BIDDULPH HIGHWAYS CONSULTANCY TECHNICAL ADVICE REPORT

Provision of Highways Consultancy for Biddulph Town Council

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Biddulph Highway Consultancy Technical Advice Report
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Contents

Figures and Appendices

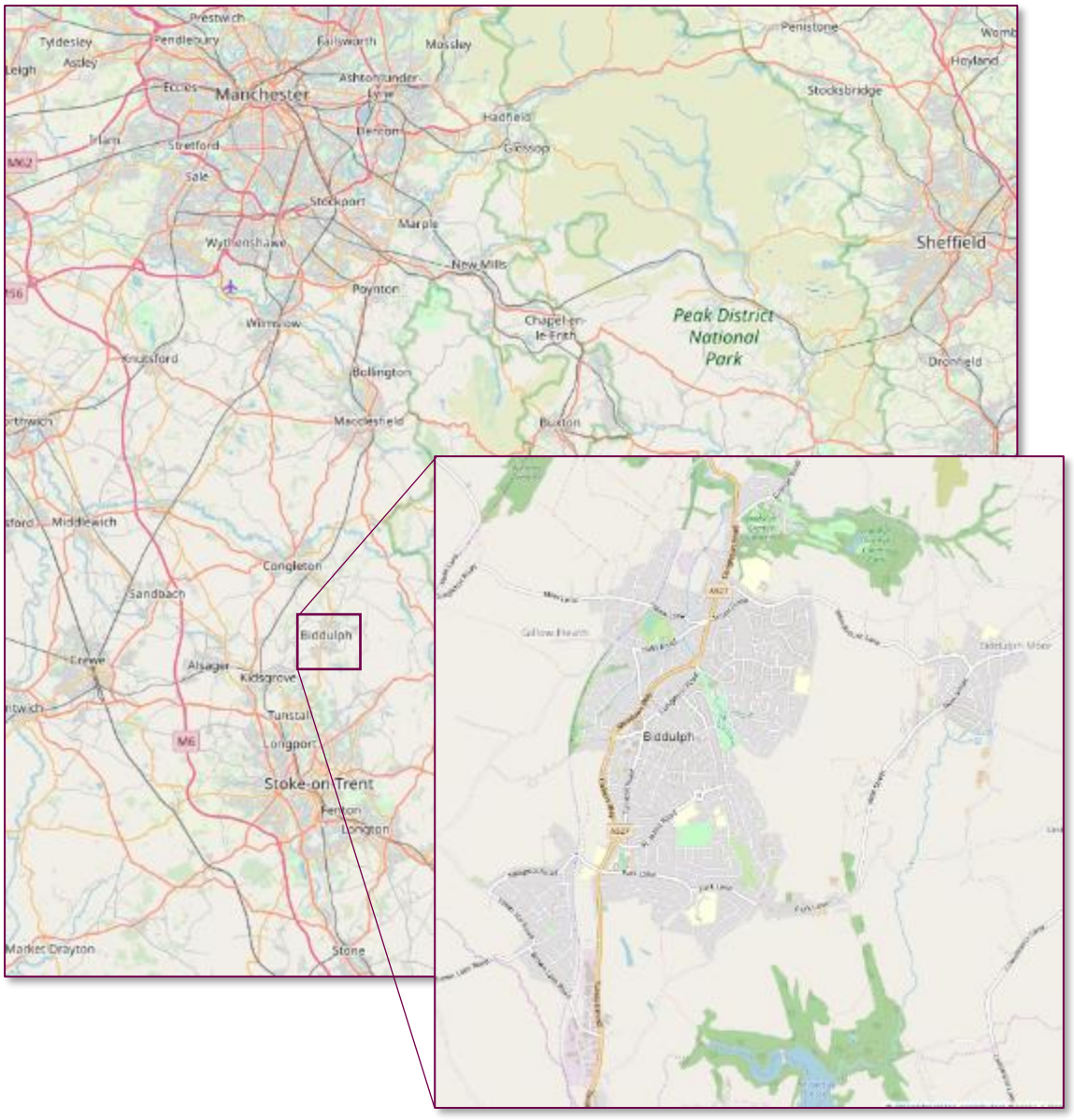
Figures

1 INTRODUCTION

1.1 This report has been prepared on behalf of Biddulph Town Council to provide highways consultancy advice.

1.2 The town of Biddulph is situated in the county of Staffordshire, approximately 11 miles north of Stoke-on-Trent and approximately 13 miles south of Macclesfield. The Local Planning Authority is Staffordshire Moorlands District Council (SMDC), whilst the Local Highway Authority is Staffordshire County Council (SCC). A location plan is shown in **Figure 1.1** below.

Figure 1.1: Biddulph Location Plan



1.3 The Town Council have been developing a Neighbourhood Plan, for which a Regulation Draft was published in September 2019. As part of the Neighbourhood Plan a household questionnaire was sent to all households within the town to identify local issues. This has subsequently identified a range of issues, which have been discussed by the Neighbourhood Plan Working Group and also the Town Councils Town and Community Committee.

1.4 From this the Town Council wishes to identify the following:

- Quick 'Wins' where there are relatively small cost implications;
- Projects that can be completed over the next 1 to 10 years; and
- Aspirational projects until 2035, the end of the Neighbourhood Plan document.

1.5 This document considers these under the following four themes:

- Theme 1: traffic flow within the town centre;
- Theme 2: consideration of pedestrianisation and shared space;
- Theme 3: consideration of paid / free parking within the town; and
- Theme 4: areas outside the town centre.

2 POLICY CONTEXT

2.1 This section of the report will look at County and District Council planning policy and its aims, objectives, and strategy for the town of Biddulph.

Staffordshire Local Transport Plan (LTP 2011-2026)

2.2 The Staffordshire LTP provides the transport strategy for the whole Staffordshire area, for the period 2011-2026. The document represents the long-term strategy and details how Staffordshire's transport ambitions will be achieved.

2.3 Staffordshire's transport aims are outlined as:

- To support growth and regeneration;
- To maintain the highway network;
- To make transport easier to use and places easier to get to;
- To improve safety and security;
- To reduce road transport emissions and their effects on the highway network;
- To improve health and quality of life; and
- To respect the environment.

Staffordshire Moorlands District Council Local Plan

2.4 The Staffordshire Moorlands Local Plan is a District wide development plan to provide a framework for delivering development for the period 2016 to 2031.

2.5 The Staffordshire Moorlands Local Plan was submitted for examination on the 28th June 2018 and Hearings took place on 9th and 23rd October 2018 and on 4th and 5th February 2020. The District Council received the Inspector's Report on the 18 June 2020 and adoption is expected following this.

2.6 The Local Plan sets out the development strategy, strategic and development management policies and land designations for the District. It influences how and where the Staffordshire Moorlands will develop in the future. It sets out what the District Council would like to achieve in each of the main towns and the rural areas outside the Peak District National Park. The Local Plan also provides the framework for future detailed guidance to supplement the policies.

2.7 SMDC has a 'vision' for Biddulph as follows:

> *'Biddulph will continue to maintain its role as a significant service centre for its residents and those in outlying rural areas but with a focus on improving its image and prosperity. The town's heritage will be maintained and where possible enhanced. Significant growth and change will have taken place within the town through the development of the Wharf Road mixed-use allocation which will support additional housing, retail and employment. Further housing and employment will serve the town near to Victoria Business Park and mill buildings will be regenerated. It will benefit from environmental improvements and improved community facilities with more sustainable, thriving and balanced local communities with an expanded local economy. Green infrastructure and open space*

will protect and enhance the environment whilst providing recreational opportunities alongside sport and improvements to health and wellbeing. There will be a greater variety of housing types and tenures which better meets the needs of the community. It will have improved connections with the rest of the District. The local community will help guide the development of Biddulph with a Neighbourhood Plan'

2.8 The Local Plan sets out its spatial aims as:

- To see Staffordshire Moorlands become an exceptional place to live, work and visit by:
- SA1. Creating distinctive, sustainable, self-supporting settlements;
- SA2. Meeting the needs of our communities;
- SA3. Encouraging a strong, prosperous and diverse economy;
- SA4. Maintaining a quality environment and special places;

2.9 Its spatial objectives are set out as:

- SO1. To make provision for the overall land-use requirements for the District, consistent with national policy and evidence.
- SO2. To create a District where development minimises its impact on the environment, helps to mitigate and adapt to the adverse effects of climate change and makes efficient use of resources.
- SO3. To develop and diversify in a sustainable manner the District's economy and meet local employment needs in the towns and villages.
- SO4. To provide new housing that is affordable, desirable, well-designed and meets the needs of residents of the Moorlands.
- SO5. To ensure the long-term vitality and viability of the three market towns of Leek, Biddulph and Cheadle.
- SO6. To maintain and promote sustainable regenerated rural areas and communities with access to employment opportunities, housing and services for all.
- SO7. To protect, provide and enhance the tourism, cultural, sport and recreation and leisure opportunities for the District's residents and visitors.
- SO8. To promote local distinctiveness by means of good design and the conservation, protection and enhancement of historic, environmental and cultural assets throughout the District.
- SO9. To conserve and improve the character and distinctiveness of the countryside and its landscape, heritage, biodiversity and geological resources.
- SO10. To deliver sustainable, inclusive, healthy and safe communities.
- SO11. To reduce the need to travel or make it safer and easier to travel by more sustainable forms of transport.

2.10 Policy SS6 sets out the Biddulph Area Strategy and states that The Council and its partners will seek to enhance the role of Biddulph as a significant service centre and a market town and support its regeneration through the following actions:

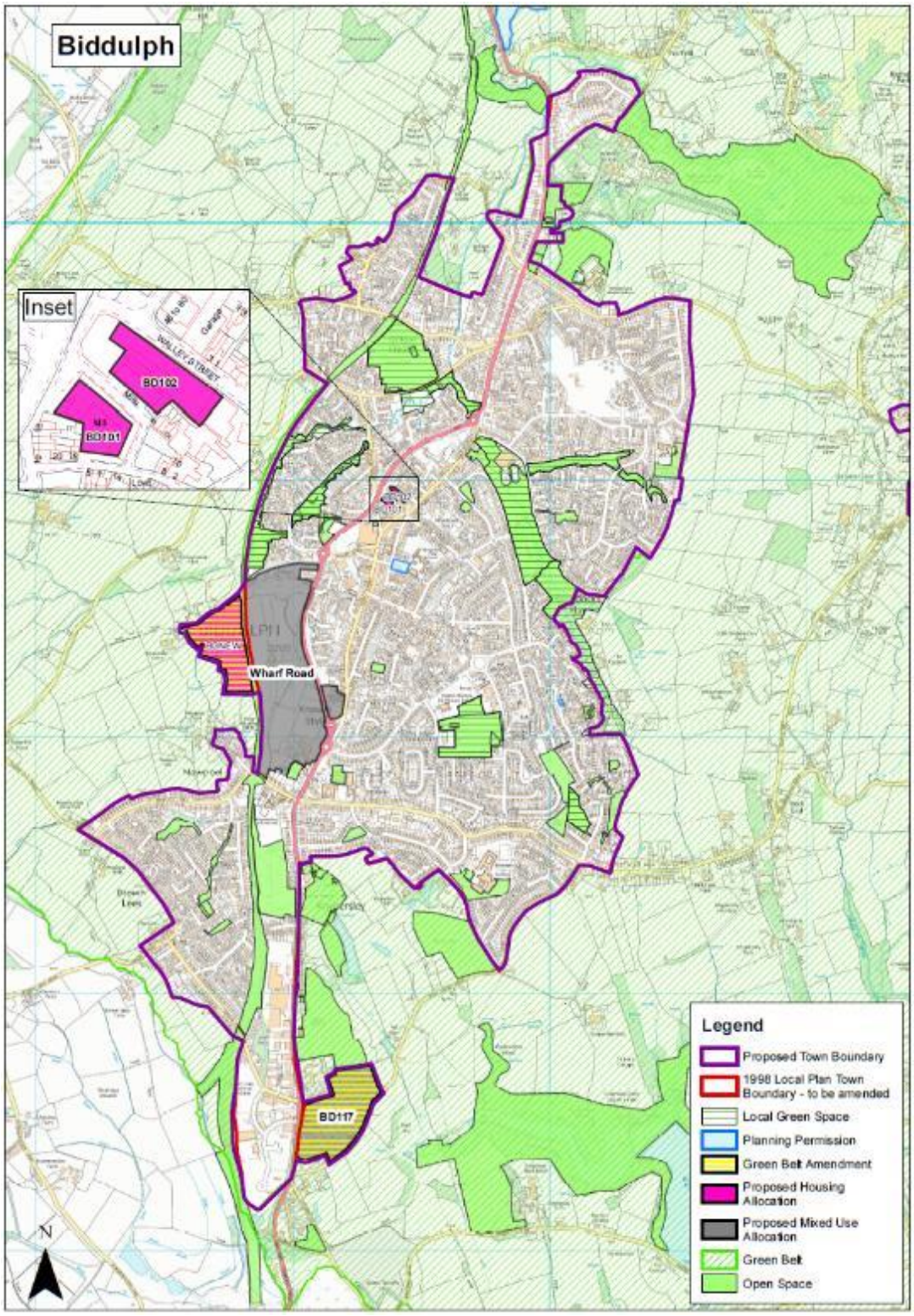
1. Improve the local housing market and range of community facilities by:
    - Increasing the range of available and affordable house types, (including starter homes) especially for first time buyers, families and older people, including extra care housing;
    - Identifying suitable land for housing sites both within the urban area and, on land adjacent to the urban area. Sites within the urban area shall be in locations across the town which have good accessibility to services and facilities with encouragement being given to previously developed (brownfield) sites.
    - Protecting, increasing and improving the provision and accessibility of open space, sport and recreational facilities in line with the updated Open Space Strategy, Playing Pitch Strategy and Indoor Sports Facility Assessment.
    - Increasing the provision of educational, health and community facilities. Specific facilities and needs will be identified through the Plans and Strategies of relevant service providers.
2. Create employment growth and increase the diversity of employment opportunities to meet existing and future needs by:
    - Supporting the retention and growth of existing businesses within the town;
    - Providing opportunities for new enterprises and businesses by promoting further development;
    - Providing facilities and sites for new start-up businesses;
    - Supporting improvements to accessibility to employment areas, particularly from areas of local deprivation and need.
3. Strengthen the role of Biddulph as a significant service and retailing centre for the District by:
    - Allocation of land for a new foodstore of 1000m2 (net sales);
    - Supporting improvements public transport connections to the town centre.
4. Improve the image and identity of Biddulph and strengthen its role as a visitor destination by:
    - Regenerating and improving the streetscape of the town centre;
    - Upgrading the general environment of the town through landscaping and the improvement and creation of green spaces;
    - Strengthening and promoting links between the town and countryside in particular with the Biddulph Valley Way, Biddulph Grange Garden and the Country Parks. This will include the implementation of the Green Infrastructure Strategy;
    - Improving the main approaches to the town from the south;
    - Protecting and enhancing the setting and historic character of the town, including heritage assets.

5. Create major mixed-use development opportunities and related infrastructure improvements for the following strategic sites:

    - Wharf Road Strategic Development site - mixed-use development including housing, employment, retail and supporting infrastructure will be supported in line with policy DSB1.
    - Tunstall Road Strategic Development site - housing and employment will be supported in line with policy DSB3.

2.11 The policy map for Biddulph is then set out at Appendix 2 of the Local Plan, a copy of which is extracted in Figure 2.1.

Figure 2.1: Biddulph Policy Map



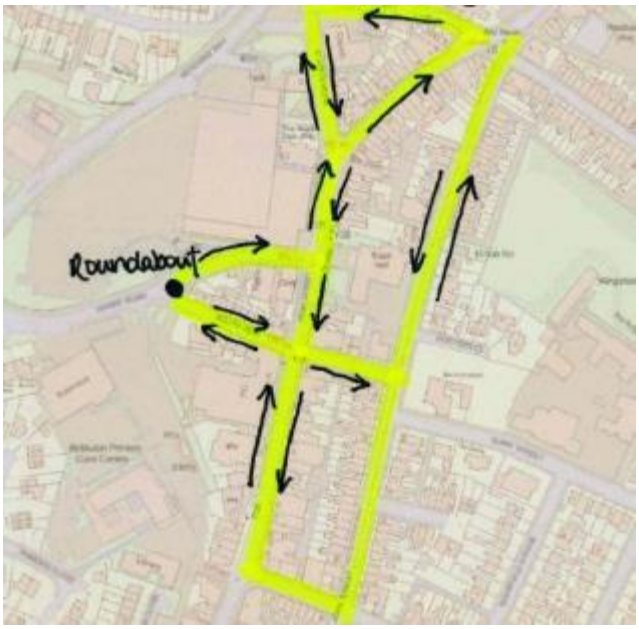
3 THEME 1 – TRAFFIC FLOW WITHIN THE TOWN CENTRE

Improvements to Existing Street Layout

3.1 There are a number of one-way streets within Biddulph town centre which it is understood cause confusion for non-residents and frustrations in relation to the flow of traffic, public transport routes and perceived safety concerns around key areas of congestion.

3.2 This section considers the street network and whether improvements could be made (pedestrianisation or shared spaces are not considered as these are considered under theme 3). The streets that are considered are High Street, South View, Wharf Road, Cross Street, Station Road, King Street, John Street and Well Street, which are shown on Figure 3.1 along with the current one-way system.

Figure 3.1: One-Way Streets



3.3 There are currently five parts of the town centre with a one-way section on them. These are:

- Cross Street (one-way westbound direction);
- High Street between Station Road and Cross Street (one-way northbound direction);
- Wharf Road between South View and High Street (one-way eastbound direction);
- High Street between Wharf Road and South View (one-way southbound direction); and
- King Street (one-way eastbound direction).

3.4 With the exception of King Street, these streets were turned into one-way streets approximately 10 years or so ago to allow additional car parking spaces to be created at some locations, combined with public realm improvements. King Street has been one-way for longer than this.

3.5 Guidance on the use of one-way streets is set out in '*Manual for Streets 2*', published by the Chartered Institute of Highways and Transportation (CIHT), 2010 (MfS2). Paragraphs 9.9.1 to 9.9.4 of MfS2 states:

> 'In many towns and cities traffic management systems, often involving networks of one-way streets, have been created. The usual aim of these systems is to increase network capacity by simplifying turning movements at junctions. These aims are understood, but the improvements in traffic flow capacity are offset by reductions in legibility and accessibility for all road users. One-way streets also tend to cause higher traffic speeds.
>
> Cyclists are particularly disadvantaged by such systems, since the additional travel distance can be significant. Pedestrians can become disorientated by one-way streets, and fail to look for traffic in the correct direction before crossing. This is a particular problem where there are contraflow bus lanes.
>
> However, with appropriate designs to minimise vehicle speeds, one-way streets can result in narrower carriageways which can create more space for pedestrians, cyclists and the public realm.
>
> Some towns and cities have begun to simplify traffic management systems, judging that the benefits to other road users outweighs any additional travel time for motor vehicles'.

3.6 Observations of vehicular movement through the town centre and the one-way system indicate that there are some junctions that have two-way movement where buses cross onto the opposite side of the carriageway when turning.

3.7 Vehicles crossing onto the opposite side of the carriageway when turning through junctions is regarded as a highway safety issue.

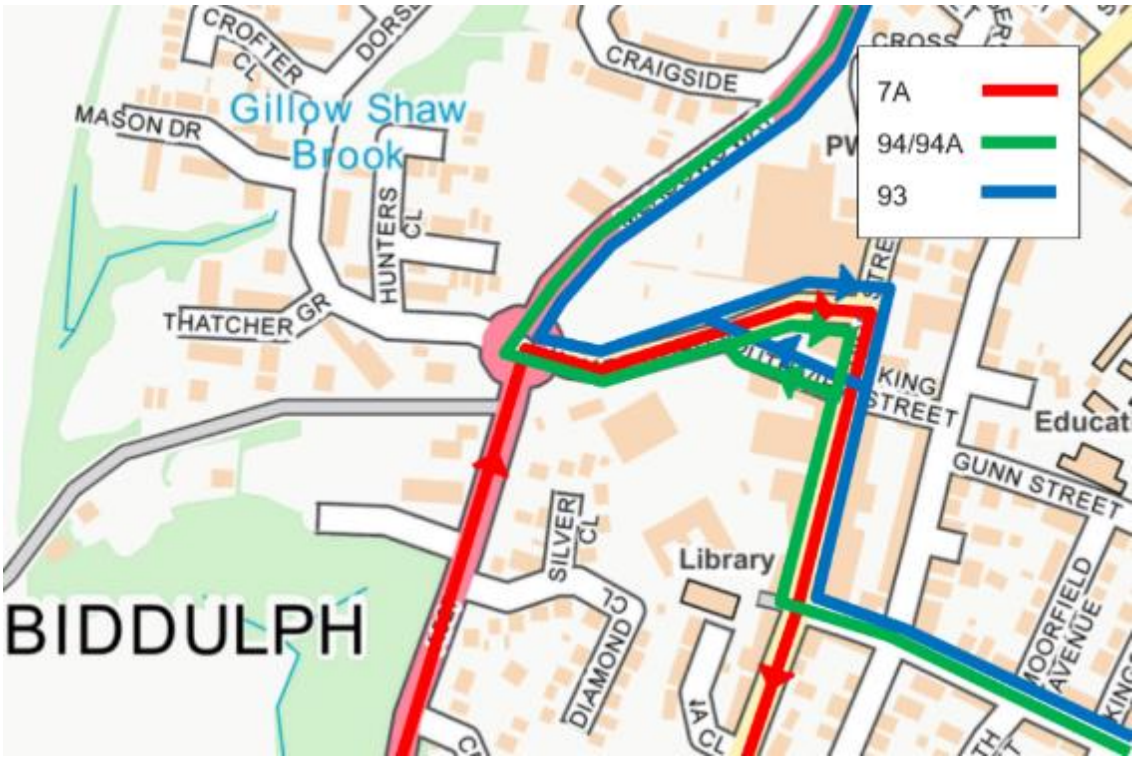
3.8 Such occasions are primarily caused by the small junction radii, which results from balancing pedestrian requirements in a town centre location with the building footprints and the constrained nature of the junctions.

3.9 The locations where buses cross onto the opposite side of the carriageway when turning through junctions are:

- South View / High Street junction; and
- High Street / Well Street junction.

3.10 There are a number of bus services that travel along these roads and through these junctions that require consideration as part of any alterations to the one-way system. These are shown graphically on Figure 3.2 along with their direction of travel.

Figure 3.2: Summary of Bus Routes



3.11 Bus services currently travel eastbound along Wharf Road and turn right onto High Street. This movement is undertaken by buses satisfactorily.

3.12 Bus services currently travel northbound along High Street and turn left onto South View. In doing so, buses cross into the eastbound lane of South View into the path of oncoming vehicles. This is considered to be a highway safety issue.

3.13 Bus services currently travel southbound along High Street and turn left onto Well Street. In doing so, buses cross into the westbound lane of Well Street into the path of oncoming vehicles. This is considered to be a highway safety issue.

3.14 Bus services currently travel westbound along Well Street and turn right onto High Street. In doing so, buses cut across the eastbound lane of Well Street, however, such movements are undertaken as part of the give way process and is considered satisfactory.

3.15 The one-way section of Wharf Road between South View and High Street is well developed to accommodate the 'bus hub' that was delivered as part of the Sainsburys scheme. To complement this, South View could be made one-way in a westbound direction to create a small one-way loop arrangement consisting of Wharf Road, High Street and South View.

3.16 This would remove the highway safety concern caused by buses turning into the path of oncoming vehicles on South View. However, there are some elements that would need be overcome to deliver this:

- Access to the B&M service yard would need to be maintained.

- Access to Saxon Tyres would need to be maintained to its access at the rear (which is accessed from its western side) and to its dropped kerb access on its eastern side. The land along the frontage of the building is also used for ad-hoc parking and is accessed from South View, however, there are signs which say 'no parking'.
- Access to the dropped kerb driveway parking at 18 South View would need to be maintained.

3.17 Considering each of these, Given HGVs access the B&M yard, access would need to be maintained from South View via Wharf Road (i.e. to / from the west) because there is insufficient space for a HGV to enter the yard from a one-way South View from the east (westbound) within its existing boundary.

3.18 This would mean therefore that the very western section of South View would need to be retained as two-way rather than the entirety being made one-way. Such a layout would need a strong 'gateway' at the B&M access location that made it clear that South View was one-way to the east of the B&M access so as to ensure vehicles did not inadvertently drive eastbound (the wrong way) from the Wharf Road roundabout.

3.19 The location of such a 'gateway' would likely be located in the general vicinity of the dropped kerb driveway parking at 18 South View and such a scheme would need to ensure its access was retained.

3.20 It is likely that access to Saxon Tyres could be retained, however, such an arrangement would mean that it would no longer be possible to access from the west from Wharf Street and access would instead have to be from the east via High Street and the one-way westbound South View.

3.21 Such an arrangement may attract objections from Saxon Tyres given the loss of access from the west from Wharf Street. If access to Saxon Tyres were to be retained from the west from Wharf Street then only the eastern half of South View would be one-way with the western half being two-way. Such an arrangement would need a turning facility on South View to ensure any vehicles that inadvertently travel eastbound along South View trying to reach High Street were able to turn so as not to reverse along the public highway, which would be considered a highway safety issue. There does not appear to be any space to provide a turning facility.

3.22 Such an arrangement may also attract objections from residents on South View given that they would no longer be able to access from the west from Wharf Street.

3.23 It appears that such an arrangement would be possible and thus a one-way westbound South View appears possible that would provide highway safety benefits. However, only Staffordshire County Council, as the Local Highway Authority, have the powers to progress a Traffic Regulation Order (TRO) that would be necessary to enact such a scheme. It is recommended that a plan showing the extent of the adopted highway is obtained from Staffordshire County Council, land ownership plans are obtained and a preliminary design drawing is prepared of such a scheme that considers the above elements.

3.24 It is then recommended that consultation is carried out with residents on South View, Saxon Tyres and B&M (and / or the owners of the buildings in which they occupy) to establish any concerns with such a scheme, after which refinements could be made to account for feedback and then Staffordshire County Council could be approached with a view for implementation.

3.25 In terms of the High Street / Well Street junction, if buses were to be relocated, then they would simply be relocated to different junctions where the same highway safety issues would exist. This would therefore not overcome the highway safety issue but just simply relocate the issue.

3.26 For example, the relocation of buses turning from High Street onto Well Street would feasibly be onto King Street, John Street and then turning left onto Well Street. However, the same issue exists at the John Street / Well Street junction, however, is heightened by the 'stop' line (as opposed to a give way line), which is typically only used for road safety reasons.

3.27 There therefore appears to be no net benefit by relocating buses away from the High Street / Well Street junction.

3.28 In considering one-way systems, the guidance in MfS2 (above) has resulted in a general shift away from these, however, they can still be used to overcome certain constraints or issues. This is the case for South View (above).

3.29 The existing one-way system on High Street between Station Road and Cross Street enables on-street car parking to be provided and thus provides benefit in this regard. Given the comments on car parking elsewhere, it is noted that a loss of parking by returning High Street to two-way may not be desirable.

3.30 If High Street between Station Road and Cross Street were to be one-way in the southbound direction (or even two-way) then it would open up the town centre as an alternative route to Sainsburys and / or to the A527. This is not considered desirable.

3.31 With King Street being one-way in the eastbound direction, this discourages vehicles accessing Sainsburys through the town centre. Therefore, King Street and High Street between Station Road and Cross Street both being one-way in their current form combine to minimise through traffic in the town centre. The possible changes to South View (above) would not alter this.

3.32 There are double yellow line restrictions on the western side of High Street between Well Street and King Street and a single yellow line on the eastern side restricting stopping Monday to Saturday 08:00 to 18:30. However, observations show that vehicles do not always adhere to this and vehicles stop on the eastern side during the periods of these restrictions, which can lead to interruptions to the flow of traffic along High Street. Blue badge holders are permitted to park for up to three hours on single and double yellow lines, however inspections suggest that non-blue badge holders also stop.

3.33 Observations have not established the level of enforcement of the yellow lines, however, better presence and knowledge of enforcement should help reduce interruptions to the flow of traffic along High Street. It is recommended that pressure is applied to Staffordshire County Council to improve enforcement of all restrictions within the town centre.

3.34 Signage for the town centre from the A527 (for non-residents) from the north and south both direct drivers onto Wharf Road rather than through the residential areas to the north and the south of the town centre. From Wharf Road, a 'shoppers' car park sign directs into the Wharf Road Car Park.

3.35 There are no further signs relating to the town centre from Wharf Road and non-residents may expect to see signs for town centre car parking in addition to shopping. It seems that the 'shopping' car parking sign is meant to include for the town centre and so an extension of this

sign to read ‘town centre and shopping’ may assist non-residents parking for the town centre and thus avoid driving onto High Street and through the town centre looking for car parking.

Mill Quarter and New Junction onto A527

3.36 The Staffordshire Moorside Local Plan allocates land at Yarn Mill and Minster Mill (Biddulph Mill) for residential development of approximately 57 dwellings under Policy DSB2.

3.37 The supporting text to Policy DSB2 states that the Local Highway Authority will require a Transport Assessment / Transport Statement to compare trip generation of the proposed residential use to the to the potential maximum of the current planning use. This relates to a planning application for the residential use and it calculating the net change in vehicle movements at the site from the planning baseline position of the site as an industrial use to a residential use.

3.38 Access to this site is currently taken from Congleton Road. Staffordshire County Council, as the Local Highway Authority, (and the applicant of a future planning application) will consider the traffic that the industrial uses operating at their maximum permitted use generated onto Congleton Road as a baseline position. The net change in traffic generated at the site from this baseline position by the residential uses will then be the traffic flows that are assessed.

3.39 Policy DSB2 sets out that approximately 57 dwellings could be provided on the site. From an initial high level consideration, using our experience of traffic generation, 57 dwellings would generate approximately 285 to 399 vehicle movements per day.

3.40 Policy DSB2 sets out that Yarn Mill and Minster Mill amount to approximately 0.38 ha. Using online mapping, the building footprints (the Gross Floor Area (GFA)) of Yarn Mill and Minster Mill are approximately 3,500 m^2. From an initial high level consideration, using our experience of traffic generation, the planning baseline position of Yarn Mill and Minster Mill would be that they could generate in the order of 350 vehicle movements per day.

3.41 Based upon this, it is likely that the net change in traffic generation at a redeveloped Biddulph Mill for residential use would be relatively neutral in planning terms. Based upon this, it is likely that an applicant of a future planning application for Biddulph Mills would seek to retain use of the existing access arrangements via Congleton Road.

3.42 Notwithstanding, consideration has been given to a new access to the Biddulph Mills site via the A527.

3.43 The Biddulph Mills site is located adjacent to the A527 / Station Road signalised junction. This is a three-arm signalised junction with controlled pedestrian crossing facilities across Station Road and across the northern A527 arm. There are single lanes on the A527 in both the northbound and southbound direction with short flared widening at the stop lines to create flared left turn and right turn lanes into Station Road. There is a single lane on Station Road combining both left and right turns.

3.44 The location of Biddulph Mills means that a new access from the A527 would need to either form a fourth arm onto the A527 / Station Road junction or be located to the north of the A527 / Station Road junction.

3.45 Removing the traffic signals to create a priority controlled junction would significantly reduce the capacity of Station Road, which would likely result in congestion, and would also remove the controlled pedestrian crossing facilities, which would be undesirable. Replacing the traffic signals

with a roundabout would reduce the capacity on the A527, which would likely result in congestion, and would remove the controlled pedestrian crossing facilities, which would be undesirable (it also appears that there may be insufficient land to provide a roundabout that would accord with highway design standards).

3.46 In terms of providing a fourth arm onto the A527 / Station Road signalised junction, this would result in a reduction in capacity to the A527. This is because right turn movements from the south to the east into the new arm would be mixed with the straight ahead northbound movements along the A527. The flow of right turn movements is less than that of straight ahead movements at signalised junctions, thus there would be a reduction in capacity by mixing the two. It would also result in a reduction in performance to the ahead movement caused by an increase in traffic demand from the right turn movements being added to its lane.

3.47 There does not appear to be space to provide a separate right turn lane on the A527 northbound to overcome this. However, an arrangement could be considered that does not permit right turn movements from the A527 south arm into the new arm. Such movements would need to continue northbound through the junction, undertake a u-turn at the Congleton Road roundabout and then turn left into the new arm. This would add additional traffic demand through both of these junctions.

3.48 There would be a requirement to provide a controlled pedestrian crossing facility over the new arm to maintain pedestrian provision along the eastern side of the A527 and this would appear achievable. However, the provision of such a facility, combined with the provision of the new arm itself would result in the new arm penetrating into the site and resulting in a loss of developable land.

3.49 It appears possible to provide a fourth arm to the A527 / Station Road junction to provide access into the Biddulph Mills site, however, it would result in reduced capacity with subsequent reduction in performance (increased queuing) and would result in a loss of developable land.

3.50 In terms of providing a new access to Biddulph Mills to the north of the A527 / Station Road junction, this will be partly dependent upon the availability of highway land and land available to be dedicated as highway, in particular the area of land to the north west of the Walley Street / Fairfax Close junction on which vehicles currently park and is partly marked as ‘keep clear’.

3.51 Given the provision of footways from the A527 and Fairfax Close onto this land, it appears that part, if not all, of this land may be adopted highway. For the purposes of this report, it has been assumed that part of it is adopted highway, such that Walley Street could be extended straight onto the A527 to create a new junction.

3.52 If a priority junction was to be provided in this location, it would be less than 10m to the north of the stop line on the southbound A527. Turning right in or out of such an access junction would involve crossing multiple lanes of traffic which would be considered a highway safety risk and undesirable.

3.53 On this basis, only a left turn in and left turn out arrangement could be provided as a priority controlled junction, which appears achievable. All right turning demand in or out of the access would therefore need to undertake a u-turn at the Congleton Road or Wharf Road roundabouts in combination with their left turn movement, which would add additional traffic demand through both of these junctions.

3.54 Given the proximity of the stop line on the southbound A527, there would be no space to provide a roundabout access junction.

3.55 To provide a signalised access junction in this location, there is insufficient space to provide a new junction that would accord with highway design standards and so it would be necessary to relocate the stop line on the southbound A527 to the north and incorporate a new fourth arm as a signalised staggered crossroads arrangement.

3.56 Such an arrangement would have a significant reduction in highway capacity. This is because the new access would need its own dedicated green signal (traffic from the new access could not have a green light at the same time as Station Road due to the stagger), which would take green time away from the A527 and Station Road. This would be expected to result in increased queuing and delay on the A527 and Station Road.

3.57 In summary, it appears possible to provide a new access from Biddulph Mills onto the A527, however, there would be difficulties to overcome. In particular, should the applicant of a future planning application for the Biddulph Mills site seek to progress any such new access arrangement onto the A527, they would be required to test the operation of their proposed new access junction to demonstrate it is acceptable by according with transport policy. Such testing is outside of the scope of this document.

3.58 Another consideration associated with providing a new access onto the A527 would be an expected requirement to prevent traffic travelling through the site between the A527 and the town centre, all of which would need to consider existing movements to / from the town centre, particularly residents of Fairfax Close.

Recommendations

3.59 Observations show that vehicles (non-blue badge holders) do not always adhere to the restrictions on High Street between Well Street and King Street and interrupt the free flow of traffic by stopping. As a quick win, it is recommended that that pressure is applied to Staffordshire County Council to improve enforcement of all restrictions within the town centre on an ongoing basis.

3.60 Signage for the town centre from the A527 (for non-residents) from the north and south both direct drivers onto Wharf Road. There are no further signs relating to the town centre from Wharf Road and non-residents may expect to see signs for town centre car parking in addition to shopping. It seems that the 'shopping' car parking sign is meant to include for the town centre. As a quick win, an extension of this sign is recommended to read 'town centre and shopping' to assist non-residents parking for the town centre and thus avoid driving onto High Street and through the town centre looking for car parking.

3.61 It appears that South View could be made one-way in the westbound direction to bring highway safety benefits. In doing so, access to the B&M service yard, to Saxon Tyres and to residents of South View would need to be maintained. It is recommended that a preliminary design drawing is prepared of such a scheme that considers such access. It is then recommended that consultation is carried out prior to approaching Staffordshire County Council with a view for implementation.

3.62 Such a scheme would take some time to put together and progress and would fall into the 1 to 10 year bracket for implementation.

3.63 In terms of aspirational projects until 2035, it is recommended that such projects are linked to the Wharf Road Strategic Development Area allocated in the Local Plan. The effect of such a development upon the town centre will need to be assessed as part of a comprehensive Transport Assessment. However, key to its acceptability will be the development of a multi-modal sustainable access strategy.

3.64 Such an access strategy has the potential to improve bus provision and facilities and routes for pedestrians and cyclists between the town centre and the development area. In turn, this has the potential to improve sustainable transport access within the town as a whole, thus providing wider benefits than just the development site.

3.65 In particular, bus provision needs passengers to make services financially viable and therefore improved services that maximise passengers within the town as a whole and not just at the development area would have wider benefit for all and improve the viability of such services in the long term.

3.66 It is recommended that discussions are had with the bus operators and with highway officers at Staffordshire County Council to determine possible bus improvements and sustainable access improvements that could be delivered to the town as part of a long term strategy including the development area. The idea will be to pre-empt requirements of the highway officers and the

position of the bus operators when planning permission is sought for the development area to seek a comprehensive access strategy that is not focussed solely on the development area but which maximises sustainable access for the town as a whole.

3.67 It is recommended that once discussions have been had, these continue to ensure the Town Council is kept aware of progression and timelines for the development area. Once the development area is at a stage where it is devising its access strategy and undertaking consultation, it is recommended that the Town Council engages positively with the developer to seek to influence the creation of such a sustainable access strategy, furnished with potential schemes discussed in the earlier (and ongoing) discussions with the bus operators and Highway Officers at Staffordshire County Council.

4 THEME 2 – CONSIDERATION OF PEDESTRIANISATION AND SHARED SPACES IN THE TOWN CENTRE

4.1 The Neighbourhood Plan household questionnaire and the masterplan both highlight the desire to create pedestrian zones and shared / events space within the town.

4.2 This Section considers such schemes and the process that would be needed in order to develop them. The Town Council is seeking examples of good practice and recommendations about how this can be implemented and managed, including the use of public transport in the town.

4.3 Biddulph Town Council have indicated that the potential shared / events space would be adjacent to the Town Council offices and include the adjacent section of High Street and the High Street / Wharf Road junction. The potential pedestrianisation area will be along the High Street between King Street and No.72 High Street (The Green Tree House Craft Café), a length of approximately 80m. Both areas are shown in Figure 4.1below.

Figure 4.1: Possible Shared / Event Space and Pedestrianisation

4.4 Of direct relevance to this is the Department for Transports (DfT) current position on shared surfaces. The DfT's publication 'The Inclusive Transport Strategy: Achieving Equal Access for Disabled People' (25th July 2018) stated the following:

> 'We will recommend that the local authorities pause the development of shared space schemes while we review and update the Departments

guidance. We will update the Departments Inclusive Mobility and Tactile Paving Guidance'.

4.5 Immediately following this, on the 26th July 2018, the DfT withdrew their guidance document on shared space 'Local Transport Note LTN 1/11 Shared Space'. On the 28th September 2018, the DfT clarified its position within a letter to Local Authorities, which stated the following:

'The Inclusive Transport Strategy asked local authorities to pause the introduction of new shared space schemes that feature a level surface, and which are at the design stage. This therefore does not apply to development schemes that are currently at the planning application stage or beyond.

While authorities need to ensure that all schemes are designed with the needs of different users in mind, and satisfy their obligations under the equalities legislation, the focus of the pause is on level-surface schemes in areas with relatively large amounts of pedestrian and vehicular movement, such as high streets and town centres (outside of pedestrian zones). The pause does not apply to streets within new residential areas, or the redesign of existing residential streets with very low levels of traffic, such as appropriately designed mews and cul-de-sacs, which take into account the relevant aspects of the National Planning Policy Framework and associated guidance'.

4.6 Although the DfT reference high streets, this is made in the context of 'relatively large amounts of pedestrian and vehicular movement'. The DfT does not quantify what 'relatively large amounts' are. Similarly, the DfT references such schemes as 'outside of pedestrian zones', however, when developing such schemes, pedestrian zones may be part time or full time, which could therefore align to the reasons for DfTs pause. As a result, there remains some confusion on the DfTs position for which they have not provided any further clarity.

4.7 As a result, until the DfT complete their review, there is no current guidance on shared surfaces that could be applied at this time to help define a scheme for the High Street / Wharf Road junction and its surroundings.

4.8 The creation of a shared / event space and pedestrianisation will change the High Street and its sense of place. When considering the effectiveness of such schemes it is good practice for a set of objectives to be determined along with outcomes that can be measured.

4.9 Table 4.1 sets out some potential headline objectives of a shared / event space and pedestrianisation scheme along with measurable outcomes.

Table 4.1: Possible Headline Objectives and Measurable Outcomes

Headline Objectives	Potential Measurable Outcomes
Inclusive Environment	Perception of safety, comfort & navigation (all users)
	Presence of Vulnerable Users (older people, children, disabled people)
Ease of Movement	Levels of walking, cycling and public transport use
	Motor traffic congestion and/or flow
	Number and ease of pedestrian crossing movements

	Level of delay to all users
	Pedestrian crowding
Safety and Public Health	Motor vehicle speed
	Number and severity of collisions and casualties
	Noise levels
	Air quality and other public health measures
	Security measures
	Crime and fear of crime
Quality of Place	Levels of place activity (e.g. sitting, dining etc.)
	Space available for place activity
	Attractiveness (e.g. paving materials, planting, public art)
	Suitability of materials over lifetime of scheme
	Amount of useful street furniture
	Amount of street clutter
	Quality of Maintenance and Cleansing
Economic Benefit	Pedestrian footfall
	Number and prosperity of businesses (e.g. reduced vacancies, increased rental values etc.)
	Car parking occupancy
	Cycle parking occupancy
	Benefit and Cost assessment
	Frequency and type of special events (e.g. markets, performances)

Shared / Event Space

4.10 Shared surfaces can cause problems for some disabled people. People with cognitive difficulties may find the environment difficult to interpret. In addition, the absence of a conventional kerb poses problems for blind or partially sighted people, who often rely on this feature to find their way around. It is therefore important that shared surface schemes include an alternative means for visually impaired people to navigate by.

4.11 Consultation with the community and users, particularly with disability groups and access officers, is essential when any shared surface scheme is developed.

4.12 A shared / event space at the High Street / Wharf Road junction and surroundings would retain existing traffic movements but would seek to reprioritise movements so that the pedestrians and cyclists were of a higher order than they are now.

4.13 Of particular relevance to this junction and this section of High Street is that it is a bus route whereby right turn movements are made from Wharf Road onto High Street. That does not prevent this area becoming a shared surface (subject to the DfTs review, as set out above) but simply means the turning requirements of buses need to be considered as part of such a scheme.

Examples of Shared Surface Schemes

4.14 Two recent schemes are described below to set out some examples of a shared space, however, the current DfT position on shared surfaces should be borne in mind in terms of whether these remain regarded as good examples. The two schemes are listed below with information provided for each following.

- Elwick Square, Ashford, Kent; and
- Leonard Circus, London Borough of Hackney.

4.15 Elwick Square in Ashford, Kent, was a pedestrian prioritised junction in the town centre, which formed part of a wider improvement scheme, with five key aims:

- To reduce the number of road collisions in this area;
- To reduce vehicle dominance through the town centre;
- To facilitate outward expansion of the town centre and support economic growth;
- To create a vibrant town centre with high quality urban design; and
- To create a more well-connected area and better pedestrian experiences.

4.16 Images of Elwick Square before and after the scheme implementation are set out in Figures 4.2, 4.3 and 4.4 with a description and commentary following.

Figure 4.2: Elwick Square Image Before

Figure 4.3: Elwick Square Image After

Figure 4.4: Elwick Square Images After

Description and Analysis of Elwick Square Scheme	
Scheme	The previous traffic signals, guard railing, signing and road markings were removed. The area was widened, and a level surface introduced, with consistent paving material used throughout. Courtesy crossings were included within this scheme although there is little

	colour contrast between these and the materials used in the carriageway. Hence, they are less obvious to drivers approaching at speed.
Inclusive Environment	Consultation was undertaken throughout the scheme design and construction with those representing disabled groups. A particular concern was raised over the continuous level surface and lack of kerb at Elwick Square and some other points within the wider scheme area. A post-completion workshop was also held with vulnerable user groups.
Conclusions on Inclusive Environment	No factual data is available on the use of the street by people with disabilities, although considerable research and scrutiny has not shown that any particular pedestrian groups are avoiding the shared space. Mobility-impaired people will have benefited from the regular level crossing points, but the street's usability by the visually impaired is not known.
	Overall conclusions on inclusive environment – neutral.
Ease of Movement	This scheme has created a wide and open square. The expansive nature of this area is exacerbated by a large vacant plot in the southern corner of the square. Wider roads encourage drivers to travel at higher speeds as there are no immediate obstacles or bends to manoeuvre. This makes crossing the road more difficult for pedestrians as there is a larger distance to navigate, and pedestrians are less willing to interact with fast-travelling vehicles because of perceived high risk of collision, injury or fatality. There are plans to develop this plot as another retail area.
	Approximately 750 vehicles pass through this scheme per hour, compared with only 280 pedestrians. This scheme has shown low levels of courteous driving with a 35% level observed in 2015.
	The number of crossing movements in this space is relatively low with 48 pedestrians observed crossing the road per hour. There is a pelican crossing 150 m south of the shared space at Elwick Square, which may be used by pedestrians who are particularly worried about crossing in the square. The majority of the 144 survey participants preferred formal crossing points.
	Anecdotal evidence suggests that congestion has been significantly reduced since the implementation of the scheme.
Conclusions on Ease of Movement	This shared-space scheme is relatively wide, and it appears even wider because of the vacant plot to the south of the square. Wider roads encourage a perception of faster speed. Pedestrians appeared less willing to interact with vehicles because of the perceived risk of collision. The courtesy crossings in this scheme are situated on the periphery of the square, which means that most pedestrians extend their route through the square to cross over the road. Anecdotal evidence suggests that congestion has been significantly reduced since the implementation of the scheme.
	Overall conclusions on ease of movement – neutral.
Safety and Public Health	There has been a limited amount of traffic monitoring in the post-implementation phase of this scheme. The data for traffic speed before implementation of the scheme indicate relatively low speed, averaging between 20.4 and 22.9 mph. Monitoring in 2011 recorded an average speed between 19.6 and 22.3 mph.
	The average motor vehicle speed over the entire scheme, not just the Elwick Square section, is now 21.5 mph, which is a significant reduction from the previous average of 40 mph.
	From attitudinal surveys of users of the space in 2014, there were generally negative perceptions of safety with 80% of the people surveyed feeling safer in the previous road layout. However, no evidence has indicated that pedestrians are avoiding this area.

	The number or severity of collisions at Elwick Square in the period after implementation has not changed, compared with the period before construction. Two 'slight' injury accidents were recorded at this location for both periods. A reduction in pedestrian casualties and an increase in pedal cyclist casualties are seen. The rise in cycle accidents may be attributed to a general increase in cycling in the area.
	Kent County Council has recorded an overall decrease in collision in the surrounding area to Elwick Square since the implementation of the shared-space scheme.
Conclusions on Safety and Public Health	The number or severity of collisions at Elwick Square in the period after implementation has not changed, compared with the period before construction. Two 'slight' injury accidents were recorded at this location for both periods. A reduction in pedestrian casualties and an increase in pedal cyclist casualties are seen
	Overall conclusions on safety and public health – positive.
Quality of Place	The combination of the retail development and the inclusion of useful street furniture have increased the levels of place activity in Elwick Square. Bespoke street lighting and benches have been included as well as trees and vegetation, which act as sustainable urban drainage systems (SUDS). Elwick Square now represents a part of the town centre rather than a section of a dual carriageway.
	The entire scheme stretches for 1 km, compared with the 2.1 km occupied by the previous ring road. This is a long area composed of granite setts at a level surface throughout much of the scheme. A significant reduction in the amount of street clutter is present within this area; the scheme now represents a much wider and clearer area with a continuous level surface and informal courtesy crossings. Stripes of different shades of stones in the carriageway mark the crossing points. However, visual contrast lacks in these stripes. The indicated crossing points provide the tactile paving at the edge of the footway. A line of steel bollards on the side next to the shopping centre marks the boundary between the footway and carriageway.
	In 2014, surveys were carried out with 144 pedestrians in the shared space at Elwick Square. The responses were largely negative.
	Some materials used in the shared space were criticised for their cost, source and / or appropriateness. Some maintenance issues arose particularly around oil stains and fume damage.
Conclusions on Quality of Place	Elwick Square has been successful in creating a more attractive area of public realm with useful street furniture. This area of Ashford town centre now represents an important leisure and business area as well as a vital interchange.
	Overall conclusions on quality of place – positive.
Economic Benefit	The main hub of business activity in the area is the County Square shopping centre in Elwick Square, which is home to 60 retail stores with Debenhams as the anchor tenant. This shopping centre has been in place since 2007 as part of the economic regeneration of Ashford town centre. The shopping centre in 2010 was extended, which has created increased interest.
	The planned further development of Elwick Square will include cycle parking provisions. Currently, some cycle parking, by the County Square shopping centre and Ashford train station, are available, but they are limited. The County Square shopping centre provides over 600 car parking spaces across four levels; car parking costs approximately £2 per hour.
	In the early phase of the project, the DfT highlighted some issues regarding car-parking signing. These problems have since been addressed.

Conclusions on Economic Benefit	A major success of the scheme was the economic benefits felt through the County Square shopping centre. It acts as the main hub of retail and business activities in Ashford and acts as a significant 'pull factor' to people visiting the town
	Overall conclusions on economic benefit – positive.

4.17 Overall, the Elwick Square scheme was considered positive. As above, however, the current DfT position on shared surfaces should be borne in mind in terms of whether this scheme remains regarded as a positive example.

4.18 The Leonard Circus scheme in the London Borough of Hackney was the first of several planned public-realm improvements to create a legible network of interlinked streets and places in the Shoreditch area.

4.19 The previous road layout at Leonard Circus was clearly designed with the motorists in mind, with excessive carriageway space, no crossing points and a dominance of road markings. A large underutilised paved area protruded out into the centre of the junction, which contained several trees and benches. However, despite the large sculpture known as the 'Hitchcock Reel' positioned in the centre of the junction, this public space and the junction generally lacked identity.

4.20 This award-winning scheme has created an informal town square where two roads intersect.

4.21 The scheme had four key aims as listed below:

- To improve road safety;
- To improve the pedestrian environment and experience;
- To create an attractive and sustainable public space; and
- To help regenerate the area and grow the local economy.

4.22 Images of Leonard Circus before and after the scheme implementation are set out in Figures 4.5, 4.6 and 4.7 with a description and commentary following.

Figure 4.5: Leonard Circus Image Before

Figure 4.6: Leonard Circus Image After

Figure 4.7: Leonard Circus Image After

Description and Analysis of Leonard Circus Scheme	
Scheme	There is a footway with a low-height kerb around the outskirts of the square, but the main area is open for all road users to share. In this area, trees and benches indicate paths of vehicular travel. With the distinctive surfacing materials and patterns, these features encourage low driving speed and create a more attractive public realm. The scheme has been able to create a new public space within the confines of the junction itself, rather than dedicating areas for place activities. The balance of priorities has been shifted from motor vehicles to pedestrians and cyclists.
Inclusive Environment	There is little or no evidence regarding the presence of vulnerable users. However, a comprehensive consultation with a number of different interest groups before implementation and concerns raised resulted in some alterations to the design, such as the inclusion of a 25 mm kerb that runs along the footway.
	Next to the kerb is a drainage channel which provides colour contrast between the footway and shared area. Tactile paving on either side of the road at the entry points to the junction indicates uncontrolled crossing points.
Conclusions on Inclusive Environment	There is little or no evidence regarding the presence of vulnerable users. However, a comprehensive consultation with a number of different interest groups before implementation and concerns raised resulted in some alterations to the design, such as the inclusion of a 25 mm kerb that runs along the footway.
	Overall conclusions on inclusive environment – neutral
Ease of Movement	A high proportion of crossing activity takes place within the shared area.

	In the morning peak hour, for this arm, half of the 400 movements were made through the shared areas (between the trees). For the other three arms, crossing movements within the shared areas were approximately 90% of the total.
	In the 2014 survey, many people highlighted being able to move freely through the space.
	Because of the largely free movement of pedestrians, it is difficult to determine waiting times of either pedestrians or vehicles. Generally, road users adapt their speed to navigate around each other, so few users need to stop.
	Previously, there was a contraflow cycle lane from the western arm of Leonard Street through to the northern arm of Paul Street. This movement is still permitted. Cyclists can also now travel in both directions along the southern part of Paul Street.
	In 2016, Cycle Superhighway 1 was completed. This runs along Paul Street though Leonard Circus and experiences high flows of cyclists during the peaks. There is anecdotal evidence of some collisions between cyclists and pedestrians.
	Survey results show that the feeling towards the provision of cycle parking in Leonard Circus, with almost half of the survey participants indicating that they have no opinion on the usefulness of the cycle parking, is largely neutral. However, this may be because of a lack of personal use from these individuals.
	Drivers appear to be highly courteous at this junction. Because of the low vehicle flow, there was only a small number of hourly interactions with other vehicles, pedestrians or cyclists. In an hour of observation carried out in 2014, only four pedestrians were observed to need to wait for a vehicle to pass.
Conclusions on Ease of Movement	Drivers appear to be highly courteous at this junction and generally adapt their speed to navigate around other road users, so occasions when they need to stop are few. The relatively low vehicle flow is also a factor in generating this behaviour. A high proportion of crossing activity takes place within the shared area rather than people following the footways, approximately 50% for one arm and 90% for the other three arms. In the 2014 survey, many people highlighted being able to move freely though the space.
	Overall conclusions on ease of movement – positive
Safety and Public Health	The 85th percentile vehicle speed was recorded at less than 20 mph (speed limit is 20 mph). Whilst speed is low overall, the open nature of the junction and clear sightlines mean that the speed is higher at night and weekends when there are fewer pedestrians.
	Often a key feature of pedestrian prioritised streets is the reduction or total removal of signing. This is intended to make road users more aware of their behaviour in the context of their environment, rather than relying on signs or signals. In the survey carried out by the London Borough of Hackney, a similar number of people agreed as disagreed to the question of whether signing at Leonard Circus is adequate.
	When asked about feelings of personal safety, the majority of responses were positive.
	There were fewer positive responses regarding travelling through the scheme in darkness. However, people generally feel less comfortable walking at night.
	Those that had experienced the previous road layout tended to acknowledge that the road now feels safer.
	No collisions were recorded for the five years before the construction of the shared-space scheme or in the two years since completion of the scheme. However, one collision involved a pedestrian during the construction period.
Conclusions on Safety and Public Health	Traffic speed through the junction are less than 20 mph. In the two years since completion of the scheme, there were no reported collisions. In the survey undertaken by the London

	Borough of Hackney, most people said that they feel safe travelling through the junction in the daytime.
	Overall conclusions on safety and public health – neutral.
Quality of Place	This scheme is organised in the style of a town square, with the provision of flexible-use areas, placement of street trees and the abstract pattern of different surfacing materials. All provided a message to drivers that this is not a typical junction, and as such, they should adapt their behaviour accordingly.
	York stone has been reused from the previous footways to pave the majority of the edge of the square. A mix of contrasting granite blocks and Italian porphyry paving has been used in the centre.
	Nine trees have been introduced, the location of which was partly determined by the need to avoid underground services. In addition to slowing traffic and improving the sense of place, the trees were also provided to give shade and help improve air quality.
	Other street furniture that features in the scheme include benches, bins and low-energy LED lighting columns.
	Alongside the footway, on each side of the junction are areas used as flexible spaces for food stalls and events.
	In a survey carried out by the London Borough of Hackney in 2014, the majority of the 61 people surveyed acknowledged that the scheme has created a greater sense of identity and encouraged them to spend more time in this area. Overall, most people agreed that Leonard Circus is an attractive place.
	The junction has been designated as a restricted parking zone (RPZ), within which parking and loading are not permitted at any time. The use of an RPZ means that using yellow lines to indicate the parking restrictions, which would have otherwise detracted from the quality of the streetscape, is unnecessary. In July 2015, this scheme won the Urban Transport Design Awards.
Conclusions on Quality of Place	The provision of flexible-use areas, placement of street trees and the abstract pattern of different surfacing materials provide a clear message to drivers that this is not a typical junction. As such, they should adapt their behaviour accordingly. This change in behaviour, along with the increased activity on street, has contributed significantly to the dramatic improvement in the quality of place and shift in priority, from motor vehicles to pedestrians and cyclists. In the 2014 survey, the majority of respondents said that the scheme has created a greater sense of identity and encouraged them to spend more time in this area.
	Overall conclusions on quality of place – positive.
Economic Benefit	It was expected that the transformation of the junction would help regenerate the area and grow the local economy. However, there is currently little evidence to validate whether this has been effective. In the survey by the London Borough of Hackney, local business owners were asked if the scheme had improved their business. Most respondents indicated that it has had a negligible impact.
	This scheme has generated a space for new activities such as food stalls and public events. Whilst these are taking place, the square still functions normally in terms of traffic and pedestrian movement.
	To support justification for the scheme going ahead, the World Health Organisation's health economic assessment tool was used to estimate the likely economic benefits from more people walking and cycling because of the scheme. It was estimated that the economic benefits of walking and cycling over a 10-year period are £17 million and £2 million, respectively.

	As with the previous layout, there is no car parking provision within the junction. However, there is street parking on the surrounding roads and a car park on Clere Street, just off Leonard Street. Therefore, parking provisions will not have an impact on businesses.
Conclusions on Economic Benefit	It was expected that the scheme would help regenerate the area and grow the local economy. However, there is currently little evidence to validate whether this has been effective. When local business owners were asked if the scheme had improved their business, most respondents indicated that it has had a negligible impact. However, this scheme has generated space for new activities such as food stalls and public events. Consequently, income will be generated for the businesses involved. The analysis undertaken to support the business case identified that the health economic benefits from more people walking and cycling would be substantial. The levels of walking and cycling are high, and, therefore, these benefits are likely to be significant.
	Overall conclusions on economic benefit – neutral.

4.23 Overall, the Leonard Circus scheme was considered positive. As above, however, the current DfT position on shared surfaces should be borne in mind in terms of whether this scheme remains regarded as a positive example.

High Street / Wharf Road Junction Shared Space

4.24 The above provides examples of shared space, however, the current DfT position on shared surfaces should be borne in mind in terms of whether these remain regarded as good examples.

4.25 It is suggested that a scheme at the High Street / Wharf Road junction and surroundings is not progressed until DfT have finished their review and provided their revised guidance on shared surfaces. The DfT have not issued any timescales for this.

4.26 Once such guidance has been published, schemes would be able to be devised that consider all aspects of a High Street / Wharf Road junction shared space within the context of the revised DfT guidance. To consider these aspects now or to devise schemes now may be abortive once DfT issue their revised guidance.

4.27 A detailed consultation process should commence with the community and users, disability groups, access officers, bus operators and Staffordshire County Council, as the Local Highway Authority.

4.28 The consultation process would enable these groups to input to the scheme designs such that an agreeable layout is defined that both meets the scheme objectives and accords with the DfT guidance. The scheme design would involve a team, typically led by urban designers, landscape architects and transport planners.

4.29 As part of the scheme design process, a Quality Audit would be required. Traffic Advisory Leaflet 5/11, published by the DfT, 2011, describes a Quality Audit (QA) as:

> 'QA is a defined process, independent of, but involving, the design team, that through planning, design, construction and management stages of a project, provides a check that high quality places are delivered and maintained by all relevant parties, for the benefit of all end users. QA is a process, applied to highway, traffic management or development schemes, which systematically

reviews projects using a series of discrete but linked evaluations and ensures that the broad objectives of place, functionality, maintenance and safety are achieved'.

4.30 After completing a Quality Audit and preparing a detailed scheme design, Section 62 of the Highways Act, 1980, provides the power for Local Highway Authorities to improve highways and it is expected that any such works would be undertaken by Staffordshire County Council. Traffic Regulation Orders would be required, including for the provision of events.

4.31 Upon completion of any scheme, a monitoring process should be undertaken to understand users, residents and businesses views on the scheme and assess the scheme against its objectives. The monitoring will allow for the success of the scheme to be considered.

Pedestrianisation of High Street

4.32 The pedestrianisation of part of High Street will remove through traffic (through the town centre) and will also redistribute some traffic that has an origin or destination in the town centre and which may have travelled through the proposed pedestrianised section of High Street onto other surrounding roads. The extent of redistribution of traffic, transfer of through traffic onto alternative routes and resultant changes in traffic flows along adjoining roads is complex and is typically calculated using area wide traffic models, which is outside the scope of this report.

4.33 The pedestrianisation of part of High Street also has the potential to alter (increase being the aim) footfall and improve the general environment of High Street. It can also result in an alteration (reduction) of footfall to surrounding areas not pedestrianised. Means on which to measure the success, or otherwise, of pedestrianisation includes social aspects and economic aspects such as business takings which then links to potential changes (increases) in business rates due to the perceived benefit offered by the pedestrianisation and subsequent changes to net profits of businesses.

4.34 All of these elements should be included as part of a scheme objective setting and measurable outcome defining process that would then be used to measure the success, or otherwise, of pedestrianisation. This is outside the scope of a highways consultant. The impact of pedestrianisation within this report focusses on the pedestrianised scheme, the layout of the surrounding road network and its suitability in relation to the subsequent redistribution of traffic and transfer of through traffic caused by the pedestrianisation.

Extent of Pedestrianisation

4.35 The potential pedestrianisation area is shown as along the High Street between King Street and No.72 High Street (The Green Tree House Craft Café), a length of approximately 80m. The extent of the pedestrianisation to No.72 High Street ties into the extent of the white zig-zag road markings for the pelican crossing over High Street and would leave a section of approximately 50m to the north of Well Street that would remain open for traffic.

4.36 In such a scenario, we would expect it necessary to provide a turning area on the unpedestrianised section of High Street at its boundary with the pedestrianised section (i.e. north of Well Street). This is so that vehicles entering this section can turn without having to reverse back to the Well Street junction. Given the proximity to a pedestrianised area and with footways

on both sides of the carriageway, we suggest that such a turning facility should be such that it allows a vehicle to undertake a u-turn in forward gear rather than a facility that requires a vehicle to reverse so as to minimise highway safety concerns. However, there is insufficient space to provide such a facility.

4.37 Notwithstanding the provision of a turning area or not, it would appear beneficial for the pedestrianisation to extend between King Street and Well Street as this would avoid unnecessary manoeuvring and reversing of vehicles on the boundary of the pedestrianised area.

4.38 Pedestrianisation of part of a town centre will always result in a removal of a route that some vehicles would have otherwise taken, as would be the case here. Following a review of the road network, there does not appear to be any part of the network that would be inaccessible if the proposed section of High Street between King Street and Well Street was pedestrianised.

4.39 It also appears that the proposed section of pedestrianisation not extending to the north of King Street is well thought out so as to maintain a level of access to parts of the town centre which is consistent with the signing strategy along the A527, which directs town centre traffic via Wharf Road (and noting the shared surface / event space). If the pedestrianisation was extended to the north of King Street, then it would be necessary to sign some town centre traffic via Congleton Road in the north and via Tunstall Road in the south, which would be confusing and undesirable.

4.40 If the pedestrianisation was extended to the north of King Street, then it would also be necessary to make all of Wharf Road between South View and High Street, South View and King Street pedestrianised due to an inability to provide safe turning spaces (in forward gear) on them.

4.41 We therefore consider that the pedestrianised section of High Street between King Street and Well Street strikes a balance of improving the town centre environs against access requirements.

Considerations on Mode Shift

4.42 The proposed section of pedestrianisation is relatively small and there are close alternative adjacent routes available via John Street, which is approximately 60m to the east of High Street. As a result, the pedestrianisation scheme is unlikely to result in any noticeable reduction in traffic flows in the town centre area as a whole (including John Street) and it is likely that traffic will redistribute and reassign their route rather than enact a mode shift to other sustainable modes of transport.

4.43 Given that John Street is a residential street with on-street parking for said residents, it is unlikely that the pedestrianisation scheme could be extended to include John Street so as to remove this as an alternative route and seek a mode shift and an overall reduction in traffic in the town centre area.

Cars

4.44 In terms of current through traffic (through the town centre), those travelling southbound are currently forced to use John Street because of the northbound one-way section of High Street between Station Road and Cross Street. The proposed pedestrianisation would not therefore affect these movements. Northbound through traffic along High Street would be transferred onto John Street.

4.45 John Street is a residential street with double yellow line restrictions generally along its eastern side and on-street parking generally along its western side. The on-street parking appears to be primarily residential parking from the residential properties along John Street. Two-way car movements are generally maintained along its entirety, although the width of John Street narrows between King Street and Congleton Road such that drivers of some vehicles appear hesitant to pass one-another.

4.46 Traffic flows along John Street can be expected to increase as a result of the pedestrianisation, however, this is expected to be balanced by the improvements offered to High Street as a result of the pedestrianisation.

4.47 For traffic flows with an origin or destination in the town centre, the proposed pedestrianisation would maintain access, except for the section of High Street which is pedestrianised, however, there is no parking in this location and so vehicles should not be affected in this regard. Traffic flows would increase on King Street and John Street as a result, however, this is expected to be balanced by the improvements offered to High Street as a result of the pedestrianisation.

4.48 In terms of visitors, suggestions were made under Theme 1 to extend the sign for the Wharf Road Car Park to read 'town centre and shopping' so as to cater for visitors. This would not be affected by the pedestrianisation.

Blue Badge Holders

4.49 Observations suggest that blue badge holders park on the single yellow line on the eastern side of High Street between King Street and Well Street i.e. the proposed section of pedestrianisation. Although blue badge holders are permitted to do so, the pedestrianisation may displace these, unless blue badge holders are made exempt from the restrictions.

4.50 Parking for blue badge holders is provided in the Wharf Road Car Park with access provided onto High Street adjacent to B&M. If blue badge holders were not made exempt from the pedestrianisation scheme, then consideration should be made to providing additional blue badge parking in the Wharf Road Car Park to accommodate the displacement.

Delivery and Service Vehicles

4.51 All delivery and service vehicles would be able to access the town centre as they normally do, except for the proposed pedestrianisation section of High Street between Well Street and King Street (unless delivery and service vehicles were made exempt from the pedestrianisation scheme) and Tunstall Road to the south of Well Street.

4.52 Loading and unloading is currently undertaken on High Street between Well Street and King Street. Considerations for this is to either make delivery and service vehicles exempt from the pedestrianisation scheme, make the pedestrianisation scheme during daytime periods only with loading / unloading occurring during early morning or during the evening, or make all loading / unloading occur elsewhere.

4.53 The preferred option for this would be derived via more detailed consultation with the businesses along High Street between Well Street and King Street.

4.54 In terms of Tunstall Road to the south of Well Street, some delivery and service vehicles may travel to / from this location via the A527 in the south, however, some may do so through the

town centre. Irrespective, there would remain an access route via the A527 in the south and the restrictions along Tunstall Road would not alter, thus loading / unloading arrangements should not be affected.

Buses

4.55 A key consideration of the pedestrianisation scheme will be the effect upon buses, given that services currently route along High Street. It is suggested that the bus operators are consulted to gauge their opinions on the pedestrianisation in terms of the bus routes, the bus stops and any requirements for the pedestrianisation scheme.

4.56 The is an existing bus stop on the western side of High Street between Well Street and King Street and there is an existing bus stop on Well Street between High Street and John Street. Following pedestrianisation, these bus stops would either be retained (meaning buses would be exempt from the pedestrianisation), the bus stops would be relocated or the bus stops would be removed.

4.57 The bus stop on Well Street between High Street and John Street forms part of a network of bus stops on Well Street and could easily be relocated to another part of Well Street, hence, has not been considered further. Further consideration has been made to the bus stop on the western side of High Street between Well Street and King Street.

4.58 If the bus stop on the western side of High Street between Well Street and King Street was retained then this would mean that buses would continue along their current routes and be exempt from the pedestrianisation.

4.59 If the bus stop on the western side of High Street between Well Street and King Street was relocated then this would be as part of a re-routeing of the buses so that they do not pass through the pedestrianisation area. If it is assumed that Wharf Road and South View are retained as bus routes, then buses would need to travel along both directions of King Street; thus King Street would need to be made two-way. This would result in a loss of on-street parking on King Street.

4.60 Following pedestrianisation of High Street, it can be expected that traffic flows on King Street would increase. If King Street were made two-way, then it can be expected that traffic flows along it would further increase. If King Street were made two-way then it would increase the turning movements at the King Street / High Street junction and also introduce southbound buses on High Street (from Wharf Road) turning left into King Street. Given the constrained nature of the King Street / High Street junction, this would require vehicles to cross onto the opposite side of the carriageway to undertake the turn onto King Street, particularly buses, which would be a highway safety concern and be undesirable.

4.61 On the same basis, after diverting along King Street, buses would turn right onto John Street and then turn left onto Well Street to continue their route. However, As set out under Theme 1, the same issue exists at the John Street / Well Street junction where buses would cross onto the opposite side of the carriageway, however, is heightened by the ‘stop’ line (as opposed to a give way line), which is typically only used for road safety reasons.

4.62 Notwithstanding the above, a suitable location for the relocated bus stop would need to be found, in consultation with the bus operators and based upon passenger demand levels. Given that there is already a bus stop on Wharf Road outside Home Bargains, such relation would be onto John Street, King Street (after being made two-way) or South View.

4.63 If the bus stop on the western side of High Street between Well Street and King Street was removed then this would sensibly be as part of a re-routeing of the buses so that they do not pass through the pedestrianisation area. Based upon this, the same issues created by the relocation of the bus stop (above) would still arise. However, there would be a loss of a town centre bus stop. This would be undesirable as it would make bus use less attractive, which may result in reduced bus use.

4.64 On balance, it appears that the first option of retaining the bus stops in their current locations and making buses exempt from the pedestrianisation scheme would be the preferred option.

Scheme Details

4.65 As is set out above, we suggest that buses should be exempt from the pedestrianised scheme. The above sets out the DfT position on shared surfaces and these principles also relate to such pedestrianised areas because of the need for Local Authorities to ensure that all schemes are designed with the needs of different users in mind and satisfy their obligations under the equalities legislation.

4.66 We therefore suggest that scheme details for the pedestrianisation is not progressed until DfT have finished their review and provided their revised guidance on shared surfaces. The DfT have not issued any timescales for this.

4.67 The periods over which pedestrianisation zones operate can vary with some being 24/7 and some being during daytime periods only. This can depend upon a number of factors and varies from scheme to scheme.

4.68 If a pedestrianised area is over a 24/7 basis (as opposed to only daytime periods), there can be concerns about personal security at night, especially where the pedestrianised area consists only of shops.

4.69 If a pedestrianised area consisted of a large network of adjoining streets (as opposed to one single street), then this lends itself to creating a pedestrianised area over a 24/7 basis so as to avoid a requirement to provide road signs to direct vehicles through the network.

4.70 A detailed consultation exercise should be undertaken with businesses, retailing organisations, the general public and all users of the area's facilities to gauge views on the scheme and its operational periods. In this instance, given it would be one street with shops closed at night, a daytime only pedestrianisation period would appear favourable to minimise any concerns about personal security.

4.71 An important aspect of the pedestrianisation scheme will be adherence. There is currently little to no signing within the town centre and in particular a recommendation under Theme 1 is to extend the Wharf Road Car Park to include town centre and shoppers, which seeks to avoid visitors to the town centre driving onto High Street.

4.72 There is also an alternative parallel route (John Street) within 60m of High Street which will act as a natural means of continuing a journey if a driver inadvertently drives towards the pedestrianised area and is forced to turn onto King Street or Well Street, both of which in turn leads onto John Street.

4.73 Signage at the entry points to the pedestrianised area will therefore be alone and prominent such that drivers should not mistakenly drive through. Signage could be bespoke to the scheme.

4.74 Some examples of signage for entries to pedestrianised areas are set out in Figure 4.8.

Figure 4.8: Pedestrianised Area Entries

4.75 Consideration may need to be given to installing cameras as a deterrent to any driver who chooses to ignore the signage and drive through the pedestrianised area. Any such cameras would be installed on both sides of the pedestrianised area and would be enforced by the police.

4.76 Another consideration for enforcement is the installation of rising bollards that would rise during the periods of pedestrianisation and fall during all other periods or when a lawful vehicle approaches (such as a bus).

4.77 Bollards are activated via either a transponder being fitted to each legitimate vehicle or via a camera (Automatic Number Plate Recognition – ANPR) that identifies pre-entered number plates. In both instances, there is a manual override system at each bollard.

4.78 Some examples of rising bollards are set out in Figure 4.9 and an example of an ANPR camera is shown in Figure 4.10.

Figure 4.9: Rising Bollards

Figure 4.10: ANPR Camera

4.79 One consideration relating to bollards is the potential delay incurred to vehicles approaching and waiting for them to fall. Vehicles waiting cause queuing as they wait to fall and in this instance, any such queuing would be on and through a junction (King Street, High Street and South View in the north and Well Street and Tunstall Road in the south).

4.80 Vehicles with a transponder have to reach the bollard for it to be recognised before the bollard will fall (at which point queuing would develop), whereas ANPR cameras detect the vehicle on its approach and there is virtually no delay.

4.81 Given that any such queuing would block back through a junction, it is recommended that if rising bollards were to be used then ANPR cameras should be used in this instance.

4.82 Of course, rising bollards may not be necessary but should be considered if there is a need for greater enforcement.

Process

4.83 Key to the development of a pedestrianisation scheme is consultation. Though this can be a lengthy procedure, it is essential to liaise closely with retailing organisations, businesses, the general public, residents, the emergency services and all users of the area's facilities etc as part of the design evolution. This will involve much time and skill in consulting widely and thoroughly and will probably involve both the local media and the hosting of public meetings and exhibitions.

4.84 Another group who require early consultation regarding a new pedestrian zone are those people with a disability. Pedestrianised areas can provide benefits for disabled people by reducing the risks associated with vehicular traffic and allowing greater mobility within the pedestrianised area. However, if their specific needs are not taken into account, they can be faced with new and sometimes insurmountable difficulties. It is important that consultation should include local and/or national organisations representing disabled people.

4.85 As above, the DfT have paused all work with Local Authorities on shared surfaces pending the completion of a review and provided their revised guidance on shared surfaces to ensure that all schemes are designed with the needs of different users in mind and satisfy their obligations under the equalities legislation. This reinforces the requirement for consultation with such groups.

4.86 The legislative process to prohibit traffic on a highway is via a Traffic Regulation Order(s) (TRO), which is progressed by a Local Highway Authority through the Road Traffic Regulation Act, 1984.

4.87 The TRO process itself includes a period of consultation, which will be separate consultation to that undertaken in advance of progressing a TRO. If there are no formal objections to the TRO then the Order would be progressed. However, if any formal objections of substance are made to the TRO which cannot be overcome through negotiation, there would be a requirement for a Public Inquiry before the TRO can be confirmed. This is a lengthy and expensive process, hence reinforcing the need for detailed consultation beforehand to ensure the needs for all user groups are taken on board.

4.88 Section 62 of the Highways Act, 1980, provides power for Local Highway Authorities to improve highways and it is likely that any such works would be undertaken by Staffordshire County Council.

Recommendations

4.89 Guidance published by the DfT recommends that local authorities pause the development of shared space schemes whilst a review is undertaken and their guidance is updated. There is some confusion on this and how it relates to high streets and pedestrianised areas.

4.90 It is recommended that a potential shared / events space adjacent to the Town Council offices to include the adjacent section of High Street and the High Street / Wharf Road junction and potential pedestrianisation of High Street between King Street at Well Street is paused until the DfT complete their review and publish updated guidance. The DfT have not issued any timescales for completing their review or publishing their updated guidance.

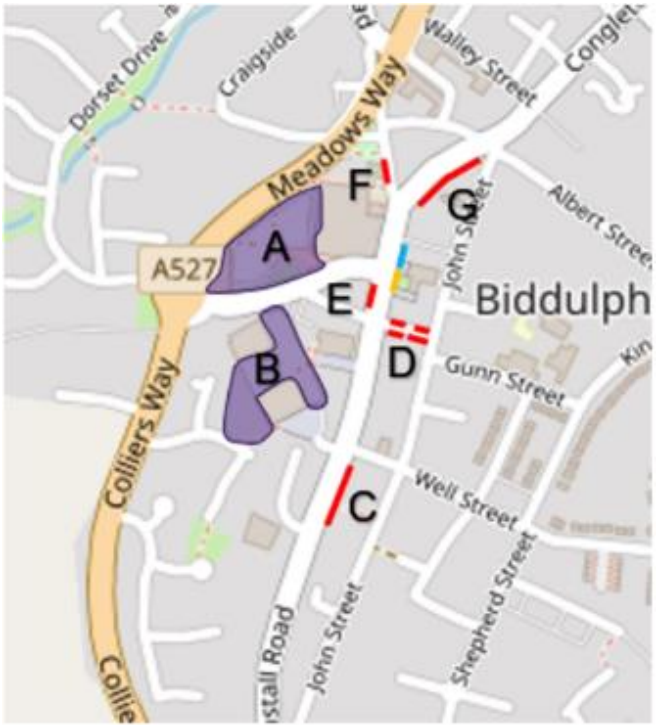
4.91 It is recommended that more detailed consultation is undertaken in terms of the restrictions of a potential pedestrianisation scheme. The pedestrianisation could be daytime only or 24/7 and it will be important to have feedback from businesses, retailing organisations, the general public and all users of the town centre on this aspect.

4.92 Feedback from businesses on the exemption of buses should also be obtained as well as from the bus operators. Feedback on the details of the pedestrianisation scheme itself should to wait until the DfT publishes its guidance, however, elements such as these, could sensibly be understood now.

5 THEME 3 – CONSIDERATION OF PAID / FREE PARKING WITHIN THE TOWN

5.1 The perceived abuse of on-street parking, particularly by blue badge holders, is an area of concern for the Town Council. Consideration should be given to the use of on-street parking and the impact of car parks where charges are made. The location of car parking in the town centre is shown on Figure 5.1.

Figure 5.1: Town Centre Car Parking



A – Sainsbury's Car Park – 217 Parking Spaces
B – Wharf Road Car Park – 137 Parking Spaces, of which 10 are designated Disabled Spaces
C – On-Street Parking Spaces – Tunstall Road eastern side of carriageway between Well Street and Lorena Close, approximately 70m in length or approximately 11/12 vehicles.
D – On-Street Parking Spaces – King Street on both sides of carriageway. Northern side approximately 27m in total or approximately 4/5 vehicles. Southern side approximately 29m in total or approximately 4/5 vehicles.
E – On-Street Parking Spaces – High Street, western side between Wharf Road and South View, approximately 25m in length or approximately 4/5 vehicles.
F – On Street Parking Spaces – Station Road, western side of carriageway, approximately 21m in length or approximately 3/4 vehicles.
G – On-Street Parking Spaces – High Street between Station Road and Congleton Road, south-eastern side of carriageway, approximately 76m in length or approximately 12/13 vehicles

5.2 The Sainsbury's car park has a three hour parking restriction and there are no parking charges. Although this car park is primarily a Sainsbury's customer car park, it is expected that non-customers also use the car park.

5.3 The Wharf Road Car Park is operated by Staffordshire Moorlands District Council and is a Pay & Display car park. Charges are shown in Table 5.1. Parking for blue badge holders is free.

Table 5.1: Wharf Road Car Park Pay & Display Charges

Duration	Charge
0-1 Hour	£0.60
1-2 Hours	£0.80
2-3 Hours	£1.00
Up to 10 Hours (between 08:00-18:00* Monday to Saturday)	£1.80

* Charging times are from 09:30 to 15:30

5.4 On-street car parking is provided on High Street, Station Road, King Street and Tunstall Road and is free of charge.

5.5 Eligible blue badge holders who display a valid badge correctly may park:

- For up to three hours on roads where waiting is prohibited, such as single or double yellow lines, unless the signs say 'no loading or unloading' (such as on High Street between King Street and Well Street);
- All day on roads where parking is free but restricted by time (on High Street, Station Road, King Street and Tunstall Road); and
- In Wharf Road Car Park.

5.6 Eligible blue badge holders must not park:

- In a pedestrian zone unless there is a sign showing that vehicles displaying a blue badge are exempt;
- In places where a ban on loading or unloading is in force, as indicated by kerb markings;
- In parking places reserved for specific users such as residents' bays or loading bays;
- On pedestrian crossings (zebra, pelican, toucan and puffin crossings), including areas marked by zig-zag lines;
- On clearways (roads with no stopping in force);
- On bus, tram or cycle lanes or cycle tracks;
- Where there are double white lines in the centre of the road (even if one of the lines is broken);
- By suspended parking meter bays or when the use of the meter is not allowed; and
- Where temporary parking restrictions are in force, e.g. by no-waiting cones.

5.7 Although there are various research studies into car parking, there is a lack of formal research into car parking charges and the effect of changes to car parking charges (introduction, removal, increases and reductions) within town centres. Whilst there is some information available, it is only anecdotal and is based upon the views of local business owners, politicians and visitors to town centres, however, these views are prejudiced by the respective interests of these groups.

5.8 The British Parking Association has undertaken research into the considerations for drivers when they choose where to park. Surveys commissioned by the British Parking Association identified and ranked the top 10 factors that dictate a driver's choice of car park.

5.9 Results from the survey confirm that drivers use a wide range of criteria to choose where they park. The overriding factor was 'location' i.e. proximity of the car parking to the amenity or location which represents the very purpose of their trip.

5.10 The next most important was safety and security, both in personal terms and with regards to the vehicle itself.

5.11 Car parking charges / tariffs were fourth on the list making it an important issue, but not the most prominent. Ease of access, queuing, availability, lighting, method of payment and cleanliness were all considerations raised by those surveyed.

5.12 The ranked top 10 factors when choosing a car park from the British Parking Association survey is set out in Table 52..

Table 5.2: Factors Affecting Choice of Car Park

Ranking	Factor Affecting Choice of Car Park
1	Location
2	Personal safety
3	Safe environment
4	Tariffs
5	Ease of access
6	No/little queuing
7	Number of spaces
8	Effective surveillance
9	Size of parking space
10	Appropriate lighting

5.13 In relation to location, the Chartered Institute of Highways and Transportation (CIHT) publishes guidance on suggested acceptable walking distances to a range of facilities. The suggested acceptable walking distances to a town centre from a car park, as advised by the CIHT, are set out in Table 5.3.

Table 5.3: Acceptable Walking Distances to Town Centres

	Walking Distance from Car Park
Desirable	200m
Acceptable	400m
Maximum	800m

5.14 The CIHT also publishes guidance on walking distances for shopping and refers to previous studies which advise that 'acceptable' walking distances depend on the quality of the shops, the size of the shopping centre and the length of stay of the shopper. Specifically, it is stated that parking time affects the distance walked from car parking. Higher quality and larger centres generate longer acceptable walking distances. Acceptable walking distances for car–borne shoppers as advised by the CIHT is set out in Table 5.4.

Table 5.4: Acceptable Walking Distances for Car-Borne Shoppers

Parking Time	Acceptable Walking Distance
30 minutes	100m
1 hour	200m
2 hours	400m
4 hours	800m
8 hours	1000m

5.15 In terms of Biddulph, the walking distance from an approximate mid-point of the Wharf Road Car Park to Biddulph Town Hall is approximately 170m, to the northerly part of High Street is approximately 325m and to the High Street / Well Street junction is approximately 170m.

5.16 The entirety of Biddulph town centre is within an acceptable walking distance of the Wharf Road Car Park. In terms of the length of stay for shopping, the majority of the town centre is within an acceptable walking distance for parking in the Wharf Road Car Park for one hour and all of the town centre is within an acceptable walking distance for parking in the Wharf Road Car Park for two hours or more.

5.17 Only High Street in the immediate vicinity of B&M is within an acceptable walking distance for parking in the Wharf Road Car Park for 30 minutes.

5.18 Given the proximity of on-street parking within the town centre and its perceived abuse, this validates with the above; that location is the key factor for choice of car parking.

5.19 The above shows that the majority of the town centre is within an acceptable walking distance of the Wharf Road Car Park for car-borne shoppers spending approximately one hour in the town. It also shows that the whole of the town centre is within an acceptable walking distance of the Wharf Road Car Park for car-borne shoppers spending two hours or more in the town. This suggests that there is potential for the Wharf Road Car Park to be better used without detriment to footfall.

5.20 To spend up to 2 hours in the town and park in the Wharf Road Car Park would cost £0.80. This is at the lower end of a typical scale of town centre car parking charges and is reasonably attractive. However, given that parking on High Street, Station Road, King Street and Tunstall Road is free of charge and are also closer to the shops and facilities etc, these locations are more attractive.

5.21 If terms of whether the charge made at the Wharf Road Car Park effects on-street parking, given that its cost is reasonably attractive and given the proximity of the on-street parking to the shops and facilities etc, such charges are unlikely to have any significant effect.

5.22 If the charge was removed, then we would expect some shift to an increased use of the car park, however, we would not expect a significant shift.

5.23 To consider better use of the Wharf Road Car Park over the on-street car parking, the Wharf Road Car Park would need to be made more attractive in comparison.

5.24 As above, the on-street car parking benefits from its location. However, the above shows that the majority of the town centre is within an acceptable walking distance of the Wharf Road Car Park for car-borne shoppers spending approximately one hour in the town whilst the whole of the town centre is within an acceptable walking for car-borne shoppers spending two hours or more in the town. Therefore, such a shift in attractiveness should not affect footfall.

5.25 Theme 1 set out that signage for the town centre from the A527 (for non-residents) from the north and south both direct drivers onto Wharf Road, however, although a ‘shoppers’ car park sign directs into the Wharf Road Car Park, there is no further signage for the town centre, which is particularly relevant for non-residents. Theme 1 therefore suggested an extension of the sign to read ‘town centre and shopping’ to assist non-residents parking for the town centre and thus avoid driving onto High Street and through the town centre looking for car parking.

5.26 In terms of other factors, personal safety and safe environment are ranked numbers two and three. The Wharf Road Car Park has lighting and is overlooked by the Home Bargains store, the Biddulph Primary Care Centre and the other users of its 137 spaces. There is not a sense of being unsafe using the Wharf Road Car Park albeit its walking route onto High Street adjacent

to B&M could be improved. There is hedgerow lining the route between the car park and B&M and the removal of this hedgerow would improve the visibility of the route and users sense of personal safety.

5.27 The Wharf Road Car Park is easy to access with minimal / no queuing, whilst any such introductions to the on-street car parking is undesirable for the town centre.

5.28 In terms of tariffs, it is common for town centres to adopt a charging scale to control car parking and optimise the balance of car parking. This typically has busy town centre spaces with higher charges in comparison to those that are less busy or located further away from the town centre.

5.29 In this instance, a charging scale whereby on-street car parking is charged at a higher rate than the Wharf Road Car Park would seek to result in a rebalance of attractiveness and seek to overcome abuse.

5.30 However, the introduction of on-street car parking charges would not be popular, particularly amongst businesses in the town centre. The above sets out acceptable walking distances and concludes that there should not be an effect upon footfall, however, such an introduction would be unlikely to be popular.

5.31 A key benefit of introducing on-street car parking charges, which is in direct relation to Biddulph, would be to assist with the control of parking, particularly those who abuse it as enforcement of any such abuse would be greatly improved. A pay and display scheme would introduce physical tickets with recorded timings that improves enforcement and thus reduces abuse.

5.32 A key consideration to any changes to the parking regimes, however, will be the Sainsbury's car park. This car park is aimed for customers of Sainsbury's, however, any such changes may have unintended impacts upon use of this car park and which should be avoided.

5.33 Prior to any changes to the parking regime, it is recommended that a bespoke survey is undertaken of car park users in the town centre to determine existing habits and views on potential changes. The aims would be to gauge a better understanding of the perceived abuse of on-street car parking, determine the sensitivity of parking charges identify view on potential changes and consider any unintended effects that may arise for the Sainsbury's car park.

5.34 It is also noted that on-street car parking occurs on the eastern side of High Street between King Street and Well Street. There is a single yellow line in this location that restricts stopping Monday to Saturday 08:00 to 18:30. There are double yellow line restrictions along the western side of High Street. There are no loading restrictions on either side of the road and blue badge holders are permitted to park on both sides for up to three hours, however, this can disrupt the free flow of traffic along this section of High Street.

5.35 Although blue badge holders are permitted to park on this section of High Street, it appears that non-blue badge holders also stop when they are not permitted. In terms of the non-blue badge holders, this is an enforcement issue. It is recommended that Staffordshire County Council is lobbied for increased enforcement.

5.36 For blue badge holders, so long as they park for no longer than three hours it is permitted and it is an inconvenience caused to other road users. In such instances, any changes to parking regimes will not affect this. Changes to the traffic regulations along this section of High Street or changes to the layout would be required.

5.37 In terms of the regulations, the introduction of no loading restrictions along the entirety of both sides of the road would result in blue badge holders not being permitted to park on either side. However, such an introduction would likely be unsupported by businesses along High Street.

5.38 In terms of a change to the layout, Theme 2 considers pedestrianisation. An alternative may be the provision of dedicated loading bay(s) with no loading restrictions along the remainder of this section of High Street. Blue badge holders are not permitted to park in loading bays, thus any such parking would become an enforcement issue. However, any such works would be abortive if the pedestrianisation scheme was to be progressed and would also likely result in confusion from changing loading restrictions. It is recommended that such a scheme is only considered if the pedestrianisation scheme is not progressed.

Recommendations

5.39 Signage for the town centre from the A527 (for non-residents) from the north and south both direct drivers onto Wharf Road. There are no further signs relating to the town centre from Wharf Road and non-residents may expect to see signs for town centre car parking in addition to shopping. It seems that the 'shopping' car parking sign is meant to include for the town centre. As a quick win, an extension of this sign is recommended to read 'town centre and shopping' to assist non-residents parking for the town centre and thus avoid driving onto High Street and through the town centre looking for car parking.

5.40 The walking route from the Wharf Road Car Park onto High Street adjacent to B&M could be improved. There is hedgerow lining the route between the car park and B&M and the removal of this hedgerow would improve the visibility of the route and users sense of personal safety. As a quick win, such works may improve the attractiveness of the Wharf Road Car Park and may assist in users who may abuse the on-street parking to relocate.

5.41 On-street car parking occurs on the eastern side of High Street between King Street and Well Street. It appears that non-blue badge holders stop when they are not permitted. As a quick win, it is recommended that Staffordshire County Council is lobbied for increased enforcement.

5.42 Blue badge holders are permitted to park on this section of High Street and this can disrupt the free flow of traffic, which causes an inconvenience to other road users. The pedestrianisation of this section of High Street could overcome such issues. An alternative may be the provision of dedicated loading bay(s) with no loading restrictions along the remainder of this section of High Street. Blue badge holders are not permitted to park in loading bays, thus any such parking would become an enforcement issue. However, any such works would be abortive if the pedestrianisation scheme was to be progressed and would also likely result in confusion from changing loading restrictions. It is recommended that such a scheme is only considered if the pedestrianisation scheme is not progressed.

5.43 For improvements over the next one to 10 years, the introduction of on-street car parking charges would seek to result in a rebalance of attractiveness between on-street car parking and the Wharf Road Car Park and seek to overcome abuse of on-street car parking. However, such an introduction would be unlikely to be popular and may also have unintended impacts upon use of the Sainsbury's car park.

5.44 It is recommended that a bespoke survey is undertaken of car park users in the town centre to determine existing habits and views on potential changes. The aims would be to gauge a better

understanding of the perceived abuse of on-street car parking, determine the sensitivity of parking charges identify view on potential changes and consider any unintended effects that may arise for the Sainsbury's car park.

6 THEME 4 – HIGHWAY CONSIDERATIONS FOR AREAS OUTSIDE OF THE TOWN

6.1 The A527 runs south to north from Newcastle-under-Lyme, southwest of Biddulph, to Congleton, north of the town, a total distance of approximately 13 miles (21km). The A527 does not form a bypass to the town as such, but it forms a means for through traffic to bypass the town centre.

6.2 The Staffordshire Moorlands Infrastructure Delivery Plan (2018) notes the following regarding the A527 around Biddulph:

> '…the bypass (A527) is relatively new and was a major investment for the area so is unlikely to require upgrade work in the near future. This is validated by the fact that there are no capacity issues on the A527 with only light queuing in the peak periods….For these reasons the highway network around Biddulph is considered fit for purpose'.

6.3 This is generally consistent with our on-site observations. The household questionnaire survey indicated that eight specific junctions are of particular concern for local residents. These are as follows:

- A527 / Grange Road – Priority junction with the A527 the major arm;
- A527 / Woodhouse Lane / Marshgreen Road – Priority junction with the A527 the major arm;
- A527 / Congleton Road – Roundabout junction;
- A527 / Wharf Road / Dorset Drive – Roundabout junction;
- A527 / Tunstall Road – Roundabout junction;
- A527 / St John's Road – Roundabout junction;
- A527 / Park Lane / Newpool Road – Signal controlled junction; and
- A527 / Childerplay Road – Priority junction with the A527 the major arm.

6.4 Each of these junctions are discussed below, outlining the findings of site observations and by traffic survey data supplied by Staffordshire County Council where available.

6.5 In terms of improvements to ease any pressure spots, any such improvements would need the support of Staffordshire County Council, as the Local Highway Authority, and would need to be evidence led such that intervention was demonstrated as being necessary to overcome any severe traffic conditions.

6.6 When considering traffic capacity, the weekday AM and PM peak hours (generally 08:00 to 09:00 and 17:00 to 18:00) are the periods during which background traffic levels are traditionally at their highest and are the periods during which Local Highway Authorities focus upon. There may be other periods of the day, for example the afternoon school peak or on weekends, during which specific vehicular delays may occur, however, in such instances, Local Highway Authorities would continue to also consider the weekday AM and PM peak hours.

6.7 In relation to the junctions listed above, these are all located on the A527, which is the main south to north through route for Biddulph. Therefore, maintaining the flow of traffic along it will be a key aim for Staffordshire County Council when considering junction performance and changes to the junction performance as a result of any changes or interventions. For example, there may be some vehicular delay experienced on roads joining onto the A527, however, Staffordshire County Council would likely be adverse to any highway schemes to overcome such delays that results in the introduction of vehicular delay to the A527.

6.8 A key consideration for Staffordshire County Council with regards to any changes or interventions to junctions will also be transport policy, which seeks to reduce car use and maximise sustainable modes of transport. Providing additional highway capacity and the elimination of all vehicular delay across the network can encourage additional car use and so this would be considered by Staffordshire County Council as part of their considerations for any proposed changes or interventions.

6.9 In an urban area, the sense of 'place' must also be considered. Highway improvement interventions that provide increased road space to overcome vehicular delays must be balanced with the urban fabric of the local environs and needs, for example, for pedestrians. Highway improvement schemes in urban areas that create more road space can result in car dominated areas, which detracts from the urban fabric and local environs.

6.10 In the context of highway capacity, this links back to the above whereby any such improvements would need to be evidence led such that intervention was demonstrated as being necessary to Staffordshire County Council to overcome any severe traffic conditions.

Effect of New Housing and Additional Industrial / Commercial Units in the Area

6.11 New housing and employment is allocated in the Local Plan to be delivered within Biddulph over the coming years. Such development will generate additional demand for movement in the local area, however, there are some considerations.

6.12 Planning policy is such that all new development must demonstrate it would not create a residual cumulative impact on the road network that is severe for it to be deemed acceptable. This would be assessed as part of a comprehensive Transport Assessment undertaken as part of their planning applications. If such development was predicted to result in severe impacts on the road network, then mitigation measures would be required to overcome any such impacts. Such policy applies to developments whether they are allocated or not.

6.13 In terms of new industrial and commercial units, these would create local employment, which would create additional means for daily commuters to remain within the town rather than to other surrounding areas, for example to Stoke on Trent. This therefore creates opportunities for commuters within the town to walk or cycle to their employment, or use the local bus services.

6.14 To accord with transport policies, such new developments would need to develop and deliver bespoke multi-modal access strategies that provide sustainable transport infrastructure, for example new or improved facilities for pedestrians and cyclists and / or improved bus services. The full requirements for such would be assessed and developed as part of a comprehensive Transport Assessment undertaken as part of their planning applications.

6.15 Such infrastructure would benefit the wider town as it would be available for existing residents, visitors and workers whilst being funded by developers. With respect to buses, such new development provides the potential for additional passengers which improves the viability of services for wider benefit.

6.16 The preparation of a comprehensive Transport Assessment for the housing and employment is outside of the scope of this report, however, based upon transport policy, some considerations can be made.

6.17 New housing and employment will result in increased movement by all modes of transport. In terms of the junctions listed above, if such development results in increased vehicular delay that is considered to be severe, then the new development will need to mitigate that impact such that it is not severe to accord with transport policy. Such mitigation would be funded by the developer.

6.18 It can therefore be expected that the new development over the life of the Local Plan would result in increased traffic through the junctions listed above, however, due to a policy requirement to mitigate any severe impacts that may be created, any such increases caused by those developments should not result in any residual noticeable changes in vehicular delay to existing road users.

6.19 On this basis, the above listed junctions are considered in the context of their current operation with no noticeable changes in vehicular delay to existing road users caused by the new development over the life of the Local Plan.

A527 / Grange Road – Priority Junction

6.20 The junction between the A527 Congleton Road and Grange Road is located approximately 1.8km to the north of the town centre. The A527 forms the major arm of the priority, whilst Grange Road forms the give-way minor arm.

6.21 The carriageway of the A527 Congleton Road is approximately 8.0m in width with a footway on eastern side of the carriageway only, with a width of approximately 2.0m. Fronting onto the western side of the carriageway are private driveways and wide grass verge. The speed limit to the north of the junction on the A527 is 40mph, whilst at the junction and south of the junction the limit is 30mph. The speed limit on Grange Road is also 30mph.

6.22 Central white line hatching is present on the A527 north and south of the junction, although there is no designated right turn lane on the A527 to Grange Road.

6.23 Grange Road carriageway is approximately 7.3m in width with footway on either side, each a width of approximately 2.0m. Street lighting is present on all sides of both carriageways.

6.24 Visibility from the minor arm, Grange Road, is considered to be sufficient for the posted speed limits, although the acute angle at which Grange Road meets the A527 does require drivers to view approaching southbound A527 traffic flows over their right shoulder. Visibility for vehicles turning right into Grange Road from the A527 northbound is again considered adequate for the posted speed limits.

6.25 The image shown below in **Figure 6.1**, taken on the Thursday 5th July 2018, at 08:24:15, whilst a one-off image, indicates that there is no significant vehicular delay at the junction during the AM peak hour. Whilst not shown, the school afternoon peak and the evening peak hour were also observed and again there was no significant vehicular delay issues noted. A number of

vehicles were observed waiting to turn right, from the A527 northbound, into Grange Road and block through traffic northbound. However, this lasted less than 60 seconds.

6.26 The level of traffic flows and typical conditions at the junction was further reviewed by means of Google Maps 'typical traffic' feature. This data source indicates that during the 08:00-09:00 AM peak and school afternoon peak approximately 14:45-15:45, no vehicular delay issues are indicated. During the 17:00-18:00 PM peak, some vehicular delay can occur on Grange Road. Overall, the junction performs comparably to other similar junctions located on an A road.

Figure 6.1: View North of the A527 junction with Grange Road

Figure 6.2: A527 / Grange Road Junction 08:00 Typical Conditions

Figure 6.3: A527 / Grange Road Junction 08:30 Typical Vehicle Conditions

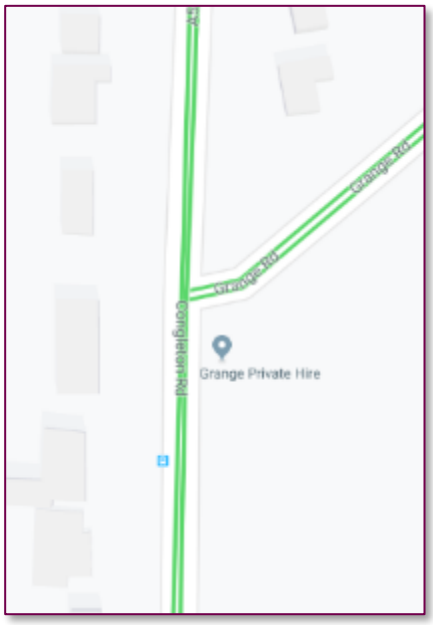


Figure 6.4: A527 / Grange Road Junction 09:00 Typical Vehicle Conditions

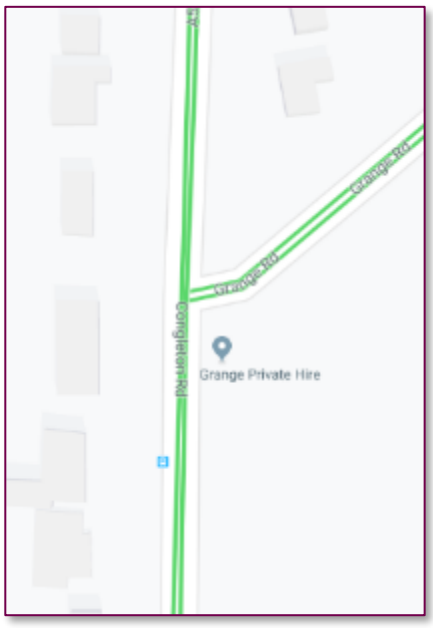


Figure 6.52: A527 / Grange Road Junction 17:00 Typical Vehicle Conditions

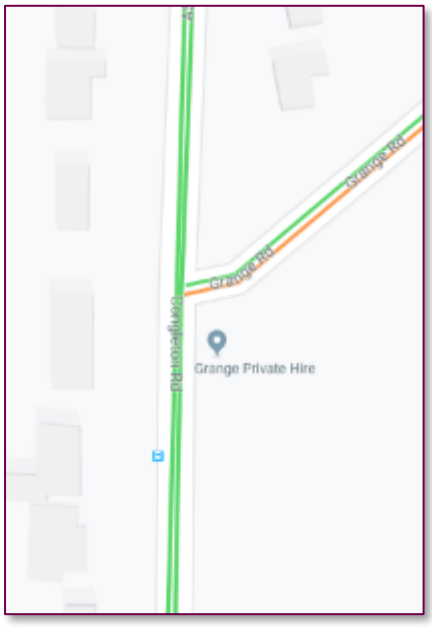


Figure 6.63: A527 / Grange Road Junction 17:30 Typical Vehicle Conditions

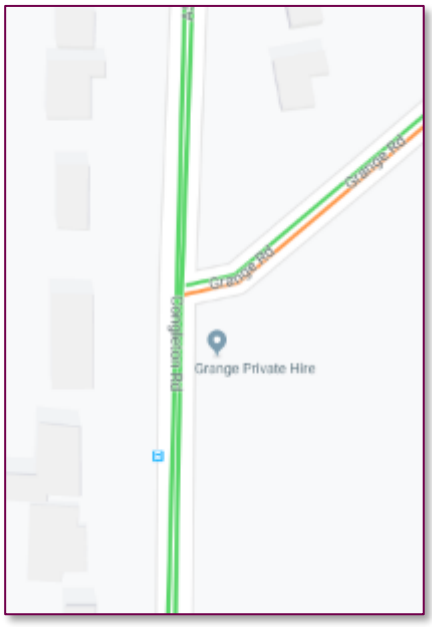
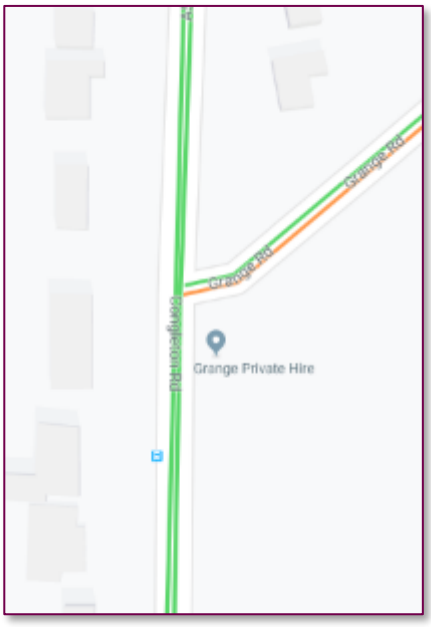


Figure 6.74: A527 / Grange Road Junction 18:00 Typical Vehicle Conditions



6.27 The vehicular delay that can occur on Grange Road is caused by these vehicles having to give way to other vehicles on the A527, who have priority. There is no traffic survey data available

for this junction, however, given the layout of the highway network, we expect that the traffic flow on the A527 will be dominant over that along Grange Road.

6.28 Due to the angled approach of Grange Road, the junctions existing geometries and adjacent land boundaries, there is limited scope to alter the white lining of the junction to provide additional capacity. As a result, any changes to the junction that seeks to improve the capacity of Grange Road is likely to take capacity away from the A527 (for example, by providing a mini roundabout).

6.29 Combined with Grange Road forming a lower order road in terms of connectivity and access to the surrounding areas, Staffordshire County Council are unlikely to be supportive of any such scheme and are likely to have a preference to retain the priority through the junction with the A527 and Grange Road remaining as a give-way.

6.30 In the case of a mini roundabout, it appears that the geometries of the junction and the adjacent land boundaries may restrict the ability for such a scheme to accord with highway design standards.

6.31 The change in speed limit from 40mph to 30mph is located immediately to the north of this junction. In such instances, it is typical that some vehicles are still reducing their speed as they pass into the 30mph limit. There is therefore an opportunity to enhance the change in speed limit to seek to reduce more vehicle speeds as they enter into the 30mph limit with a view to reducing vehicle speeds past Grange Road to seek to assist drivers giving way onto the A527.

6.32 As a longer term project, it is recommended that a gateway feature is provided at the entry into the 30mph limit. It is recommended that a design scheme is drawn up to include features such as coloured surfacing and entry treatments that could be presented to Staffordshire County Council for implementation.

A527 / Woodhouse Lane / Marshgreen Road – Priority Crossroad Junction

6.33 The junction between the A527 Congleton Road and Woodhouse Road to the east and Marshgreen Road to the west is located approximately 1.3km to the north of the town centre. The A527 forms the major arm of the priority, whilst Woodhouse Lane and Marshgreen Road form the minor arms.

6.34 The carriageway of the A527 Congleton Road is approximately 8.0m in width with a footway on eastern side, north and south of the junction and on the western side south of the junction, with widths of between approximately 2.0m and 3.0m. There is also a short section of wide footway on the southeast corner of the junction, where the adjoining residential property has its garden fence line set back. The speed limit is 30mph on all arms of the junction.

6.35 Woodhouse Lane is signposted from the A527 as a route to Biddulph Moor (1 ¼ miles; 2.0km) and Leek (8 miles; 13.0km), whilst also providing access to the residential area northeast of the town centre. The carriageway width of Woodhouse Lane in the vicinity of the junction is approximately 6.5m wide, with footways either side of the carriageway, between approximately 1.8m and 2.0m. Marshgreen Road provides access to the residential area northwest of the town centre and also to Whitemore. Marshgreen Road carriageway is approximately 4 – 5m in width with a footway on the southern side only.

6.36 Street lighting is present on all arms of the junction. Pedestrian guardrailing is present on the southeast corner of the junction

6.37 Visibility from the minor arm, Woodhouse Lane, is considered to be adequate for the posted speed limit. Visibility from the minor arm, Marshgreen Road, is considered adequate for the posted speed limit.

6.38 A pedestrian refuge is located on the A527 just to the south of the junction, whilst to the north there is a small central traffic island with a lamp column and keep left signs. The centre of the A527 has white line hatch markings approximately 1.5m to 2.0m in width.

6.39 The image shown below in **Figure 6.8**, taken on the Thursday 5th July 2018, at 08:23:36, whilst a one-off image, indicates that the junction does not have significant vehicular delay during the AM peak hour and the vehicles seen waiting to exit Woodhouse Lane and Marshgreen Lane were both able to exit within 30 seconds of the image being taken. This was also the case at other times during the AM peak hour. Whilst not shown, the school afternoon peak and the general evening peak hour were also observed and again there was no significant vehicular delay issues.

Figure 6.8: View North of the A527 junction with Woodhouse Lane and Marshgreen Lane

6.40 The level of traffic flows and typical conditions at the junction was further reviewed by means of Google Maps 'typical traffic' feature. This data source indicates that during the AM peak, school afternoon peak, and PM peak, some vehicular delay can occur on Woodhouse Lane.

Figure 6.95: A527 / Woodhouse Lane Junction 08:00 Typical Vehicle Conditions

Figure 6.106: A527 / Woodhouse Lane Junction 08:30 Typical Vehicle Conditions

Figure 6.117: A527 / Woodhouse Lane Junction 09:00 Typical Vehicle Conditions

Figure 6.128: A527 / Woodhouse Lane Junction 17:00 Typical Vehicle Conditions

Figure 6.139: A527 / Woodhouse Lane Junction 17:30 Typical Vehicle Conditions

Figure 6.1410: A527 / Woodhouse Lane Junction 18:00 Typical Vehicle Conditions

6.41 The vehicular delay that can occur on Woodhouse Lane is caused by these vehicles having to give way to other vehicles on the A527, who have priority. There is no traffic survey data available for this junction, however, given the layout of the highway network, we expect that the traffic flow on the A527 will be dominant over that along Woodhouse Lane.

6.42 The give way entry of Woodhouse Lane is flared to create a wide 'bellmouth' onto the A527. If this was widened to enable a short second lane to be created (to create separate left turn and right turn lanes) then this is likely to result in an increased crossing distance for pedestrians, which would be contrary to current guidance and advice. Furthermore, the dropped kerb placement for the crossing does not accord with best practice in terms of its location (should be located outside of the bellmouth) and so any adjustments made to the bellmouth may further exacerbate this.

6.43 However, there may be an improvement scheme available via an iterative design process that retains the existing kerblines but is able to introduce separate left and right turn lanes such that additional capacity could be provided to Woodhouse Lane.

6.44 As an alternative, a mini-roundabout could be considered. Woodhouse Lane and Marshgreen Lane are offset and have a small stagger between their centrelines, which does not lend itself to providing a mini-roundabout. Such a scheme would also interrupt the traffic flow on the A527, which Staffordshire County Council may not support.

6.45 A potential quick win for this junction may be to reduce traffic flows through it. Woodhouse Lane forms the primary route to Biddulph Moor and is not well suited for walking and cycling but is for buses. It is recommended that the bus operator and Staffordshire County Council is contacted to determine passenger take up from Biddulph Moor and investigate if improved services could be provided so as to enact a mode shift from the private car to the bus. Woodhouse Lane also forms a potential route from Leek, however, there is no direct bus service between Biddulph and Leek. It is therefore recommended that bus operators and Staffordshire County Council are contacted to determine if there is any appetite for providing such a service so as to enact a mode shift from the private car to the bus.

6.46 As a longer term project, it is recommended that highway design schemes are drawn up to consider whether suitable schemes that accord with highway design standards could be provided such that additional capacity could be provided to Woodhouse Lane.

A527 / Congleton Road – Roundabout Junction

6.47 The roundabout junction between the A527 Congleton Road and Congleton Road is located approximately 0.7km to the north of the town centre. The A527 south of this location, as far as the junction with St John's Road, forms the town centre relief road.

6.48 The roundabout has three approach arms, the A527 from the southwest, the A527 Congleton Road from the north and Congleton Road from the southeast. The through route is along the A527, with Congleton Road to the southeast providing access into the town centre, leisure centre and to residential areas to the east.

6.49 Both A527 entries onto the roundabout are single lanes, flaring to two lanes for approximately 20m prior to the roundabout give way markings. Northbound the nearside lane is marked for ahead only, whilst the offside lane is marked right turn only. Southbound the nearside lane is marked left turn only, whilst the offside lane is marked ahead only. Congleton Road from the south east consists of a two-lane approach over a short distance back to the mini-roundabout junction with Thames Drive and its lanes are unmarked.

6.50 The roundabout is approximately 39m in diameter, with approach arms at the A527 give-way markings approximately 7.3m in width and 6.0m on Congleton Road. A footway is located on

both sides of all arms and around the outside of the roundabout, approximately 2.0m in width. All of the approach arms have splitter islands with dropped kerbs on the adjacent footways and on the splitter islands. Street lighting is present on all approach arms and around the roundabout.

6.51 Visibility from all approach arms to the arm immediately to its right is considered adequate for the posted 30mph speed limit. As the A527 rises slightly north and southwest of the roundabout visibility across the roundabout is also considered adequate as vehicle approach the roundabout. When at the give way line on any of the approach arms, the vegetation located on the central island has now grown to such an extent that circulating vehicles are partly obscured, however, such growth assists with road safety by seeking to slow the speed of vehicles on their approach. The contrast in vegetation growth can been seen in **Figure 6.15** and **Figure 6.16** below, the first on the left taken in 2011, whilst the second on the right in July 2018.

Figure 6.15: Central Island Foliage 2011

Figure 6.16: Central Island Foliage 2018

6.52 The image shown below, taken on the Thursday 5th July 2018, at 08:27:18, whilst a one-off image, indicates that there was no vehicular delay at that time. This was also the case at other times during the AM peak hour. Whilst not shown, the school afternoon peak and the general evening peak hour were also observed and again there was no significant vehicular delay issues.

Figure 6.17: A527 / Congleton Road Roundabout

6.53 The level of traffic flows and typical conditions at the junction was further reviewed by means of Google Maps 'typical traffic' feature. This data source indicates that during the AM peak, shown in **Figure 6.18** to 6.20, there is some brief vehicular delay on the Congleton Road movement from the town centre onto the A527. During the PM peak, shown in **Figure 6.21 to 6.23**, some vehicular delay can occur on the Congleton Road movement from the town centre onto the A527.

Figure 6.18: A527 / Congleton Road Roundabout 08:00 Typical Vehicle Conditions

Figure 6.1911: A527 / Congleton Road Roundabout 08:30 Typical Vehicle Conditions

Figure 6.2012: A527 / Congleton Road Roundabout 09:00 Typical Vehicle Conditions

Figure 6.2113: A527 / Congleton Road Roundabout 17:00 Typical Vehicle Conditions

Figure 6.2214: A527 / Congleton Road Roundabout 17:30 Typical Vehicle Conditions

Figure 6.2315: A527 / Congleton Road Roundabout 18:00 Typical Vehicle Conditions

6.54 Based on the above, it is the PM peak hour when vehicular delay is most noticeable. Such vehicular delays caused from leaving town centres occurs throughout the UK. Of the traffic survey data obtained from Staffordshire County Council, there is no data available for the Congleton Road movement onto the A527 roundabout.

6.55 A potential quick win for this junction may be to reduce traffic flows through it. It is recommended that the bus operator and Staffordshire County Council is contacted to determine passenger take up of the services departing the town centre during the PM peak hour and investigate if improved or rerouted services could be provided so as to enact a mode shift from the private car to the bus.

6.56 The A527 / Congleton Road roundabout was constructed to modern highway design standards fairly recently. That said, the Congleton Road entry, which is the arm that suffers from vehicular delay, is narrower (at 6.0m) than the A527 arms (at 7.3m). A widening of the Congleton Road arm would result in increased capacity and would alleviate vehicular delay. However, any such widening would need to ensure that the layout remained in accordance with highway design standards.

6.57 As a longer term project, it is recommended that highway design schemes are drawn up to consider widening of the Congleton Road entry arm such that additional capacity could be provided to this arm.

A527 / Wharf Road / Dorset Drive – Roundabout Junction

6.58 The roundabout junction between the A527 Meadows Way, Dorset Drive and Wharf Road is located approximately 0.3km to the west of the town centre. The A527 passes north/south through the roundabout, whilst Dorset Drive is to the west and provides access to the residential area west of the town centre. To the east is the Wharf Road arm which provides the primary access route to / from the town centre. The route also provides access to the major retailers such as Sainsbury's, Home Bargains and B&M. Wharf Road also acts as the main public transport corridor to / from the town centre.

6.59 The A527 Meadows Way approaches are single lanes, flaring to two lanes for approximately 15.0m prior to the roundabout give way markings. Northbound the nearside lane is marked for left turn and ahead, whilst the offside lane is marked right turn only. Southbound the nearside lane is marked for left turn only, whilst the offside lane is marked ahead only, albeit right turns should also be made from this lane. Wharf Road and Dorset Drive are single lane approaches, flaring to two lanes for approximately 10.0m prior to the roundabout give way markings. There are no lane markings on either approach, therefore standard lane use for left, ahead and right turning traffic applies.

6.60 The roundabout is approximately 38m in diameter, with approach arms at the give-way markings approximately 7.3m in width. A footway is located on both sides of all approach arms and around the outside of the roundabout, approximately 2.0m in width. All of the approach arms have splitter islands with dropped kerbs on the adjacent footways and on the splitter islands. Street lighting is present on all approach arms and around the roundabout. Visibility for all arms of the roundabout is considered adequate for the posted 30mph speed limit.

6.61 A signalised pedestrian crossing (Puffin type) is located approximately 42.0m south of the roundabout.

6.62 The image shown below, taken on the Thursday 5th July 2018, at 08:47:20, whilst a one-off image, indicates that the junction does not have a significant vehicular delay issue at this time. This was also the case at other times during the AM peak hour. Whilst not shown, the school afternoon peak and the general PM peak hour were also observed and again there was no significant vehicular delay issues. The previously discussed Puffin crossing was observed to create short lived queues of traffic northbound and southbound. The queue southbound was observed as not being of sufficient length to block the operation of the adjacent Wharf Road roundabout.

Figure 6.24: A527 / Wharf Road Roundabout

6.63 The level of traffic flows and typical conditions at the junction was further reviewed by means of Google Maps 'typical traffic' feature. This data source indicates that during the AM peak, shown in Figure 6.25, 6.26 and 6.27 and PM peak, shown in Figure 6.28, 6.29 and 6.30, significant vehicular delay issues were present on the A527.

Figure 6.2516: A527 / Wharf Road / Dorset Drive Roundabout 08:00 Typical Vehicle Conditions

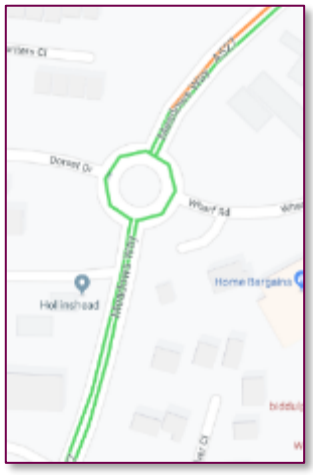


Figure 6.2617: A527 / Wharf Road / Dorset Drive Roundabout 08:30 Typical Vehicle Conditions

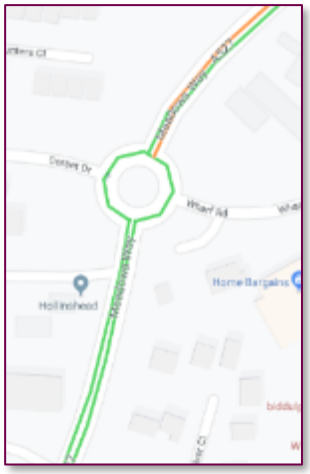


Figure 6.2718: A527 / Wharf Road / Dorset Drive Roundabout 09:00 Typical Vehicle Conditions

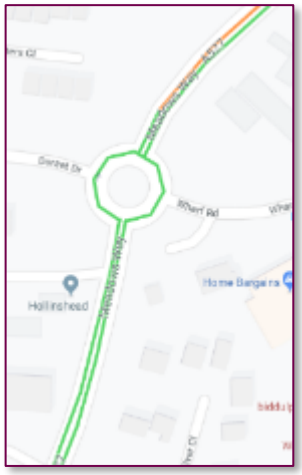


Figure 6.2819: A527 / Wharf Road / Dorset Drive Roundabout 17:00 Typical Vehicle Conditions

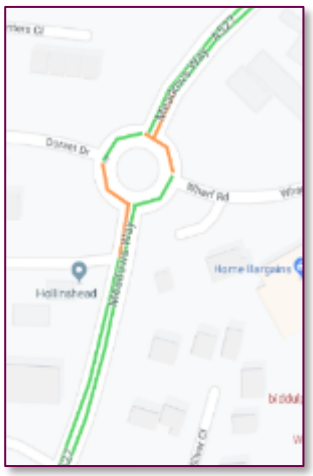


Figure 6.2920: A527 / Wharf Road / Dorset Drive Roundabout 17:30 Typical Vehicle Conditions

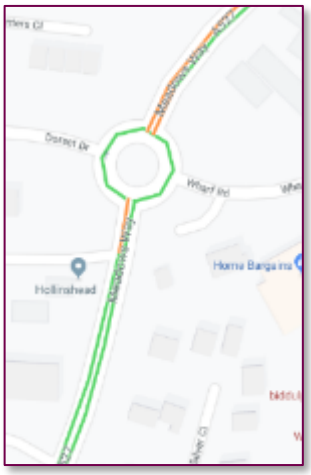
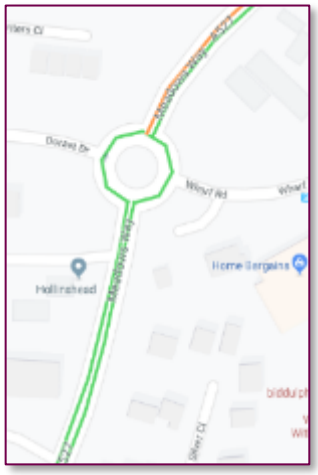


Figure 6.3021: A527 / Wharf Road / Dorset Drive Roundabout 18:00 Typical Vehicle Conditions



6.64 There are occasions when vehicular delay can occur on Wharf Road onto the A527. Of the traffic surveys available from Staffordshire County Council, there are none on Wharf Road. The A527 / Wharf Road roundabout was constructed to modern highway design standards fairly recently and it is constrained by the surrounding land boundaries and remains of the original Wharf Road alignment (pre-bypass).

6.65 A potential quick win for this junction may be to reduce traffic flows through it. As part of the same exercise as the A527 / Congleton Road roundabout, it is recommended that the bus operator and Staffordshire County Council is contacted to determine passenger take up of the services departing the town centre particularly during the PM peak hour and investigate if improved or rerouted services could be provided so as to enact a mode shift from the private car to the bus.

6.66 As a longer term project to provide additional capacity to this junction, an enlarged roundabout would be needed, or removal of the roundabout and the implementation of a four-arm signalised crossroads. As a longer term project, it is recommended that highway design schemes are drawn up to consider such schemes so as to provide additional capacity to the Wharf Road arm.

A527 / Tunstall Road and A527 / St John's Road– Roundabout Junctions

6.67 Whilst the junctions are two separate roundabouts, they are in close proximity of each other and traffic flows interact sufficiently to warrant reviewing the two junctions as a single entity. The junctions are approximately 1.0km south of the town centre.

6.68 The A527 / Tunstall Road roundabout is the northern of the two junctions, with the A527 / St John's Road to the south. A staggered signalised pedestrian crossing (Puffin type) is located between the two roundabouts. The carriageway between the roundabouts consists of two lanes in each direction, which are approximately 7.3m in width. Between the two junctions, the nearside southbound lane is marked as a left turn only into St John's Road, whilst northbound the offside lane is marked as a right turn only into Tunstall Road. The A527 runs north/south, with Tunstall Road to the north east and St John's Road to the east.

6.69 Both roundabouts are approximately 42m in diameter, with all approach arms at the give-way markings approximately 7.3m in width. A footway is located on both sides of the majority of approach arms and around the eastern side of the roundabout, approximately 2.0m in width. There is no footway on the western side of the roundabout or on the western side of the A527 to the north of Tunstall Road. All of the approach arms have splitter islands, although only Tunstall Road has dropped kerbs on the adjacent footways and on the splitter islands. Street lighting is present on all approach arms and around the roundabout.

6.70 The section of carriageway between the roundabouts is divided by a central island, approximately 4 – 5m wide in the vicinity of the Puffin crossing.

6.71 Visibility from all approach arms to the arm immediately to its right is considered adequate for the posted 30mph speed limit. Visibility across the roundabout is considered has vegetation obscuring northbound right turning traffic in to St Johns Road and also right turning traffic northbound into Tunstall Road, however, this acts as a means to slow traffic speeds on their approach to the roundabouts and such measures are typically used for road safety purposes.

6.72 The images shown below, taken on the Thursday 5th July 2018, at 08:46:16 southbound, and northbound at 08:35:39 both indicate vehicular delay at the St John's roundabout. Our observations suggest the vehicular delay does not originate at the roundabout itself, rather as a result of congestion caused at the A527 / Park Lane / Newpool Road signal-controlled junction which blocks back and also, to a lesser extent, by the 'Lollipop' crossing person located just south of the St John's Road roundabout.

Figure 6.31: A527 / Tunstall Road / St John's Road Roundabouts

Figure 6.32: A527 / Tunstall Road / St John's Road Roundabouts

6.73 Similar levels of vehicular delay, northbound, towards both roundabouts were also observed during the afternoon school peak and again during the PM peak hour.

6.74 The level of traffic flows and typical conditions at the junctions were further reviewed by means of Google Maps 'typical traffic' feature. This data source indicates that during the AM peak, school afternoon peak, and PM peak, southbound traffic through both junction's experiences significant levels of slow-moving traffic flows and vehicular delay, as shown in Figure 6.33 AM peak 08:00, Figure 6.34 at 08:30 and Figure 6.35 at 09:00. As above, observations suggest this originates from the A527 / Park Lane / Newpool Road junction and, by a lesser extent, by the 'Lollipop' crossing person.

6.75 The school peak is shown in Figure 6.36 at 14:45, Figure 6.37 at 15:15 and Figure 6.38 at 15:45. **Figure 6.3927****6.39** shows the PM peak 17:00, Figure **6.4028**6.40 at 17:30 and Figure **6.4029**6.41 18:00 on a typical day weekday.

Figure 6.3322: A527 / Tunstall Road and A527 / St John's Road Roundabouts 08:00 Typical Vehicle Conditions

Figure 6.3423: A527 / Tunstall Road and A527 / St John's Road Roundabouts 08:30 Typical Vehicle Conditions

Figure 6.3524: A527 / Tunstall Road and A527 / St John's Road Roundabouts 09:00 Typical Vehicle Conditions

Figure 6.3625: A527 / Tunstall Road and A527 / St John's Road Roundabouts 14:45 Typical Vehicle Conditions

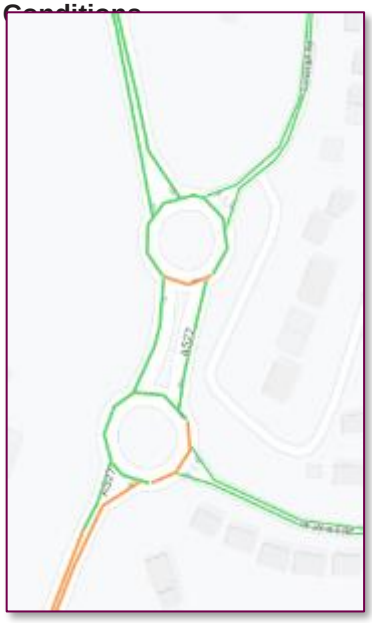


Figure 6.37: A527 / Tunstall Road and A527 / St John's Road Roundabouts 15:15 Typical Vehicle Conditions

Figure 6.3826: A527 / Tunstall Road and A527 / St John's Road Roundabouts 15:45 Typical Vehicle Conditions

Figure 6.3927: A527 / Tunstall Road and A527 / St John's Road Roundabouts 17:00 Typical Vehicle Conditions

Figure 6.4028: A527 / Tunstall Road and A527 / St John's Road Roundabouts 17:30 Typical Vehicle Conditions

Figure 6.4029: A527 / Tunstall Road and A527 / St John's Road Roundabouts 18:00 Typical Vehicle Conditions

6.76 Given the effects of the A527 / Park Lane / Newpool Road signalised junction on these roundabouts, it is recommended that efforts are focused on reducing the blocking back that occurs, which will provide subsequent benefit to these roundabouts.

A527 / Park Lane / Newpool Road – Signal controlled junction

6.77 The signal-controlled junction between the A527 Tunstall Road, Park Lane and Newpool Road is located approximately 1.1km to the south of the town centre. The A527 passes north/south through the junction, Park Lane is to the east and provides access to the residential area southeast of the town centre, Newpool Road is to the west and provides access to the residential area of Brown Lees southwest of the town centre.

6.78 All arms of the junction are signal controlled, with pedestrian crossing facilities, e.g. pedestrian 'push button' boxes, across all four arms of the junction.

6.79 Southbound the A527 has two lanes at the stop line, extending back for approximately 30.0m before merging to a single approach lane. The nearside lane is marked as an ahead and left turn, whilst the offside lane is marked as right turn only into Newpool Road. Each lane is approximately 3.0m wide.

6.80 Northbound the A527 is again two lanes at the stop line, which extend back for approximately 35m before merging to a single approach lane. Each lane is approximately 3.0m wide. The

nearside lane is marked as ahead and left, whilst the offside lane is marked as right turn only into Park Lane.

6.81 Footways are provided on all sides of the junction except for the northern side of Park Lane. Dropped kerbs and tactile paving are located at the signal crossing.

6.82 Westbound towards the junction, Park Lane consist of a single lane, approximately 3.0m wide. All movements are permitted from the arm. Park Lane carriageway is in total approximately 5.5m in width and as a consequence the westbound stop line is set back from the junction by approximately 15m in order to avoid conflict between vehicle entering the road and those stopped at the stop line. Footways are located on both sides of the carriageway.

6.83 Eastbound towards the junction, Newpool Road consists of a single lane, approximately 3.2m wide. All movements are permitted from the arm. Footways are located on both sides of the carriageway.

6.84 Double yellow lines are present on the approach for all arms and through the junction, street lighting is also present on all approach arms and at the junction.

6.85 The junction operates by means of four stages. Firstly, the A527 northbound and southbound signals change to green. The second stage sees the northbound A527 receive a red signal, the southbound green signal continues alongside an indicative right turn green arrow which allows right turns to turn unopposed by oncoming northbound vehicles.

6.86 The A527 north and southbound signals then turn red, before Park Lane and Newpool Road receive a green light. The signal-controlled pedestrian crossing stage was called each and every cycle during the observed peaks.

6.87 The level of pedestrian demand at the junction is due the surrounding residential areas, proximity of Knypersley First School on southwest corner of the junction, the James Bateman Junior High School on Park Lane, approximately 150m east of the junction and Biddulph High School.

6.88 The images shown below, taken on the Thursday 5th July 2018, at 08:19:25 northbound, and southbound at 08:13:21 both indicate vehicular delay issues at the A527 / Park Lane / Newpool Road junction.

Figure 6.41: View Northbound on the A527 at Park Lane Signal Junction, AM 08:19

Figure 6.42: View Southbound on the A527 at Park Lane Signal Junction, AM 08:13

6.89 Vehicular delay at the junction was also observed during the afternoon school peak and again during the PM peak hour.

6.90 The level of traffic flows and typical conditions at the junction were further reviewed by means of Google Maps 'typical traffic' feature. This data source indicates that during the AM peak, school afternoon peak, and PM peak, traffic on all arms of the junction experience significant levels of slow moving traffic flows and vehicular delay, as shown in

6.91 **Figure 6.43306.43** AM peak 08:30, **A527 / Park Lane Junction AM 08:30 Typical Vehicle Conditions**

6.92 **Figure 6.44316.44 Figure 6.4330**school peak 15:10 and **Conditions**

6.93 **Figure 6.45326.45** PM peak 17:30 on a typical weekday.

Figure 6.4330: A527 / Park Lane Junction AM 08:30 Typical Vehicle Conditions

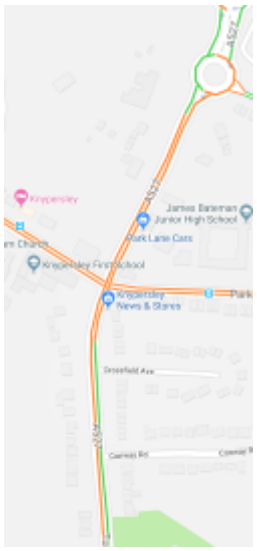


Figure 6.4431: A527 / Park Lane Junction school closing PM 15:20 Typical Vehicle Conditions

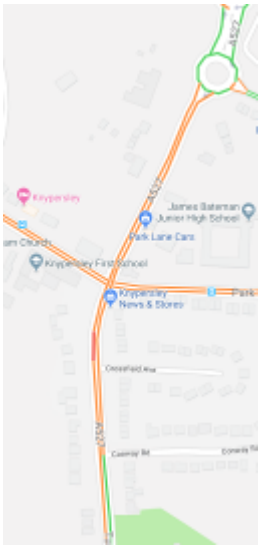
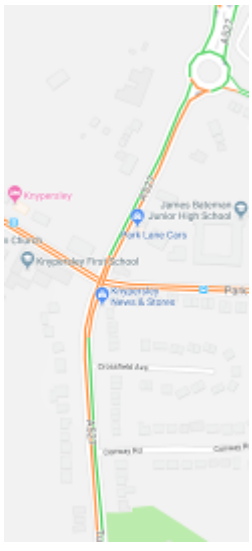


Figure 6.4532: A527 / Park Lane Signal Junction PM 17:30 Typical Vehicle Conditions



6.94 Traffic flow data for the A527 has been sourced from Staffordshire County Council. The latest available data dates from 01/01/2017 to 07/01/2018 and has been summarised into average daily flows by hour for southbound and northbound directions. The AM peak hour 08:00-09:00 has on average 471 vehicles northbound and 523 vehicles southbound, during the school peak 15:00-16:00 there are on average 514 vehicles northbound and 546 vehicles southbound, whilst for the PM peak hour 17:00-18:00 there are on average 631 vehicles northbound and 574 vehicles southbound.

6.95 Traffic flow data is also available for eastern arm of the junction, Park Lane. The latest available data dates from 19/06/2012 to 03/07/2012 and has been summarised into average daily flows by

hour for southbound and northbound directions. The AM peak hour 08:00-09:00 has on average 142 vehicles eastbound and 164 vehicles westbound, during the school peak 15:00-16:00 there are on average 142 vehicles eastbound and 122 vehicles westbound, whilst for the PM peak hour 17:00-18:00 there are on average 141 vehicles eastbound and 130 vehicles westbound. It should be noted that since the dates of these traffic surveys, it is expected that background growth in the level of traffic flows will have occurred. However, for the purposes of this report they are still considered a representative indication of flows.

6.96 In addition to the above traffic flows, a second more complete source of data, from a publicly available planning application, and the supporting Transport Assessment[1], which provides 2015 traffic flows on all arms as shown in the turning diagram in Figure **6.4633**6.46 for the AM 08:00-09:00 peak hour and in

6.97 6.47 for the PM peak hour 17:00-18:00. No traffic flows were available for the afternoon school closing peak hour.

Figure 6.4633: A527 / Park Lane / Newpool Road Junction – 2015 AM 08:00-09:00 Traffic Flows

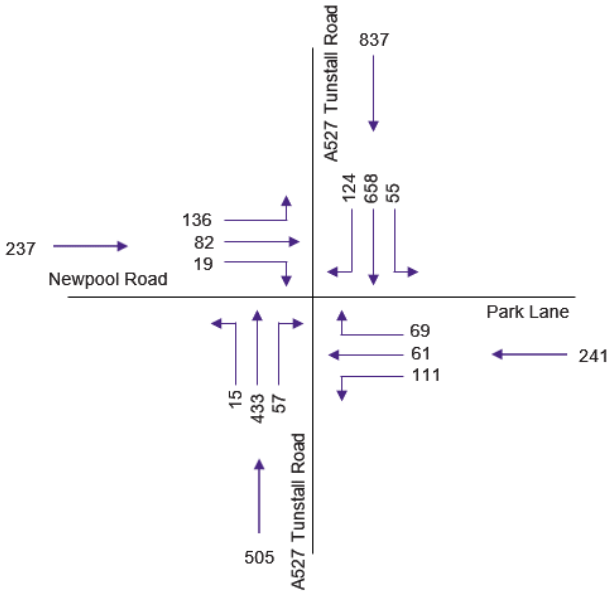
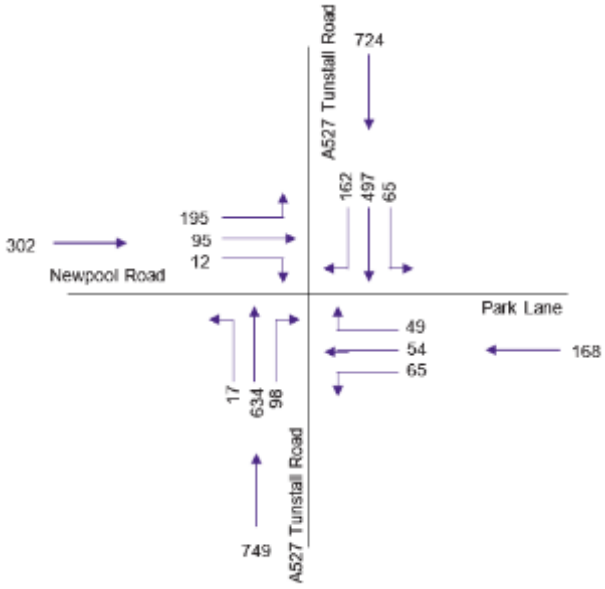


Figure 6.4734: A527 / Park Lane / Newpool Road Junction – 2015 PM 17:00-18:00 Traffic Flows



Source: SCP Transport Planning Consultants

6.98 These traffic surveys show that there was a total of 1,820 and 1,943 vehicle movements through the signalised junction during the AM and PM peak hours respectively. Of these, there were 837

[1] SCP Transport Planning Consultants - Transport Assessment, Proposed Extra Care Facility Strata Developments, October 2015 – Doc Ref: SB/15245/TA/01

southbound vehicle movements on the A527 from St Johns Road onto the junction during the AM peak hour and 724 southbound vehicle movements during the PM peak hour.

6.99 Based on our experience, these levels of traffic flows combined with the use of the pedestrian crossings, results in the capacity of the junction being exceeded. Of note is the southbound movement (837) being higher during the PM peak hour and validating observations of the resultant queue blocking back onto the St Johns roundabout.

6.100 The operation of traffic signalised junctions are controlled by microprocessor based upon an input set of criteria. Over time, with changing situations, these criteria may no longer be optimum and the resultant performance of the signalised junction is similarly no longer optimum.

6.101 A potential quick win for this junction may be to reduce traffic flows through it. As part of the same exercise as the A527 / Congleton Road and A527 / Wharf Road roundabouts, it is recommended that the bus operator and Staffordshire County Council is contacted to determine passenger take up of the services along the A527 corridor to the south of the town centre and investigate if improved or rerouted services could be provided so as to enact a mode shift from the private car to the bus.

6.102 As a quick win, it is recommended that Staffordshire County Council is approached and asked when they last assessed the performance of this signalised junction and if they are confident its signal settings are optimised based upon current conditions. From this, Staffordshire County Council may be able to adjust the signal settings to result in an improvement in its performance and thus a reduction in vehicular delay.

6.103 As a longer term project, additional junction capacity could be provided via the installation of MOVA (Microprocessor Optimised Vehicle Actuation) signal control software and detectors. This is a more complex microprocessor with associated infrastructure on the ground that can detect vehicles as they approach the junction and adjust the signals on an ongoing basis so as to minimise vehicular delay through the whole junction.

6.104 Typically, small to medium size congested junctions in urban locations can expect to see between 12% and 18% reduction in vehicle delay at the junction after the installation of MOVA. It is recommended that Staffordshire County Council is approached to discuss the potential for installing MOVA at the junction.

A527 / Childerplay Road Junction

6.105 This junction is located approximately 2.5km to the south of the town centre, whereby the A527 forms the major arm of the priority and Childerplay Road forms the give-way minor arm.

6.106 The A527 is approximately 7.3m wide with footways on both sides of the carriageway. There is a 30mph speed restriction which changes to 40mph approximately 35 to the south of Childerplay Road.

6.107 Childerplay Road is a wide single carriageway road at its western end with on-street parking along both sides, albeit retaining two-way vehicular movement along it.

6.108 Visibility from Childerplay Road is reasonable for vehicle speeds, however, because it joins the A527 at an angle, this results in drivers having to look over their left shoulder when turning right onto the A527.

6.109 Visibility for vehicles turning right into Childerplay Road from the A527 northbound is again considered adequate for the posted speed limit.

6.110 Observations have shown that some vehicular delay can be incurred on Childerplay Road. The level of traffic flows and typical conditions at the junction was further reviewed by means of Google Maps 'typical traffic' feature, as shown on Figures 6.48 to 6.53. This data source indicates that during the 08:00-09:00 AM peak hour, no abnormal vehicular delay is typically experienced. During the 17:00-18:00 PM peak hour, some vehicular delay can occur on Childerplay Road. Overall, the junction performs comparably to other similar junctions located on an A road.

Figure 6.48: A527 / Childerplay Road Junction 08:00 Typical Conditions

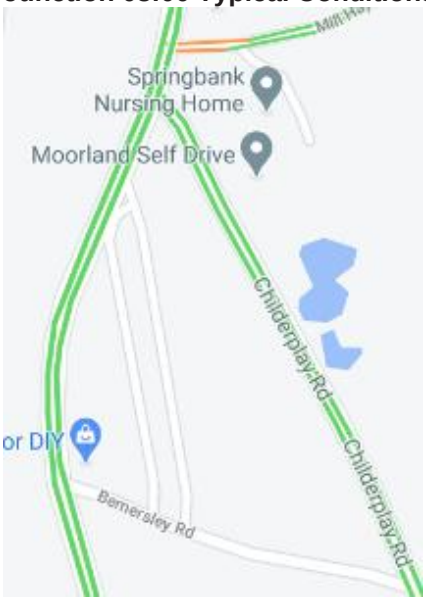


Figure 6.49: A527 / Childerplay Road Junction 08:30 Typical Conditions

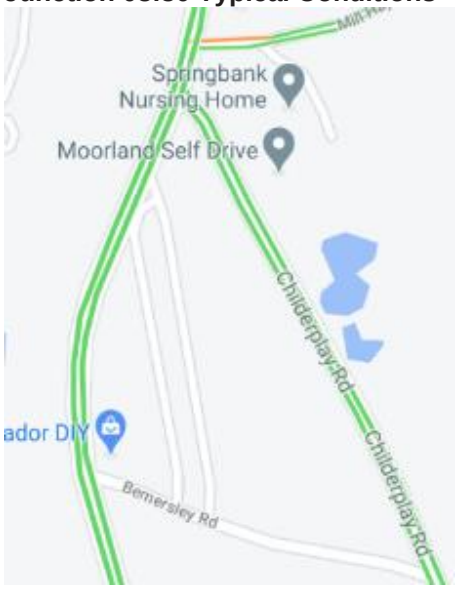


Figure 6.50: A527 / Childerplay Road Junction 09:00 Typical Conditions

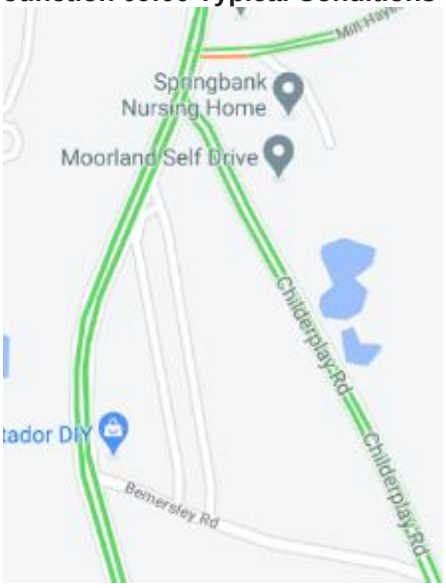


Figure 6.51: A527 / Childerplay Road Junction 17:00 Typical Conditions

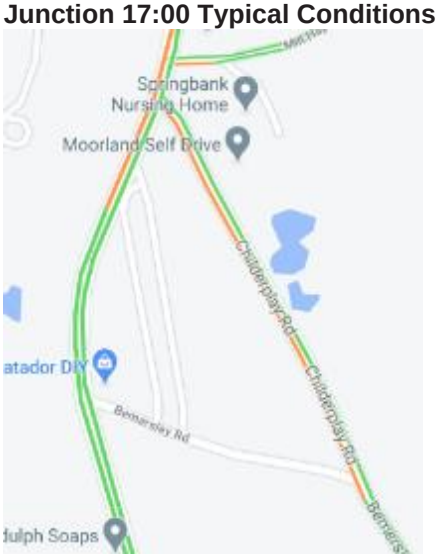


Figure 6.52: A527 / Childerplay Road Junction 17:30 Typical Conditions

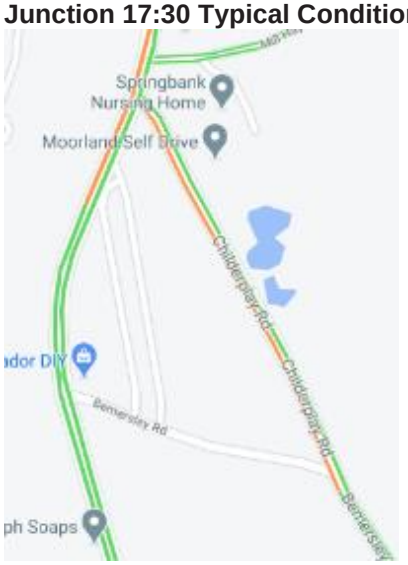
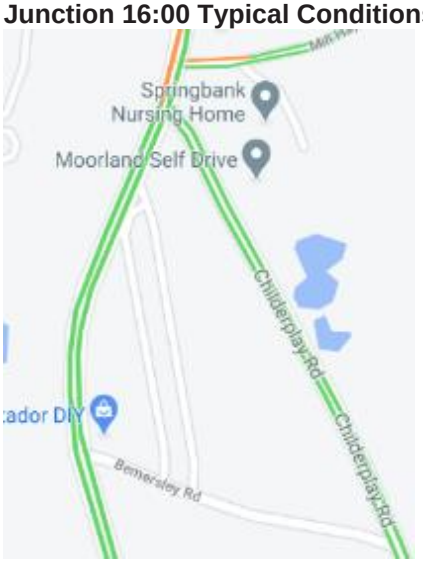


Figure 6.53: A527 / Childerplay Road Junction 16:00 Typical Conditions



6.111 The vehicular delay that can occur on Childerplay Road is caused by these vehicles having to give way to other vehicles on the A527, who have priority. There is no traffic survey data available for this junction, however, given the layout of the highway network, we expect that the traffic flow on the A527 will be dominant over that along Childerplay Road.

6.112 Observations suggest that the predominant turning movement from Childerplay Road is the right turn towards the town centre and that the process of looking over the left shoulder delays these turns which results in a delay to vehicles through the junction.

6.113 It appears that there has been an attempt to alter the white lining at the give way line of Childerplay Road in recent years to seek to direct drivers to arrive at the give way line at a more perpendicular angle, however, this does not appear to have had the desired effect.

6.114 As a quick win, it is recommended that Staffordshire County Council is approached to discuss further alterations to the white lining to seek to direct drivers to arrive at the give way line at a more perpendicular angle.

6.115 Another potential quick win for this junction may be to reduce traffic flows through it. This part of the A527 forms the key route between Biddulph and Newcastle-Under-Lyme and Stoke on Trent. It is recommended that the bus operator and Staffordshire County Council is contacted to determine passenger take up of the services along the A527 corridor to the south of the town centre and investigate if improved services could be provided so as to enact a mode shift from the private car to the bus.

6.116 The change in speed limit from 40mph to 30mph is located to the south of this junction. In such instances, it is typical that some vehicles are still reducing their speed as they pass into the 30mph limit. There is therefore an opportunity to enhance the change in speed limit to seek to reduce more vehicle speeds as they enter into the 30mph limit with a view to reducing vehicle speeds past Childerplay Road to seek to assist drivers giving way onto the A527.

6.117 As a longer term project, it is recommended that a gateway feature is provided at the entry into the 30mph limit. It is recommended that a design scheme is drawn up to include features such as coloured surfacing and entry treatments that could be presented to Staffordshire County Council for implementation

Junction Improvements

6.118 Specific improvements relating to each junction is set out above. As quick wins it is recommended that the bus operators and Staffordshire County Council is contacted to determine passenger take up of the services and investigate if improved services could be provided so as to enact a mode shift from the private car to the bus and thus seek to reduce vehicle movements within the town as a whole.

6.119 It is recommended this dialogue should continue into the longer term to ensure any changing circumstances in bus provision, passenger numbers, emerging developments and potential increases to passenger numbers are known and understood so that bus provisions remain optimised to seek to reduce vehicle movements within the town as a whole.

6.120 It is generally regarded within the industry that 2km represents a reasonable walking distance and 5km represents a reasonable cycling distance. However, factors such as topography affects this.

6.121 The town centre is generally within a 2km walk of the whole built up area of Biddulph and is fully within a 5km cycle. There is already a reasonable network of footways throughout Biddulph that could be utilised by residents of the town walking to / from the town centre.

6.122 The employment area to the south of the town is within a 5km cycle of the whole built up area of Biddulph.

6.123 Residential streets are generally regarded as 'quiet roads' suitable for cycling and so there are opportunities for cyclists to make use of these to cycle to / from the town centre and to / from the employment area to the south of the town.

6.124 Although there are some parts of the town and its surroundings where topography is not conducive to walking or cycling, many areas are. If residents were encouraged to walk or cycle more then this would result in a mode shift away from the private car with associated benefits to vehicular delays at junctions along the A527.

6.125 As a general quick win that will lead to an ongoing long term project, it is recommended that walking and cycling is promoted amongst residents of the town. This could be through co-ordinated events that raises awareness such as sponsored walks or bike rides with an aim of subsequent uptake of these modes for daily movement and may also include stalls in the town centre or news coverage on local radio / news outlets etc for promotion.

6.126 Once progressed, user groups can be set up to meet, compare and discuss experiences of walking and cycling throughout the town on an ongoing basis. These ongoing experiences will be key in identifying restrictions or areas that are unattractive or require improvement to ensure the longer term attraction of walking and cycling and targeted improvements can be devised in liaison with Staffordshire County Council.

6.127 Such efforts would require time to be dedicated, however, the aim would be to improve awareness of the potential for walking and cycling with an overall objective of reducing vehicular delays at junctions along the A527.

6.128 As a quick win in this regard, cycle parking should be provided in the town centre in a prominent position that would act to promote cycling. Land availability will dictate such positioning, but a suggested location would be outside the town hall.

6.129 As a longer term project, there appears to be the potential to provide a combined footway / cycleway along the eastern side of the A527 that would link to the employment areas in the south. This would effectively run approximately parallel to National Cycle Route 55, however, would benefit from having street lighting for winter months and have more overlooking thus improving personal security. It also appears possible to provide a combined footway / cycleway along the eastern side of St Johns Road that would provide direct links into residential areas.

6.130 As a long term project, it is recommended that the extent of highway is investigated with Staffordshire County Council to determine if existing footways and verges could be improved to provide a 3.0m wide (minimum) combined footway / cycleway in these locations. As before, the aim would be to enact a mode shift away from the private car with the aim of reducing vehicular delays on junctions along the A527.

A527 Vehicle Speeds

6.131 The A527 is generally subject to a 30mph speed restriction save for the town centre bypass section that has a 40mph speed restriction. It is a relatively wide road with central white lining and hatching in many locations. Where speeding in urban areas is considered a concern, there are some options to consider to seek a reduction in vehicle speeds.

6.132 One is by enforcement, for example by way of installing fixed speed cameras at key location(s). Linked to this is the installation of speed camera signs in the absence of speed cameras. To retain the effectiveness of these over time, mobile cameras are required to be used from time to time.

6.133 The installation of vehicle activated warning signs that displays an oncoming vehicles speed is a means with which to give drivers better awareness of their speed and which is effective in reducing vehicle speeds.

6.134 In terms of physical measures, installations such as road humps, speed cushions, kerb build outs and chicanes can reduce vehicle speeds, however, these can disrupt the free flow of traffic and are not always liked by bus passengers, bus operators and emergency services. Given this is an A road, such physical measures are unlikely to be favoured by Staffordshire County Council.

6.135 The removal of road markings has been found to reduce vehicle speeds in some locations, however, given the wide nature of the A527 in many areas, this is not considered to be a reasonable method in this instance.

6.136 Alterations to the white lining to create an impression of reduced lane width can be effective in reducing vehicle speeds. Such white lining appears to have been provided on parts of the A527, for example, where there is central white hatchings. This suggests that it is a favoured approach by Staffordshire County Council.

6.137 If efforts are made to seek a reduction in vehicle speeds, it is firstly recommended that speed surveys are undertaken to be able to demonstrate to Staffordshire County Council that there is a need to reduce such vehicle speeds. Traffic data provided by Staffordshire County Council show that vehicle speeds do exceed the speed limit, however, these surveys date from 2009 and are considered historic, hence more up to date surveys should be undertaken.

6.138 This being the case, it is recommended that the current white lining is built upon. It is recommended that an audit of existing white lining is undertaken and a scheme is devised that seeks to provide further improvement.

6.139 One such measure may be to introduce on-carriageway cycle lanes to the A527. This may tie in to a scheme that also provides combined footways / cycleways along the A527 such that provisions are part on-carriageway and part off-carriageway.

6.140 Such a scheme would need to consider existing ghost island right turn lanes, existing pedestrian crossings, existing central refuge islands, existing accesses in addition to the carriageway width and current layouts and requirements.

6.141 The implementation of any measures to reduce vehicle speeds would need to be endorsed by Staffordshire County Council, as the Local Highway Authority, and, if reductions in vehicle speeds are sought, it is recommended that they are approached to discuss such schemes prior to preparing any designs.

Biddulph Moor Vehicle Speeds

New Street and Rudyard Road

6.142 It is understood that vehicles are exceeding the posted speed limit along Rudyard Road and New Street as they pass through Biddulph Moor.

6.143 For the purposes of this review the appraisal will commence at the junction of Rudyard Road and Top Road, approximately 1km northeast of the village centre, and cover the length of Rudyard Road to the junction with Hot lane and New Street. Then continue southwest along New Street through the village to the junction of New Street with Park Lane and Crowborough Road, approximately 1.7km southwest of the village centre. The review will commence at the junction with Top Road and proceed southwest with details given as for a vehicle proceeding in that direction.

6.144 The junction of Rudyard Road and Top Road takes the form of a simple priority T-junction, with Rudyard Road forming the minor arm. Rudyard Road then proceeds in a south-westerly direction in a straight line for approximately 360m. For vehicles entering Rudyard Road from Top Road the speed limit is 60mph. The carriageway is approximately 5.0m to 5.5m in width, with grass verges to either side. The verge to the left is approximately 2.0m wide, whilst to the right approximately 0.5m wide.

6.145 To the left the verge is backed by a combination of hedgerow and stone wall, whilst to the right backed by a stonewall. There are a number of gated field accesses on either side and a single dwelling access to the right. Telegraph poles are located in the left verge and spaced approximately 65m apart. A broken central white line is present on the carriageway. There are no footways either side of the carriageway at this location.

6.146 Visibility for vehicles travelling southwest is considered good at 300m or greater. See Figure 6.54.

Figure 6.54: Rudyard Road

6.147 At approximately 145m from the junction with Top Road the speed limit on Rudyard Road reduces to 30mph. In addition to the speed limit roundel, co-located beneath is a village boundary sign 'BIDDULPH MOOR', both on a yellow backing board. Speed limit signs are located on both sides of the carriageway. Further to the speed and village signs there are single white lines on both sides of the carriageway edge, a section of textured and coloured (red/buff) road surface dressing. For southwest bound vehicles a 30mph roundel and 'Dragon Teeth' traffic calming measures are also present. See Figure 6.55.

Figure 6.55: Rudyard Road

6.148 From the 30mph speed limit signs the carriageway narrows slightly to approximately 5.0m in width. To the right are a number of private dwelling accesses and dwellings that front directly onto the carriageway. The general feel of the carriageway becomes more 'villagey'. Streetlights are located intermittently on the telegraph poles to the right of the carriageway. There are no 'cat's eyes' located in the carriageway.

6.149 The carriageway drops from the high point at the junction with Top Road as it approaches the village. The incline is not considered steep and there are no gradient warning signs.

6.150 Approximately 230m from the speed limit signs the carriageway turns to a more westerly direction as it enters more built up parts of the village. Visibility for vehicles approaching the bend, from either direction, is considered sufficient for the posted speed limit of 30mph.

6.151 At approximately 330m from the speed limit signs, the first residential access road, Farmside Lane, is situated on the left. From this junction westbound onwards, a footway is located on the southern side of the carriageway, approximately 2.0m in width. The northern side of the carriageway continues to be bounded by a combination of grass verge backed by hedgerow, trees and open rail fencing.

6.152 There are numerous private dwellings which front onto the carriageway with driveways, on the southern side of the carriageway. Whilst the dwellings have private drives, there are still vehicles parked partly on the carriageway, partly on the footway, which in effect act as traffic calming measures. The carriageway width for Rudyard Road widens to approximately 5.5m to 6.0m through this part of the village. See Figure 6.56.

Figure 6.56: Rudyard Road

6.153 From the junction with Farmside Lane, Rudyard Road straightens out for approximately 250m, as far as Ridgefields. There are a number of residential access roads prior to Ridgefields on both sides of the carriageway. Other than one short section of footway at the junction with Parklands, there continues to be no footway on the northern side of the carriageway. The carriageway rises from the junction with Farmside Lane to the junction with Ridgefields. Street lighting is present on both sides of the carriageway between these two locations.

6.154 Visibility for vehicles approaching and exiting the various residential sides roads between Farmside Lane and Ridgefields is considered sufficient for a speed limit of 30mph.

6.155 The Rudyard Road carriageway bends first right and then left as it crests a slight rise, prior to its junction with Ridgefields to the left. See **Figure 6.57**.

Figure 6.57: Rudyard Road

6.156 After passing Ridgefields, Rudyard Road drops away at a steeper incline than previously seen, passing a commercial vehicle repair garage to the right, before bending to the right and proceeding to its junction with New Road / Hot Lane after approximately 100m. The footway on the southern side of the carriageway narrows for approximately 25m as the road passes through a pinch point between two dwellings fronting directly onto the carriageway. See Figure 6.58.

Figure 6.58: Rudyard Road

6.157 The junction between Rudyard Road and New Street (to the left) / Hot Lane (to the right) takes the form of a simple Priority T-junction, with Rudyard Road forming the minor arm. Rudyard Road connects with New Road / Hot Lane at an acute angle which has an impact on visibility for some vehicles emerging from Rudyard Way.

6.158 Visibility for emerging vehicles to the left is considered good for the prevailing posted speed limit of 30mph. Visibility to the right is partly restricted by the approach angle of Hot Lane and by the overhanging vegetation and garden wall associated with the private dwelling situate at the apex of Hot Lane and Rudyard Road. See **Figure 6.59** for clarification.

Figure 6.59: Rudyard Road / New Street / Hot Lane Junction

6.159 The southbound approach from Hot Lane towards Rudyard Road is a straight section of carriageway with a posted speed limit of 30mph, but with few highway features that would otherwise restrict vehicle speeds.

6.160 From the junction of Rudyard Road, the review will now continue southwards along New Street.

6.161 Southbound from the junction with Rudyard Road, New Street has a carriageway width of approximately 7.3m and becomes significantly more residential/commercial in nature with numerous access roads, together with the typical array of villages shops, pubs, bus stops, private driveways and on street parking.

6.162 **Figure 6.60** illustrates a typical scene, with a delivery vehicle parked adjacent to a local shop, a public bus service, school bus, school children waiting to cross the road with the benefit of a school crossing patrol (Lollipop) person and other local traffic emerging from side roads or passing along New Street.

Figure 6.60: New Street

6.163 Footways are present on both sides of the carriageway, both approximately 2.0m in width, with street lighting also present on both sides. Visibility from Woodhouse lane, Wraggs Lane and Alders Road, all residential access roads as vehicles proceed southwards, is considered good for a posted speed limit of 30mph.

6.164 After approximately 40m, New Street bends slightly to the left before continuing southbound in a straight line for approximately 250m as shown in **Figure 6.61**. The carriageway remains approximately 7.3m in width, with footways of approximately 2.0m wide and street lighting present on both sides. There is limited on-street parking by local residents, and no other highway features to affect / influence throughput and vehicle speeds. A central broken white line is present unless otherwise stated.

Figure 6.61: New Street

6.165 New Street then bends right to a south-westerly direction, with Cottage Lane and Leek Lane on the inside and outside respectively at the apex of the bend. Visibility for vehicles emerging from both residential access roads is consider good for a posted speed limit of 30mph. The carriageway is on a downward gradient in the vicinity of the bend, although not considered sufficient to modify vehicle behaviour or speeds.

6.166 Continuing south, New Street remains at approximately 7.3m carriageway width, with footways and street lighting on both sides. After approximately 120m and at the junction with Chapel Lane, the carriageway becomes semi-rural in nature with only intermittent groups of residential properties, predominately on the left-hand side.

6.167 As can be seen from **Figure 6.62** the majority of properties beyond Chapel Lane do not have off-street parking or choose not to use it. The on-street parking acts as form of traffic calming, requiring southbound traffic to straddle the central white line and to use part of the northbound lane. The carriageway width is sufficient to allow two cars to pass safely at moderate speed, although larger vehicles in either direction will have to wait for oncoming vehicles to pass the parked vehicles.

Figure 6.62: New Street

6.168 From this location carriageways crests a slight rise before takes a series of left / right curves as shown in Figure 6.63.

Figure 6.63: New Street

6.169 The carriageway narrows slightly to approximately 6.5m in width. There are no footways on either side, although intermittent street lighting is present, attached to telegraph poles. The carriageway is bounded to the left and right by a mixture of stone wall, approximately 1.5m in height, and hedgerows. 'SLOW' road markings are located prior to each curve in the road. The speed limit remains at 30mph, although there are no signs to indicate such.

6.170 The carriageway continues with a series of left and right-hand curves, with slight rises and falls, although neither are sufficient to impede vehicle speeds or reduce forward visibility for vehicles adhering to the 30mph speed limit.

6.171 Passing the junction with Gun Battery Lane, approximately 150m south of Chapel Lane, the carriageway proceeds in the same manner with left and right-hand curves, slightly tighter than previous, with intermittent private driveways and residential properties fronting directly onto the carriageway.

6.172 Just before the junction with Robin Hill, there is a vehicle actuated sign that detects oncoming vehicles and displays its speed, as shown on Figure 6.64. This suggests that vehicle speeds have been a previous concern and the sign installed accordingly.

Figure 6.64: Vehicle Actuated Sign near Robin Hill

6.173 After the junction with Robin Hill, approximately 370m south of Gun Battery Lane, New Street returns to a rural nature with only intermittent field and farm access, no footways although street lights remain on the left-hand side attached to telegraph poles.

6.174 At approximately 160m south of Robin Hill there's is a 'BIDDULPH MOOR Please drive carefully' sign facing northbound vehicles, associated textured and coloured road surface treatment and for northbound traffic dragon teeth on the approach to the sign and 'SLOW' road markings. There is also a vehicle actuated sign that detects oncoming vehicles and displays its speed, as shown on Figure 6.65. This suggests that vehicle speeds have been a previous concern and the sign installed accordingly.

Figure 6.65: Vehicle Actuated Sign near Robin Hill

6.175 The carriageway is now on a generally downward descent, passing isolated groups of residential dwellings, farm and field accesses, with the carriageway bounded by a stone wall and hedgerow on either side. Visibility is considered good for vehicle travelling at the posted speed limit. There are no footways, although street lighting continues to be present on the left-hand side heading towards Biddulph.

6.176 New Street then takes a series of left and right curves before reaching its junction with Crowborough Road. See **Figure 6.66**. New Street forms the major arm as it turns through approximately 45 degrees and becomes Park Lane. From here Park Lane continues in westerly direction before entering Biddulph and Brown Lees.

Figure 6.66: New Street

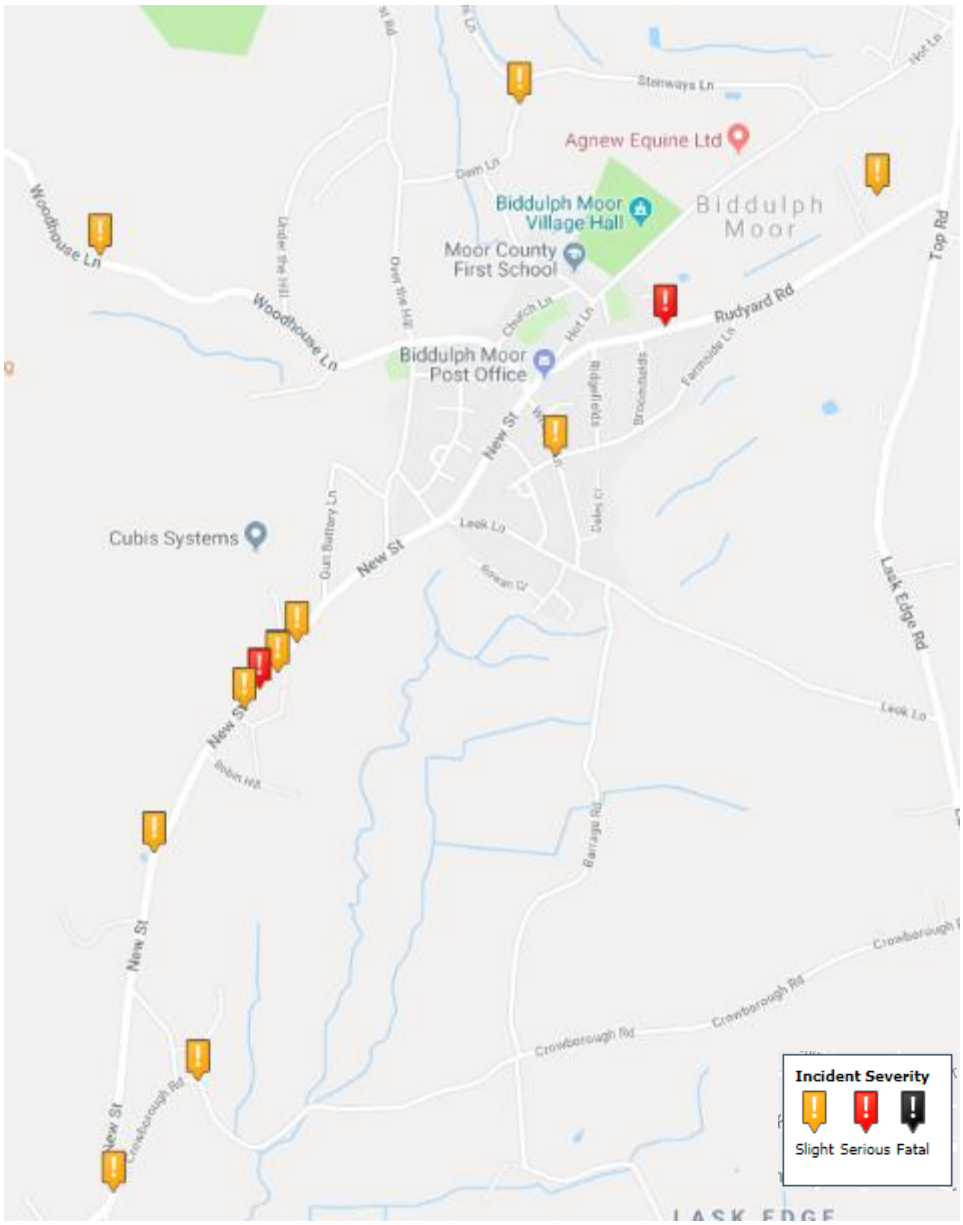
6.177 The review of the road network suggests that the geometries and features along Rudyard Road are conducive to achieving suitable vehicle speeds for its location and environs, but those for New Street may entice increased vehicle speeds for its location and environs.

New Street and Rudyard Road Accident Data Review

6.178 Within the area described above, between Top Road and Park Lane / Crowborough Road there have been 8 reported road traffic incidents that resulted in Personal Injury Accidents (PIAs) over the five year period 2013 to 2017, for which data has been collected.

6.179 Of the 8 PIAs, 2 resulted in serious and 6 results in slight injuries. There were no recorded fatal injury accidents. See Figure 6.67 for the location and severity of each PIA.

Figure 6.67: Personal Injury Accidents through Biddulph Moor



6.180 Those PIAs that occur away from New Street and Rudyard Road are not discussed in this report.

6.181 A further breakdown of the PIAs indicates that of the two serious PIAs, one occurred on New Street, approximately 210m south of Gun Battery Lane, in the vicinity of the series of curves discussed above. From the accident report only a single vehicle, a goods vehicle under 3.5 tonnes, was involved and poor weather would appear to be a significant contributory factor. The road surface was covered in snow, whilst the accident occurred at 22:00 during the hours of darkness. The vehicle hit the wall bounding the carriageway and resulted in the driver and

passenger sustaining serious injuries. There is no indication on the records that speeding was a contributory factor, other than inappropriate speed given the conditions.

6.182 The other PIA resulting in serious injury occurred on Rudyard Road in the vicinity of the junction with Parklands. The accident involved two vehicles, a private car and a motorcycle, whilst occurring at 20:53 during the hours of darkness. The car was in the process of undertaking a U-turn on Rudyard Road when a motorcycle overtook the car. The motorcyclist was knocked from their machine and sustained serious injuries. Lack of attention and an inappropriate manoeuvre by the motorcyclist and car driver are considered significant factors in the accident. Excess speed was not recorded as a factor.

6.183 Of the remaining slight PIAs, it is noteworthy to mention that 4 occurred on the same section of road as the serious PIA involving the light goods vehicle, namely at the series of curves on New Street, to the south of Gun Battery Lane. Of these 4 slight PIAs, one involved a pedestrian struck by a car during the hours of darkness. The other 3 PIAs at this location involved one or more cars or light goods vehicles. Other than the accidents occurring in the same vicinity there is not a common causality and speed has not been referred to as a contributory factor.

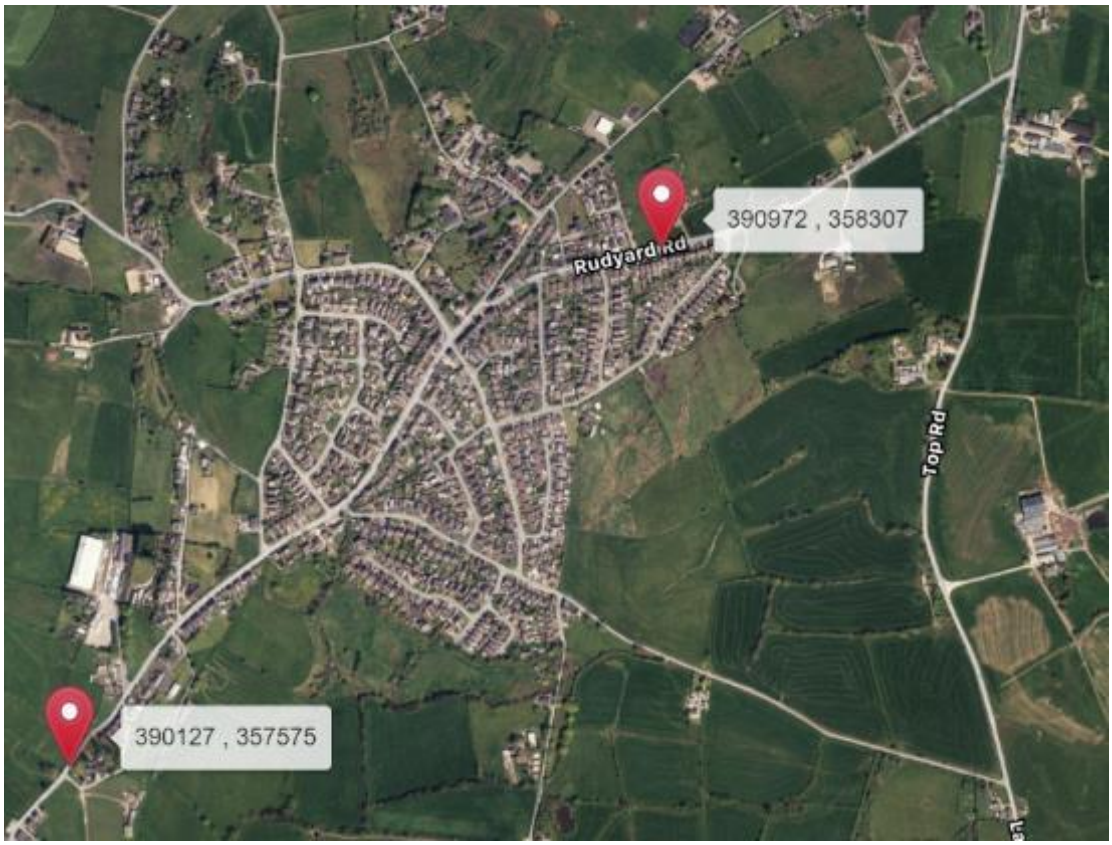
6.184 Whilst any PIA is regrettable, the level of PIAs recorded over the 5-year period discussed is not considered a high level when placed in context against the level of traffic using this route, the number of connecting roads, private drive-ways, direct dwelling frontage, and associated commercial/residential activity.

6.185 The level of PIAs, and associated causality, does not specifically indicate a speeding issue along either New Street or Rudyard Road

Vehicle Speeds along New Street and Rudyard Road

6.186 Vehicle speed data has been obtained from Staffordshire County Council for locations on Rudyard Road and New Street, as shown on Figure 6.68:

Figure 6.68: Speed Survey Locations



6.187 The speed data on New Street is from 2009 and on Rudyard Road is from 2011. Both of these datasets are considered historical, however, both showed that vehicle speeds exceeded the 30mph speed limit with 85th percentile vehicle speeds recorded at approximately 40mph.

6.188 It appears that since these surveys, vehicle actuation signs were installed on New Street adjacent to Robin Hill.

6.189 Although these datasets are considered historical, they do show that vehicles exceeded the speed limit by some margin and that this is likely to remain the case. In particular given the residential nature of the roads, interventions to reduce vehicle speeds would be warranted.

Vehicle Speed Reduction Measures

6.190 Possible measures to reduce vehicle speeds were set out above in relation to the A527. Given the residential nature and the classified nature of the roads, it appears that a physical traffic calming scheme would be the preferred measure.

6.191 There is on-street parking in various locations along Rudyard Road and New Street and kerb build outs could be created to formalise these areas to accommodate such parking. These kerb build outs would also act as a means to provide only one lane of traffic whereby oncoming vehicles would need to give way to one-another.

6.192 Through careful design and placement, the kerb build outs would create chicanes that would create a visual need to reduce vehicle speeds, even in the event that there were no oncoming cars to give way to.

6.193 The implementation of any measures to reduce vehicle speeds would need to be endorsed by Staffordshire County Council, as the Local Highway Authority, and, if reductions in vehicle speeds are sought, it is recommended that they are approached to discuss such schemes prior to preparing any designs.

Signage on the Approach to the Town

6.194 From the south, Biddulph is signposted for the A527 from Stoke on Trent. After reaching the southern edge of Biddulph and the town sign the A527 / Newpool Road / Park Lane signalised junction is encountered, however, there are no signs to confirm drivers should proceed straight ahead to reach the town centre, as shown on Figure 6.69.

Figure 6.69: A527 / Newpool Road / Park Lane Road Signing from the South

6.195 If tourists are visiting the area and are following road signs to reach the town centre, it may not be obvious that they should continue ahead. Confusion may arise from the direction for Biddulph Moor to turn right.

6.196 Consideration should be given to ensuring the town centre is marked as straight ahead on this junction from the south.

6.197 Further north, as the A527 / St Johns Road roundabout is reached, the town centre is signposted as being straight ahead over the two roundabouts (the A527 / St Johns Road roundabout and the A527 / Tunstall Road roundabout). However, the next sign is on the A527 exit of the A527 / Tunstall Road roundabout but does not confirm that as being the roundabout exit for the town centre, instead referring to parking for shoppers. These are shown on Figures 6.70 and 6.71.

Figure 6.70: Signposting at A527 / St Johns Roundabout

Figure 6.71: Signposting at A527 / Tunstall Road Roundabout

6.198 If tourists are visiting the area and are following road signs to reach the town centre, they may inadvertently turn onto Tunstall Road. Consideration should be given to ensuring the town centre is marked on the A527 exit of the A527 / Tunstall Road roundabout.

6.199 From the north, Biddulph is signposted for the A527 from Congleton. After reaching the northern edge of Biddulph and the town sign, the A527 continues as a straight road until it reaches the A527 / Congleton Road roundabout whereby the town centre is signposted along the town bypass.

6.200 Upon reaching the A527 / Station Road junction, there are no signs that direct vehicles to either carry straight on or to turn right.

6.201 Given the nature of the A527 in comparison to Station Road and that Sainsbury's is in view straight ahead, it is perhaps obvious to tourists that they should continue ahead to reach the town centre, however, consideration should be given to signposting this.

6.202 At the A527 / Wharf Road roundabout the town centre is signposted from both the north and the south.