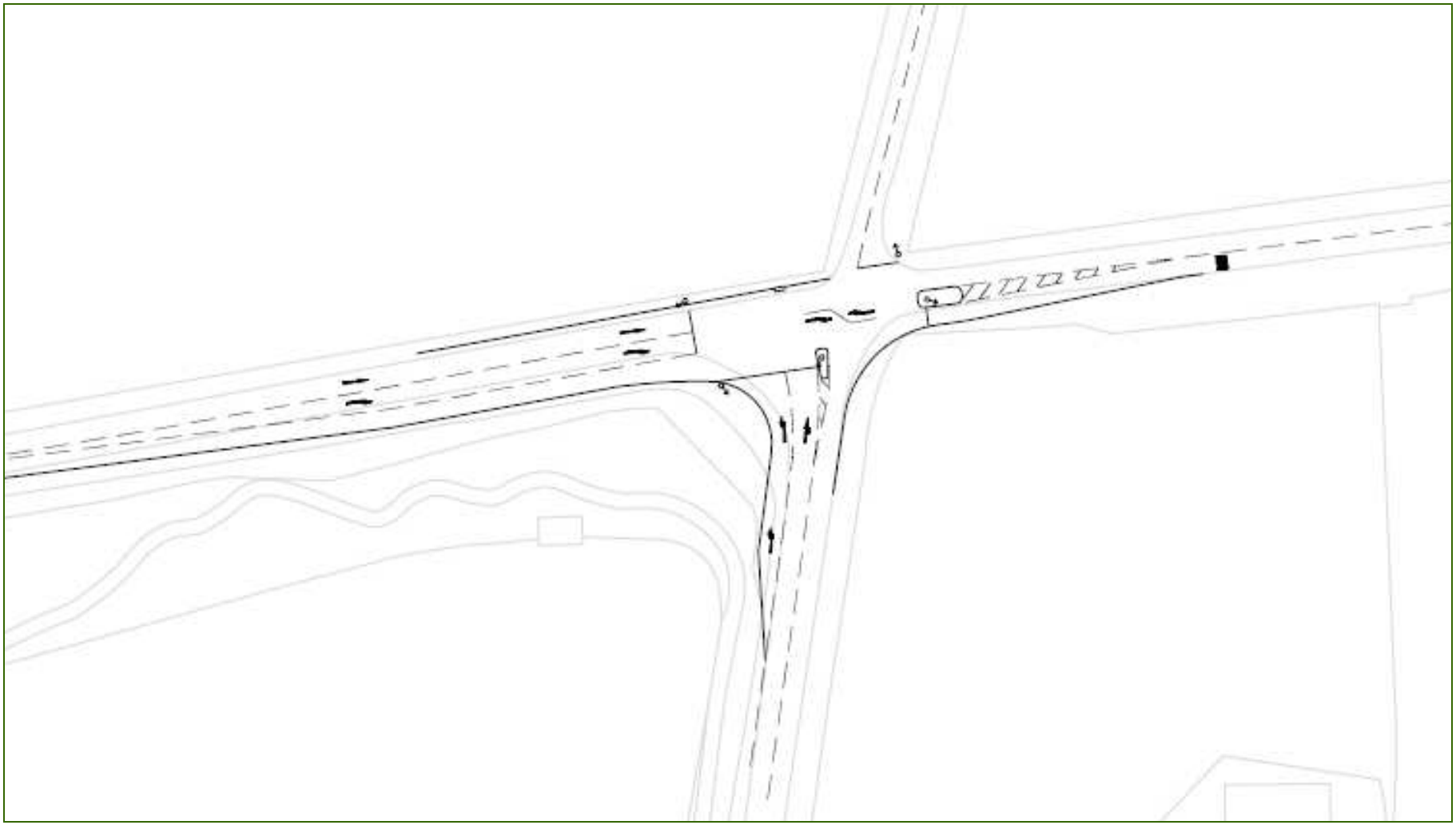

Figure 12: Forest Road / Binfield Road Junction Improvement Scheme

14 THE HUT ROUNDABOUT
PROPOSAL: SIGNALISATION

14.1 The intersection of the A3095 and B3430 is located on the south-western edge of Bracknell, and is known as the Golden Retriever or the Hut roundabout. The approaches to the roundabout are subject to a derestricted speed limit.

14.2 The southern approach to the junction, Foresters Way (A3095), is a dual carriageway between here and the Bracknell Road junction to the south. There is a footway/cycleway on the western side of Foresters Way providing a route into Crowthorne. Foresters Way is subject to a derestricted speed limit and connects Bracknell to Sandhurst.

14.3 The northern approach, Crowthorne Road (A3095), is the main access to/from Bracknell from the south-west and is a single carriageway road with a derestricted speed limit. There is a cycle bypass heading away from Bracknell, where cyclists are signposted off-road. Signage is provided for them to cross at a refuge island and join the cycleways to the south and west of the junction.

14.4 The western approach, Nine Mile Ride (B3430), is a single carriageway road and is subject to a 50mph speed limit between the Transport Research Laboratory (TRL) access junction and the public house to the south west of the junction. After this the speed limit becomes derestricted. Nine Mile Ride connects Finchampstead in the west with the A322 in the east. Toucan crossings are provided across the western Nine Mile Ride arm.

14.5 The eastern approach to the junction, Nine Mile Ride (B3430), is also a single carriageway road, which is subject to a 50mph speed limit until

just before the roundabout at which point the speed limit becomes derestricted.

14.6 During the morning peak hour, there is often an extensive queue on Foresters Way to the south of the junction. Traffic is also slow moving on Crowthorne Road northbound heading away from the junction. This causes vehicles to queue within the junction's circulatory carriageway, blocking the Nine Mile Ride (west) entry. Queues also build up along Crowthorne Road towards the junction. During evening peaks, significant queues occur on Nine Mile Ride (east), whilst rolling queues exist on Crowthorne Road southbound approaching the junction. This is due to the volume of traffic using this single carriageway road, rather than a capacity problem at the roundabout.

14.7 From observations and modelling it is clear that the junction experiences serious capacity issues. During the morning peak, all arms are operating over capacity. The junction also struggles with queues and delays during the evening peak, when the eastern approach of Nine Mile Ride and Crowthorne Road operate over capacity.

14.8 As the existing junction performs poorly in both 2007 and 2026, it is recommended that it is converted to a traffic signal-controlled roundabout. It is considered that this will allow the junction to operate more efficiently in the future than with the current layout. Details of the proposed improvement scheme are presented in **Figure 13**.

14.9 In order to achieve additional storage capacity on the circulatory carriageway, the splitter islands at the roundabout have been enlarged. In line with current best practice, the concept layout includes concentric spiral markings to assist drivers' progress through the junction. The proposed signal-controlled roundabout is predicted to improve capacity on Nine Mile Ride and Foresters Way significantly.

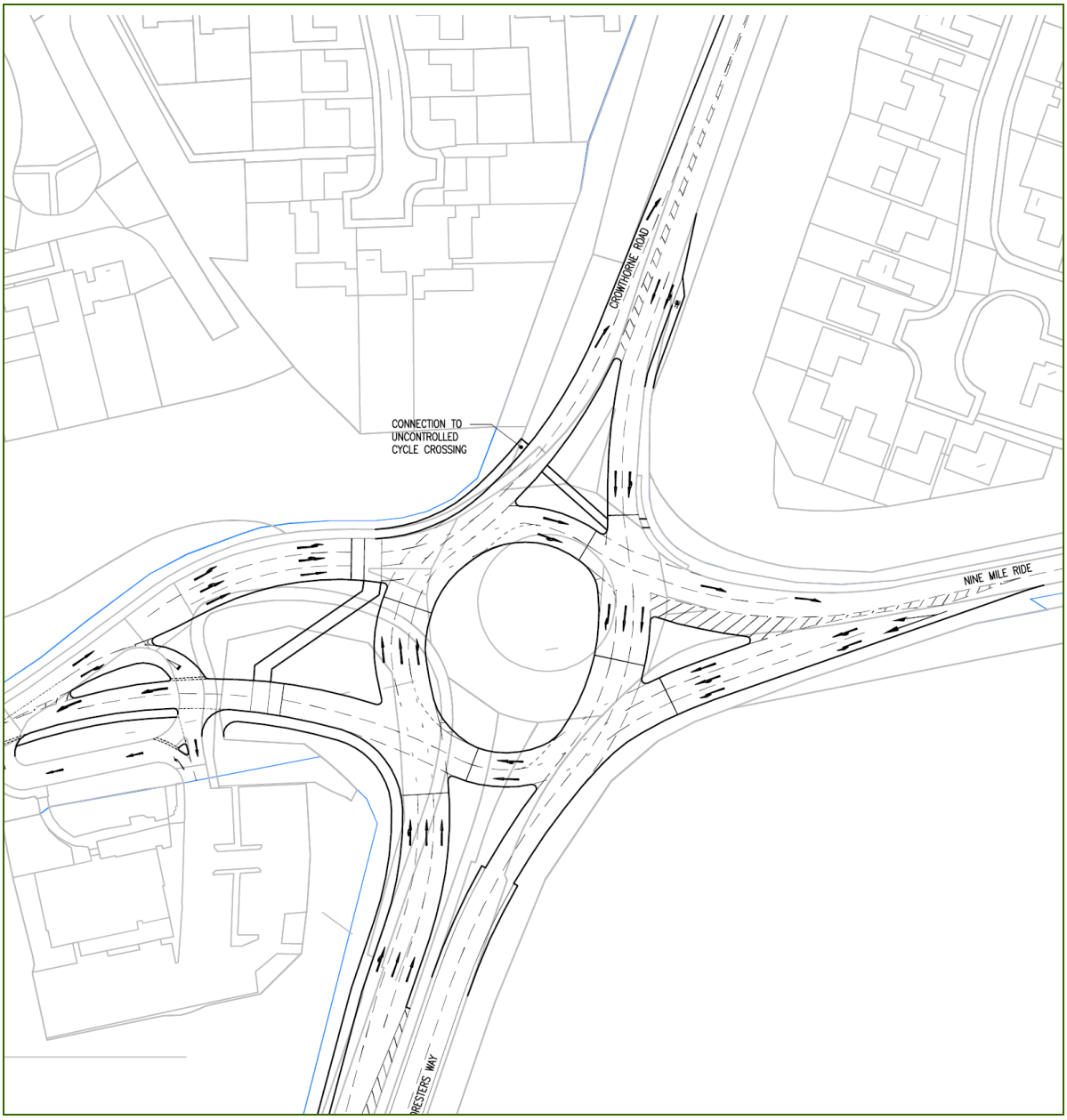

Figure 13: The Hut Roundabout Improvement Scheme

15 CROWTHORNE HIGH STREET ROUNDABOUT PROPOSAL: SIGNALISED CROSSROADS

15.1 The junction of the High Street, Dukes Ride and Bracknell Road is located at the northern end of Crowthorne town centre. The High Street is a 20 mph urban road that provides a route through Crowthorne town centre towards Sandhurst in the south. The High Street is subject to traffic calming in the form of speed tables, and parking is restricted by double yellow lines.

15.2 The B3348, Dukes Ride is also subject to a 20 mph speed limit and provides an east-west route through Crowthorne to Crowthorne Railway Station, meeting the A321 at its western end. Approximately 250m to the west of the junction with Bracknell Road and the High Street, there is a primary school. This causes traffic to wait on the road during the morning peak hour and between 15:00 and 16:00. A zebra crossing is provided approximately 60m west of the junction.

15.3 The B3348 Bracknell Road is an urban road in the vicinity of the junction with Dukes Ride and the High Street. It is subject to a 30mph speed limit, and connects to the A3095 Foresters Way at its eastern end.

15.4 The junction of the High Street, Dukes Ride and Bracknell Road is currently a mini-roundabout, with three major arms and a minor arm located between Lloyds TSB Bank and a block of flats providing access to industrial units.

15.5 To the east of the mini roundabout, along Bracknell Road, a simple priority junction forms an intersection with Upper Broadmoor Road. Due to the close proximity of these two junctions and their effect on each other, they are treated as one junction for the purposes of assessment.

15.6 The predominant movements are between Bracknell Road and High Street, which result in a queue forming on Dukes Ride. Queues can also build on the High Street, mainly due to the slow speed of traffic on the junction approach.

15.7 Observations and modelling of the existing layout show that in the base year, the junction operates over capacity. High Street exhibits lengthy queues during both peaks, whilst Dukes Ride is over capacity during the morning peak and Bracknell Road during the evening peak. By 2026 the junction will continue to operate over capacity, with extensive queues on High Street (AM peak) and Bracknell Road (PM peak).

15.8 The proposed junction improvement, shown in **Figure 15**, requires the conversion of the mini-roundabout to a three arm signal-controlled junction. To provide an appropriate geometry and to avoid the relocation of a BT chamber, the south-eastern kerb line will need to be moved out into the road, with the Upper Broadmoor Road junction being realigned.

15.9 At the Upper Broadmoor Road junction, right turning vehicles would exit / enter using keep clear markings (or yellow box marking if required). Left turning vehicles would join the queue at the traffic signals in turn.

15.10 The signal staging assumes the minor arm, located between Lloyds TSB Bank and the flats, runs once every three cycles, along with the pedestrian stage. In order to activate the minor arm's signal, above ground detection will be required as inductive loops cannot be provided on highway land.

15.11 If there is no intervention at this junction, the problems observed during the site visit will worsen due to traffic growth in the future. This would lead to further increases in queues and delays, and exacerbate the air quality problems in the vicinity. The three arm signal-controlled junction improvement is predicted to operate with greater reserve capacity than the existing mini-roundabout.

Figure 15: Crowthorne High Street Improvement Scheme

16 LONDON ROAD / PRIORY ROAD JUNCTION
PROPOSAL: ADJUSTMENTS TO SIGNAL TIMINGS

16.1 This junction is located along the A329 London Road between Bracknell town centre and Ascot. It forms part of the A329 corridor connecting Surrey with Reading, Wokingham and the M4.

16.2 It is a four arm, signal-controlled junction. The main road, London Road, includes three lanes of which one is a right turn lane on both approaches.

16.3 Pedestrians as well as cyclists benefit from signalised crossing facilities on Priory Road, and a signalised pedestrian facility on the western approach of London Road.

16.4 The signals are modelled on fixed timings however, meaning any fluctuation in traffic demand throughout the peak hour can impact on queue levels and thus delays at that junction. Modern signal programming often needs regular adaptation of a junction's signal plans to accommodate specific traffic demands. The accepted methodology for doing this, is to implement Urban Traffic Control (UTC) fixed time plans that switch set signal timings at pre determined times.

16.5 The ability to override and manipulate signals manually is also available, in the event of an incident. When traffic flows are more sporadic and less predictable, such as in off peak periods, many signalised junctions use adaptive signal-control systems such as SCOOT or MOVA. These continuously monitor traffic demand and queue build-up and optimise green times accordingly. This enhances the efficiency of the junction by balancing traffic demand and queues, increasing throughput and reducing delays.

16.6 Adaptive signal-control systems are currently delivering proven benefits across many junctions in the UK and can potentially improve the efficiency of junction operation in Bracknell, over and above the modelled results which are based on fixed signal operation. An improvement in delays of around 12% - 27% (over good fixed time plans) could be achieved which would reduce journey times across the Borough further.

16.7 As part of a modernisation programme for Bracknell Forest Council, signal improvements have been proposed at several key junctions along Bracknell's main corridors. Many junctions will be upgraded and put onto UTC control, and where applicable either MOVA or SCOOT systems will be integrated. The aim of the programme is to gain better overall control of the network by manipulating key points to allow an efficient flow of traffic into and out of the Borough. It is therefore proposed to include this junction in this modernisation programme.

17 LONDON ROAD / FERNBANK ROAD JUNCTION PROPOSAL: ADJUSTMENTS TO SIGNAL TIMINGS

17.1 This junction is located along the A329 London Road between Bracknell town centre and Ascot, some 400m east of the London Road / Priory Road junction. It forms part of the A329 corridor connecting Surrey with Reading, Wokingham and the M4.

17.2 It is a conventional signalised 'T' junction, with Fernbank Road being the minor arm. The eastern approach of London Road has a right turn lane, and the western approach has an additional left turn / straight ahead lane.

17.3 Pedestrians as well as cyclists benefit from a signalised crossing facility on Fernbank Road and a signalised pedestrian facility on the London Road western approach.

17.4 The signals are modelled on fixed timings however, meaning any fluctuation in traffic demand throughout the peak hour can impact on queue levels and thus delays at that junction. Modern signal programming often needs regular adaptation of a junction's signal plans to accommodate specific traffic demands. The accepted methodology for doing this, is to implement Urban Traffic Control (UTC) fixed time plans that switch set signal timings at pre determined times.

17.5 The ability to override and manipulate signals manually is also available, in the event of an incident. When traffic flows are more sporadic and less predictable, such as in off peak periods, many signalised junctions use adaptive signal-control systems such as SCOOT or MOVA. These

continuously monitor traffic demand and queue build-up and optimise green times accordingly. This enhances the efficiency of the junction by balancing traffic demand and queues, increasing throughput and reducing delays.

17.6 Adaptive signal-control systems are currently delivering proven benefits across many junctions in the UK and can potentially improve the efficiency of junction operation in Bracknell, over and above the modelled results which are based on fixed signal operation. An improvement in delays of around 12% - 27% (over good fixed time plans) could be achieved which would reduce journey times across the Borough further.

17.7 As part of a modernisation programme for Bracknell Forest Council, signal improvements have been proposed at several key junctions along Bracknell's main corridors. Many junctions will be upgraded and put onto UTC control, and where applicable either MOVA or SCOOT systems will be integrated. The aim of the programme is to gain better overall control of the network by manipulating key points to allow an efficient flow of traffic into and out of the Borough. It is therefore proposed to include this junction in this modernisation programme.