Bedford Town Centre Transport Strategy

Scheme Option Development

Final Report

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1 Introduction

Context

1.1 JMP Consultants Ltd has been commissioned to undertake the development of a Town Centre Transport Strategy for Bedford. Our work comprises the formulation of the transport strategy, with separate commissions developing the strategic and micro-simulation transport model development, and strategy business case.

1.2 Our commission focuses on the development of a transport strategy setting out the rationale and detailed changes and an assessment of economic and regeneration impacts of changes.

- Suite of modelling tools and outputs; and
- A business case for the strategy ready to be used to obtain funding.

1.3 This initial element of work focuses on the first two of these deliverables.

Phases of the Study

1.4 The strategy development process has been broken down into four phases:

- Phase 1: Information gathering and initial option development;
- Phase 2: Option screening and assessment;
- Phase 3: Option development and appraisal; and
- Phase 4: Recommended strategy.

1.5 This report presents the findings from the second phase of the commission.

1.6 The 'Issues and Opportunities Report' (October 2014, JMP) provides a summary of Phase 1, setting out the detailed aims of the study, the study area, and presenting a detailed assessment of existing and future land use alongside current transport infrastructure, operation, travel patterns and accessibility. These were surmised into a list of key issues and opportunities and translated into ten Transport Strategy Objectives that will be used as the basis upon which to develop the strategy.

1.7 Following on from the completion of the issues and opportunities report, a long-list of potential scheme measures were developed, representing the final output of Phase 1.

1.8 The 'Option screening and Assessment Report' (October 2014, JMP) provides a summary of Phase 2, presenting the initial appraisal of the long-list of schemes and identifying 114 high-performing schemes to take forward for more detailed development in Phase 3.

Option Development and Appraisal

1.9 Phase 3 of the study takes the identified 114 high-performing schemes from Phase 2 and develops them into more tangible schemes. This includes preliminary scheme drawings, operational plans, and scoping plans for partnership working and policy measures.

1.10 The second stage of Phase 3 is then to appraise the short-list of schemes in greater detail against both the Transport Strategy Objectives and wider DfT Transport Appraisal Guidance (TAG)

metrics. Based upon the outcome of these appraisals the identification of potential packages of measures will then be undertaken. It is likely that at least two packages of measures will be identified, although there may be common elements to both packages. Additional, lower-scoring, scheme measures from the original long-list of schemes in Phase 2 will also be considered as part of the development of complementary packages of measures.

1.11 The final element of Phase 3 will be to appraise the packages of measures in combination. This will utilise modelling tools and DfT TAG techniques.

1.12 The purpose of Phase 3 of the study is to undertake an initial sift through the long-list of potential scheme measures in order to identify those schemes that are likely to be deliverable and will contribute to the strategy objectives.

2 Process

Overview

2.1 This section sets out a brief overview of the process that has been undertaken to take the high priority schemes identified within Phase 2 of the study, to develop them into outline schemes, appraise them, and then begin the process of collating them into packages of measures.

Appraisal Objectives

2.2 The key basis for the development, and subsequent appraisal, of each individual scheme option are the strategy objectives defined within Phase 1 of the study. These are repeated below for clarity :

TSO1 Support the heritage, cultural and economic regeneration in the town centre through enhanced access and improved town centre permeability.

TSO2 Manage vehicular activity in the core town centre, in particular through movements, to enhance the pedestrian retail, night-time, and visitor economy experience, whilst ensuring adequate town centre access for traders, freight, public transport and taxis and to car parks.

TSO3 Facilitate efficient cross town and end-to-end corridor movements, for all transport modes, through strategic routings, reduced congestion at network pinch points and improved infrastructure provision

TSO4 Enhance strategic links to the town to secure the long term position of Bedford as a regional centre, whilst reducing the volume and impact of through vehicular traffic movements that could otherwise utilise the town ring road.

TSO5 Provide network resilience, across all modes, that accommodates forecast growth associated with future development aspirations of the town and changes to population demographics.

TSO6 Create a safe and secure environment for all transport users, taking particular account the needs of vulnerable users, and reduce conflicts between vehicular and non-vehicular transport movements.

TSO7 Manage the environmental impacts of transport, in particular within the air quality management area, and promote sustainable modes of travel.

TSO8 Proactively manage access to health and educational facilities, including hospital sites, schools, the college and the university, in order to make best use of transport network capacity.

TSO9 Create a coherent 'sense of place' across the town quarters, ensuring clear vehicular and non-vehicular way-finding leading into and around the town centre, with a particular focus on ensuring connectivity with the river and the rail station.

TSO10 Ensure inclusive, resilient, long-term, and low maintenance design of transport infrastructure and operational services.

2.3 In considering scheme option development, these objectives have formed the framework in which to work and to subsequently appraise each option.

Scheme Development Process

2.4 A short-list of scheme interventions produced from Phase 2 has been developed into preliminary schemes (in both design and operational terms) and then be subjected to more detailed appraisal. The preferred scheme options have been utilised to develop packages of complementary measures. Three themed packages of measures have been produced for consultation and assessment. All three packages will be tested within the transport model to assess their overall impact upon transport and movements across a range of key metrics.

2.5 The process of package formation has drawn heavily upon the engagement process and also utilised the outputs from scheme appraisal.

Collation of Complementary Measures

2.6 A key aspect of the scheme option appraisal process has been to understand the inter-relationship of potential scheme measures. This has included an assessment of primary dependencies of one scheme upon another, as well as facilitating roles that some scheme may provide (e.g. enhanced highway network operations will permit more reliable bus network operation).

2.7 More general complementary scheme measures have been identified whereby schemes delivered together can have a greater combined impact against a particular objective.

2.8 Schemes that could not be delivered together, for either physical, operational of political reasons have also been identified.

Package Development

2.9 The development of the strategy has evolved through understanding baseline transport conditions in Bedford for road, rail and non motorised users. Consultation with key stakeholders has revealed certain transport priorities that should be addressed, these included new links, improved junctions and enhanced town centre facilities for pedestrians, for example, improving the High Street for all users.

2.10 There are also corridors (radial routes) for the town centre that experience congestion and transport issues that need to be addressed.

2.11 Three separate packages of measures have been developed based around tackling baseline transport conditions and future year development potential. Each package has a distinct theme and look to achieve some, if not all the transport strategy objectives. These themes are summarised as follows:

1. Pinch point and Traffic Management
2. Town Centre Regeneration
3. Town Centre Extension.

3 Scheme Option Development & Appraisal

Overview

3.1 A total of 113 'high-ranking' schemes with a score of +3 or higher (and a further 30 sub schemes) and were identified as part of the Phase 2 appraisal process. These schemes fell within the following categories:

- Highway = 19
- Parking = 1
- Freight = 5
- Rail = 9
- Bus = 21
- Park & Ride = 7
- Taxis & private hire = 1
- Waterways = 4
- Public Realm = 18
- Walking = 16
- Cycling = 15
- Way-finding & Signage = 11
- Sustainable travel = 9
- Payment systems = 1
- Road Safety = 6

3.2 Each of these schemes has been taken forward for more detailed development and appraisal in order to determine their feasibility and whether they are likely to deliver sufficient net benefits against the transport strategy objectives.

3.3 Complementary schemes have also been identified, including those within the 'medium-ranking' schemes from Phase 2, in order to begin the process of developing packages of measures.

Highway Schemes (19 schemes)

3.4 The high ranking schemes identified in Phase 2 of the study have been taken forward for further development and appraisal. A summary of the key findings, and reference to preliminary scheme drawings, are presented in the paragraphs below.

H25 Prebend Street link Road (Phase 2 ranking = 5)

3.5 Within the council planning system a route has been safeguarded from Prebend Street (near the junction with Commercial Road) through to Ashburnham Road for the creation of a link road. The route requires any new link road to pass through the railway lands and under the existing Ford End Road Bridge. The size and layout of the arches under the bridge create a number of difficulties in aligning a route.

3.6 A total of five different scheme options have been considered for the routes that differ in the way in which the scheme would tie in to Ashburnham Road. All routes would join Prebend Street to the north of Commercial Road. The five variations of the scheme are:

- H25a A direct route broadly within the ‘red line’ protected boundary
- H25b Additional land take on Ashburnham Road to provide an improved route alignment
- H25c Routing the link road through the existing rail station car park and through the existing station forecourt
- H25d Rebuild part of the Ford End Road Bridge and provide a new curved ramp that joins Ford End Road into the new link road.
- H25e Demolish part of Ford End Road Bridge and create a raised roundabout junction

3.7 Options D and E are considered to be very high cost options and are therefore likely to be considerably more difficult to deliver.

3.8 Option C requires significant land take and would disrupt the current operation of the station. It is, therefore, only considered practical to deliver as part of a much wider regeneration and redevelopment of the station and surrounding area. A drawing of the scheme is provided in Appendix A, reference ST15226-004-03.

3.9 Option A, whilst considered workable, is far from an ideal alignment, with poor lines of sight through the Ford End Road Bridge. This option (represented in Appendix A, reference ST15226-004-01) is therefore not considered a preferred option.

3.10 Within the confines of the existing station layout, Option B is considered to the preferred option. It does require additional land take, which increases the cost, but provides a much safer and suitable alignment for the category of road. As part of the scheme, the northern end of Prebend Street (between Midland Road and Commercial Road) will become one-way, with southbound traffic only. This option (see Appendix A, reference ST15226-004-02) should be tested within the SATURN strategic modelling and VISSIM mirco-simulation modelling software.

H14 Prebend Street/Midland Road Junction Improvement (4)

3.11 The Prebend Street/Midland Road junction suffers from significant congestion. Whilst the primary flow through the junction is north-south (Prebend Street – Ashburnham Road) there are also relatively high flows from Ford End Road and Midland Road. The roundabout covers a relatively large area, however, there is limited deflection on a number of approaches that influences the operation of the junction. Similarly different arms have considerably different sight lines upon the approach to the junction.

3.12 Within the existing operation of the highway network there are very limited options for enhancing the operation of the junction. Providing a signalised junction would be difficult without significant land take and, even then, is constrained by the differences of levels, particularly from the Ford End Road approach.

3.13 As part of wider changes to the network some additional scheme options are feasible. In particular, the delivery of the Prebend Street Link Road provides a number of different options for reconfiguring the junction.

3.14 Overall, three broad options have been developed for the junction:

- H14a Minor improvement to the approaches and alignment of the junction
- H14b Signalised scheme with one-way eastbound on Midland Road (only deliverable with Prebend Street Link Road)

- H14c Signalised scheme with one-way westbound on Midland Road and one-way southbound on Prebend Street (only deliverable with Prebend Street Link Road)

3.15 The benefits of all the schemes are likely to be minimal but Options B and C could form part of wider network enhancements around the town centre with the Prebend Street Link Road.

3.16 Each option should be tested within the VISSIM modelling software.

H12 Clapham Road/Shakespeare Road Junction Improvement (3)

3.17 This junction is an existing roundabout with two-lane approaches on all arms. Output from previous modelling exercises indicates queues on Clapham Road (north and south) and Shakespeare Road.

3.18 There is limited space to expand the size of the junction without significant land take. Existing roundabout is probably insufficient size to be able to signalise as right-turning cars would have poor visibility of the signals on the roundabout (scheme reference H14a).

3.19 The only viable option would be to introduce a signalised junction. This could potentially provide sufficient space to have three lanes of traffic on approaches along Clapham Road arms. Difficulty would be in providing both Clapham Road (south) and Shakespeare Road arms each with sufficient green time (scheme reference H14b). This option should be tested within the VISSIM modelling software.

3.20 Overall, two broad options have been developed for the junction:

- H12a Signalisation of roundabout; and
- H12b Signalisation of road junction.

H13 Bromham Road/Ashburnham Road Junction Improvement (3)

3.21 This junction is currently a double roundabout that suffers from peak time congestion. A separate local junction modelling note is available that details the operation of the junction.

3.22 No major improvements are feasible without large-scale land-take, including the removal of trees.

3.23 This junction should be tested within the VISSIM modelling software.

H15 Prebend Street/Cauldwell Street Junction Improvement (3)

3.24 This is currently a signalised junction that suffers from congestion at peak times. The junction has been assessed and there are not considered to be any significant design or capacity issues for volume of traffic observed. The problems that arise are related to from traffic queues back from Midland Road junction. Enhancing the capacity of this junction will not resolve the issues identified.

H16 Cauldwell Street/Britannia Road Junction Improvement (3)

3.25 This is currently a signalised junction that suffers from congestion at peak times. The junction has been assessed and, like the adjacent Prebend Street/Cauldwell Street Junction (H15), the majority of problems that arise are related to from traffic queues that originate from Prebend Street. Enhancing the capacity of this junction will not resolve this issue.

3.26 A scheme has been identified that provides additional queuing capacity on Britannia Road that would reduce queues back towards Ampthill Road and may help reduce congestion along the Ampthill Road corridor. This scheme requires land take, including the removal of some trees (see Appendix A, ST15226-035).

3.27 The scheme should be tested within the VISSIM modelling software.

H17 Ampthill Road/Britannia Road Junction Improvement (3)

3.28 This is currently a signalised junction that suffers from congestion at peak times. The junction has been assessed and, like the adjacent Britannia Road/Cauldwell Street Junction (H16) Prebend Street/Cauldwell Street Junction (H15), the majority of problems that arise are related to from traffic queues that originate from Prebend Street.

3.29 A scheme has been identified that provides additional queuing capacity at the junction and also ties-in with safety improvements outside the entrance to the Hospital on Ampthill road (see scheme RS3). The capacity enhancement scheme requires land take, including the removal of some trees.

3.30 The scheme should be tested within the VISSIM modelling software.

H18 Wilmer's Corner Improvement (3)

3.31 This is currently an unsignalised roundabout with five arms (Rope Walk, London Road, Ampthill Road, Kingsway and St John's Street), the latter two of which are one-way traffic. The junction suffers from congestion in the peak periods.

3.32 A number of junction options have been considered with a signalised junction considered to offer the most theoretical capacity (reference H18a), although this will need to be tested within the VISSIM micro-simulation modelling. A drawing of the scheme is provided in Appendix A, reference ST15226-001.

3.33 A second scheme option (H18b) has been designed in order to facilitate the delivery of the Batts Ford Bridge scheme (H23) and the introduction of two-way traffic along Kingsway (H2). This requires an additional entry point onto the Wilmer's corner roundabout from the Kingsway arm. A drawing of the scheme is provided in Appendix A, reference ST15226-002-02.

H19 Ampthill Road/Elstow Road Junction Improvement (3)

3.34 This area of the highway network consists of two separate junctions within close proximity with a bridge over the railway line linking the two with five lanes of traffic. The combined junction acts as a pinch point on the network.

3.35 A scheme has been developed that removes the pedestrian pavements from the bridge and allows for six lanes of traffic between the junctions. Two new pedestrian/cycle bridges are built on either side of the existing structure to provide safe, segregated provision for walking and cycling (scheme reference H19a). A drawing of the scheme is provided in Appendix A, reference ST15226-006.

3.36 An alternative scheme option has been considered that creates a new link from Ampthill Road, to the north of the existing junction, and links through to roundabout junction of Progress Way/Elstow Road/Mile Road. This would require the construction of a new road bridge over the railway line (scheme reference H19b). A drawing of the scheme is provided in Appendix A, reference ST15226-007 and ST15226-008.

3.37 Scheme H19a represents a lower cost scheme and is considered likely to offer better value for money. This option should be tested within the SATURN strategic modelling and VISSIM micro-simulation modelling software, with H19b also modelled as a sensitivity test.

H23 Batts Ford River Crossing (3)

3.38 This scheme would provide an additional road bridge crossing over the Great Ouse River within the town centre. It would provide a connection from Kingsway, to the south of the river, to River Street to the north.

3.39 The scheme requires significant reconfiguration of the highway network at either end of the bridge, including the reversal of one-way systems on both Kingsway and River Street. It does, however, permit wider scale reconfiguration to the town centre highway network and would facilitate additional de-trafficking / shared surface schemes in the High Street / St. Paul's Square.

3.40 Drawings of the scheme with the various alignments are provided in Appendix A, references ST15226-010-00, 01a, 02a and 03a; and further details within a separate technical note *Batts Ford Bridge Options Appraisal*.

Parking Schemes (1 scheme)

3.41 A single high ranking scheme was identified in Phase 2 of the study. This has been taken forward for further development and appraisal, with a summary presented below.

P8 Consider opportunities for High Occupancy Vehicle parking (Phase 2 ranking = 4)

3.42 As part of measures to help reduce the level of single, or low, occupancy car trips on the highway network, and thus reduce overall vehicular traffic, High Occupancy Vehicle (HOV) parking spaces could be introduced in prime parking locations to incentives use. Parking tariffs could also be utilised to make it more attractive to park in these locations.

3.43 The council has previously considered introducing ANPR technology in car parks and so this scheme could be introduced as part of a wider roll out of this payment method at car parks across the town.

3.44 The key issue with the HOV scheme will be to ensure that it can be effectively enforced. This may require segregated sections in car park for HOV parking and utilising ANPR cameras to identify the number of occupants in a car. A first step to any introduction of this type of system would be a small-scale trial of the technology.

Freight Schemes (5 schemes)

3.45 The high ranking schemes identified in Phase 2 of the study have been taken forward for further development and appraisal. A summary of the key findings are presented in the paragraphs below.

F12 Provision of 'Click & Collect' services at Station/Park & Ride sites (Phase 2 ranking = 4)

3.46 Click and collect services proposals are currently in development at the existing park & ride site to the south of Bedford. These will permit customers to collect and return products as they utilise the park & ride site.

3.47 These proposals offer benefits both in terms of consolidating freight movements to a single point, as well as enhancing the appeal of the park & ride site. The services will be offered by private operators and so don't require direct day-to-day involvement of the council or public transport operators, although partnership working and land availability on site are required.

3.48 Similar schemes could be introduced at other public transport hubs, including any further park & ride sites, rail stations and bus stations. Park & ride sites have the obvious benefits of permitting

customers to load purchased items into their vehicles, therefore potentially allowing larger items to be collected; however, smaller, light weight items could still be delivered to the rail of bus station.

3.49 Detailed feasibility studies of land availability and operational arrangements would be required for the station schemes and would require partnership working between the council, public transport operators and the service providers.

F15 Provision of 'Click & Collect' boxes in town centre (4)

3.50 With increasing levels of residential land-use in and around the town centre alongside the proliferation of home delivery services, there will be increasing pressures for residential freight deliveries in the town in future years. The existing one-way system already limits accessibility and levels of traffic are contributing to poor air quality in the town centre.

3.51 The provision of ‘click and collect’ boxes in the town centre would be one approach to minimise the level of freight vehicle circulation in the town centre. Secure storage boxes/containers could be located at key access points around the core town centre and small/medium sized items could be delivered to these boxes. Residents would then be provided with a key code to access the goods within the boxes. The boxes would need to be time-limited to ensure adequate turnover; however a system could be put in place to collect unclaimed items and stored at a central location.

F3 Delivery and servicing plans (3)

3.52 A Delivery and Serving Plan (DSP) is similar to a Travel Plan but focusing on freight and commercial vehicle activity. A DSP is a plan to make sure that freight vehicle activity to and from the target location is working effectively for everyone. The DSP wil seek to improve the safety, efficiently and reliability of deliveries, collections and serving trips.

3.53 In the context of Bedford the aim would be to encourage town centre firms to adopt a DSP to actively manage freight deliveries and reduce vehicle trips, particularly within the Air Quality Management Area.

F4 Construction logistic plans (3)

3.54 Construction Logistic Plans (CLP) seek to actively manage construction-related traffic ensuring that it has a minimal impact upon local communities and on the environment.

3.55 In the context of Bedford the aim would be to encourage construction companies to adopt CLPs to actively manage freight deliveries and reduce vehicle trips, particularly within the Air Quality Management Area.

F9 Local consolidation point and delivery (3)

3.56 A local delivery point is a small facility at which goods are transferred from larger vehicles to non-polluting means of transport. The facility is usually located close to the area it serves and is home to the delivery vehicles that are used for the local deliveries. Ideally they should be shared user but can be operated independently. Electric vehicles should be encouraged for the local deliveries.

3.57 In the context of Bedford a local consolidation point could be used to reduce the number of large freight vehicles entering the town centre with goods transferred to non-polluting vehicles. This would have positive safety and air quality benefits.

Rail Schemes (9 schemes)

3.58 The high ranking schemes identified in Phase 2 of the study have been taken forward for further development and appraisal. A summary of the key findings are presented in the paragraphs below.

R3 Promote opportunities surrounding new Thameslink services (Phase 2 ranking = 5)

3.59 The delivery of the new Thameslink services across London (longer and more frequent trains) should be utilised as an opportunity to promote rail access to Bedford. As a station served by the route this should be maximised within publicity and promotional material for the town.

3.60 The completion of the Thameslink Programme will both enhance the appeal of Bedford as a commuter town with quick, reliable connections to Central London and increase the town's ability to attract visitors from the south-east.

R4 Promote enhancements to Midland Main Line (5)

3.61 The council should seek to lobby for future enhancements to the Midland Main Line services at Bedford in order to provide enhanced access to the town by rail going forward.

3.62 Plans are currently in place to electrify the track from Bedford to Sheffield by the end of 2020 to improve reliability, increase capacity and reduce delays and bottlenecks. The improvements on this line could lead to a new strategic role for Bedford as a meeting place for businesses operating in the Midlands and in the South East.

R5 Support implementation of East West Rail (Central Section) (5)

3.63 The proposals for East West Rail (Central Section) are currently in the development phase in order to identify a preferred route alignment. The Western Section connecting Bedford to Oxford has already been approved for delivery, whilst the Central Section of the route could – potentially – connect Bedford via Bletchley to Milton Keynes and to the Western Section. This route would provide Bedford with a new east-west axis of strategic rail connections to complement the long-standing north/south connections to London and East Midlands.

3.64 The council should actively lobby and promote the scheme in order to ensure the maximum opportunity to enhance future access to the town by rail.

R6 Support development proposals for East West Rail (Eastern Section) (5)

3.65 The proposals for East West Rail (Eastern Section) are currently at a relatively aspirational stage of development and would follow on from the development of the Central Section. This section of the route could potentially connect Bedford to Cambridge (over existing lines), providing a further eastern axis of strategic rail connections.

3.66 Whilst this section of the route is much further back, in development terms, the council should actively lobby and promote the scheme in order to ensure the maximum opportunity to enhance future access to the town by rail.

R1 Work with Network Rail / TOC to enhance Bedford Station (4)

3.67 In the short terms, there are continued opportunities to work with Network Rail and the TOC to enhance the operation and urban realm of Bedford Station forecourt in order to promote it as an entrance to Bedford. Such changes could operate in conjunction with scheme R2 to create a sense of place and a gateway to the town.

3.68 A more detailed study would be required to ascertain the detailed opportunities; however any scheme should seek to reduce the dominance of taxi ranking at the station and open up the forecourt for a wider mix of uses. This would work alongside scheme TPH1 to manage taxi ranking at the station.

R2 Create a 'gateway' at the main Bedford Rail Station (3)

3.69 As part of wider enhancements to the town centre, there is the opportunity to integrate Bedford Station into the core area through gateway treatments. The Council has recently introduced new signage, information plinths and way-finding 'footsteps' but this could be further enhanced through more significant gateway treatments.

3.70 The scheme is in line with the ambition discussed in the way-finding and signage schemes of ensuring each of Bedford's quarters has its own sense of place through clear delineation and signage welcoming people.

R8 Consider future western entrance to Bedford Station (3)

3.71 As part of longer term development plans for the Station Quarter, there are a wide range of opportunities for enhancing Bedford Station. As part of these the introduction of a western entrance to the station could provide greater flexibility in terms of station access arrangements.

3.72 Residents to the west of Bedford would be able to directly access the station, relieving pressure on the Ford End Road Bridge and the junction with Midland Road, as well as the double-roundabout junction between Ashburnham Road and Bromham Road.

3.73 There may also be the opportunity to route some bus services to a new western entrance, enhancing interchange opportunities at the station and reducing levels of car trips and parking demand.

Bus Schemes (21 schemes)

3.74 The high ranking schemes identified in Phase 2 of the study have been taken forward for further development and appraisal. A summary of the key findings are presented in the paragraphs below.

B15 Work with operators to reduce carbon emissions and improve air quality (Phase 2 ranking = 5)

3.75 The town centre is part of an Air Quality Management Area (AQMA) and, as such, there is an imperative to seek to reduce the level of carbon emissions. Managing the emissions from buses that serve the town centre is an important aspect of this requirement.

3.76 Bedford's Carbon Management Plan sets out a programme of action for the Council to achieve 40% carbon reduction by March 2015.

3.77 The Council should seek to work with operators to improve the emissions standards from the fleet of buses operating within the town. There are a number of potential approaches that could be applied, with varying levels of regulation and intervention.

3.78 One approach would be to set future targets for the proportion of fleets serving the town centre that must meet designated European emissions standards. This could be done through the creation of a low emissions zone. By phasing targets over a 5 or 10 year period, with more stringent target applied over every 3 to 5 years, the transitional impact upon operators could be minimised.

B16 Investigate opportunity to introduce electric buses (5)

3.79 A specific intervention to support the town centre AQMA could be the introduction of electric buses or hybrid buses. This is likely to be done on a route-by-route basis and phased over time.

3.80 The DfT has supported the Green Bus Fund for the last five years, paying up to half the cost difference between electric/hybrid buses and their standard diesel equivalent. In its recent report "Investing in ultra low emissions vehicles in the UK", the Office for Low Emissions Vehicles announced a further £30m available from 2015 to put over 1,000 new low emissions buses onto the roads. The bidding process is open to local councils and to operators, hence Bedford Borough Council should encourage operators to apply for funding and collaborate with them in the preparation of a successful bid.

B6 Work with operators to extend bus network to support development (4)

3.81 As the wider town continues to grow, the council should work with the bus operators to ensure that the bus network is extended to support this growth. Such extensions to the network could be undertaken at a number of levels, either to support major new residential growth areas (scheme option B6a) or to more widely support underlying growth across the town over the next 15 years (scheme option B6b).

3.82 Any extension to the network will clearly be dependent upon commercial operations which will be linked to the density of development; however, the council should work with operators to maximise the opportunities to provide a wide reaching public transport network.

B14 Work with operators to improve quality of buses (4)

3.83 Work formally or informally with operators to improvement quality of the bus fleet operating in the town centre in order to encourage future patronage. This could include low-floor easy access buses, additional security provision and more regular maintenance and cleaning.

B2 Provide bus priority measures at network pinch points (3)

3.84 In order to support existing bus services leading into the town centre additional priority for bus services across the network could be provided. This could include bus lanes on congested parts of the highway network and priority measures at junctions along arterial corridors.

3.85 Existing bus priority measures are relatively limited across the town; however, this is as much to do with the restrictions in highway network capacity that limit the options for providing priority to bus services. There are southbound bus lanes running from the bus station south along River Street and into Horne Lane. Inbound bus lanes are provided on the Kingsway and parts of the A6 Ampthill Road corridor.

3.86 Few opportunities for additional bus lanes have been identified, other than with new highway infrastructure measures. Whilst some road space could be reallocated to buses, the impact on general traffic is considered likely to be too significant for it to represent a worthwhile scheme.

B3 Create Route Action Plans to improve punctuality of services (3)

3.87 Route Action Plans provide a comprehensive assessment of all aspect of a bus route. This includes an evaluation of journey times, where delays occur along the network, variations in patronage along the route, as well as all associated infrastructure provision.

3.88 The aim of the Action Plans are to identify specific actions that can provide marginal gains to the level of service provided along a route and seek to maximise level of service that can be provided to both existing and potential new customers.

B5 Work with operators to encourage cross-town services (3)

3.89 One of the major issues identified with the current bus network in Bedford is that all services are currently arterial in nature and terminate at the town centre bus station. Cross-town bus services have gradually been removed over the years due to the unreliability of journey times caused by town centre congestion.

3.90 It is unlikely that operators will be keen to re-introduce any cross-town services unless the issues of reliability can be resolved, primarily through reducing delays caused by highway congestion. The ability to deliver changes to the bus network is, therefore, dependent upon wider highway scheme measures designed to alleviate town centre network congestion. A further issue is that the bus operators currently use the bus station as a change-over facility for drivers and so it is operationally efficient for them to terminate all services at this location.

3.91 Potential spatial areas where extended cross-town services could be considered include major land-uses, such as the Hospital, College, University, business parks and retail parks.

3.92 In assessing future options for cross-town services it is recommended that two sets of measures are tested with some limited extensions to key land uses (scheme reference B5a) and then further, more widespread extensions (scheme reference B5b).

3.93 The impact of these measures will be assessed within the GIS accessibility modelling exercise.

B7 Work with operators to develop services at the rail station (3)

3.94 There are currently limited bus routes that serve the station. Some early morning services do provide commuters with the opportunity to access rail services, but these are limited. One of the major issues cited by operators is the additional journey time required to divert services via the station and the congestion that can occur along Ashburnham Road and the junctions with Bromham Road at the northern end and Midland Road at the southern end.

3.95 Improvements to peak period journey time reliability may encourage operators to divert more services via the station, although it will still result in longer journey times to access the bus station. Whilst in theory bus services could terminate at the rail station, in practice it is much easier for operators to terminate all their services at the bus station to facilitate change-overs.

3.96 The council should continue to work with the operators to assess opportunities for further services at the station, particularly within the context of wider enhancements to the highway network. Discussions with Stagecoach will be pursued for this purpose.

B8 Improve connections to the bus station, specifically to the rail station (3)

3.97 The Council has recently implemented improvements to signage and way-finding on the routes from the rail station to the town centre, incorporating the route to the bus station. This includes new fingerpost signs, a way-finding plinth and on-street footprints highlighting the route.

3.98 There are minimal opportunities to physically improve connections between the rail and bus station, in terms of providing a more direct route. Any further enhancements would, therefore need to focus should be on urban realm and further way-finding opportunities. Opportunities for enhancements along Woburn Road / Alexander Place are discussed under Scheme WS5.

B9 Improve integration of bus stops and other modes (3)

3.99 A key aspect of encouraging greater use of bus services through ease of use is to ensure bus stops are well integrated into the urban areas. This requires well-positioned stops that are easily accessible by other modes, primarily walking.

3.100 As part of wider measures to improve bus provision, a review of bus stop locations could be undertaken and routes to and from bus stops to key residential areas or local facilities assessed to ensure they are direct, safe, accessible to all, and well maintained.

3.101 In terms of integrating cycling and bus stops, consideration could also be given to the development of bus stop by-passes along busy cycle corridors to avoid conflicts in movements between buses and cyclists.

B10 Improve frequency of bus services to become 'turn-up-and-go' (3)

3.102 Current bus frequencies on the core bus network are split between 12 and 20 minute frequencies. There are also a series of more infrequent rural services. This service provision is sufficiently infrequent that the majority of bus users will try and plan to take a specific timetabled bus service, rather than simply turn up at the bus stop unplanned and wait for the next service to arrive.

3.103 It is generally accepted within the bus industry that service frequencies need to be every 10 minutes or less before passengers will start to treat them as turn-up-and-go.

3.104 These higher frequency services can start to break down some of the negative perceptions of bus travel, namely that it is less flexible to use than other modes. Increasing service frequencies to 10 minutes or less is, therefore, a way to stimulate new demand for bus services and provides a positive branding opportunity.

3.105 Increasing the frequency of bus services is most likely to have an impact upon bus operating costs. As well as the obvious marginal costs of fuel and drivers, the changes in frequencies may also require additional buses to operate on the route. This could, however, depend upon the existing allowance for layovers within existing bus service operations, particularly if extra resilience is built into the timetable to cope with congestion and delays on the highway network. There may, therefore, be the opportunity to introduce higher frequency services alongside other measures to improve highway network reliability with only marginal increases in bus operating costs.

3.106 This would certainly appear to be a realistic proposition in terms of bus routes that currently operate every 12 minutes. Reducing these to 10 minute frequencies or less as part of a wider package of measures to promote bus travel could lead to sufficient increase in patronage to off-set increased operational costs (scheme reference B10a).

3.107 It would seem less likely that the routes that currently operate 20 minute frequencies, or less, could be turned into ‘turn-up-and-go’ without incurring operating costs that significantly outweigh revenue from patronage (scheme reference B10b).

B12 Improve the quality of bus stop waiting facilities (3)

3.108 As part of a wider package of measures to enhance bus provision, improvements to bus stop waiting facilities could be pursued. This could include the quality and size of waiting areas, raised kerbs to allow easy boarding and alighting, enhanced shelters, new or additional seating, and enhanced information provision.

3.109 Existing provision along some of the main bus corridors is of a good standard; however, there are inconsistencies in provision which could be identified through a bus stop audit process.

Enhancements could then be targeted alongside other measures to improve bus provision along particular corridors.

B21 Work with schools and operators to provide efficient services (3)

3.110 Certain students are entitled to free transport, the others can apply for a Privilege Pass (£142 per term).

3.111 Work with operators to ensure continued improvements to the service to school to encourage bus usage.

B22 Work with the college and operators to provide efficient services (3)

3.112 Subsidised travel (50%) is available for students between the age of 16 and 19 whose parents fall within certain tax brackets.

3.113 Work with operators to ensure continued improvements to the service to college to encourage bus usage.

B23 Integrate University Shuttle Bus into mainstream public bus network (3)

3.114 A shuttle service currently runs Monday to Friday during term times, connecting the University of Bedfordshire campus to the bus station and railway station. The service can only be used by members of staff, students and visitors to the university (with a visitor bus pass).

3.115 If low occupancy levels are observed on this service, there is potential to make it available to members of the public such as school pupils and the elderly. This could help connect the residential areas north-east of the town centre with the rail station.

B24 Work with health care providers and operators to provide efficient services (3)

3.116 The following bus routes currently serve the hospital: 1, 2, 42, 44, 52, 53, 68 and C1-10. The majority of these services tend to route to the bus station via the town centre. Routes 52 and 53 service the hospital via Prebend Street, but it is noted that there are limited services running in an east-west direction.

3.117 Consideration should be given as to whether the hospital operators could provide an east to west service.

Park & Ride Schemes (7 schemes)

3.118 The high ranking schemes identified in Phase 2 of the study have been taken forward for further development and appraisal. A summary of the key findings are presented in the paragraphs below.

P&R1 Investigate opportunities for additional park & ride sites (Phase 2 ranking = 3)

3.119 Current park & ride provision is restricted to a single site located along the A6 Ampthill Road corridor to the south of Bedford. This captures trips to the south, along the A6 corridor (from the direction of Luton), as well as potentially trips from the southwest, along the A421 corridor (from the direction of Milton Keynes and the M1).

3.120 A provisional site has been identified by the Council for bus-based park & ride to the north of the town at the junction of the new western bypass with the A6 Clapham Road. This would capture traffic coming into the town from the north, along the A6 (from the direction of Rushden/Kettering), as well as potentially car trips coming from the west, along the A428 (from the direction of Northampton).

3.121 From a strategic perspective, the third potential location for a park & ride site would be to the east of Bedford, providing a site to serve trips into the town centre from the direction of the M1. Identifying an optimum location for a site is complicated by the fact that northbound and southbound trips from the M1 access Bedford along different significantly different corridors. Northbound trips are routed from Sandy along the A603 and in from the southeast of Bedford. Conversely, southbound M1 trips are routed along the A421 and then the A4280 into Bedford to the north of the River Great Ouse.

P&R2 Investigate opportunities for dedicated bus P&R services (3)

3.122 The existing park & ride site is served by a conventional bus service (route 2). Whilst there was originally a dedicated bus service to the site, the levels of demand were insufficient for it to operate on commercial terms, without subsidy. Re-introduction of a dedicated park & ride service would provide the opportunity to develop a service pattern that maximises the attractiveness of the service, including having vehicle layovers at the park & ride site so passengers can wait on-board the bus. It would also permit the introduction of branding for the service.

3.123 With the proposed increases in development within the town centre and associated demand for travel, there will in future be the opportunity to re-visit the introduction of a dedicated bus service to the existing site (scheme reference P&R2a). In addition, dedicated bus services could be introduced at any new park & ride sites (scheme reference P&R2b).

P&R3 Provide additional priority for bus P&R services (3)

3.124 In order to support existing park & ride services, along with any new services, additional priority for bus services across the network could be provided. This could include bus lanes on congested parts of the highway network and priority measures at junctions along the park & ride corridors. Where feasible, this should be focused on parts of the network that will also be utilised by other bus routes in order to provide journey time benefits to wider services as well.

3.125 An inbound bus lane is already provided along the A6 park & ride corridor, running from north of Elstow Road to just south of Victoria Road. However, with no bus priority from this point northbound along the Ampthill Road, Britannia Road or Cauldwell Street, park & ride bus services get caught in general traffic congestion along these parts of the network. Highway capacity is extremely restricted in these parts of the network and so it is unlikely that any bus lanes could be provided without significant impacts upon general traffic. Similarly it would be difficult to provide bus priority measures at junctions. It is concluded that focusing on improving overall capacity and reducing congestion along these sections of the network for all traffic movements is the only realistic opportunity to improve journey times for bus park & ride services.

3.126 There are no bus priority measures along the A6 north corridor that would serve a northern park & ride site. The width of the A6 from the potential park & ride site into the Town Centre is sufficient to accommodate a bus lane, although it would require the removal of some parking provision on the eastern side of the road. When the A6 becomes the Broadway/High Street, there is a single southbound lane of traffic, meaning the buses will have to join the general traffic.

P&R5 Investigate options for park and stride sites (3)

3.127 As part of measures to reduce the levels of traffic travelling into the town centre, in particular within the designated Air Quality Management Area, the development of park & stride sites could be used to encourage more ‘edge-of-town-centre’ parking.

3.128 It is unlikely that any specific development land around town centre to turn into park & stride site, unless it is a case of closing an existing car park and moving it to a site with lower land values further out. This is considered unlikely to be supported within the current political climate.

3.129 The alternative would be to re-brand existing car parks close to the core town centre as park & stride and offer competitive pricing to encourage usage. This might be a feasible option during the working week when car park charges are in operation, but currently on Saturdays there is free two-hour parking and so there is limited scope to encourage parking outside of the centre.

3.130 Examples of edge-of-town-centre car parks which could be re-branded park & stride include those on Queen Street, St Peters Street, Ashburnham Road, Prebend Street, Melbourne Street and at Borough Hall.

Taxi & Private Hire Schemes (1 scheme)

3.131 A single high ranking scheme was identified in Phase 2 of the study. This has been taken forward for further development and appraisal, with a summary presented below.

TPH1 Work with Network rail / TOC to manage taxis at the station (Phase 2 ranking = 3)

3.132 Currently there is an extremely high volume of taxi ranking at the rail station. This affects the operation of the station forecourt and means that it is dominated by vehicular traffic. The large area required to facilitate the taxis means that pedestrian routes are constrained to the southern side of the station forecourt, thus constricting pedestrian desire lines.

3.133 Better management of taxi ranking, including the potential for off-site ranking, could transform the urban realm in front of the station and create enhanced connectivity from the station to routes leading to the town centre.

Waterways Schemes (4 schemes)

3.134 The high ranking schemes identified in Phase 2 of the study have been taken forward for further development and appraisal. A summary of the key findings are presented in the paragraphs below.

WW2 Provide new quaysides along river within the town centre area (Phase 2 ranking = 5)

3.135 This scheme would seek to facilitate the provision of additional quaysides within the town centre to 'activate' the waterfront.

3.136 This would form part of a wider package of measures to enhance the town centre and create more of a feature out of the ‘Jewel in the crown’ the Great Ouse River.

WW4 Support the development of active frontages to the river (5)

3.137 This scheme would seek to promote appropriate development of active frontages along the waterfront in order to enhance connections to the riverside and promote activity.

3.138 This would form part of a wider package of measures to enhance the town centre and create more of a feature out of the ‘Jewel in the crown’ the Great Ouse River.

WW1 Support the enhancement of riverside paths (4)

3.139 This scheme would seek to maximise the use of riverside by ensuring high quality riverside paths with connections to surrounding land use.

3.140 This would form part of a wider package of measures to enhance the town centre and create more of a feature out of the 'Jewel in the crown' the Great Ouse River, as well as link to wider walking and cycling improvements.

WW5 Encourage greater use of the waterways (4)

3.141 This scheme would seek to promote greater use of waterways for leisure activities.

3.142 This would form part of a wider package of measures to enhance the town centre and create more of a feature out of the 'Jewel in the crown' the Great Ouse River.

Public realm Schemes (18 schemes)

3.143 The high ranking schemes identified in Phase 2 of the study have been taken forward for further development and appraisal. A summary of the key findings are presented in the paragraphs below.

PR19 Review lighting provision along key pedestrian & cycling (Phase 2 ranking = 5)

3.144 Good quality lighting is an important factor for enhancing personal safety, and perceptions of safety, along walking and cycling routes. As part of wider plans to enhance walking and cycling provision it is therefore important to identify existing links where current provision is considered inadequate.

3.145 Lighting provision along the key pedestrian and cycle routes should be reviewed and potential enhancements identified. The review could also include investigating the possibility of turning the old stock of street lighting into LEDs which would be more energy efficient. Other benefits of LED systems include longer lasting bulb life which reduces the cost of maintenance.

PR1 De-traffic High Street (4)

3.146 The High Street is currently a major traffic route through the town. Its two lanes, one-way design, with traffic lights located at interim locations down the street, results in a constant ebb and flow of vehicular traffic.

3.147 The High Street is also a key retail area and borders the main pedestrianised centre. The current dominance of vehicular traffic creates a barrier to movement to east – west pedestrian movements. The relatively narrow pavements, with a variety of street clutter, also restrict north-south pedestrian movements. The one-way system also prevents any northbound cycling movements along the street.

3.148 Removing traffic from the High Street could provide a significant enhancement to the overall urban environment of the area, integrating it more into the pedestrianised area to the west and creating a more permeable route through to the cultural quarter and residential areas to the east.

3.149 To have an effective impact, the scheme would require the removal of one lane of traffic along the High Street. By narrowing the remaining lane as well this could be used to reduce vehicle speeds. With the additional space created, pavements on both side of the road could significantly increased in width, enhancing north-south pedestrian movement. There may also be the option to provide an northbound contra-flow cycle lane.

3.150 The scheme is likely to impact upon traffic flows along the street and so would, ideally, be introduced within a wider package of measures to reduce the requirement for vehicular traffic to use the route. Unlike PR11 (described below) it is, however, considered feasible to introduce in isolation as sufficient highway capacity would be retained to allow a reasonable level of traffic flow.

PR11 Shared surface treatments for High Street (4)

3.151 As described in PR1 above, the High Street is currently a major traffic route through a key retail area.

3.152 The creation of a shared surface scheme for the High Street would re-balance the priorities of vehicular and non-vehicular traffic to the advantage of pedestrians and cyclists. The area would become much more permeable and the slower vehicular speeds would create an enhanced environment.

3.153 The impact upon vehicular traffic could be significant. In the absence of any wider changes to the one-way system around the town centre, a shared surface scheme is likely to significantly reduce the highway capacity for north – south movements through the town centre and across the town bridge. Some traffic may divert to alternative, faster routes; however, it is considered likely that a large proportion of traffic would to wish to use the route. Traffic flows are likely to remain high, potentially at a level that would create too many conflicts between vehicular and non-vehicular traffic. As such this scheme is not considered viable as a standalone scheme, but could potentially form part of a wider package of measures.

PR14 Shared surface treatments for residential streets in cultural quarter (4)

3.154 The introduction of shared surface treatments around the cultural quarter would be an opportunity to create an enhanced 'sense of place' and encourage pedestrian tourist activity.

3.155 The lower footfall in these areas is considered likely to mean that schemes of this nature will not offer particularly high value for money. Any schemes would therefore need to be targeted at specific areas, along more prominent corridors.

PR17 Remove street clutter on Alexandra Place/Woburn Road (4)

3.156 As part of wider measures to improve walking connections to the rail station from the town centre / bus station, street clutter could be removed from Alexander Place / Woburn Road to make the route more accessible.

3.157 An audit of the route has identified limited opportunities to make significant changes so this is not considered to be a priority scheme, but could be included within a wider package of measures.

PR18 Enhance access to alleyways off the High Street (4)

3.158 A series of alleyways lead off the High Street providing connectivity through to the cultural quarter. At present these alleyways are difficult to identify, not least because they tend to be very narrow. Through the use of surface treatments and signage, mini-gateways could be created to encourage use of these routes and enhance pedestrian movements.

3.159 This is not considered to be a priority scheme but could be included within a wider package of measures.

PR2 De-traffic St Paul's Square (3)

3.160 St. Paul's Square currently forms part of the one-way system around the town centre, with the square itself forming a small gyratory. Two lanes of traffic operate around the square. The north side of the square is a key location for access to bus services.

3.161 The square forms part of the towns market offer with permanent stalls located on the north side alongside the Church. Removing traffic from the square could, therefore, provide a significant

enhancement to the overall urban environment of the area and stimulate opportunities for sustaining and enhancing the market offer.

3.162 Within the existing, wider, highway network, St. Paul's Square would need to remain open to general traffic and, in particular, buses. In this context the gyratory system around the square would need to be maintained; however, there are opportunities to reduce the number of traffic lanes to a single lane on the eastern (Option B), or all (Option A), sides of the square. By narrowing the remaining lane as well this could be used to reduce vehicle speeds. With the additional space created, pavement widths could be significantly increased. As well as improving general pedestrian movements around the square it would also make it easier to cross the roads around the square.

PR3 De-traffic Horne Lane (3)

3.163 Horne Lane currently forms part of the one-way system around the town centre, with a single westbound Lane and a contra-flow bus lane / car park egress lane provided eastbound. Whilst there are some active frontages along the street, it's primarily used to provide access to the Harpur Centre car park and servicing deliveries.

3.164 Within the existing, wider, highway network, Horne Lane would need to remain open to general traffic and, in particular, buses. Within this context there are relatively limited opportunities to remove traffic from Horne Lane, as the route needs to accommodate buses in each direction.

3.165 Within the context of wider changes to the surrounding highway network there would potentially be opportunities to reduce traffic flow along Horne Lane, particularly at the western end. Options A would include removing all westbound through traffic (providing eastern access and egress to the Harpur Centre car park and service facilities), whilst Option B would entail removing general traffic, permitting only buses and taxis to traverse westbound from St. Paul's Square to River Street. Preferred options for this scheme would need to be developed within the context of wider network changes in order to gauge the impact of either removing westbound general traffic or all westbound traffic.

3.166 The major advantage of removing traffic from the western end of Horne Lane would be to enhance permeability for pedestrians travelling from the pedestrianised retail centre to the riverside and the new Riverside North development.

PR4 De-traffic Midland Road (West) (3)

3.167 Midland Road (west) provides an east-west connection from Ashburnham Road / Ford End Road into the town centre pedestrianised area. It currently has two-way movements and acts as a through route for traffic coming south along Greyfriars, that is not permitted to continue along River Street and so turns right into Midland Road.

3.168 The street has active retail frontages along its length but the urban environment is not considered to be high quality, particularly at night.

3.169 Within the existing, wider, highway network, it is likely that Midland Road would need to remain open to two-way traffic movements. Certainly westbound traffic would need to remain and, whilst eastbound traffic could be restricted, this is likely to have wider network implications along Ashburnham Road and Prebend Street, both of which are already heavily trafficked.

3.170 Within the context of wider changes to the surrounding highway network there would potentially be opportunities to reduce traffic flow along Midland Road (West). This would most likely be predicated upon operational changes to River Street (due to the construction of the bridge), which could open up the possibility of removing westbound traffic from the street (Option A). On the other

hand, if the link road were to be delivered (H23), it would be possible to remove eastbound traffic along Midland Road (West) (Option B). Both options could have potential benefits to the operation of the Midland Road / Prebend Street / Ford End Road roundabout.

3.171 Removing traffic from the street would provide the opportunity to enhance the pedestrian realm and seek to extend some of the benefits from the main pedestrianised area in Midland Road (east) across into the western section of the road. This in turn could help create more connectivity between the town centre and the railway station on Ashburnham Road.

PR12 Shared surface treatments for Alexandra Place/Woburn Road (3)

3.172 Alexander Place and Woburn Road provide the main walking and cycling route between the rail station, bus station and town centre. The area is primarily residential in nature, with some existing traffic calming measures in place.

3.173 The introduction of a shared surface scheme could provide the opportunity to promote the connectivity of the rail station to the core town centre area. It would enhance the route as a walking & cycling environment, giving higher priority of movement to these non-vehicular modes. Vehicular access would be maintained, as well as on-street parking provision, but pedestrians would not be confined to following the edges of the street when walking to and from the station, instead being able to follow more natural desire lines around corners and bends in the street.

3.174 The level of benefits would need to be carefully considered against what would be a relatively expensive scheme, requiring the whole carriageway and existing pavements to be relayed but it would be the only type of scheme that would have a transformational impact upon the route to the rail station.

PR13 Shared surface treatments for Embankment (3)

3.175 The Embankment runs eastwards along the north bank of the Great River Ouse, passing along the southern edge of the Cultural Quarter. Although not heavily trafficked, the nature of the street means that vehicle speeds can be relatively high. This can have the effect of creating a barrier to movement for pedestrians between the heart of the Cultural Quarter and the river.

3.176 The introduction of a shared surface scheme could provide more balanced priority of movements between vehicular and non-vehicular traffic and help to provide greater connectivity with the riverside. Such a scheme should naturally help to curtail driving speeds, improving the pedestrian environment.

3.177 The level of benefits would need to be carefully considered against what would be a relatively expensive scheme, requiring the whole carriageway and existing pavements to be relayed but it would be the only type of scheme that would have a transformational impact upon the route alongside the key leisure assets of town centre, namely the river and the Cultural Quarter.

PR16 Remove street clutter on High Street (3)

3.178 As described in PR1 above, the High Street is currently a major traffic route through a key retail area. The width of the pavements is relatively narrow for a major pedestrian thoroughfare and movements are further constrained through street clutter and barriers to movement.

3.179 Rationalising the requirements for street signage, barriers and other street furniture would help alleviate pinch points for pedestrian movements. Whilst this would be relatively easy scheme to implement, it is unlikely to have any transformational impact given that pavement widths would remain constrained and the traffic flow along the High Street would be unaffected.

Walking Schemes (16 schemes)

3.180 The high ranking schemes identified in Phase 2 of the study have been taken forward for further development and appraisal. A summary of the key findings are presented in the paragraphs below.

W14 Upgrade footpaths along Midland Road (West) (Phase 2 ranking = 4)

3.181 In tandem with the Link Road option, Midland Road (west) and Prebend Street could be converted to one-way southbound traffic only, with all northbound traffic re-routed onto the Link Road.

3.182 This would allow the footways on Prebend Street and Midland Road to be widened and upgraded to make the street more pedestrian friendly and provide a more amenable walking route into the town centre and down towards the river.

3.183 The crossing at the junction with Midland Road and Prebend Street should be improved to facilitate pedestrian movement. It is noted that there are a number of pedestrian accidents on and around this junction which further justifies the need for safer crossing facilities

W1 Produce a network of safe walking routes leading into the town centre (3)

3.184 Key routes should be targeted to improve the walking environment leading into the town centre. This could be in the form of upgraded / widening of the footways and improvements to the lightening.

W4 Ensure quality pedestrian links connecting to river and rail crossings (3)

3.185 The southern end of Prebend Street provides a good link from the rail station to the river. However, tactile paving and dropped kerbs should be provided at the intersections of any junctions; whilst lighting and signage should also be improved to make this an even more attractive route.

3.186 The northern end of Prebend Street could be improved by widening the footways in line with W13a.

W5 Ensure high quality pedestrian link from riverside to Horne Lane (3)

3.187 This is a key link for pedestrians and will be jeopardised by the inclusion of the bridge (H23). The bridge option should ensure that this link is not impacted upon by securing a new route along the north bank and up through the new Riverside Development (W5a).

3.188 In order to facilitate this, the bridge option will be required to contain a high quality under-pass that is well lit and secure at night (W5a).

3.189 Alternatively, without the Bridge Option - There is currently a shared cycle / footway leading up from the river to Horne Lane. The footway could be resurfaced and markings re-drawn to improve the link up from the river (Wb5).

W6 Investigate opportunities to widen footways, where carriageway widths permit (3)

3.190 As per W1 and W14, footway widths should be widened where possible.

3.191 In particular, all new developments should seek to widen footways around the frontages of their sites to encourage pedestrian movement through the town.

W7 Improve crossing facilities on High Street (3)

3.192 Crossing facilities should be improved on the High Street with the consideration of introducing a zebra crossing on the key desire line. This will provide better access to the market from east of the High Street.

3.193 The junction between Embankment / High Street / St Mary's Bridge should be improved and this could be achieved through signalisation.

W8 Improve crossing facilities around St. Paul's Square (3)

3.194 Guard rails should be removed on the High Street to allow pedestrians access to the market on St Paul's Square.

3.195 A zebra crossing should be implemented on the northern side of St Paul's Square to allow pedestrians better access to the market.

W9 Improve crossing facilities on Horne Lane (3)

3.196 The new junction layout for the northern bridge tie in should provide high quality pedestrian crossing facilities to allow pedestrians to navigate across Horne Lane (W9a).

3.197 Should the Batts Ford Bridge option not come online, then a different scheme (W9b) would be required. As such the cross facilities at the junction between Horne Lane / Riverside could be improved by introducing dropped kerbs and tactile paving.

W10 Improve crossing facilities on River Street/Greyfriars (3)

3.198 Zebra crossings should be included on River Street along key desire lines. There are currently very few opportunities to cross this stretch of the road network which results in severance for pedestrians.

W11 Highway crossing facilities along the Embankment (3)

3.199 In line with W7:

> *"The junction between Embankment / High Street / St Mary's Bridge should be improved and this could be achieved through signalisation."*

W12 Provide crossing facilities on north side of Town Bridge to continue river path (3)

3.200 In line with W7:

> *"The junction between Embankment / High Street / St Mary's Bridge should be improved and this could be achieved through signalisation."*

W13 Upgrade footpaths along Prebend Street (3)

3.201 (14a) In line with W14:

> *With the Link Road option, Midland Road (west) and Prebend Street could be converted to one-way. This could allow the footways to be widened and upgraded to make the street more pedestrian friendly and provide a walking route into the town centre.*
>
> *The crossing at the junction with Midland Road and Prebend Street could be improved to facilitate pedestrian movement."*

3.202 Without the Link Road option it would be unviable to widen the footways. However, they could be resurfaced and tactile paving provided at the intersections of any side roads (W13b).

W15 Upgrade footpaths along Alexandra Place/Woburn Road (3)

3.203 This is a key link from the station to the town centre and as such footways should be widened, resurfaced and the lighting improved to encourage pedestrians to walk to and from the station.

Cycling Schemes (15 schemes)

3.204 The high ranking schemes identified in Phase 2 of the study have been taken forward for further development and appraisal. A summary of the key findings are presented in the paragraphs below.

C1 Promote strategic cycle network plan (Phase 2 ranking = 3)

3.205 The website has a downloadable cycle map for Bedford, which shows cycling infrastructure across the town. A more concise plan should be developed which shows the key strategic cycling routes in and around Bedford.

3.206 For example the map should centre on commuter cycling corridors or key routes in and around the town centre. The Issues and Opportunities Report highlighted 6 main corridors where cycle funding could be targeted to enhance the strategic cycle network around the town centre:

1. St Paul's Square area;
2. The High Street;
3. Prebend Street Corridor;
4. Riverside Corridor;
5. Midland Road Corridor; and
6. Woburn Road Corridor.

C2 Promote network of safe cycling routes leading into the town centre (3)

3.207 The aforementioned corridors could be promoted alongside investment in cycling infrastructure along the length of their routes. These strategic corridors should be designated on cycling maps and cyclists should be encouraged to utilise them.

C3 Produce direct and coherent cycle routes within the town centre (3)

3.208 By enhancing and promoting these corridors, it should help produce direct and coherent cycle routes within the town centre.

C7 Ensure delivery of cycle bridge to Riverside North development (3)

3.209 The Riverside North development connects the river with the town centre. A bridge allowing access from the south bank of the river helps to enhance this access and allow pedestrian and cyclists to connect to the town centre via the new development.

C9 Ensure connectivity of cycle route to river crossings (3)

3.210 As previously stated, the Riverside Corridor has been identified as a potential area for improvement. The route forms an integral traffic-free east to west link for the town centre and its surroundings. It also provides a route with scenic views and long-reaching vistas away from heavily trafficked roads.

3.211 Enhancement of the St Paul's Square Area and the High Street will enhance cycling connectivity to the St Mary's Street Bridge. Slip lanes could be included at the access to the riverside to allow cyclists safer access to the road network.

3.212 There is currently good east / west connections for cyclists from the riverside onto the bridge and signposting is in place and there is a designated red cycle route to Bedford College and cycle parking available, however north / south links are poor as the bridge is heavily trafficked.

3.213 There is potential to create on street cycle signage on the bridge carriageway, or alternatively turn the western bridge footpath into a shared space for cyclists and pedestrians.

C10 Improve quality of cycle route along north side of river (3)

3.214 Consideration should be given to ensuring that, where feasible, the river paths on both the northern and southern sides of the river remain continuous, with the minimum number of breaks and diversions from the path as possible. This may only be achieved through successful integration with future development sites along the river's edge.

3.215 An additional, more recent pedestrian and cycling bridge (the Britannia Bridge) is now located to the west of County Bridge, connecting the river path on the north with large scale residential development on the southern side.

3.216 Cycling provision along the river path could also be enhanced through quality lighting, maintenance of paths, improved connections from residential areas to the north and south to advisory town centre cycle routes, and ensuring paths are wide enough to accommodate both cyclists and pedestrians.

3.217 Wayfinding along the river path is currently patchy, with some signage elements near bridges and the occasional information board; however these are not directed at wayfinding. This is particularly acute at locations such as the northern side of the Britannia Bridge where pedestrians and cyclists have no indication as to which way to turn when they are presented with a blank boundary fence.

3.218 Lighting along the river path is also poor – particularly travelling west towards residential areas and this may detract cyclists – particularly in the Autumn / Winter months where daylight hours are reduced.

3.219 Opportunities therefore exist for a combined way-finding strategy, comprised of innovative lighting, such as fluorescent LED which could be both at floor level, along with traditional overhead lighting.

3.220 Residential areas within proximity to the riverside path should also be targeted by the Councils Sustainable Transport Team in order to promote the riverside as a potential traffic-free route to work, along with a leisure facility for families to cycle and enjoy.

3.221 Opportunities should be investigated for opening up the river path with more green space, particularly on the northern side where space allows, as part of an integrated approach to development along the river.

3.222 Furthermore, future development should have frontages onto the river where possible in order to create more attractive places to live as well as adding activity and 'eyes' onto the river path

C11 Improve integration of cycle routes and public transport provision (3)

3.223 The Bedford Bus Station area is currently undergoing a major regeneration which, when completed, will significantly improve this gateway to the Town Centre.

3.224 The regeneration of the Bus Station area includes landscaping improvements with new paving, lighting, seating areas, shop fronts and the replacement of trees.

3.225 The Bus Station will also have improved facilities for cyclists including safe and secure cycle parking which will ensure that linked cycle and bus trips are a feasible option

C12 Improve and provide new cycle routes to train stations (3)

3.226 An informal survey of cyclists was undertaken at Bedford station in 2013 in order to understand routes to the station and problem junctions for cyclists. Information received showed that the majority of cyclist traffic arrives from the north of the town, particularly along Bromham Road and Union Street / Roff Avenue where there are on-street cycle lanes marked out, along with some cycle signage for parts of the journey.

3.227 This suggests that residents in the south of Bedford feel too cut-off, too far away or do not know of appropriate routes to the station.

3.228 The southern side of Bedford features a number of residential areas including Kempston and South End, along with the proposed residential development area of Kingsway. There are a number of good quality cycle routes around this area, including NCN Route 51 which is predominantly a shared –space / off road route on the north side of the Bedford Road carriageway.

3.229 In order to link this area to the station (and town centre), infrastructure improvements are required for cyclists around Prebend Street Bridge which is a key node in north south movements. The bridge also has access points from riverside cycle routes.

3.230 Currently the area for cyclists is unpleasant and unsafe. Pedestrians and cyclists share an off-street designated pedestrian and cycle route which is delineated though green tarmac and pavement – however the quality of the surfaces is poor.

3.231 The road veers to the west and the cycle lane temporarily breaks and resumes 20 metres away. The road is fully guard railed and there are two advertising hoardings to the right hand side which block pedestrian views. The route continues on towards the Hospital past the archway of the Britannia Ironworks housing development.

3.232 The cycle environment could be improved through upgrading the on-street surface. Pedestrian crossings are also tired and there is potential to remove excessive guard rails.

3.233 Signposting in this area is good regarding local residential areas, however there is a lack of signage to and from Bedford station which requires implementing in order to assist cyclists with way-finding.

3.234 On street signage at Midland Road and Ashburnham Road should be implemented in order to give the route a sense of coherence.

3.235 Ashburnham Road where the station is situated has a small section of cycle lane directly opposite the station at the junction with Woburn Road.

3.236 Woburn Road / Alexandra Place also provides a route to the station from the Town Centre / New Bus Station Area and this route should be upgraded for cyclists with a designated cycle route, lighting and way finding system. There is also potential for innovative signage on the gable end of Alexandra Road which would assist cyclists (and pedestrians) with getting to and from the Station and Town Centre.

C13 Promote cycle trips to train stations (3)

3.237 Cycle parking at the Station is currently at capacity and the volume of cycles demonstrates that it is a popular mode of transport to and from the Station.

3.238 Cycle parking should be increased at this location in order to encourage people to take up this mode.

3.239 As previously discussed, the Station would benefit from a more comprehensive signage and way finding strategy, particularly from key residential areas in the north and south of the Town, along with the Town Centre.

3.240 Perceived distances to cycle are often a barrier to potential cyclists and therefore signage should also contain distance and approximated time to cycle in order to remove doubt.

C14 Promote use of river path and The Embankment for cycling (3)

3.241 The river is a navigable river which runs roughly east-west through the centre of Bedford and forms an informal southern boundary to the Town Centre. The river, which is well used by local rowing clubs, offers an attractive retreat in the heart of the town and affords large areas of green space with pedestrian paths along both its northern and southern banks.

3.242 The river has the potential for both cycle commuters and also leisure cyclists.

3.243 Consideration should therefore be given to ensuring that, where feasible, the river paths on both the northern and southern sides of the river remain continuous, with the minimum number of breaks and diversions from the path as possible.

3.244 This should be achieved through successful integration with future development sites along the rivers route.

3.245 Bedford College and the Council Offices both back onto the southern side of the river and both of these contain a large catchment of potential cyclists.

3.246 The 2011 Census data showed that 28% of Bedford residents currently travel between 2-5km to get to and from work and this distance could be covered by cycle.

3.247 It is recommended that greater promotional / travel planning style work is undertaken with staff and students located at these locations in order to promote river use as a feasible mode of transport by cycle.

C15 Provision of secure and sufficient town centre cycle parking (3)

3.248 High quality, safe, secure cycle parking should be installed across the town centre. This could be largely funded by developers who should be asked to provide integrated cycle parking stands alongside any landscaping of outdoor space at all new developments.

3.249 It is noted that local planning policy supports this aspiration and should be enforced by planning officers to ensure high quality cycle parking facilities for visitors to the area.

C16 Introduce cycle hubs (3)

3.250 Cycle hubs should be created and promoted via the council website. Each hub should aim to provide covered cycle parking for any bicycle, CCTV, lighting, access controlled doors, electronically and activated lockers and 24 hour access.

C17 Work with employers to provide cycle facilities (3)

3.251 All new developments should be fitted with adequate cycle parking provision for employees who wish to cycle. Showers and storage facilities should also be provided to ensure that barriers to cycle commuting are removed.

C18 Cycle training schemes (3)

3.252 It is noted that there are cycle training schemes within Bedford. These schemes are aimed at children and adults who have never ridden a bicycle; and help encourage sustainable transport.

C21 Cycle hire scheme (3)

3.253 Where there are large developments a cycle hire scheme serving the occupants could be implemented. This would only work on large residential schemes whereby the number of residents could support such a scheme.

3.254 There is also a large student accommodation campus located less than 2km from the Town Centre at Liberty Park. A large catchment of students would form a critical mass of users needed to support any potential bike hire scheme.

3.255 Should there be enough support within the town, then Barclay's Bike style docking stations could be setup to support a town-wide cycle hire scheme.

Way-finding & Signage Schemes (11 schemes)

3.256 The high ranking schemes identified in Phase 2 of the study have been taken forward for further development and appraisal. A summary of the key findings are presented in the paragraphs below.

WS1 Develop overarching way-finding strategy for town centre (Phase 2 ranking = 5)

3.257 The way-finding strategy has been developed and new signs have been installed across the Borough. This should be maintained and extended to cover more of the town centre. Developer contributions should be sought to pay for wayfinding signage.

WS2 Build upon and promote the different 'quarters' within the town (5)

3.258 There are a number of different quarters with Bedford such as the Cultural Quarter, Riverside Quarter, Kingsway and the station. These Quarters should be defined and given their own sense of place through signage and clear delineation.

WS4 Promote single direct route from Rail Station to the Town Centre (4)

3.259 A direct route along Alexandra Road from the station to the town centre has been highlighted as the key route and signed accordingly. Signage should be maintained and updated to regularly to assist pedestrian navigation through to the town centre.

WS7 Create internal 'gateways' on approach to retail and cultural quarters (4)

3.260 As per WS2:

> *"There are a number of different quarters with Bedford such as the Cultural Quarter, Riverside Quarter, Kingsway and the station. These Quarters should be defined and given their own sense of place through signage and clear delineation."*

WS8 Provide dedicated pedestrian signage on key routes into town centre (4)

3.261 As per WS1:

> *"The way-finding strategy has been developed and new signs have been installed across the Borough. This should be maintained and extended to cover more of the town centre. Developer contributions should be sought to pay for wayfinding signage."*

WS9 Provide dedicated cycle signage on key routes into town centre (4)

3.262 Dedicated cycle signage should be secured at an appropriate height to negate the need for cyclists to dismount the bicycle. The signage should show approximate cycle distances and times to key locations in and around the town centre.

WS5 Enhance connectivity between Bus and Rail station (3)

3.263 The signage from the rail station into the town centre via Alexandra Road should be extended to the bus station and any key local bus stops. This will allow for a clear link between public transport and help reduce interchange times.

WS6 Create external 'gateways' at key locations on approach to town centre (3)

3.264 The town centre should be clearly sign posted with large signs welcoming people. This will help to delineate the town centre area from the rest of the town and give it a distinct sense of place.

WS10 Provide vehicular directional signage on approaches to town (3)

3.265 The Bedford highway network is currently confusing for motorists who are unsure of routes through the town centre due to the various one-way systems. Signage should help motorists navigate their way around the town centre and help them to locate town centre car parks and other key facilities.

WS11 Provide visitor signage on approaches and around town centre (3)

3.266 As per WS10:

> *"The Bedford is currently confusing for motorists who are unsure of routes through the town centre due to the various one-way systems. Signage should help motorists navigate their way around the town centre and help them to locate town centre car parks and other key facilities."*

WS14 Provide driver feedback signage to improve safety and driver behaviour (3)

3.267 Driver feedback signs can be a useful alternative to physical measures imposed to reduce speeds. Speed humps, although effective, are disliked by motorists as they are uncomfortable and can cause damage to vehicles.

Sustainable Travel Planning Schemes (9 schemes)

3.268 The high ranking schemes identified in Phase 2 of the study have been taken forward for further development and appraisal. A summary of the key findings are presented in the paragraphs below.

STP18 Promote electric and hybrid cars (Phase 2 ranking = 5)

3.269 Electric / hybrid cars should be promoted by the council as they are cleaner vehicles and will reduce emissions making for a healthier environment.

3.270 Promotion can be achieved through marketing via the council website where the benefits of owning an electric vehicle could be promoted:

1) Pay no road tax;
2) Exempt from the London Congestion Charge; and
3) Reduced fuel prices.

3.271 The website should also show locations of all vehicle charging points across the town.

3.272 Electric cars could also be promoted by allowing discounts in council run car parks and by reducing the cost of residential parking permits for electric vehicles.

3.273 Charging points should be located across the town centre, with a fixed annual fee to allow ease of use.

3.274 If there is enough demand within a street or local area the council should consider the opportunity to provide a communal charging facility.

STP19 Consider further 20mph zones in residential areas and around schools (4)

3.275 Whilst unpopular with some motorists, 20mph zones have shown to provide benefits to road users. These benefits are listed below and provide a case for extending 20mph zones around schools and in residential areas.

1. **Fewer and less severe injuries to road users** - The lower speeds reduce the instances of collisions as people have more time to react at 20mph. The potential for fatal incidents are also reduced as collisions occur at lower speeds;
2. **Reduced fuel use / emissions** – Reduced vehicle speeds leads to less gear changes and breaking which means less fuel usage and ultimately fewer emissions; and
3. **Less Congestion –** Slow speeds means a shorter stopping distance between cars, allowing more cars to occupy the road space. Junctions are more also shown to be more efficient as drivers can merge into smaller gaps. The reduced level of risk allows encourages people to travel sustainably, particularly vulnerable users such as school children.

STP2 School travel plans (3)

3.276 Bedford Borough Council aims to work with schools to develop school travel plans promoting sustainable travel. Sustainable travel is key to improving safety, reducing congestion and creating a fitter healthier generation of youngsters.

3.277 School travel planning is currently undertaken in Bedford and this should be continued through, regular monitoring to ensure that it remains an effective tool for reducing the number of car trips.

3.278 Private schools in the area (such as those belonging to the Harpur Trust) should be encouraged to adopt a travel plan to help encourage sustainable journeys. Should these schools apply for a planning permission in the future, then travel plans should be requested to help support any sort of expansion or change in use at these sites.

STP7 Walking & cycling promotional campaigns (3)

3.279 There are a number of walking and cycling promotional campaigns that are advertised on the Bedford website. These schemes should be reviewed and assessed to ensure that they remain current and where possible new innovative walking / cycling schemes should be introduced to encourage uptake.

STP9 Provide active travel and public transport information (3)

3.280 Bedford currently have the Travel Bedford website (http://www.travelbedford.co.uk) which provides information on active travel and public transport information. This is a useful tool and should be promoted by including a link in all future development travel plans.

STP11 Cycle training schemes (3)

3.281 Cycle training is currently provided to children in Bedford though 'Outspoken cycle training'. The scheme allows children and adults (who have never cycled) to gain accreditation on the National 'Bikability' Standard. This should be continued and where possible extended to ensure that people have access to the resource.

STP15 Investigate opportunities for a car club scheme (3)

3.282 Car clubs can provide a cheap, short-term alternative to car ownership. Members benefit from avoiding the costs of car ownership and insurance, whilst still having access to a car. Car club operators should be encouraged to provide car club bays throughout the town centre.

3.283 Travel Plans should explore the possibility of introducing car clubs, particular in new developments that could support a car club in their own right. In order to help initiate membership uptake, the developer could provide a contribution paying for the residents membership for the first two years of occupation.

STP16 Promote car sharing / car pooling schemes (3)

3.284 There are a number of benefits to commuting or car sharing. Notably if everyone who commuted in was to car share just one or two days a week, then commuter traffic could be reduced by 20-40%.

3.285 Other than the reduction in congestion, there are other significant benefits to commuting such as:

1. Reduced travel costs;
2. Less pressure / demand for car parks; and
3. Reduced levels of pollution.

3.286 The Council should seek to support car sharing schemes by providing a website for interested parties to meet. Car share schemes should be targeted at large areas of employment or employment corridors across the town.

STP20 Support installation of electric vehicle charging points as part of development (3)

3.287 Electric vehicles are a cleaner alternative to conventional petrol powered vehicles. Barriers to use, such as a lack of charging points should be removed to encourage their uptake. Through planning policy Developers can be both encouraged and instructed to install electric charging points within new developments.

3.288 Bedford's '*Parking Standards for Sustainable Communities: Design & Good Practice Supplementary Planning Document*' (September 2014) states that:

'*The provision of Electric Vehicle charging points in communal parking areas and in town centre developments of 2 or more dwellings will be welcomed*.'

3.289 The SPD should be enhanced so that it is more definitive in defining a set number of electric charging points per parking space. For example the '*Revised Early Minor Alterations to the London Plan*' (October 2013) states that 20% of residential parking spaces should be supplied with active charging points and a further 20% passive electric ports which can be easily modified should demand require.

3.290 Future proofing new developments is key to ensuring that Bedford does not inhibit the use of new more environmentally friendly technology such as electric cars.

Payment Schemes (1 schemes)

3.291 A single high ranking scheme was identified in Phase 2 of the study. This has been taken forward for further development and appraisal, with a summary presented below.

C&P1 Cashless payment system (Phase 2 ranking = 3)

3.292 The introduction of a cashless payment system for public transport services across the town would reduce boarding and alighting times and improve the efficiency of services. It would also provide an opportunity to promote public transport as a modern form of transport.

3.293 There would be significant financial costs involved in establishing the scheme, both in terms of provided the technology to bus companies to operate and producing the electronic payment mechanisms. Further assessment would be required to understand the financial viability of the scheme.

Road Safety Schemes (6 schemes)

3.294 Six high ranking schemes identified in Phase 2 of the study have been taken forward for further development and appraisal. A summary of the key findings, and reference to preliminary scheme drawings, are presented in the paragraphs below.

RS1 Prebend Street / Midland Road Junction (Phase 2 ranking = 3)

3.295 The baseline assessment identified a relatively high number of accidents around this junction, including cyclists and pedestrians at crossing points on the approaches. A full re-design of the junction (discussed in scheme H14) would provide opportunities to improve cyclist safety. There would also appear to be opportunities to enhance safety on the approaches to the junction, through improved visibility and design.

RS2 Wilmer's Corner (3)

3.296 The baseline assessment identified a relatively high number of accidents around this junction, which would warrant further investigation to improve safety.

3.297 Within the confines of the existing roundabout layout there are considered to be limited opportunities to enhance safety provision for pedestrians and cyclists without significantly affecting the overall operation of the junction (scheme reference RS2a).

3.298 As part of scheme option H18 the junction would become signalised. Associated pedestrian crossing facilitates and consideration of cyclist provision would be delivered as part of this scheme (reference RS2b) and could offer higher benefits.

RS3 Ampthill Road (Hospital) (3)

3.299 A number of accidents were identified around the entrance to the Hospital off Ampthill Road. An assessment of the highway layout indicated sub-standard turning facilities for traffic and a restricted entrance to the Hospital site.

3.300 An enhanced highway layout has been developed to improve provision and reduce the risk of accidents. A drawing of the scheme is provided in Appendix A, reference ST15226-005.

RS4 Ampthill Road (South) (3)

3.301 The Ampthill Road corridor was identified as having higher levels of accidents across the route than other radial routes into the town. Despite this the recorded accidents remain relatively

disparate. This minimises the opportunity to identify bespoke schemes that will address the overall issues of the corridor.

RS5 Ford End Road (3)

3.302 A cluster of accidents were also identified on the Ford End Road corridor on the western side of the bridge. A large proportion of these involved pedestrians. There is a large amount of on-street parking in some sections of the route that may contribute to visibility issues, with no formal crossing facilitates.

3.303 Improved crossing facilities in this area could reduce accident rates.

Additional Schemes

3.304 As part of the scheme development process a number of other complementary schemes have been identified as having importance in terms of improving transport provision and access around Bedford. Some of these schemes were already included within the long-list of schemes, identified in Phase 1 but scored medium or low in Phase 2 sifting process, whilst others are new schemes. These schemes are described below.

H29 Cauldwell Street / St. John's Street Junction

3.305 The baseline highway assessment identified a number of issues with the operation of this junction in the PM peak. Traffic was observed queuing in the right hand lane on Cauldwell Street all the way back to the Prebend Street. This was despite the left-hand lane being empty. This was affecting the operation of the Prebend Street junction and creating queues along Prebend Street.

3.306 The reason for the motorist behaviour is that only the right-hand lane permits traffic to turn right onto St. John's Street and so drivers automatically try to position themselves in this lane at the earliest opportunity.

3.307 In order to attempt to mitigate this impact a scheme has been developed that permit two right-turn lanes onto St. John's Street, one of which would be accessible from the left-hand lane on Cauldwell Street. This should help to maximise the available road space along Cauldwell Street and reduce queuing. A drawing of the scheme is provided in Appendix A, reference ST15226-009.

H30 Batts Ford Bridge / River Street Junction

3.308 This scheme is required as part of the Batts Ford Road Bridge (H23) to facilitate connection of the bridge into the main highway network.

3.309 A number of schemes have been assessed but it has been determined that due to the proximity of the river crossing and the junction the roundabout would need to be removed and the junction signalised. Drawings of this scheme with the various possible bridge alignments are provided in Appendix A, references ST15226-010-00, 01a, 02a and 3a.

H8 Re-introduce two-way traffic on River Street

3.310 As part of the delivery of the Batts Ford Bridge Scheme (H23) it necessary to re-introduce two-way traffic along River Street in order to permit southbound access to the bridge.

H31 Batts Ford Bridge / Kingsway Junction

3.311 This scheme is required as part of the Batts Ford Road Bridge (H23) to facilitate connection of the bridge into the main highway network.

3.312 A number of variations in scheme options have been assessed, including a flyover from the bridge over Caldwell Street (reference H31a). The flyover was considered undeliverable as could not be brought back to grade level without requiring the closure of a series of side roads off the Kingsway.

3.313 The preferred scheme option (reference H31b) only permits traffic from the bridge to travel straight across Cauldwell Street and, similarly, eastbound traffic along Cauldwell Street could only travel straight across the junction. This maximises the theoretical capacity of the junction. This will need to be tested within the VISSIM micro-simulation model. A drawing of the scheme is provided in Appendix A, reference ST15266-002-01 and ST15266-002-02.

H2 Revise Kingsway one-way system

3.314 As part of the preferred scheme option for Batts Ford Bridge / Kingsway junction (H31b) it is necessary to introduce two-way traffic along Kingsway.

P17 ANPR Car Park Payment System

3.315 The introduction of ANPR technology at car park would permit the removal of entry barriers as well as the need to issue parking tickets. This both enhances the operation of car parks, but also provides greater flexibility to car park users, who only have to pay upon returning to their vehicle.

3.316 The technology does require robust integration of systems and so would need to be trialled prior to any widespread implementation but could deliver positive benefits.

Scheme Option Appraisal Summary Table

3.317 Table 3.1 presents a summary of the scheme option development and appraisal process, presenting the range of scheme options considered, pre-requisite or complementary schemes, and a summary of the appraisal findings and potential type of benefits delivered.

3.318 If a scheme is either dependant on or incompatible with another, that is indicated in the table

3.319 Due to its size, the table is presented in **Appendix B** – Scheme Option Appraisal Summary Table.

4 Collation of Complementary Schemes

Introduction

4.1 The scheme development and appraisal process has demonstrated a range of inter-dependencies between schemes within, and leading to, the town centre. This is particularly the case with some of the highway and public realm schemes that affect the overall highway network and circulation of vehicles.

4.2 Furthermore, the appraisal process has also identified a series of measures that complement each other and where, if delivered in combination, it is likely that they will achieve more cumulative benefits (e.g. the whole delivers more than the sum of the parts).

4.3 This section examines these inter-dependencies and complementary schemes in more detail and collates groups of schemes that will begin to form the basis of the package development process.

Groups of measures

4.4 Based on an analysis of the interdependencies shown in Appendix B the following groups of measures have been identified that either needs to be delivered together, or would complement each other.

Group 1 – New river crossing

4.5 Group 1 schemes represent a series of changes to the highway network resulting from the introduction of Batts Ford Bridge. Table 4.1 presents a summary of the schemes included within the group.

Table 4.1 Group 1 Schemes – New River Crossing

Scheme Ref	Scheme Name
H23	Batts Ford Bridge
H18b	Wilmer's Corner (Option B)
H29	Cauldwell Str/St.John's Str Jn
H30	Batts Ford Bridge / River Str Jn
H8	Re-introduce two-way traffic on River Str
H31b	Batts Ford Bridge / Kingsway Jn (Option B)
H2	Revise Kingsway one-way system
B2b	Provide pinch point bus priority (Option B)

Group 2 – Prebend Street Congestion Relief

4.6 Group 2 scheme represent a series of enhancements to accessibility to the west of the town centre and the rail station, focussed around reducing congestion along the Prebend Street road corridor. Table 4.2 presents a summary of the schemes included within the group.

Table 4.2 Group 2 Schemes – Prebend Street Congestion Relief

Scheme Ref	Scheme Name
H25b	Prebend Street Link Road (Option B)
H14c	Prebend Str/Midland Road Jn (Option C)
B2b	Provide pinch point bus priority (Option B)
B7	Develop rail station bus services
PR4b	De-traffic Midland Road (West) (Option B)
W14	Upgrade footpaths along Midland Road (west)
W13a	Upgrade footpaths along Prebend Street
C12	Improve and provide new cycle routes to train stations
RS1	Prebend Str/Midland Rd

Group 3 - High Street / St. Paul's Square Public Realm

4.7 Group 3 represents a series of enhancement to the public realm around the High Street / St. Paul's Square to improve the 'sense of place' and local environment. Table 4.3 presents a summary of the schemes included within the group.

Table 4.3 Group 3 Schemes – High St / St Paul's Square Public Realm

Scheme Ref	Scheme Name
H23	Batts Ford Bridge
H30	Batts Ford Bridge / River Str Jn
H8	Re-introduce two-way traffic on River Str
PR11b	Shared surface High Street (Option B)
PR18	Enhance access to High Street Alleyways
PR2a	De-traffic St. Paul's Square (Option A)
PR3b	De-traffic Horne Lane (Option B)
W6	Investigate opportunities to widen footways

Group 4 – Incremental Enhancement of Rail Access

4.8 Group 4 represents a series of short to medium policies and schemes to enhance access to the town centre by rail. Table 4.4 presents a summary of the schemes included within the group.

Table 4.4 Group 4 Schemes – Incremental Enhancement of Rail Access

Scheme Ref	Scheme Name
R3	Promote opportunities from Thameslink
R4	Promote Midland Main Line enhancements
R5	Support East West Rail (Central Section)
R1a	Enhance Bedford Station (Option A)
R2a	Create Station 'Gateway' (Option A)
PR12b	Shared surface Woburn Rd / Alex Pl (Opt B)

Group 5 – Significant Enhancement of Rail Access

4.9 Group 5 represents longer term opportunities to significantly enhance station access to the town as part of wider regeneration and service provision. Table 4.5 presents a summary of the schemes included within the group.

Table 4.5 Group 5 Schemes – Significant Enhancement of Rail Access

Scheme Ref	Scheme Name
R1b	Enhance Bedford Station (Option B)
R2b	Create Station 'Gateway' (Option B)
R8	Western entrance to station
R6	Support East West Rail (Eastern Section)

Group 6 – Quality of Bus Offer

4.10 Group 6 represents a series of enhancements to bus provision to enhance the public transport offer in comparison to other modes, making it a more attractive mode of transport. Table 4.6 presents a summary of the schemes included within the group.

Table 4.6 Group 6 Schemes – Quality of Bus Offer

Scheme Ref	Scheme Name
B14	Improve quality of buses
B3	Create Route Action Plans
B8	Improve connections to bus station
B9	Integrating bus stops and other modes
B12	Improve bus stop waiting facilities
C&P1	Cashless Payment System

Group 7 – Incremental Bus Network Enhancement

4.11 Group 7 represents a series of incremental enhancements to bus service provision across the network to extend the scope of bus services and increase levels of service. Table 4.7 presents a summary of the schemes included within the group.

Table 4.7 Group 7 Schemes – Incremental Bus Network Enhancement

Scheme Ref	Scheme Name
B6a	Extend bus network (Option A)
B5a	Create cross-town bus services (Option A)
B10a	'Turn-up-an-go' bus frequencies (Option A)
B21	Improve bus services to schools
B22	Improve bus services to college
B23	Integrate University bus service
B24	Improve bus services to health centres

Group 8 – Significant Bus Network Enhancement

4.12 Group 8 represents a series of more substantial enhancements to bus service provision across the network to significantly extend the scope of bus services and increase levels of service. Table 4.8 presents a summary of the schemes included within the group.

Table 4.8 Group 8 Schemes – Significant Bus Network Enhancement

Scheme Ref	Scheme Name
B6b	Extend bus network (Option B)
B5b	Create cross-town bus services (Option B)
B10b	'Turn-up-an-go' bus frequencies (Option B)

Group 9 – Park & Ride Enhancement

4.13 Group 9 represents a series of scheme options to significantly enhance future park & ride facilities servicing the town centre. Table 4.9 presents a summary of the schemes included within the group.

Table 4.9 Group 9 Schemes – Park & Ride Enhancement

Scheme Ref	Scheme Name
P&R1a	Additional P&R Sites (Option A)
P&R2a	Dedicated Bus P&R Service (Option A) – Existing Site
P&R2b	Dedicated Bus P&R Service (Option B) – New Sites
P&R3a	Bus priority for P&R services (Option A) – Existing Site
P&R3b	Bus priority for P&R services (Option B) – New Sites

Group 10 – Technological Solutions to Air Quality Management

4.14 Group 10 represents a series of scheme options focused on technological solutions to improving air quality around Bedford and, specifically, within the designated Air Quality Management Area. Table 4.10 presents a summary of the schemes included within the group.

Table 4.10 Group 10 Schemes – Technological Solutions to Air Quality Management

Scheme Ref	Scheme Name
F9	Local freight consolidation point
B15	Reduce bus emissions
B16a	Introduce electric buses (Option A)
B16b	Introduce electric buses (Option B)
STP18	Promote electric and hybrid cars
STP15	Investigate opportunities for a car club scheme
STP16	Promote car sharing / car pooling schemes
STP20	Support installation of electric vehicle charging points as part of development

Group 11 – Promotion of Riverside

4.15 Group 11 represents a series of measures to promote the use of the riverside through the centre of the town and create greater connections through the Riverside, Cultural and Retail Quarters. Table 4.11 presents a summary of the schemes included within the group.

Table 4.11 Group 11 Schemes – Promotion of Riverside

Scheme Ref	Scheme Name
WW2	New quaysides within Town Centre
WW4	Development of active frontages to river
WW1	Enhance riverside paths
WW5	Encourage use of waterways

Group 12 – Improvements to Pedestrian Amenity

4.16 Group 12 includes all the schemes aimed at increasing pedestrian travel, which leads to reduced congestion, a healthier population and a more liveable town centre. Table 4.12 presents a summary of the schemes included within the group.

Table 4.12 Group 12 Schemes – Improvements to Pedestrian Amenity

Scheme Ref	Scheme Name
W14	Upgrade footpaths along Midland Road (west)
W1	Network of safe walking routes into town centre
W4	Quality pedestrian links connecting river and rail
W5a	Pedestrian Link Riverside to Horne Lane (Option A)
W5b	Pedestrian Link Riverside to Horne Lane (Option B)
W6	Investigate opportunities to widen footways
W7	Improve crossing facilities on High Street
W8	Improve crossing facilities around St Paul's Square
W9a	Improve crossing facilities on Horne lane
W9b	Improve crossing facilities on Horne lane
W10	Improve crossing facilities on River Street / Greyfriars
W11	Highway crossing facilities along the Embankment
W12	Provide crossing facilities on north side of Town Bridge to continue river path
W13a	Upgrade footpaths along Prebend Street (Option A)
W13b	Upgrade footpaths along Prebend Street (Option B)
W15	Upgrade footpaths along Alexandra Place / Woburn Road

Group 13 – Improvements to Cycling Amenity

4.17 Group 13 represents the ambition to enhance levels of cycling within Bedford to relieve congestion on roads and on public transport, and to improve air quality. More cycling means a healthier population and an improved sense of place within the town centre. Table 4.13 presents a summary of the schemes included within the group.

Table 4.13 Group 13 Schemes – Improvements to Cycling Amenity

Scheme Ref	Scheme Name
C1	Promote strategic cycle network plan
C2	Promote network of safe cycling routes leading into the town centre
C3	Produce direct and coherent cycle routes within the town centre
C7	Ensure delivery of cycle bridge to Riverside North development
C9	Ensure connectivity of cycle route to river crossings
C10	Improve quality of cycle route along north side of river
C11	Improve integration of cycle routes and public transport provision
C12	Improve and provide new cycle routes to train stations
C13	Promote cycle trips to train stations
C14	Promote use of river path and The Embankment for cycling
C15	Provision of secure and sufficient town centre cycle parking
C16	Introduce cycle hubs
C17	Work with employers to provide cycle facilities
C18	Cycle training schemes
C21	Cycle hire schemes

Group 14 – Encouraging Sustainable Travel

4.18 Group 14 includes the schemes aimed at improving the sustainability of travel within Bedford. The main focus is to reduce congestion on the roads and minimise reliance on the private vehicle, to improve air quality and wellbeing. Table 4.14 presents a summary of the schemes included within the group.

Table 4.14 Group 14 Schemes – Encouraging Sustainable Travel

Scheme Ref	Scheme Name
STP18	Promote electric and hybrid cars
STP19	Consider further 20mph zones in residential areas and around schools
STP2	School travel plans
STP7	Walking & cycling promotional campaigns
STP9	Provide active travel and public transport information
STP11	Cycle training schemes
STP15	Investigate opportunities for a car club scheme
STP16	Promote car sharing / car pooling schemes
STP20	Support installation of electric vehicle charging points as part of development

Final Sift of Long-List of Schemes

4.19 For completeness, a final sift of the long-list of schemes (identified in Phase 1 and appraised in Phase 2 of the study) has been undertaken in order to determine any additional schemes that would complement any of the identified groups and add to the overall benefits delivered.

4.20 Table 4.15 presents a summary of the additional schemes identified.

Table 4.15 Additional Schemes from original long-list

Groups		Additional Schemes	
Group 1	New river crossing	H5	Reduce traffic lanes over Town Bridge
Group 2	Prebend congestion relief	-	n/a
Group 3	High Street / St. Paul's Square Public Realm	H3 H4 H7 P3 H1 TPH2 TPH4	Reduce traffic lanes on High Street Reduce traffic lanes around St. Paul's Square Revise traffic arrangements in Mill Street Review Harper Centre car park access Improve Horne Lane service access Determine optimum town centre locations for future taxi ranks Seek to minimise taxi circulation patterns around the town centre
Group 4	Incremental rail access enhancement	-	
Group 5	Substantial rail access enhancement	-	
Group 6	Quality of bus offer	B13	Introduce real time bus information across the network
Group 7	Incremental bus network enhancement	-	n/a
Group 8	Substantial bus network enhancement	-	n/a
Group 9	Park & Ride enhancement	-	n/a
Group 10	Technological Solutions to Air Quality	F14 P12 H27/ P15 STP12	Low emission zone for freight vehicles Consider opportunities for further electric vehicle charging points in car parks Variable message signs Eco-driver training
Group 11	Promotion of Riverside	WW6	Support the development of the Bedford to Milton Keynes Waterway
Group 12	Improvements to Pedestrian Amenity	-	n/a
Group 13	Improvements to Cycling Amenity	C5 C6	Provide dedicated on-road cycling infrastructure Provide Cycle priority at junctions (ASL)
Group 14	Encouraging Sustainable Travel	STP6 STP5	Station Travel Plans Personalised Travel Plans

4.21 The final groups of measures are taken forward into the package development process, as outlined in Section 5.

5 Themed Package Development

5.1 The development of the strategy has evolved through understanding baseline transport conditions in Bedford for road, rail and non motorised users. Consultation with key stakeholders has revealed certain transport priorities that should be addressed; these included new links, improved junctions and enhanced town centre facilities for pedestrians, for example, improving the High Street for all users.

5.2 There are also corridors (radial routes) for the town centre that experience congestion and transport issues that need to be addressed.

5.3 A series of transport strategy objectives have been drafted and the range of packages set out below look to meet these objectives.

TSO1 Support the heritage, cultural and economic regeneration.

TSO2 Manage vehicular activity in the core town centre.

TSO3 Facilitate efficient cross town and end-to-end corridor movements.

TSO4 Enhance strategic links to the town to secure the long term position of Bedford.

TSO5 Provide network resilience, across all modes, that accommodates forecast growth.

TSO6 Create a safe and secure environment for all transport users.

TSO7 Manage the environmental impacts of transport.

TSO8 Proactively manage access to health and educational facilities.

TSO9 Create a coherent 'sense of place' across the town quarters.

TSO10 Ensure inclusive, resilient, long-term, and low maintenance design of transport infrastructure and operational services.

Emerging Package Themes

5.4 Three separate packages of measures have been developed based around tackling baseline transport conditions and future year development potential. Each package has a distinct theme and look to achieve some, if not all the transport strategy objectives. These themes are summarised as follows:

1. Pinch point and Traffic Management
2. Town Centre Regeneration
3. Town Centre Extension.

5.5 Each package has been developed around a series of core schemes that reflect the theme/development scenario.

5.6 Package 1 focuses on resolving issues with existing pinch points across the highway network and providing additional vehicular, public transport and walking & cycling network capacity and provision. The aim would be to manage and facilitate the underlying development aspirations of the town.

5.7 Package 2 focuses on a more fundamental enhancement to the core town centre focusing primarily on connectivity between the Retail Quarter, Cultural Quarter and riverside. This will incorporate a new river vehicular river crossing and extensive town centre urban realm schemes.

5.8 Package 3 focuses on a potential expansion of the town centre through re-development of the Station, St. Mary's and Kingsway Quarters. This will incorporate a new highway link, rail station/rail station access development, and enhanced St. Mary's/Kingsway Quarter.

Principle of the Package Themes and Package Content

5.9 The principles of the package themes are established through the strategy objectives from a short, medium or long term approach. Each package is not standalone in an "either or" scenario as there are a number of schemes that could easily be included within all of the separate packages to complement the overarching themes. The approach has, in general, been to include these schemes in just a single package in order to create distinct variations between packages. The spreadsheet included in this report illustrates this point.

5.10 The initial theme of Pinch point and Traffic management looks to address the immediate issues experienced at congested junctions and radial routes and supports non motorised user schemes that support cycling and public transport provision. Such schemes can support air quality improvement by easing traffic flow on the network and promoting active travel through cycling and pedestrian facilities. There are a number of schemes that can be implemented in the short term. However, key additional links to the transport network are not included in this package theme as the theme looks to make the best use of the existing facilities. This theme takes account of the planned development in Bedford during the Local Plan period

5.11 Town centre regeneration is a key objective for the transport strategy and this objective is represented in the recent LEP bid that has been submitted to Department of Transport. The measures included in this themed package looks to provide for additional transport movements in the town centre and enhance the urban realm. It is anticipated that tackling transport issues in the town will encourage the visitor economy and income generation. Proposed development from the existing local plan and the Bedford Town Centre Strategy up to 2021 is accounted for in this package.

5.12 Town Centre Extension themed package looks to uphold the aspirations of the regeneration of the town whilst including more ambitious development proposals that would look to change the axis of the town centre and extend the town centre to the west; in and around the current rail station. These proposals look to go beyond the existing plan period and include major new infrastructure.

Developing the options in the themes

5.13 As we have developed options for testing in the packages it has become evident that single scheme solutions are not often available and therefore packages of measures are necessary. An example would be the Midland Road/Prebend Street junction which has undergone design feasibility and junction modelling but it has been found that no solution in isolation is available to resolve the issues here and therefore no obvious direct scheme has been included within Package 1 as a scheme at this location depends upon a wider package of measures. This finding in itself has been a useful outcome from the package development process. It also demonstrates the extent of packages that may required.

5.14 We envisage that the final strategy will encompass elements from two or more packages. This could particularly be the case when considering town centre development aspirations over time. So for example, Package 1 might form the basis of an underlying strategy in the short/medium term,

with either Package 2 or 3 reflecting longer term developments i.e. the strategy set out to resolve current transport network issues and 'manage' underlying growth in the short/medium term prior to 'enhancing' or 'extending' development aspirations in the longer term.

Schemes

5.15 The attached spreadsheet sets out the initial 'core' schemes (as identified in Stage 2 of the study) that are proposed for inclusion within each of the three packages (in Appendix C).

5.16 It should be noted that variations of the same scheme have been included within different packages, for example, different junction layouts.

Highway Layouts

5.17 The combinations of highways schemes within each package will have an effect upon the overall operation of the local highway network within the town centre. An initial assessment of the impacts is presented visually in the diagrams below.

Key Considerations for each package

5.18 The Bedford Forecasting Note (December 2014 JMP) sets out the growth scenarios for 2015, 2021 and 2032. The DfT WebTag guidance requires all growth to be constrained to TEMPRO which taking into account the planned growth for Bedford 2015 forecast year presents no issue. However, in 2021 and 2032 the anticipated growth scenarios in Bedford exceed the TEMPRO forecasts.

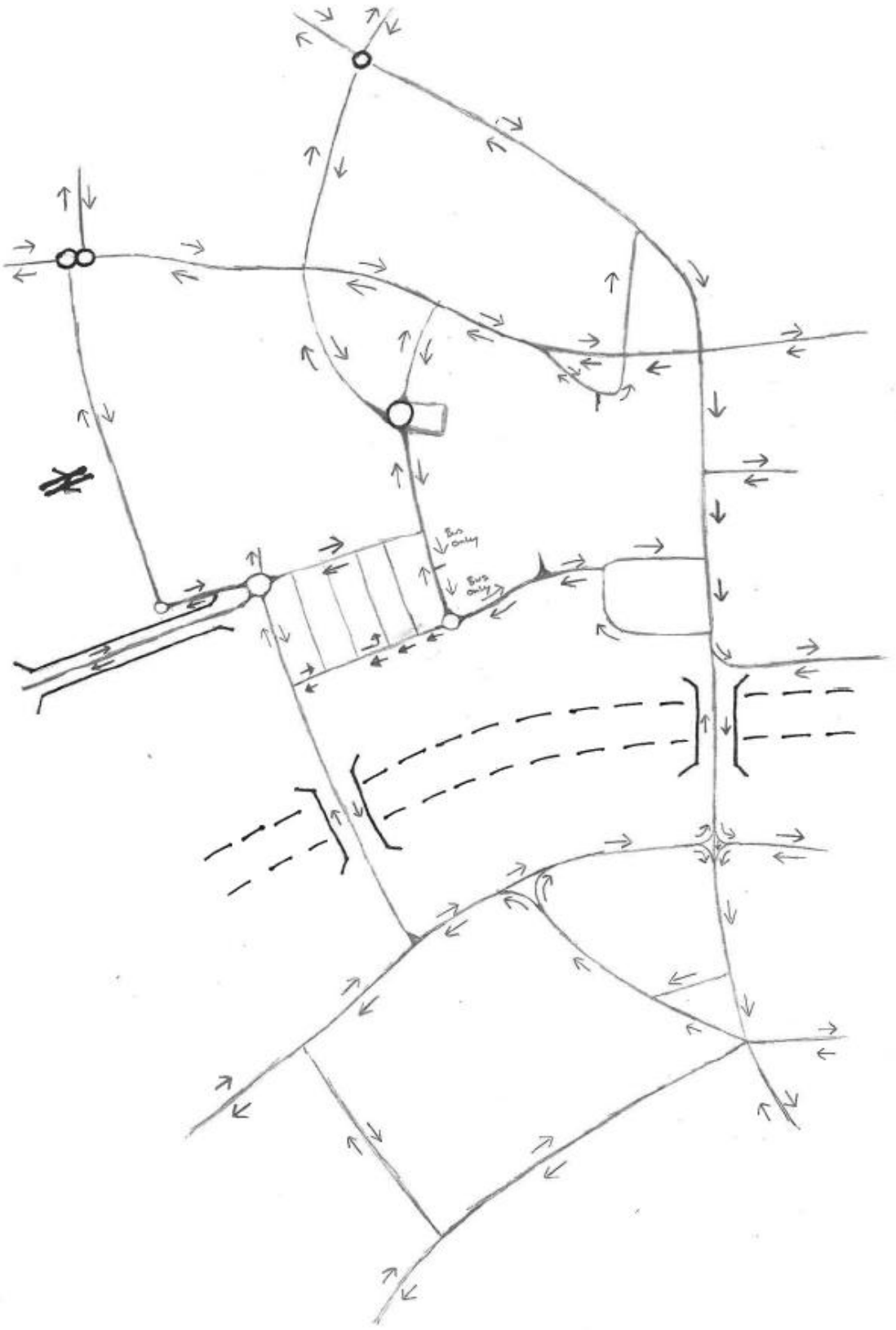
5.19 This means that whatever growth occurs in Bedford cannot be accommodated purely through additional highway provision and that the other forms of transport will need to play a greater role in providing for movements in and around Bedford to accommodate this growth.

5.20 The modelling for each of the packages will demonstrate how far such growth can be accommodated and the optimum combination of schemes that can accommodate growth.

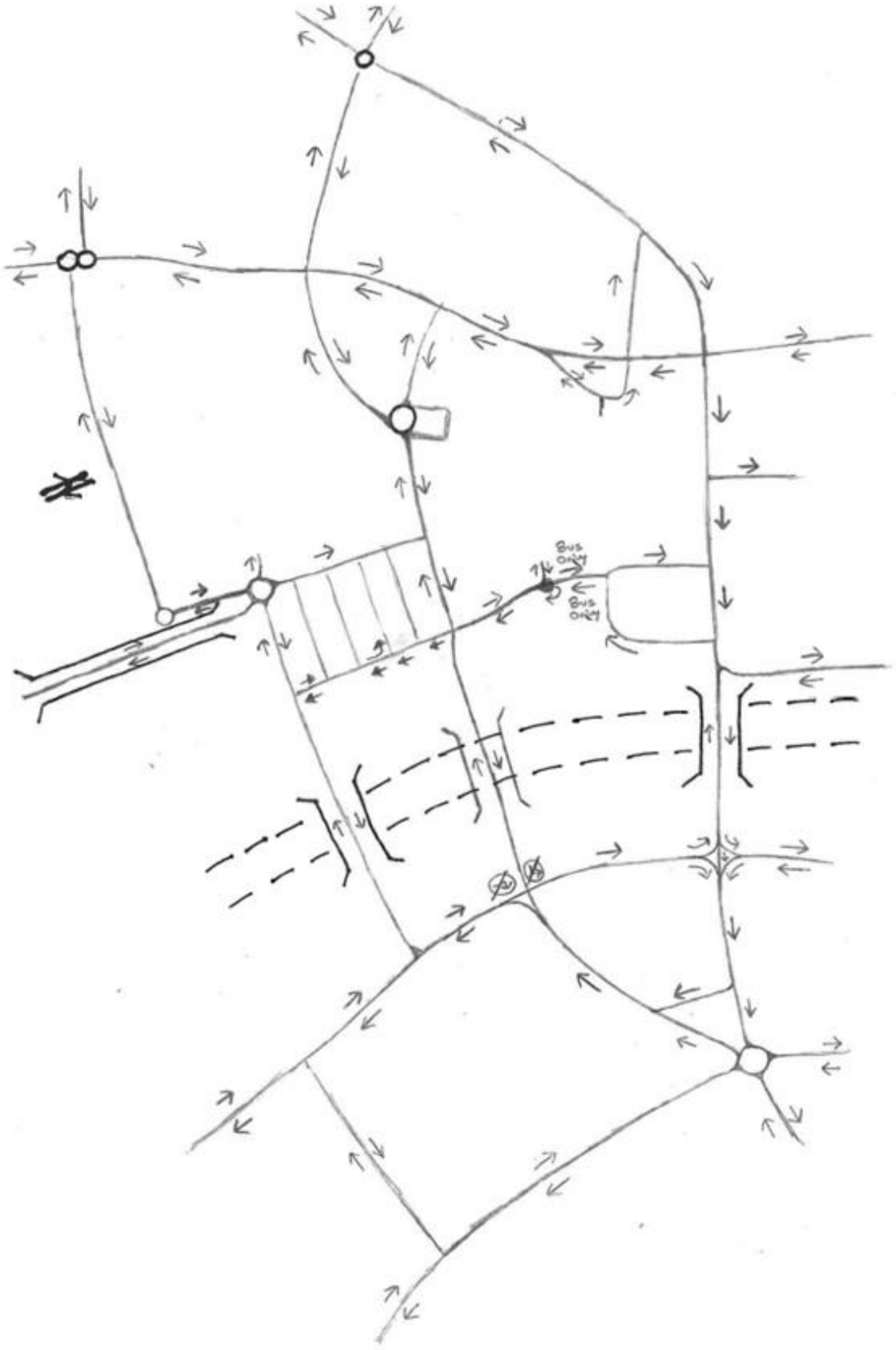
5.21 It will be important to note that key strategic rail developments in and around Bedford will influence growth opportunities including the town centre extension theme package as increased commercial and commuter trips may be drawn by improved rail journey times .

5.22 The future scope of Bedford depends on the intensity of development and regeneration. The themes of the packages influence the intensity of regeneration. Package two will emphasise the town centre whilst package three supports extensive development to the west with some measures to support the town centre traffic movements. It will be important to determine the support for the extent of this development from a range of stakeholders.

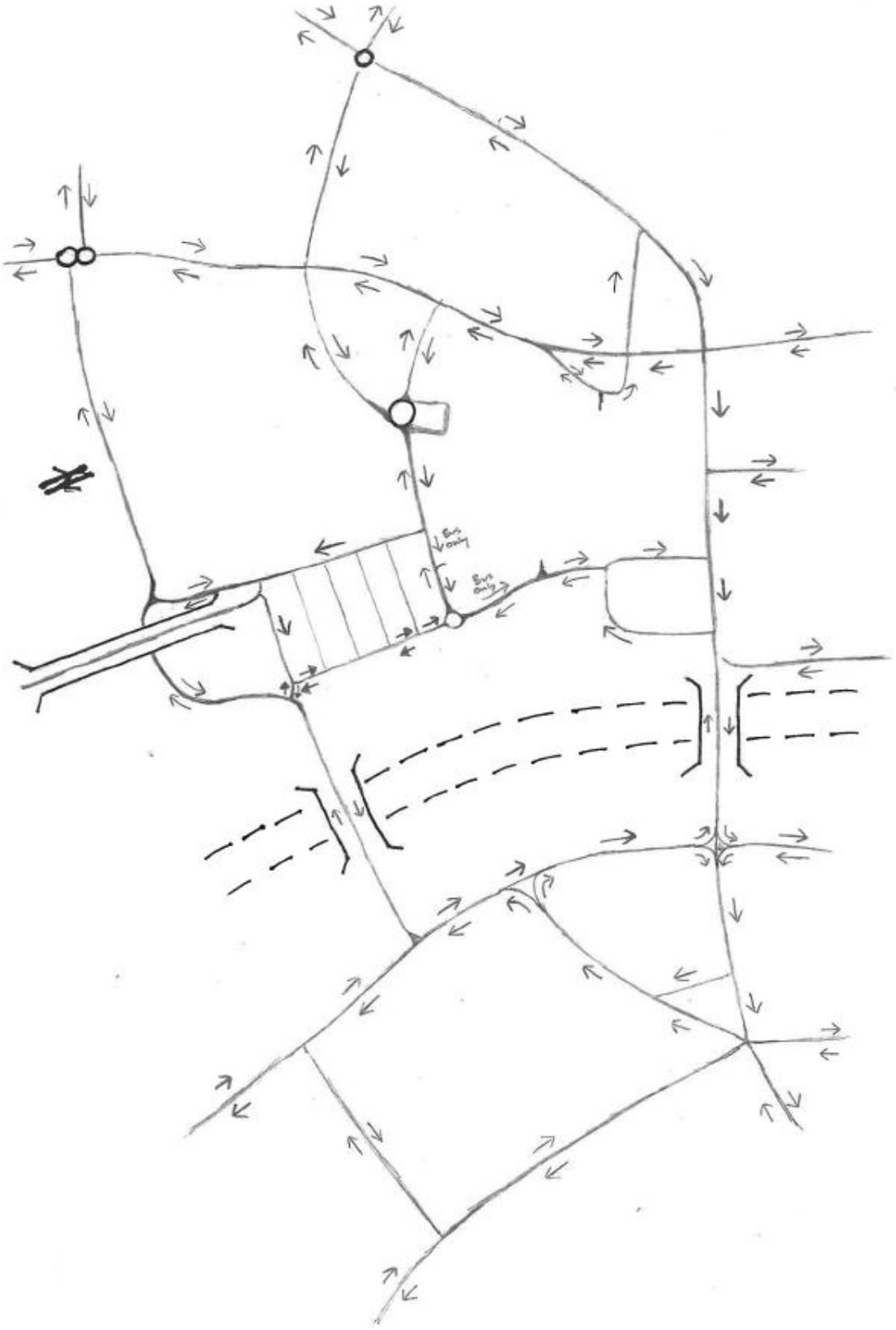
Package 1 Core Town Centre Highway Layout



Package 2 Core Town Centre Highway Layout



Package 3 Core Town Centre Highway Layout



Next Steps

5.23 Each of the packages of measures will be modelled within the strategic highway transport modelling software package as a future year scenario. We will utilise the updated SATURN and VISSIM models to conduct separate modelling assessment of the packages of measures.

5.24 The outputs from the package modelling will be used to assess the relative performance of each package against the baseline reference case, as well as each other. This will include the impact upon network capacity, capacity and overcrowding, assessing cordon flows and journey times.

5.25 The performance of each package will be assessed against the strategy objectives, as well as apply the Department for Transport Appraisal Guidance framework, encompassing three areas:

- Economic
- Environmental
- Social

5.26 The economic appraisal will need to consider the likely impact of the packages of measures upon direct transport economic impacts and wider economic impacts. This will include metrics such as:

- Journey time savings
- Vehicle operating costs
- User charges (fares)
- Reliability impacts
- Private sector operator impacts
- Capital costs
- Operating costs
- Regeneration impacts
- Agglomeration impacts
- Labour market impacts

5.27 An assessment of the environmental impacts of each package will be undertaken encompassing the following aspects:

- Noise
- Air quality (local and regional)
- Greenhouse gases
- Landscape
- Townscape
- Historic Environment
- Biodiversity

- Water Environment

5.28 Where negative impacts are identified, further work will be undertaken in order to develop potential mitigation to minimise the impact.

5.29 The social appraisal will incorporate an assessment of the impact of each package upon:

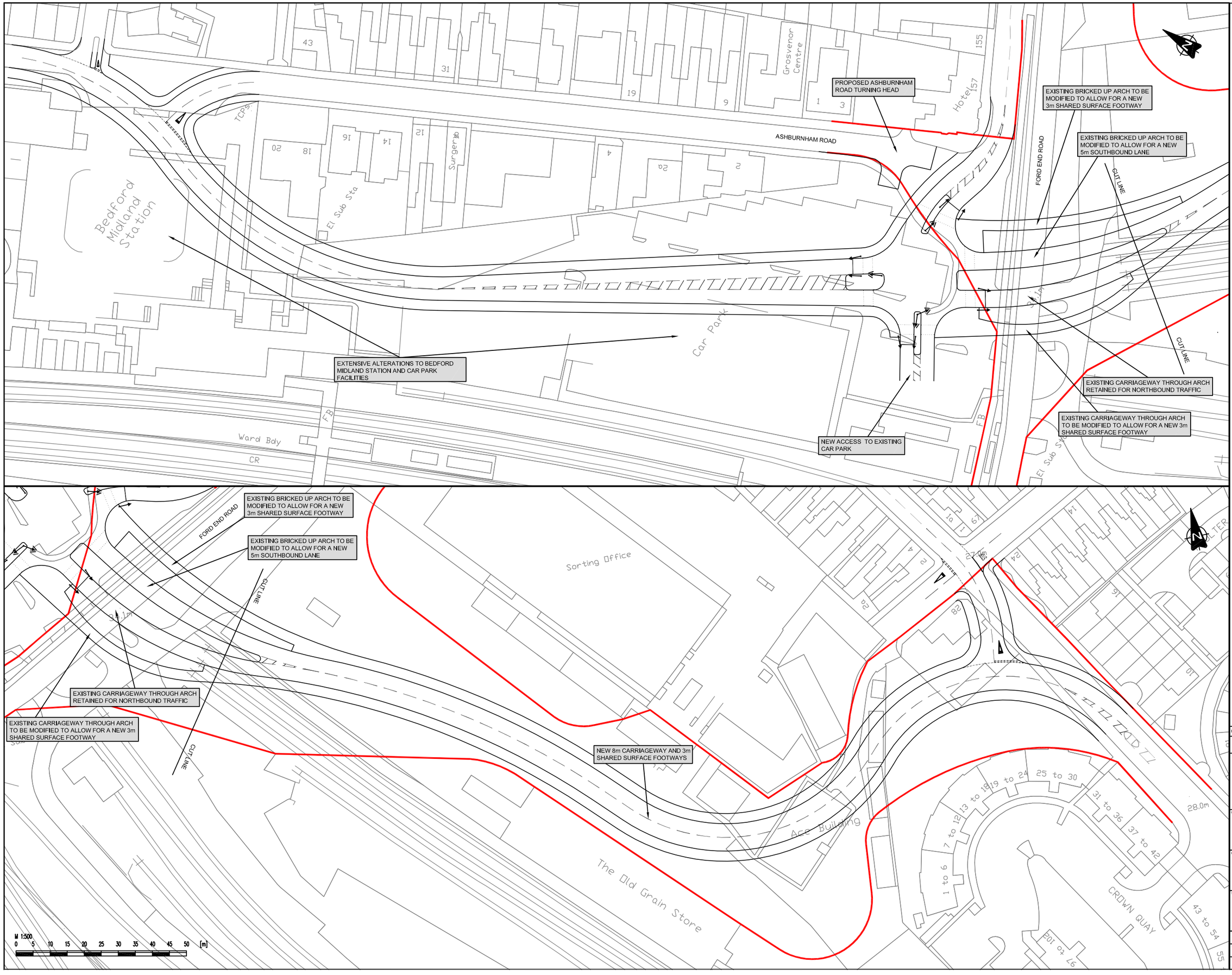
- Commuting and Other users
- Physical activity
- Journey quality
- Accidents
- Security
- Access to services
- Affordability
- Severance
- Option and non-use values

5.30 The deliverability of the component parts of each package will also be considered in terms of:

- Buildability
- Acceptability
- Value for Money
- Funding
- Deliver timescales

Appendix A

Highways Schemes



Notes:

1. Do not scale from this drawing. If in doubt refer to the project manager for clarification.

Key:

- OS base
- Proposed features
- Bedford B.C. policy boundary
- Proposed primary traffic signal
- Proposed secondary traffic signal

Rev.	Date	Revision details	Drawn	Checked	Approved

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Project: BEDFORD TOWN CENTRE STRATEGY

Title: ASHBURNHAM ROAD / PREBEND STREET OPTION 3

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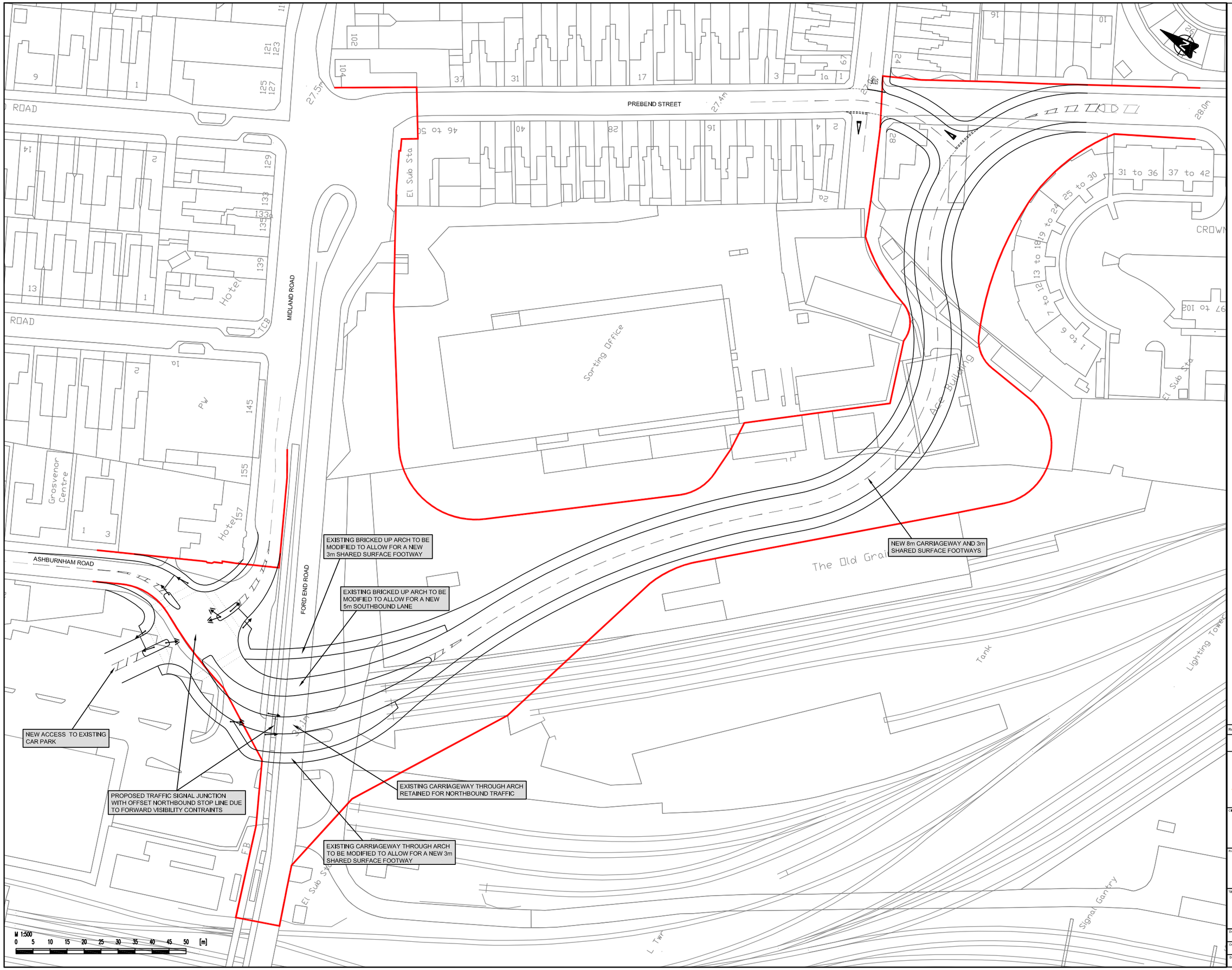

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Title: ASHBURHAM ROAD / PREBEND STREET OPTION 1

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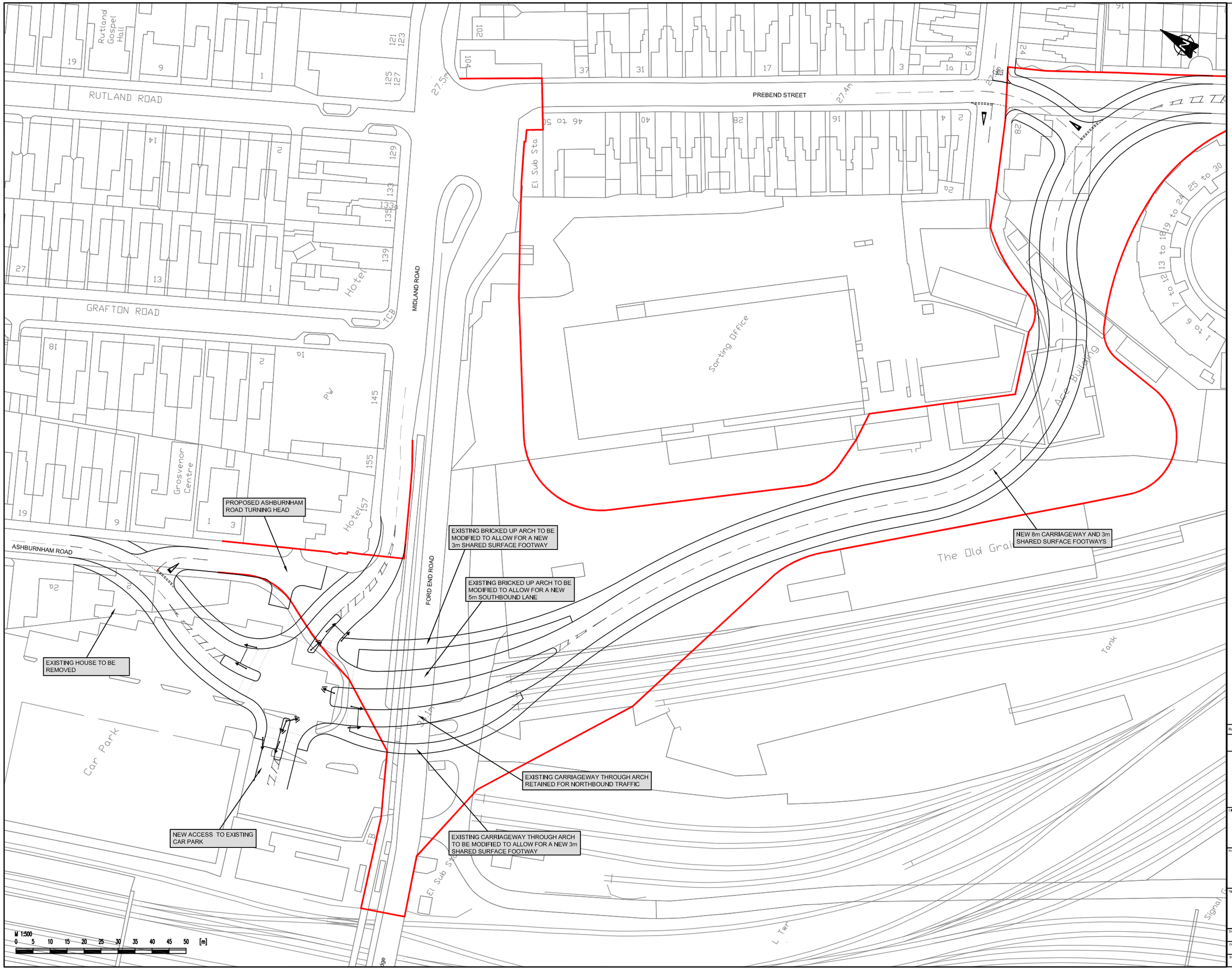

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Title: ASHBURNHAM ROAD / PREBEND STREET OPTION 2

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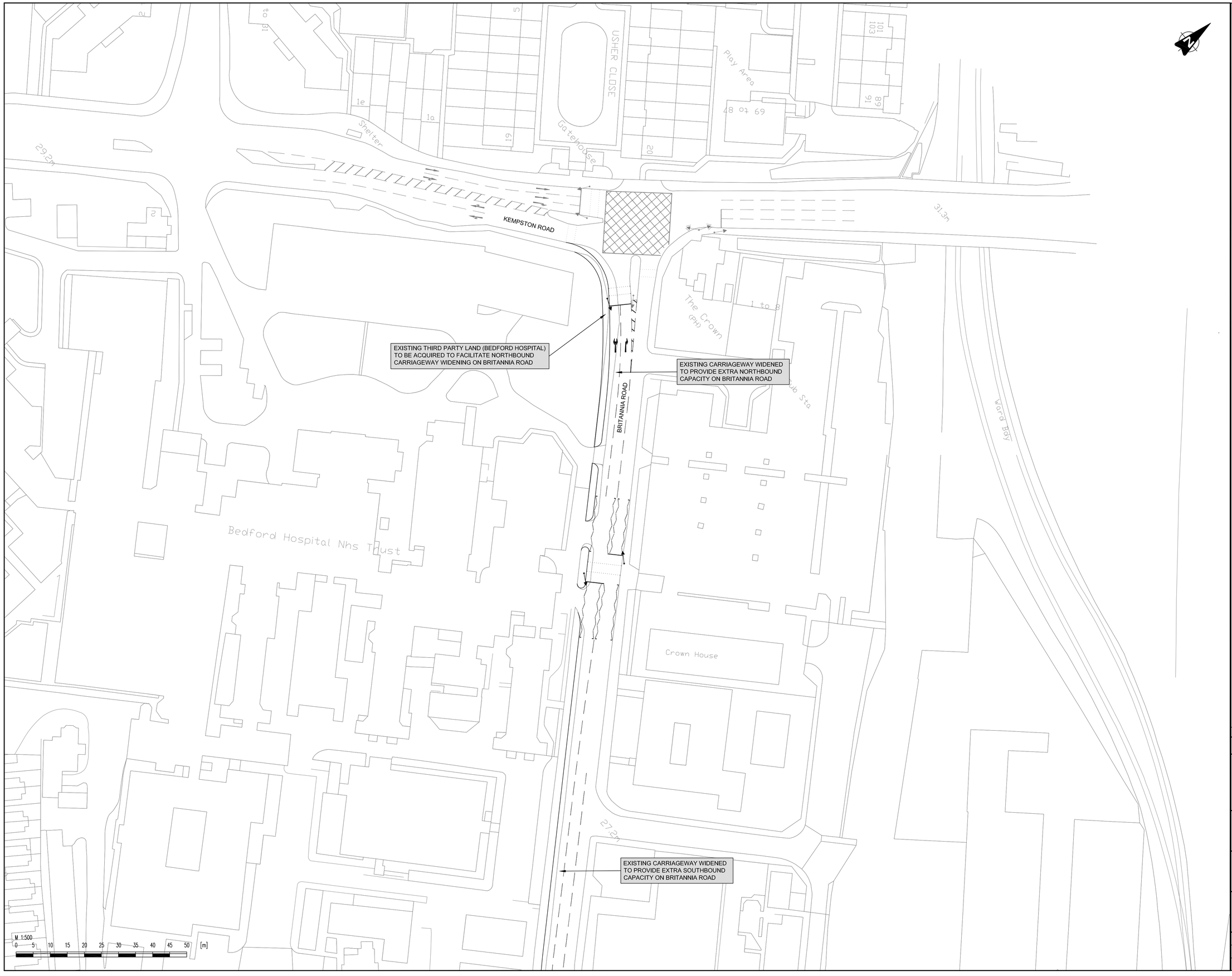

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- Existing primary traffic signal
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Title

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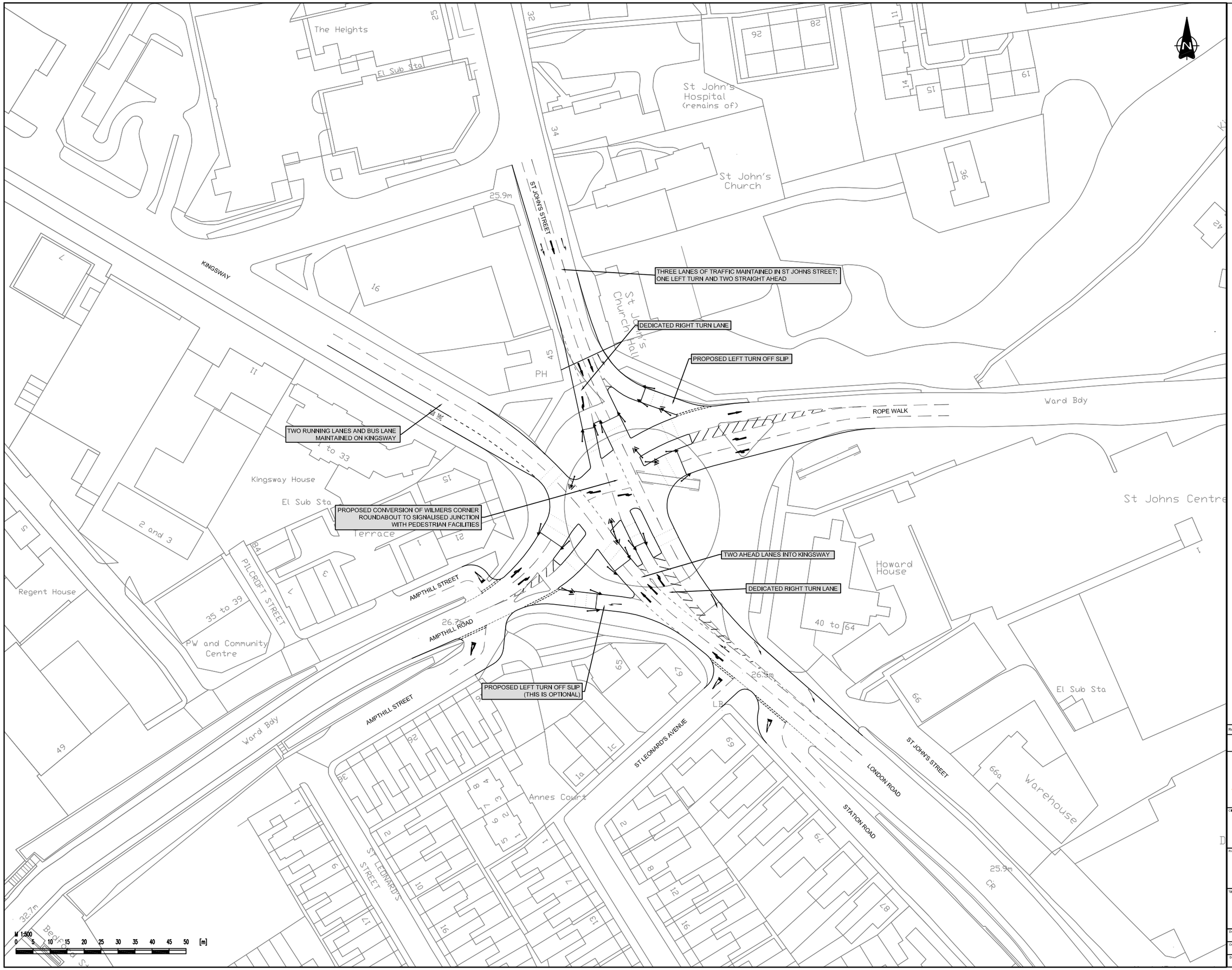

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Key:

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Project: BEDFORD TOWN CENTRE STRATEGY

Title: WILMERS CORNER

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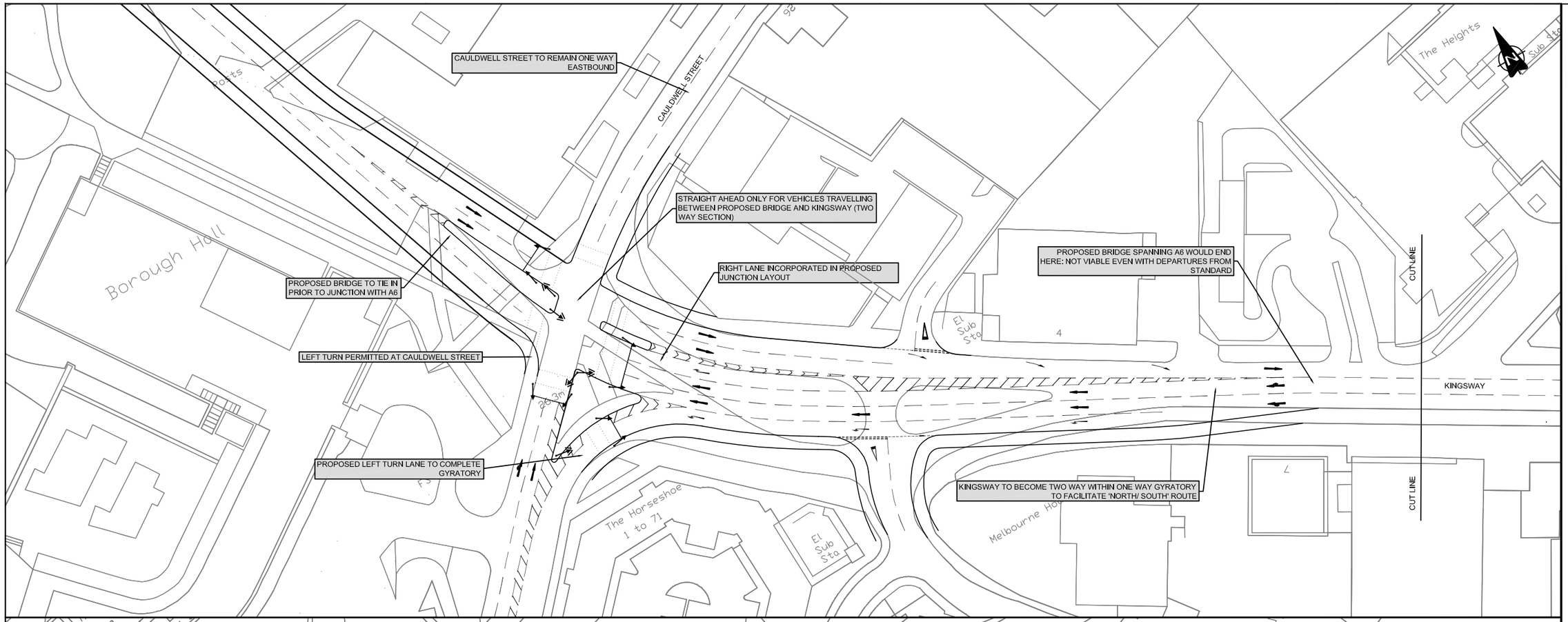

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- Proposed secondary traffic signal

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Project: BEDFORD TOWN CENTRE STRATEGY

Title: SOUTH END OF BRIDGE
OPTION 2
TIE IN WITH KINGSWAY

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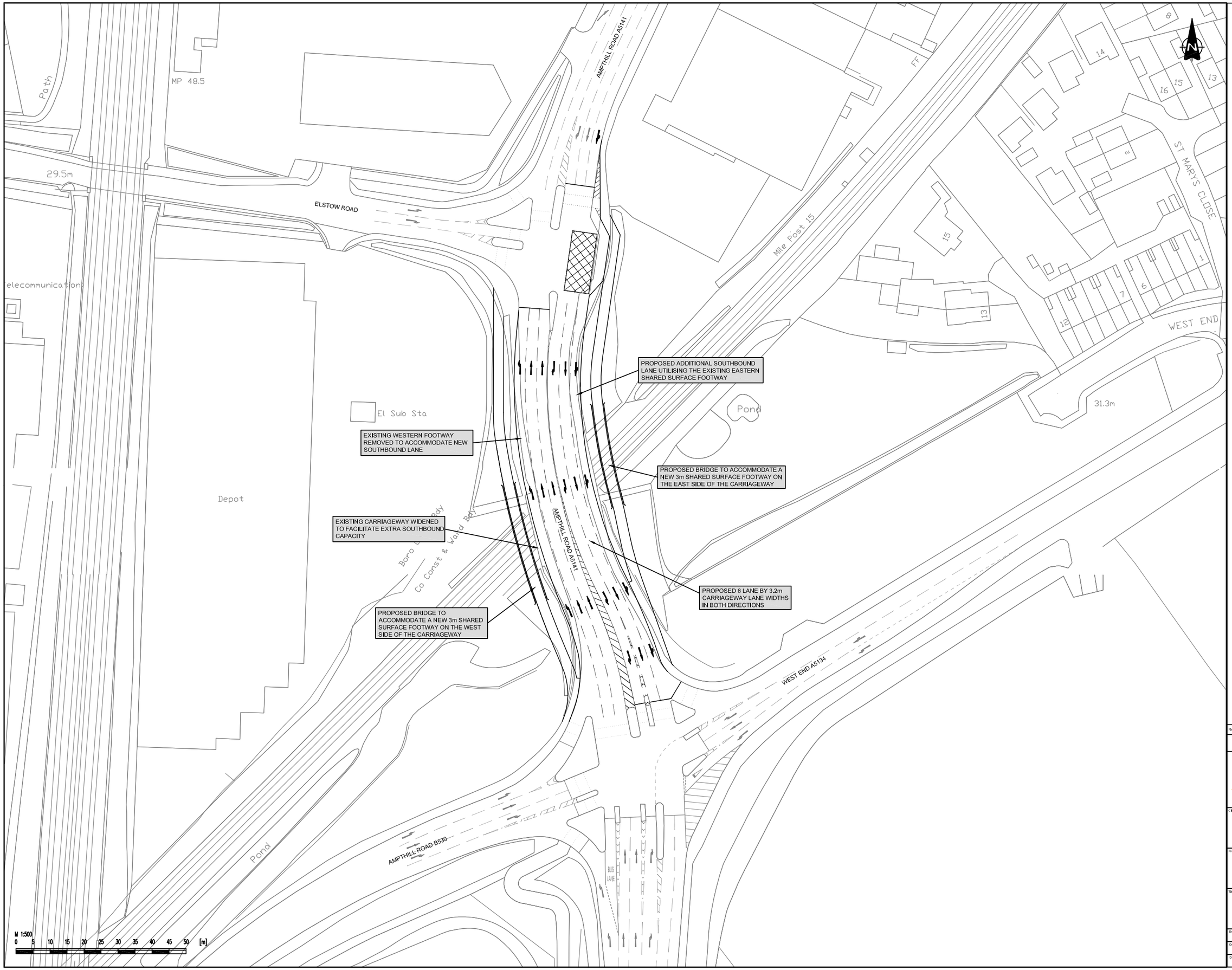

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Title: AMPTHILL ROAD / ELSTOW ROAD

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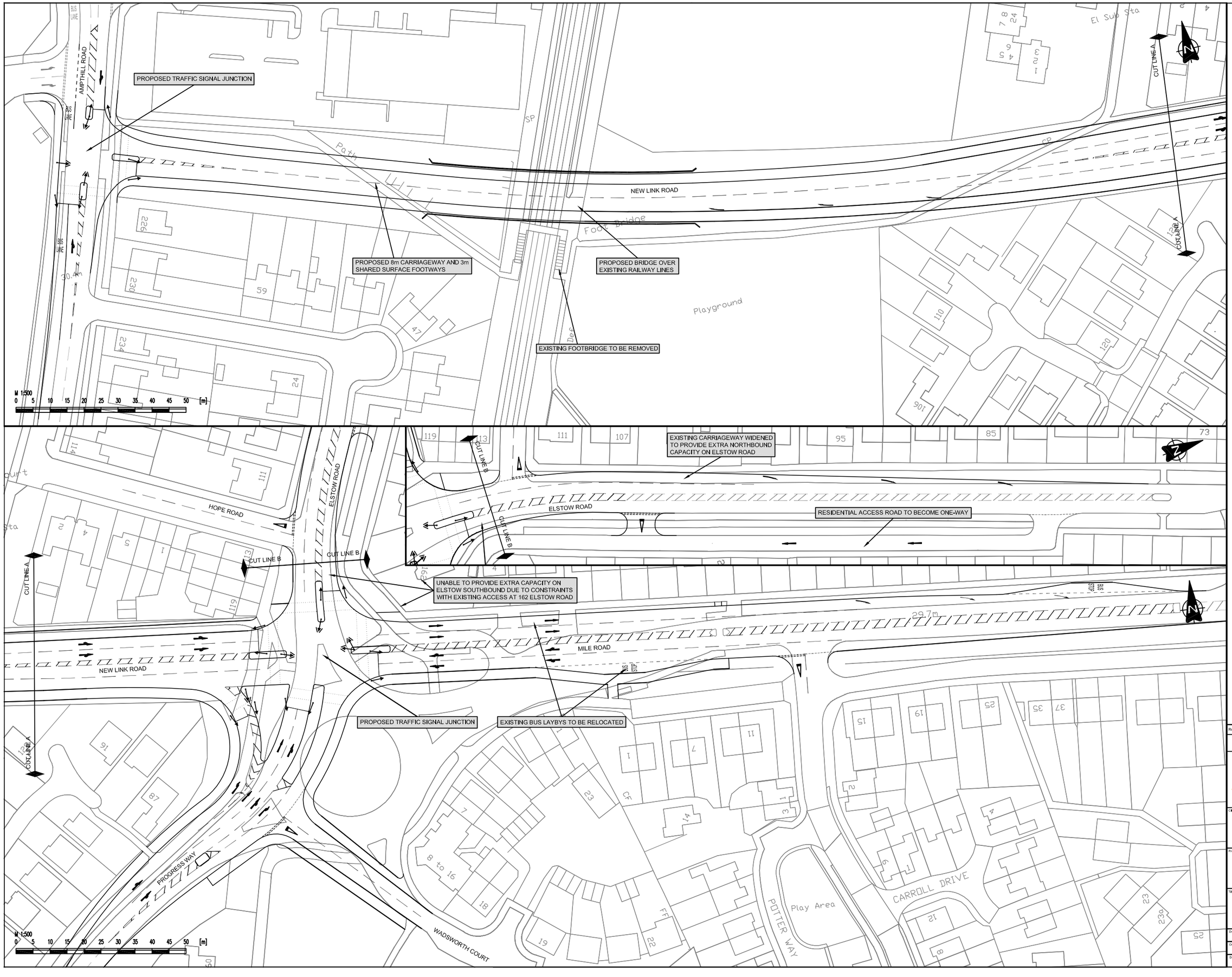

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- Proposed primary traffic signal
- Proposed secondary traffic signal

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Project: BEDFORD TOWN CENTRE STRATEGY

Title: AMPTHILL ROAD / PROGRESS WAY / ELSTOW ROAD SHEET 1 OF 2

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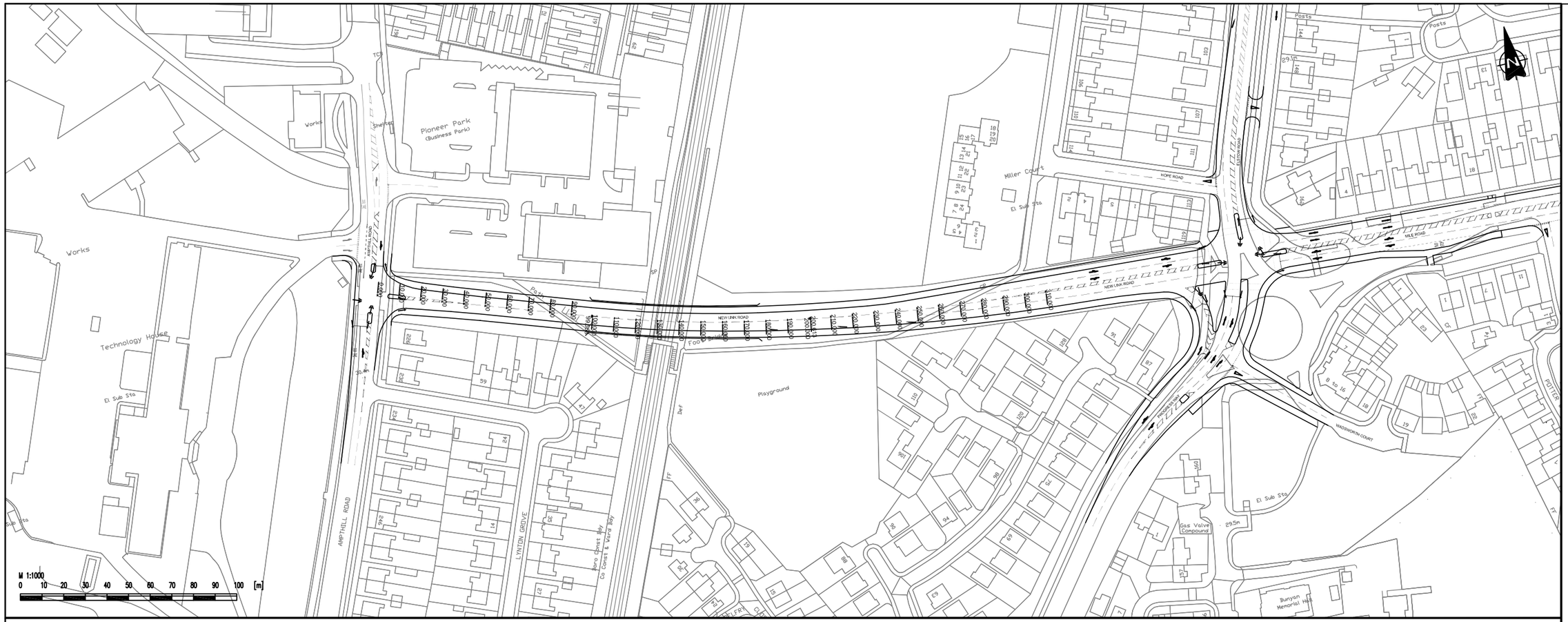

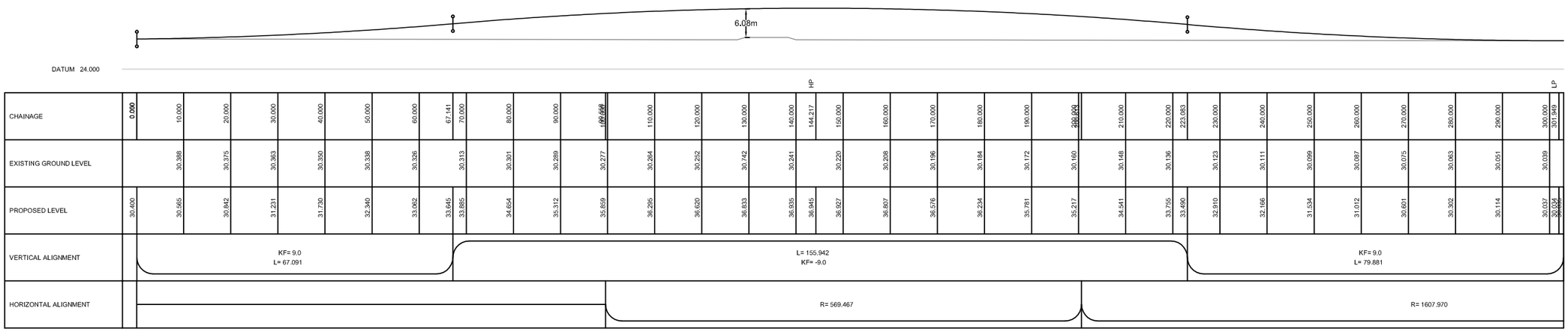

Key:

Existing ground level

Proposed ground level

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Notes:

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Key:

OS base

Proposed features

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Project

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Title

AMPTHILL ROAD / PROGRESS WAY /
ELSTOW ROAD
SHEET 2 OF 2

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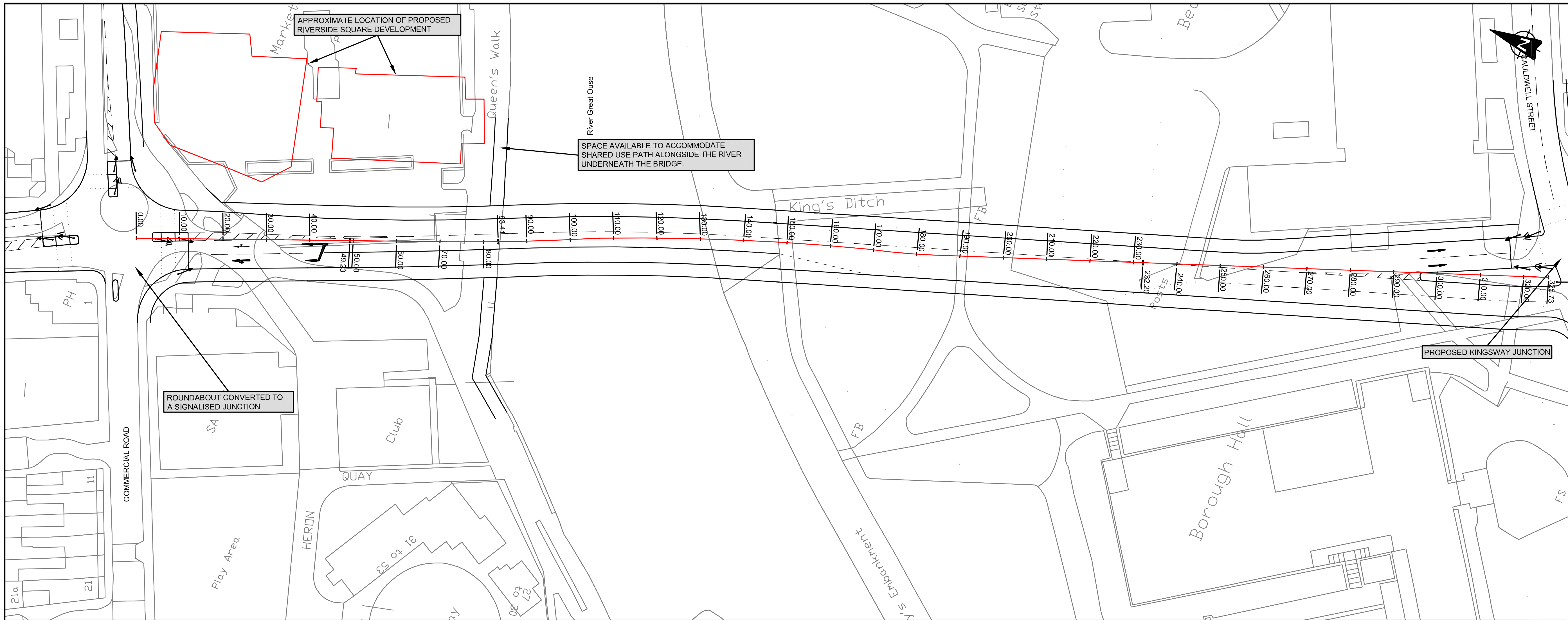

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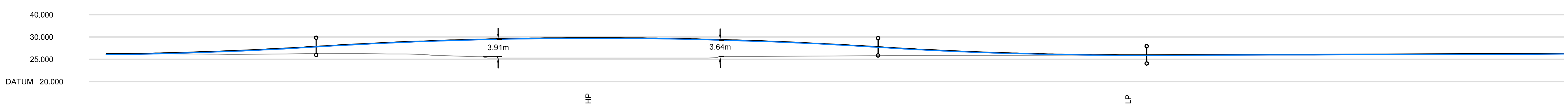

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EXISTING GROUND LEVEL	26.212	26.246	26.166	26.121	26.196		26.287	26.228	26.103	25.681		25.260	25.260	25.260	25.260	25.260	25.660	25.680	25.731	
CENTRE LINE	26.212	26.367	26.633	27.010	27.498	27.900	28.087	28.627	29.067	29.407		29.646	29.786	29.826 / 29.826	29.766	29.605	29.345	28.985	28.525	
LEFT HAND CHANNEL	26.037	26.199	26.472	26.857	27.352		27.949	28.496	28.943	29.283		29.523	29.662	29.702	29.642	29.482	29.221	28.861	28.401	28.251
RIGHT HAND CHANNEL	26.037	26.199	26.472	26.857	27.352		27.949	28.496	28.943	29.283		29.523	29.662	29.702	29.642	29.482	29.221	28.861	28.401	28.251

CHAINAGE	170.000	172.494	180.000	190.000	200.000	210.000	220.000	229.660 / 230.000	232.196 / 232.415	240.000	250.000	260.000	270.000	280.000	290.000	300.000	310.000	320.000	325.727
EXISTING GROUND LEVEL	25.777		25.822	25.862	25.894	25.926	25.958	25.990		26.022	26.054	26.086	26.118	26.151	26.184	26.216	26.249	26.282	26.294
CENTRE LINE	27.964	27.809	27.364	26.867	26.482	26.208	26.045	25.994 / 25.994	25.998	26.022	26.054	26.085	26.117	26.149	26.181	26.212	26.244	26.276	26.294
LEFT HAND CHANNEL	27.841		27.240	26.744	26.359	26.085	25.922	25.870		25.898	25.930	25.962	25.993	26.025	26.057	26.089	26.120	26.152	26.170
RIGHT HAND CHANNEL	27.841		27.240	26.744	26.359	26.085	25.922	25.870		25.898	25.930	25.962	25.993	26.025	26.057	26.089	26.120	26.152	26.170

	0.000–46.914	46.914–172.494	172.494–232.4	232.4–325.727
VERTICAL ALIGNMENT	KF= 9.0 L= 46.914	L= 125.581 KF= -10.0	KF= 9.0 L= 60.022	G= 0.317% 1: 315.1

	0.000–49.230	49.230–83.409	83.409–232.2	232.2–325.727
HORIZONTAL ALIGNMENT		R= 149.486		R= 1739.047

M 1:500
0 5 10 15 20 25 30 35 40 45 50 [m]

Key:

- Existing ground level
- Proposed ground level

Rev.	Date	Revision details	Drawn	Checked	Approved

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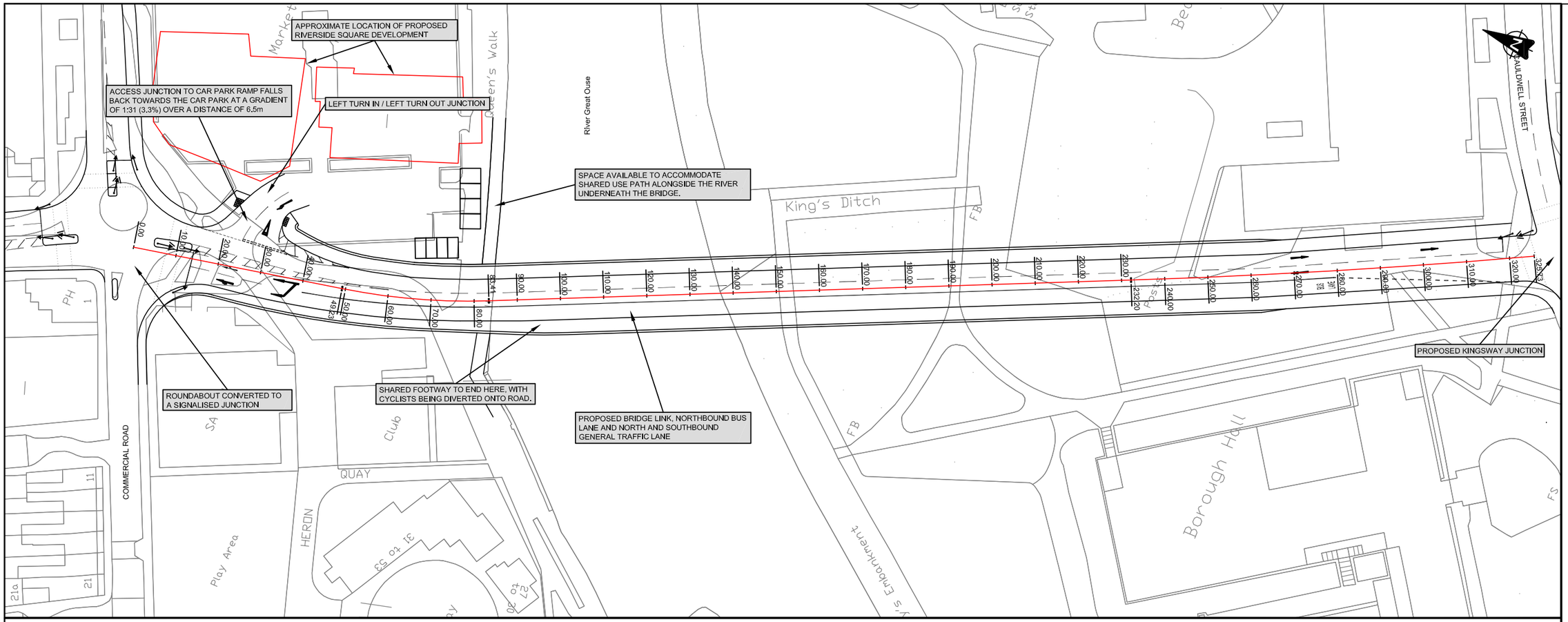
Project
BEDFORD TOWN CENTRE STRATEGY

Title
COMMERCIAL ROAD TO KINGSWAY
RIVER GREAT OUSE RIVER CROSSING
OPTION 0

Drawn	Checked	Approved
SRP	SD	SD
Original drg. size: A1	Date: October 2014	Scale: 1:500
Drawing Status: Information	Drawing Number: ST15226-010-00	Rev.: -



CHAINAGE	0.000	10.000	20.000	30.000	40.000	46.914	48.486	60.000	70.000	80.000	83.409	90.000	100.000	108.976	110.000	120.000	130.000	140.000	150.000	160.000	162.863	170.000	172.494	180.000	190.000	200.000	210.000	220.000	230.000	232.220	240.000	250.000	260.000	270.000	280.000	290.000	300.000	310.000	320.000	325.727
EXISTING GROUND LEVEL	26.212	26.246	26.166	26.121	26.196	26.287		26.228	26.103	25.681		25.260	25.260	25.260		25.260	25.260	25.660	25.680	25.731		25.777		25.822	25.862	25.894	25.926	25.958	25.990		26.022	26.054	26.086	26.118	26.151	26.184	26.216	26.249	26.282	26.294
CENTRE LINE	26.212	26.367	26.633	27.010	27.498	27.900	28.087	28.627	29.067	29.407		29.646	29.786	29.826		29.766	29.605	29.345	28.985	28.525		27.964	27.809	27.364	26.867	26.482	26.208	26.045	25.994	25.998	26.022	26.054	26.085	26.117	26.149	26.181	26.212	26.244	26.276	26.294
VERTICAL ALIGNMENT		KF= 9,0 L= 46.914											L= 125.581 KF= -10.0												KF= 9,0 L= 60.022						G= 0,317% 1: 315.1									
HORIZONTAL ALIGNMENT								R= 149.486																							R= 1739.047									
LEFT HAND CHANNEL	26.037	26.199	26.472	26.857	27.352	27.949		28.496	28.943	29.283		29.523	29.662	29.702		29.642	29.482	29.221	28.861	28.401	28.251	27.841		27.240	26.744	26.359	26.085	25.922	25.870		25.898	25.930	25.962	25.993	26.025	26.057	26.089	26.120	26.152	26.170
RIGHT HAND CHANNEL	26.037	26.199	26.472	26.857	27.352	27.949		28.496	28.943	29.283		29.523	29.662	29.702		29.642	29.482	29.221	28.861	28.401	28.251	27.841		27.240	26.744	26.359	26.085	25.922	25.870		25.898	25.930	25.962	25.993	26.025	26.057	26.089	26.120	26.152	26.170

M 1:500
0 5 10 15 20 25 30 35 40 45 50 [m]

Key:
Existing ground level
Proposed ground level

Notes:

1. Do not scale from this drawing. If in doubt refer to the project manager for clarification.

Key:
OS base
Proposed features
Proposed primary traffic signal
Proposed secondary traffic signal

Rev.	Date	Revision details	Drawn	Checked	Approved
A	21/11/14	Altered access road to hotel car park.	CG	SD	SD

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Client: BEDFORD BOROUGH COUNCIL

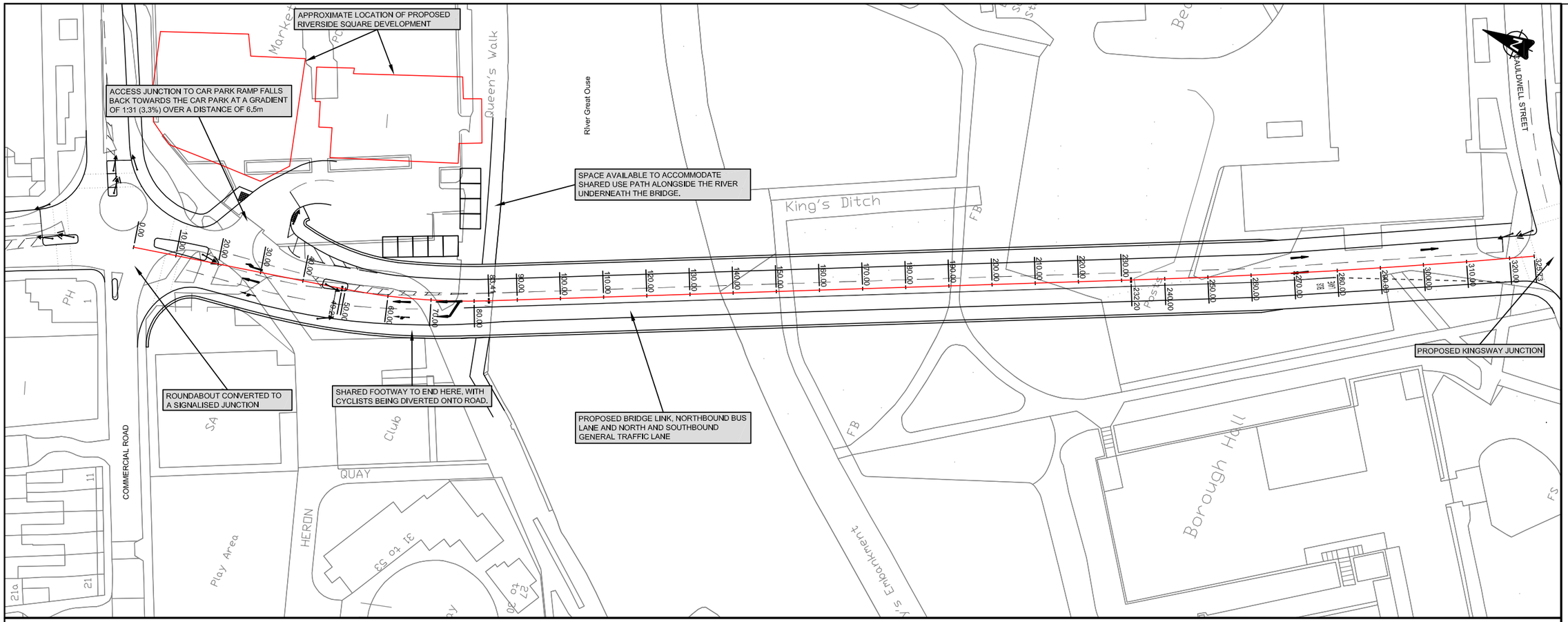
Project: BEDFORD TOWN CENTRE STRATEGY

Title: COMMERCIAL ROAD TO KINGSWAY
RIVER GREAT OUSE RIVER CROSSING
OPTION 1

Drawn	Checked	Approved
SRP	SD	SD

Original drg. size	Date	Scale
A1	October 2014	1:500

Drawing Status	Drawing number	Rev.
Information	ST15226-010-01	A



CHAINAGE	0.000	10.000	20.000	30.000	40.000	46.914	48.000	60.000	70.000	80.000	83.409	90.000	100.000	108.976	110.000	120.000	130.000	140.000	150.000	160.000	162.863	170.000	172.494	180.000	190.000	200.000	210.000	220.000	230.660	232.320	240.000	250.000	260.000	270.000	280.000	290.000	300.000	310.000	320.000	325.727
EXISTING GROUND LEVEL	26.212	26.246	26.166	26.121	26.196	26.287		26.228	26.103	25.681		25.260	25.260	25.260		25.260	25.260	25.660	25.680	25.731		25.777		25.822	25.862	25.894	25.926	25.958	25.990		26.022	26.054	26.086	26.118	26.151	26.184	26.216	26.249	26.282	26.294
CENTRE LINE	26.212	26.367	26.633	27.010	27.498	27.900	28.087	28.627	29.067	29.407		29.646	29.786	29.826		29.766	29.605	29.345	28.985	28.525		27.964	27.809	27.364	26.867	26.482	26.208	26.045	25.994	25.998	26.022	26.054	26.085	26.117	26.149	26.181	26.212	26.244	26.276	26.294
VERTICAL ALIGNMENT		KF= 9,0 L= 46.914												L= 125.581 KF= -10.0										KF= 9,0 L= 60.022							G= 0.317% 1: 315.1									
HORIZONTAL ALIGNMENT								R= 149.486																							R= 1739.047									
LEFT HAND CHANNEL	26.037	26.199	26.472	26.857	27.352	27.949		28.496	28.943	29.283		29.523	29.662	29.702		29.642	29.482	29.221	28.861	28.401	28.251	27.841		27.240	26.744	26.359	26.085	25.922	25.870		25.898	25.930	25.962	25.993	26.025	26.057	26.089	26.120	26.152	26.170
RIGHT HAND CHANNEL	26.037	26.199	26.472	26.857	27.352	27.949		28.496	28.943	29.283		29.523	29.662	29.702		29.642	29.482	29.221	28.861	28.401	28.251	27.841		27.240	26.744	26.359	26.085	25.922	25.870		25.898	25.930	25.962	25.993	26.025	26.057	26.089	26.120	26.152	26.170

M 1:500
0 5 10 15 20 25 30 35 40 45 50 [m]

Key:
Existing ground level
Proposed ground level

Notes:
1. Do not scale from this drawing. If in doubt refer to the project manager for clarification.

Key:
OS base
Proposed features
Proposed primary traffic signal
Proposed secondary traffic signal

Rev.	Date	Revision details	Drawn	Checked	Approved
A	21/11/14	Altered access road to hotel car park.	CG	SD	SD

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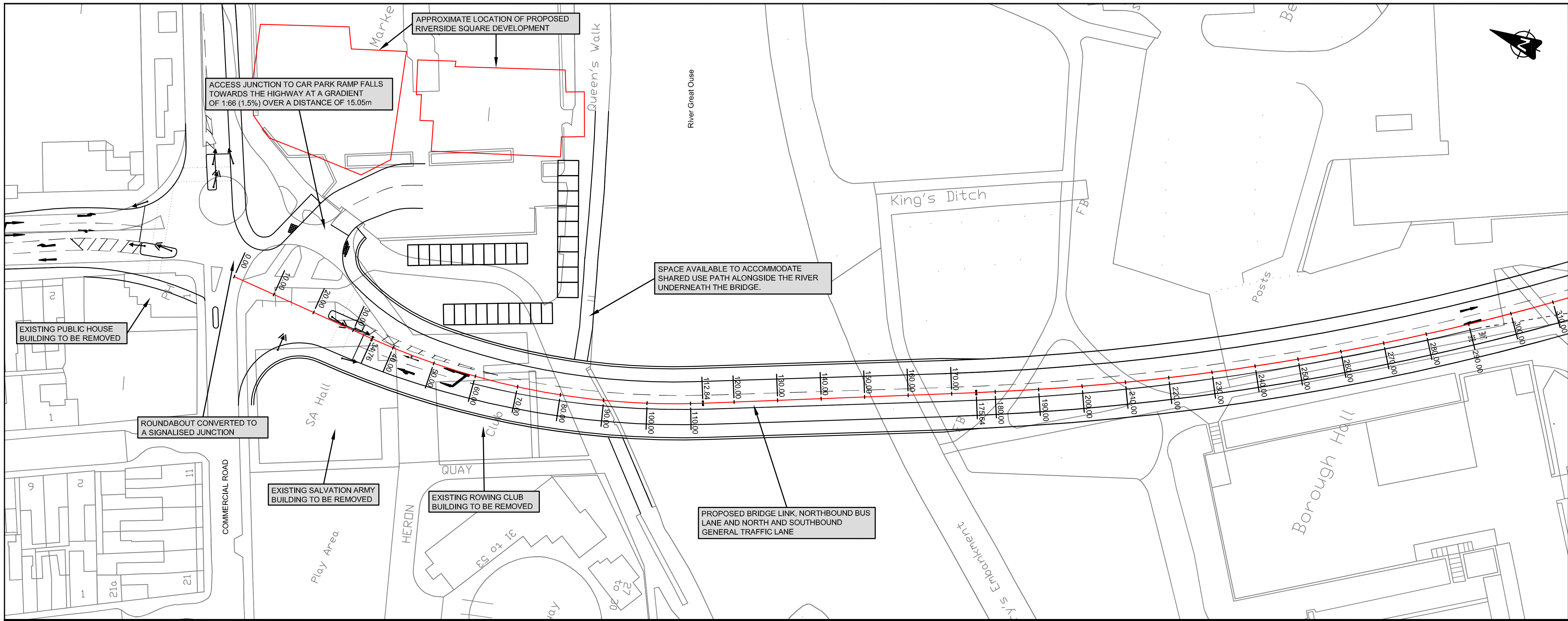
Project: BEDFORD TOWN CENTRE STRATEGY

Title: COMMERCIAL ROAD TO KINGSWAY
RIVER GREAT OUSE RIVER CROSSING
OPTION 2

Drawn	Checked	Approved
SRP	SD	SD

Original drg. size	Date	Scale
A1	October 2014	1:500

Drawing Status	Drawing number	Rev.
Information	ST15226-010-02	A

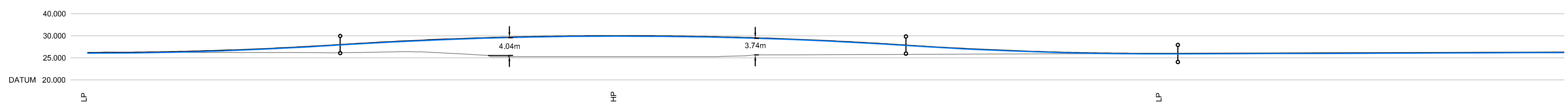


Notes:

1. Do not scale from this drawing. If in doubt refer to the project manager for clarification.

Key:

- OS base
- Proposed features
- Proposed primary traffic signal
- Proposed secondary traffic signal



CHAINAGE	EXISTING GROUND LEVEL	CENTRE LINE	LEFT HAND CHANNEL	RIGHT HAND CHANNEL
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10.000	26.203	26.252	26.093	26.080
20.000	26.237	26.415	26.262	26.252
30.000	26.199	26.688	26.543	26.536
34.762				
40.000	26.188	27.073	26.935	26.930
50.000	26.172	27.569	27.438	27.436
57.352		28.004		
60.000	26.180	28.168	28.045	28.045
70.000	26.339	28.725	28.601	28.601
80.000	26.133	29.182	29.058	29.058
90.000	25.584	29.538	29.415	29.415
100.000	25.260	29.795	29.671	29.671
110.000	25.260	29.952	29.828	29.828
112.838				
120.000 / 120.888	25.260	30.008 / 30.009	29.885	29.885
130.000	25.260	29.965	29.841	29.841
140.000	25.260	29.822	29.698	29.698
150.000	25.521	29.578	29.455	29.455
160.000	25.660	29.235	29.111	29.111
167.648			28.781	28.781
170.000	25.706	28.792	28.668	28.668
175.642				
180.000	25.750	28.248	28.125	28.125
185.850		27.884		
190.000	25.783	27.623	27.499	27.499
200.000	25.816	27.073	26.949	26.949
210.000	25.850	26.634	26.510	26.510
220.000	25.883	26.306	26.182	26.182
230.000	25.917	26.089	25.965	25.965
240.000	25.952	25.983	25.860	25.860
244.516		25.972		
247.631		25.977		
250.000	25.987	25.986	25.862	25.862
260.000	26.022	26.020	25.896	25.896
270.000	26.058	26.055	25.931	25.931
280.000	26.094	26.089	25.966	25.966
290.000	26.130	26.124	26.000	26.000
300.000	26.167	26.159	26.035	26.035
310.000	26.203	26.193	26.070	26.070
320.000	26.241	26.228	26.104	26.104
330.000	26.278	26.263	26.139	26.139
335.297	26.294	26.281	26.157	26.157

VERTICAL ALIGNMENT: KF= 9.0, L= 57.352 | L= 128.498, KF= -10.0 | KF= 9.0, L= 61.781 | G= 0.346%, 1: 288.9

HORIZONTAL ALIGNMENT: R= 168.846 | R= 576.071

M 1:500
0 5 10 15 20 25 30 35 40 45 50 [m]

Key:
- Existing ground level
- Proposed ground level

Rev.	Date	Revision details	Drawn	Checked	Approved
A	21/11/14	Altered access road to hotel car park.	CG	SD	SD

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Project
BEDFORD TOWN CENTRE STRATEGY

Title
COMMERCIAL ROAD TO KINGSWAY
RIVER GREAT OUSE RIVER CROSSING
OPTION 3

Drawn	Checked	Approved
SRP	SD	SD
Original drg. size: A1	Date: October 2014	Scale: 1:500
Drawing Status: Information	Drawing Number: ST15226-010-03	Rev.: A

Bedford Hospital Nhs Trust

Crown House

EXISTING CARRIAGEWAY WIDENED TO PROVIDE EXTRA SOUTHBOUND CAPACITY ON BRITANNIA ROAD

BRITANNIA ROAD

EXISTING HOSPITAL ENTRY & EXIT RADII TO BE INCREASED

EXISTING GHOST ISLAND RIGHT TURN LANE TO BE MAINTAINED

EXISTING CARRIAGEWAY WIDENED TO PROVIDE EXTRA CAPACITY AT THE EXIT OF AMPTHILL ROAD / BRITANNIA ROAD SIGNALISED JUNCTION

EXISTING CARRIAGEWAY WIDENED TO PROVIDE EXTRA EASTBOUND CAPACITY. EXISTING FOOTWAY WIDTH REDUCED

AMPTHILL ROAD

PROPOSED GHOST ISLAND RIGHT TURN LANE

AMPTHILL ROAD

EXISTING CARRIAGEWAY WIDENED TO FACILITATE THE NEW GHOST ISLAND RIGHT TURN LANE ON AMPTHILL ROAD

OMBERSLEY ROAD

Church

Garage

Shelter

TCB

Depot

Depot

Raleigh Centre

El Sub Sta

M 1:500
0 5 10 15 20 25 30 35 40 45 50 [m]

Notes:

1. Do not scale from this drawing. If in doubt refer to the project manager for clarification.

Key:

- OS base
- Proposed features
- Proposed primary traffic signal
- Proposed secondary traffic signal
- Existing primary traffic signal
- Existing secondary traffic signal

Rev.	Date	Revision details	Drawn	Checked	Approved

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Client
BEDFORD BOROUGH COUNCIL

Project
BEDFORD TOWN CENTRE STRATEGY

Title
AMPTHILL ROAD / BRITANNIA ROAD

Drawn	Checked	Approved
SRP	SD	SD

Original drg. size	Date	Scale
A1	October 2014	1:500

Drawing Status	Drawing Number	Rev.
Information	ST15226-005	

Notes:

1. Do not scale from this drawing. If in doubt refer to the project manager for clarification.

Key:

- OS base
- Proposed features
- Proposed primary traffic signal
- Proposed secondary traffic signal

ST MARY'S ST SOUTHBOUND REDUCED TO ONE LANE AT JUNCTION.

JUNCTION LAYOUT ALTERED TO ACCOMMODATE TWO-WAY WORKING OF RIVER STREET.

AHEAD MOVEMENT FROM CAULDWELL STREET TO CARDINGTON ROAD BANNED.

ROAD MARKINGS REVISED GIVING PRIORITY TO RIGHT TURN MOVEMENTS.

RESTRICTED TURNING MOVEMENTS (LEFT TURN IN AND OUT) MAINTAINED AT CARDINGTON ROAD JUNCTION.

INTRODUCTION OF TWO RIGHT TURN LANES.

PROPOSED FOOTWAY ALIGNMENT IN PRIVATE LAND.

PROPOSED LAYOUT ONLY VIABLE IN CONJUNCTION WITH BRIDGE SCHEME LINKING RIVER STREET WITH KINGSWAY.

Rev.	Date	Revision details	Drawn	Checked	Approved

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Project: BEDFORD TOWN CENTRE STRATEGY

Title: CAULDWELL STREET/ST MARY'S STREET/CARDINGTON ROAD/ST JOHN'S STREET JUNCTION

Drawn	Checked	Approved
SRP	SD	SD
Original drg. size: A1	Date: October 2014	Scale: As shown
Drawing Status: Information	Drawing Number: ST15226-009	Rev.

Appendix B

Scheme Option Appraisal Summary Table

Appendix B - Scheme Option Appraisal Summary Table

	Scheme Ref.	Scheme Name	Short Description	Complementary to	Dependant on	Incompatible with	Key Appraisal Outcome	Type of Benefit
Highways Schemes	H25a	Prebend Street Link Road (Option A)	Link from Prebend Str (commercial Rd) to Ashburnham Rd within 'red line' protected area	H14, PR4, B7, W14, W13, C12, RS1			Poor alignment	Congestion relief
	H25b	Prebend Street Link Road (Option B)	Link from Prebend Str (commercial Rd) to Ashburnham Rd with additional land take	H14, PR4, B7, W14, W13, C12, RS1			H25 preferred option	Congestion relief
	H25c	Prebend Street Link Road (Option C)	Link from Prebend Str (commercial Rd) to Station Forecourt through Station Car Park	H14, PR4, R1, R8, B7, W14, W13, C12, RS1	Redevelopment of the station quarter		Deliverable within wider station redevelopment	Congestion relief & regeneration
	H25d	Prebend Street Link Road (Option D)	Link from Prebend Str (commercial Rd) to Ashburnham Rd with part rebuild of Ford End Rd Bridge	H14, PR4, B7, W14, W13, C12, RS1			High cost	Congestion relief
	H25e	Prebend Street Link Road (Option E)	Link from Prebend Str (commercial Rd) to Ashburnham Rd with raised roundabout	H14, PR4, B7, W14, W13, C12, RS1			High cost	Congestion relief
	H14a	Prebend Str/Midland Road Jn (Option A)	Minor amendments to roundabout layout	H25, RS1			Minimal impact	Safety
	H14b	Prebend Str/Midland Road Jn (Option B)	Signalised scheme with one-way eastbound on Midland Road	H25, PR4a, W13, RS1			Deliverable only with H25 and PR4a	Safety & Congestion relief
	H14c	Prebend Str/Midland Road Jn (Option C)	Signalised scheme with one-way westbound on Midland Road and one-way southbound on Prebend Str	H25, PR4b, W14, W13, RS1	H25		Deliverable only with H25, PR4b	Safety & Congestion relief
	H12a	Clapham Rd/Shakespeare Rd Jn (Option A)	Signalisation of roundabout	-			insufficient size to signalise safely	Congestion relief
	H12b	Clapham Rd/Shakespeare Rd Jn (Option B)	Signalised junction	-			H12 preferred option	Congestion relief
	H13	Bromham Rd/Ashburnham Rd Jn	Expansion of junction	-			Requires land take incl. removal of trees	Congestion relief
	H15	Prebend Str/Cauldwell Str Jn	Expansion of junction	-			Capacity of junction is not consider the issue	Congestion relief
	H16	Cauldwell Str/Britannia Rd Jn	Expansion of junction	-			Requires land take incl. removal of trees	Congestion relief
	H17	Ampthill Rd/Britannia Rd Jn	Expansion of junction	RS3			Requires land take incl. removal of trees	Congestion relief
	H18a	Wilmer Junction (Option A)	Signalised junction	-			Deliverable scheme	Congestion relief
	H18b	Wilmer Junction (Option A)	Additional entry onto roundabout from Kingsway	H23, H31, H2	H23, H2		Required to deliver H23	Congestion relief
	H19a	Ampthill Rd/Elstow Rd Area (Option A)	Carriageway widening	-			H19 preferred option	Congestion relief
	H19b	Ampthill Rd/Elstow Rd Area (Option B)	New link road from Ampthill Road to Progress Road/Mile Rd Jn	-			Higher cost but should be tested	Congestion relief
	H23	Batts Ford River Crossing	New road link from Kingsway to River Street	H2, H8, H18b, H29, H30, H31, PR11, PR2, PR3, B2b			Deliverable scheme withing wider network changes	Accessibility/Town Centre relief
	H29	Cauldwell Str/St.John's Str Jn	Reallocation of reoadspace to create two-lane right turn from Cauldwell Str.	H23			Requires testing in VISSIM	Congestion relief
	H30	Batts Ford Bridge / River Str Jn	Connection of bridge into northern highway network	H23, H8	H23		Required to deliver H23	Accessibility/Town Centre relief
	H8	Re-introduce two-way traffic on River Str	Permit two-way movements to Batts Ford Bridge	H23, H30	H23		Required to deliver H23	Accessibility/Town Centre relief
	H31a	Batts Ford Bridge / Kingsway Jn (Option A)	Connection of bridge into southern highway network via a flyover onto Kingsway	H23	H23		Undeliverable	Accessibility/Town Centre relief
	H31b	Batts Ford Bridge / Kingsway Jn (Option B)	Connection of bridge into southern highway network via an at grade junction	H23, H2	H23		Required to deliver H23	Accessibility/Town Centre relief
	H2	Revise Kingsway one-way system	Introduce two-way traffic on Kingsway	H23, H31	H23		Required to deliver H23	Accessibility/Town Centre relief
ng	P8	High Occupancy Vehicle Parking	Provision of preferential parking in car parks for High Occupancy Vehicles	P17			Positive benefits if effectively enforced	Reduced SOV movements

Appendix B - Scheme Option Appraisal Summary Table

	Scheme Ref.	Scheme Name	Short Description	Complementary to	Dependant on	Incompatible with	Key Appraisal Outcome	Type of Benefit
Parki	P17	ANPR Car Park Payment System	Use of ANPR cameras to have ticketless car parks	P8			Positive impact with appropriate technology	Town centre access
Freight Schemes	F12	'Click & Collect' at Stations / P&R Sites	Additional provision at P&R sites and stations	-			Likely to be a market driven scheme	Reduced freight movements
	F15	'Click & Collect' in town centre	Provision of boxes in the town centre to reduce town centre circulation by delivery vehicles	PR1, PR2, PR3			Likely to be a market driven scheme	Reduced town cente freight movements
	F3	Delivery & servicing plans	Encourage town centre firms to adopt plans to actively manage freight deliveries and reduce vehicle trips	-			Positive impact if there is good uptake	Reduced town cente freight movements
	F4	Construction logistic plans	Encourage construction companies to adopt plans to actively manage contruction traffic to sites	-			Positive impact if there is good uptake	Reduced freight movements
	F9	Local freight consolidation point	Create a local delivery point where goods can be transferred from large vehicles to smaller non-polluting	-			Higher cost scheme	Air quality
Rail Schemes, Measures and Policies	R3	Promote opportunities from Thameslink	Ensure that opportutnies from new Thameslink serivces are maximised for the town cente	-			Positive impact	Improved access by rail
	R4	Promote Midland Main Line enhancements	Promote opportunties to enhance rail provision to Bedford via Midland Main Line	-			Positive impact	Improved access by rail
	R5	Support East West Rail (Central Section)	Actively support East West Rail (Central Section) development	R6			Positive impact	Improved access by rail
	R6	Support East West Rail (Eastern Section)	Actively support East West Rail (Eastern Section) development	R5			Positive impact	Improved access by rail
	R1a	Enhance Bedford Station (Option A)	Enhance station forecourt within current land contraints	TPH1, H25c			Positive impact	Improved access by rail
	R1b	Enhance Bedford Station (Option B)	Create enhanced station within wider ara redevelopment	TPH1, H25c			Linked to wider regeneration	Improved access by rail
	R2a	Create Station 'Gateway' (Option A)	Create 'gateway' within current context	WS6, WS7			Positive impact	Create 'sense of place'
	R2b	Create Station 'Gateway' (Option B)	Create 'gateway' as part of wider area regeneration	WS6, WS7			Linked to wider regeneration	Create 'sense of place'
	R8	Western entrance to station	Create western entrance to station as part of wider area regeneration	H25c			Linked to wider regeneration	Improved access by rail
s	B15	Reduce bus emissions	Work with opertors to reduce carbon emissions to imorve local air quality in town centre AQMA	B16			Positive impact	Air quality
	B16a	Introduce electric buses (Option A)	Work with opreators to introduc electric buses servicing the town centre within the AQMA	B15, B14			Higher cost	Air quality
	B16b	Introduce electric buses (Option B)	Introduce electric buses on P&R routes	B15, B14, P&R2			B16 preferred option	Air quality
	B6a	Extend bus network (Option A)	Work with opertors to extend the bus network to major new residential development areas	-			Positive impact if phased with development	Enhanced Public Transport Acccesibility
	B6b	Extend bus network (Option B)	Work with opertors to comprehensively extend the bus network to encompass a wider catchment area	-			Positive impact if phased with population growth	Enhanced Public Transport Acccesibility
	B14	Improve quality of buses	Work with operartors to improve the quality of buses to make them more attractive to car users	B16			Beneficial as part of wider package of measures	Enhanced Public Transport Offer
	B2a	Provide pinch point bus priority (Option A)	Provide bus priority at major highway pinch points across the town	H14, H12, H13, H16, H17, H18, H19, B3			Limited roadspace available to provide priority	Enhanced Public Transport Acccesibility
	B2b	Provide pinch point bus priority (Option B)	Provide bus priority on new infrastruture that provide relief to pinch points	H25, H23, B3			Positive impact	Enhanced Public Transport Acccesibility

Appendix B - Scheme Option Appraisal Summary Table

	Scheme Ref.	Scheme Name	Short Description	Complementary to	Dependant on	Incompatible with	Key Appraisal Outcome	Type of Benefit
Bus Schemes, Measures and Policies	B3	Create Route Action Plans	Develop individual actions plans to holistically enhance provision along individual routes	B2, B9, B10, B12			Beneficial as part of wider package of measures	Enhanced Public Transport Offer
	B5a	Create cross-town bus services (Option A)	Work with operators to create some limited cross-town bus services	B21, B22, B24			Requires improved network reliability	Enhanced Public Transport Acccesibility
	B5b	Create cross-town bus services (Option B)	Work with operators to create extensive cross-town bus services	B21, B22, B24			Requires improved network reliability	Enhanced Public Transport Acccesibility
	B7	Develop rail station bus services	Work with operators to promote additional bus routes to serve the rail station	H25, B23			Requires improved network reliability	Enhanced Public Transport Acccesibility
	B8	Improve connections to bus station	Ensure high quality access to the bus station	PR12, PR17, W15, WS5			Beneficial as part of wider package of measures	Enhanced Public Transport Offer
	B9	Integrating bus stops and other modes	Ensure adequate walking and cycling access to bus stops, both in terms of directness and personal security	B3, B12			Beneficial as part of wider package of measures	Enhanced Public Transport Offer
	B10a	'Turn-up-an-go' bus frequencies (Option A)	Increase frequency of existing 12 minute services to under 10 minutes	Congestion relief schemes			Requires improved network reliability	Enhanced Public Transport Acccesibility
	B10b	'Turn-up-an-go' bus frequencies (Option B)	Increase frequency of all 12 and 20 minute services to under 10 minutes	Congestion relief schemes			Lower value for money on 20min routes	Enhanced Public Transport Acccesibility
	B12	Improve bus stop waiting facilities	Ensure all bus stop waiting facilities are of a quality that reflects individual boarding and alighting patronage	B3, B9			Beneficial as part of wider package of measures	Enhanced Public Transport Offer
	B21	Improve bus services to schools	Work with opertors to provide improved bus services to schools to encourage bus usage	B5			Improves accessibility	Enhanced Public Transport Acccesibility
	B22	Improve bus services to college	Work with opertors to provide improved bus services to the college to encourage bus usage	B5			Improves accessibility	Enhanced Public Transport Acccesibility
	B23	Integrate University bus service	Integrate the existing University shuttle bus service into the public bus network	B7			Provides additional rail station connectivity	Enhanced Public Transport Acccesibility
	B24	Improve bus services to health centres	Work with opertors to provide improved bus services to Hospitals/ health centres to encourage bus usage	B5			Improves accessibility	Enhanced Public Transport Acccesibility
Park & Ride Scheme and Measures	P&R1a	Additional P&R Sites (Option A)	Provide new P&R site off Cut Throat Lane to the northwest of Bedford	P&R2a, P&R3a			Positive impact	Enhanced Public Transport Acccesibility
	P&R1b	Additional P&R Sites (Option B)	Provide new P&R site to the east of Bedford to serve M1 Traffic	P&R2b, P&R3b			Lower benefit due to disparate nature of routes	Enhanced Public Transport Acccesibility
	P&R2a	Dedicated Bus P&R Service (Option A)	Re-instatement of dedicated bus service for existing southern P&R site	P&R1a, P&R3a			Positive impact if phased with population growth	Enhanced Public Transport Acccesibility
	P&R2b	Dedicated Bus P&R Service (Option B)	Dedicated bus services for new P&R sites	P&R1b, P&R3b			Positive impact for northern site	Enhanced Public Transport Acccesibility
	P&R3a	Bus priority for P&R services (Option A)	Enhanced bus priority for existing P&R site	P&R1a, P&R2a			Limited opportunity for additional enhancement	Enhanced Public Transport Acccesibility
	P&R3b	Bus priority for P&R services (Option B)	Bus priority for new P&R sites	P&R1b, P&R2b			Positive impact	Enhanced Public Transport Acccesibility
	P&R5	Park & Stride sites	Designate Park & Stride sites around the periphery of the core town centre or close to major land-uses	PR1, PR2, PR3			Deliverable with wider public realm measures	Reduced town centre car trips
Taxis	T&PH1	Mange taxis at Rail Station	Work with Network Rail to manage taxi ranking at the station	R1			Positive impact	Improve access by rail

Appendix B - Scheme Option Appraisal Summary Table

	Scheme Ref.	Scheme Name	Short Description	Complementary to	Dependant on	Incompatible with	Key Appraisal Outcome	Type of Benefit
Waterways	WW2	New quaysides within Town Centre	Facilitating the provision of additional quaysides within the town centre to 'activate' the waterfront	WW4, WW5			Positive impact	Activate waterfront
	WW4	Development of active frontages to river	Promote appropriate development of active frontages along the waterfront	WW2			Positive impact	Activate waterfront
	WW1	Enhance riverside paths	Maximise use of riverside by ensuring high quality riverside paths with connections to surrounding land use	PR13, W4, W5, C9, C10			Positive impact	Activate waterfront
	WW5	Encourage use of waterways	Promote use of waterways for leisure activities	WW2			Positive impact	Activate waterfront
Public Realm Schemes	PR19	Lighting provision	Ensure adequate provision of lighting along key areas of public realm and walking & cycling routes	W1, C2			Positive impact	Safety
	PR1	De-traffic High Street	Removal of one lane of traffic on the High Street to permit wider pavements	W6			Positive impact	Pedestrian Ammenity, Air Quality, 'Sense of Place'
	PR11a	Shared surface High Street (Option A)	Shared surface along entire length of High Street	PR2, PR3, PR14			Only deliverable with wider network changes	Pedestrian Ammenity, Air Quality, 'Sense of Place'
	PR11b	Shared surface High Street (Option B)	Shared surface along southern section of High Street, from south of Mill Street	PR2, PR3, PR14			Only deliverable with wider network changes	Pedestrian Ammenity, Air Quality, 'Sense of Place'
	PR14a	Shared surface Cultural Qtr (Option A)	Shared surface througout whole of the cultural quarter	PR13			High cost	Pedestrian Ammenity, Air Quality, 'Sense of Place'
	PR14b	Shared surface Cultural Qtr (Option A)	Shared surface within streets with high pedestrian volumes in cultural quarter	PR13			PR14 preferred scheme	Pedestrian Ammenity, Air Quality, 'Sense of Place'
	PR17	Remove street clutter (Woburn Rd/Alex Pl)	Maximise availble pedestrian space on pavements through the removal or consolidation of street furniture	B8, W15, WS5			Limited impact	Pedestrian Ammenity, Station Access
	PR18	Enhance access to High Street Alleyways	Use of surface treatments and signage to promote alleyways off the High Street to the Cultural Qtr	PR1, PR11			Limited impact	Pedestrian Ammenity
	PR2a	De-traffic St. Paul's Square (Option A)	Remove a lane of traffic around the whole of St. Paul's Square	PR11, W6			Only deliverable with wider network changes	Pedestrian Ammenity, Air Quality, 'Sense of Place'
	PR2b	De-traffic St. Paul's Square (Option B)	Remove a lane of traffic on the east side of St. Paul's Square only	PR1, W6			Positive impact	Pedestrian Ammenity, Air Quality, 'Sense of Place'
	PR3a	De-traffic Horne Lane (Option A)	Remove all westbound traffic at western end of Horne Lane	PR11, W6			Negative impact on buses and taxis	Pedestrian Ammenity, Air Quality, 'Sense of Place'
	PR3b	De-traffic Horne Lane (Option B)	Remove general westbound traffic at western end of Horne Lane	PR11, W6			PR3 preferred scheme	Pedestrian Ammenity, Air Quality, 'Sense of Place'
	PR4a	De-traffic Midland Road (West) (Option A)	Remove westbound traffic along Midland Road (West)	H14b	H23		Only deliverable with wider network changes	Pedestrian Ammenity, Air Quality, 'Sense of Place'
	PR4b	De-traffic Midland Road (West) (Option B)	Remove eastbound traffic along Midland Road (West)	H14c	H25		Only deliverable with wider network changes	Pedestrian Ammenity, Air Quality, 'Sense of Place'
	PR12a	Shared surface Woburn Rd / Alex Pl (Opt A)	Shared surface along entire length of Woburn Rd and Alexandra Rd/Pl	B8, WS5			Higher cost	Pedestrian Ammenity, Station Access
	PR12b	Shared surface Woburn Rd / Alex Pl (Opt B)	Shared surface along Woburn Rd and Alexandra Rd only	B8, WS5			PR12 preferred scheme	Pedestrian Ammenity, Station Access
	PR13	Shared surface Embankment	Shared surface along Embankment from St Mary's Bridge to Albany Rd	WW1, PR14			Positive impact	Pedestrian Ammenity, Activate Riverfront
	PR16	Remove street clutter (High Street)	Maximise availble pedestrian space on pavements through the removal or consolidation of street furniture	W7			Limited impact	Pedestrian Ammenity
	W14	Upgrade footpaths along Midland Road (west)	Widening of footways along Midland Road (west) and Prebend Street. Enhance crossing facilities at Midland Road / Prebend Street junction.	H25a,H25b, H25c, H25d, H25e, H14c, W6, W13	H25		Reliant on other schemes	Pedestrian Ammenity & Health

Appendix B - Scheme Option Appraisal Summary Table

	Scheme Ref.	Scheme Name	Short Description	Complementary to	Dependant on	Incompatible with	Key Appraisal Outcome	Type of Benefit
Walking Schemes	W1	Network of safe walking routes into town centre	Target key routes to improve the pedestrian facilities into the town centre.	W14, W7, W8, W9, W10			Linked to wider aspirations	Pedestrian Ammenity & Health
	W4	Quality pedestrian links connecting river and rail	Tactile paving, dropped kerbs and improved lighting on southern end Prebend Street	W13a, W13b			Minor improvments	Pedestrian Ammenity & Health, sense of place
	W5a	Pedestrian Link Riverside to Horne Lane	Divert the pedestrian link along riverside up through the new Riverside Development.		H23		Reliant on Batts Ford Bridge scheme	Pedestrian Ammenity & Health
	W5b	Pedestrian Link Riverside to Horne Lane	Repave and sign shared footway			H23	Achievable without Bridge Option	Pedestrian Ammenity & Health
	W6	Investigate opportunities to widen footways	Widen footways where possible - new developments to widen footways around site frontage	W14			Positive Impact	Pedestrian Ammenity & Health
	W7	Improve crossing facilities on High Street	A new zebra crossing should be installed on a key desire line. This would require removal of railings.	W1, PR1, PR16, W8, W11, W12			Could affect traffic flow on High Street	Pedestrian Ammenity, , 'Sense of Place', Road Safety
	W8	Improve Crossing facilities around St Paul's Square	Include zebra crossing on north side of St Paul's square to facilitate access to market.	W7			Could affect traffic flow	Pedestrian Ammenity, Air Quality, 'Sense of Place', Road Safety
	W9a	Improve Crossing facilities on Horne lane	The introduction of the Bridge allows the implementation of pedestrian crossing facilities at the tie in with Horne Lane.	W1	H23		Improve pedestrian facilities	Pedestrian Ammenity, Air Quality, 'Sense of Place', Road Safety
	W9b	Improve Crossing facilities on Horne lane	Improve corssing facilities at Horne Lane / Riverside junction. Dropped kerbs and tactiles.	W1		H23	Improve Crossing facilities	Pedestrian Ammenity, Air Quality, 'Sense of Place', Road Safety
	W10	Improve crossing facilities on River Street / Greyfriars	New zebra crossings along key desire lines	W1			Improve pedestrian facilities	Pedestrian Ammenity, Air Quality, 'Sense of Place', Road Safety
	W11	Highway crossing facilities along the Embankment	Signalisation of junction between Embankment / High Street / St Mary's Bridge	W7			Improve pedestrian facilities	Pedestrian Ammenity, Air Quality, 'Sense of Place', Road Safety
	W12	Provide crossing facilities on north side of Town Bridge to continue river path	Signalisation of junction between Embankment / High Street / St Mary's Bridge	W7			Improve pedestrian facilities	Pedestrian Ammenity, Air Quality, 'Sense of Place', Road Safety
	W13a	Upgrade footpaths along Prebend Street	With the link road, Midland Road (west) and Prebend Street would become one-way, accommodating wider and improved footways	H25, H13, W14	H25		Improve pedestrian facilities	Pedestrian Ammenity, Air Quality, 'Sense of Place', Road Safety
	W13b	Upgrade footpaths along Prebend Street	Investigate opportunity to improve footways	H25, H13, W14			Reliant on Link Road scheme	Pedestrian Ammenity, Air Quality, 'Sense of Place', Road Safety
	W15	Upgrade footpaths along Alexandra Place / Woburn Road	Footways should be widened, resurfaced and lighting improved	B8, PR17, PR12			Improve pedestrian facilities	Pedestrian Ammenity, Air Quality, 'Sense of Place', Road Safety
	C1	Promote strategic cycle network plan	Develop and promote a concise plan with strategic commuter cycling routes	C2, C3			Limited impact	Congestion Relief, Air Quality
	C2	Promote network of safe cycling routes leading into the town centre	Target investment along six main commuter cycling corridors and key routes	C1, C3, WS9, PR19			Positive Impact	Congestion Relief, Air Quality
	C3	Produce direct and coherent cycle routes within the town centre	Enhance and promote main cycling corridors	C1, C2, WS9			Positive Impact	Congestion Relief, Air Quality
	C7	Ensure delivery of cycle bridge to Riverside North development	Ensure the construction of the cycle bridge which will link the two riverbanks in the town centre	C10, C14			Positive Impact	Congestion Relief, Air Quality
	C9	Ensure connectivity of cycle route to river crossings	Enhance north/south links to and from St Mary's St Bridge, with slip lanes and cycle signage . Potential for shared surface on western bridge footpath.	C10, C14, WW1, PR13			Positive Impact	Congestion Relief, Air Quality

Appendix B - Scheme Option Appraisal Summary Table

	Scheme Ref.	Scheme Name	Short Description	Complementary to	Dependant on	Incompatible with	Key Appraisal Outcome	Type of Benefit
Cycling Schemes	C10	Improve quality of cycle route along north side of river	Integrate with future developments; enhance lighting, maintenance, wayfinding and public realm; increase width	C7, C14			Positive Impact	Congestion Relief, Air Quality
	C11	Improve integration of cycle routes and public transport provision	Ensure delivery of cycle facilities at Bus Station, including safe and secure cycle parking	-			Positive Impact	Congestion Relief, Air Quality
	C12	Improve and provide new cycle routes to train stations	Road re-surfacing and new signs around Prebend St. Bridge; upgrade lighting and wayfinding on Woburn Rd / Alexandra Place	C13, H25			Positive Impact	Congestion Relief, Air Quality
	C13	Promote cycle trips to train stations	Increase cycle parking, improve signage and wayfinding	C12, WS4			Positive Impact	Congestion Relief, Air Quality
	C14	Promote use of river path and The Embankment for cycling	Minimise breaks and diversions on cycle paths; promote cycling amongst staff & students of Bedford College and Council	C7, C9, C10			Positive Impact	Congestion Relief, Air Quality
	C15	Provision of secure and sufficient town centre cycle parking	Install high quality, safe, secure cycle parking, largely funded by developers in line with policy	C16, C17			Positive Impact	Congestion Relief, Air Quality
	C16	Introduce cycle hubs	Create and promote hubs with covered parking, CCTV, lighting and electronic lockers	C15			Limited Impact	Congestion Relief, Air Quality
	C17	Work with employers to provide cycle facilities	All new developments should provide adequate cucle parking, showers and storage facilities	C15			Positive Impact	Congestion Relief, Air Quality
	C18	Cycle training schemes	Promote the existing cycle training schemes for people who have never ridden a bicycle	STP11			Positive Impact	Congestion Relief, Air Quality
	C21	Cycle hire schemes	Ad-hoc schemes for large residential areas or student campuses. Investigate possibility of town-wide scheme	-			Limited Impact	Congestion Relief, Air Quality
Way-finding and Signage Schemes	WS1	Develop overarching way-finding strategy for town centre	Maintain and extend new signs - seek developer contributions for funding	WS8			Positive Impact	Pedestrian Amenity, Air Quality
	WS2	Build upon and promote the different 'quarters' within the town	Define each quarter and give each its sense of place through signage and delineation	WS7			Positive Impact	Pedestrian Amenity, Air Quality, 'Sense of Place'
	WS4	Promote single direct route from Rail Station to the Town Centre	Maintain and update signage along Alexandra Road from station to town centre	C12			Positive Impact	Pedestrian Amenity, Air Quality
	WS7	Create internal 'gateways' on approach to retail and cultural quarters	Provide ad-hoc signage defining and delineating the two quarters	WS2			Limited Impact	Pedestrian Amenity, Air Quality, 'Sense of Place'
	WS8	Provide dedicated pedestrian signage on key routes into town centre	Maintain and extend new signs - seek developer contributions for funding	WS1			Positve Impact	Pedestrian Amenity, Air Quality
	WS9	Provide dedicated cycle signage on key routes into town centre	Provide signs with cycle distance to key locations at an appropriate height for cyclists	C2, C3			Positive Impact	Pedestrian Amenity, Air Quality
	WS5	Enhance connectivity between Bus and Rail station	Provide a shared surface on Prebend Street	B8, PR17, PR12			Reliant on Link Road scheme	Pedestrian Amenity, Air Quality
	WS6	Create external 'gateways' at key locations on approach to town centre	Place large welcome signs delineating the town centre	R2			Limited Impact	Pedestrian Amenity, Air Quality, 'Sense of Place'
	WS10	Provide vehicular directional signage on approaches to town	Provide signage helping motorists navigate through town centre and locate key facilities	WS11			Positive Impact	Reduce Congestion
	WS11	Provide visitor signage on approaches and around town centre	Provide signage helping motorists navigate through town centre and locate key facilities	WS10			Positive Impact	Reduce Congestion
	WS14	Provide driver feedback signage to improve safety and driver behaviour	Provide driver feedback signage in place of speed humps	-			Limited Impact	Reduce Congestion, improve safety
nes	STP18	Promote electric and hybrid cars	Marketing on council website; discounts in car parks; reduced cost of parking permits; charging points in town centre; communal charging facilities high demand areas	-			Positive Impact	Air Quality
	STP19	Consider further 20mph zones in residential areas and around schools	Extend 20mph zones, which have shown to provide benefits to all road users	-			Positive Impact	Imrpove safety, Reduce Congestion, air quality

Appendix B - Scheme Option Appraisal Summary Table

	Scheme Ref.	Scheme Name	Short Description	Complementary to	Dependant on	Incompatible with	Key Appraisal Outcome	Type of Benefit
Sustainable Tranvel Planning Schem	STP2	School travel plans	Regularly monitor existing travel plans; encourage private schools to adopt travel plans	-			Positive Impact	Reduce Congestion, Air Quality
	STP7	Walking & cycling promotional campaigns	Review and assess existing scheme; where possible, introduce new innovative schemes	-			Positive Impact	Reduce Congestion, Air Quality, Improved Health
	STP9	Provide active travel and public transport information	Promote the Travel Bedford website in all future development travel plans	-			Limited Impact	Reduce Congestion, Air Quality, Improved Health
	STP11	Cycle training schemes	Promote and - where possible - extend the Outspoken Cycle Training for those who have never cycled	C18			Positive Impact	Reduce Congestion, Air Quality, Improved Health
	STP15	Investigate opportunities for a car club scheme	Encourage club operators to provide bays in the town centre; encourage developers to introduce new subsidised car clubs	-			Positive Impact	Reduce Congestion, Air Quality
	STP16	Promote car sharing / car pooling schemes	Council to provide a website for interested parties to meet; target corridors & large areas of employment	-			Limited Impact	Reduce Congestion, Air Quality
	STP20	Support installation of electric vehicle charging points as part of development	Set the requirement for number of electric charging points per parking space in Bedford's SPD	-			Positive Impact	Air Quality
Payment Systems	C&P1	Cashless Payment System	Cashless payment for public transport	All bus and P&R improvements			Financial case unsubstantiated	Enhanced Public Transport Offer
Road Safety	RS1	Prebend Str/Midland rd	Improved design for pedestrian crossing facilities on approaches to existing roundabout	H14			Positive impact	Safety
	RS2a	Wilmer Junction (Option A)	Improved design for pedestrian crossing facilities on approaches to existing roundabout	-			Limited impact	Safety
	RS2b	Wilmer Junction (Option B)	Improved pedestrian crossing facilities as part of new signalised junction	H18			Positive impact	Safety
	RS3	Ampthill Rd (Hospital)	Improvements to Hosptial entrance to reduce accidents	H17			Positive impact	Safety
	RS4	Ampthill Rd (South)	New or improved crossing facilities to reduce accidents	-			Low value for money	Safety
	RS5	Ford End Road	Improved crossing facilities to reduce accidents	-			Low value for money	Safety

Appendix C

Package Allocations

Appendix C - Bedford Package Allocations

	Package 1 ***'Pinch points & mode shift'***	Package 2 ***'Bridge, High Street & River'***	Package 3 ***'Relief Road, Station and Kingsway'***
Summary Description	*Pinch points schemes* *Major public transport enhancements* *Major walking & cycling schems*	*Batts Ford Bridge* *Town centre urban realm* *Maximising the River*	*Prebend Street Relief Road*
Highway *(10 schemes)*	H12b Clapham R/Shakespeare Rd H16 Cauldwell Str/Britannia Rd H17 Ampthill Rd/Britannia Rd H18a Wilmer's Corner H19 Ampthill Rd/Elstow Rd	H23 Batts Ford Bridge H18b Wilmer's Corner	H25 Prebend Street Link Road H14c Prebend Str/Midland Rd H18a St. John's Str / London Rd
	Unallocated *H13 Bromham Road / Ashburnham double-roundabout; H15 Prebend Street/Cauldwell Street*		
Parking *(1 scheme)*	P8 HOV parking		
	Unallocated		
Freight *(4 schemes)*	F12 Click & collect' (stations/P&R) F3 Delivery & servicing plans F4 Construction logistic plans	F15 Click & collect' (town centre) F3 Delivery & servicing plans F4 Construction logistic plans	
	Unallocated *F9 Local consolidation point and delivery*		
Rail *(7 schemes)*	R3 Thameslink opportunities R4 Midland Main Line opportunities R5 East West Rail (Central Section) R6 East West Rail (East Section)	R3 Thameslink opportunities R4 Midland Main Line opportunities R5 East West Rail (Central Section) R6 East West Rail (East Section)	R3 Thameslink opportunities R4 Midland Main Line opportunities R5 East West Rail (Central Section) R6 East West Rail (East Section) R1 Enhance Bedford Station R2 Create a station 'gateway' R8 Western station entrance
	Unallocated *none*		
Bus *(16 schemes)*	B15 Reduce bus emissions B6 Extended network B14 Improve quality of buses B2 Bus priority (junction priority) B5a Cross-town services B8 Connections to bus station B9 Improved integration of bus stops B10 'Turn-up-and-go' frequencies B12 Quality of waiting facilities B21 School services B22 College services B23 Integrate University shuttle B24 Routes to health care	B15 Reduce bus emissions B16 Electric buses B2 Bus Priority (bridge) B5b Cross-town services	B15 Reduce bus emissions B5b Cross-town services B7 Rail station services
	Unallocated *B3 Route Action Plans*		
Park & Ride *(14 schemes)*	P&R1 Additional P&R sites P&R2 Dedicated bus services P&R3 Additional bus priority (at junctions)	P&R4 Park and Stride schemes	
	Unallocated		
Taxis & private hire *(1 scheme)*			TPH1 Managing taxis at station
	Unallocated		
Waterways *(4 schemes)*		WW2 New quaysides WW4 Support active river frontages WW1 Enhancement of river paths WW5 Encourage use of waterways	
	Unallocated		
Public Realm *(12 schemes)*	PR19 Lighting provision PR1 De-traffic High Street PR2b De-traffic St. Paul's Square	PR11 Shared surface for High Street PR18 Access to High Street alleyways PR2a De-traffic St. Paul's Square PR3b De-traffic Horne Lane PR4a De-traffic Midland Rd (West) PR13 Shared surface for Embankment	PR1 De-traffic High Street PR2b De-traffic St. Paul's Square PR4b De-traffic Midland Rd (West) PR12 Shared surface Woburn Rd/Alex Pl
	Unallocated *PR14 Shared surface for Cultural Quarter; PR16 & 17 remove street clutter on High Street and Alexandra Pl/Woburn Rd*		
Walking *(13 schemes)*	W1 Network of safe routes to town W4 Connections to bridges/crossings W6 Pavement widening W7 High Street crossings W8 St Pauls Square crossings W9b Horne Lane crossings W10 River Str/Greyfriars crossings W11 Embankment crossings W12 North side Town Bridge crossing W15 Woburn Rd/Alex Pl footpaths	W14 Midland Road (West) W15 Riverside to Horne Lane W8 St Pauls Square crossings W9a Horne Lane crossings W10 River Str/Greyfriars crossings	W14 Midland Road (West) W7 High Street crossings W10 River Str/Greyfriars crossings W13 Prebend Str footpaths
	Unallocated		

Appendix C - Bedford Package Allocations

	Package 1 ***'Pinch points & mode shift'***	Package 2 ***'Bridge, High Street & River'***	Package 3 ***'Relief Road, Station and Kingsway'***
Summary Description	*Pinch points schemes* *Major public transport enhancements* *Major walking & cycling schems*	*Batts Ford Bridge* *Town centre urban realm* *Maximising the River*	*Prebend Street Relief Road*
Cycling *(15 schemes)*	C1 Strategic cycle network C2 Safe cycle routes C3 Direct and coherrent routes C7 Delivery of Riverside Nth Bridge C9 Connectivity of route to bridges C11 Integration of cycling with PT (bus) C15 Town centre cycle parking C16 Cycle hubs C17 Cycle to work promotion C18 Continue cycle training schemes	C7 Delivery of Riverside Nth Bridge C10 Improve northbank route C14 Promote river path & Embankment C21 Cycle hire scheme	C7 Delivery of Riverside Nth Bridge C11 Integration of cycling with PT (rail) C12 Cycle routes to stations C13 Cycle trips to stations C21 Cycle hire scheme
	Unallocated		
Way-finding & Signage *(11 schemes)*	WS1 Way-finding strategy WS7 Provide pedestrian signage WS8 Provide cycle signage WS10 Provide vehicular signage WS11 Provide visitor signage	WS2 Promotion of 'quarters' WS7 Create 'internal gateways' WS6 Create 'external gateways'	WS4 Route from station to town WS5 Connectivity rail to bus
	Unallocated *WS14 Driver feedback signage*		
Sustainable travel *(9 schemes)*	STP19 20mph zones STP2 School travel plans STP7 Promote walking & cycling STP9 Active travel & PT information STP11 Continue cycle training schemes STP16 Car club scheme STP16 Car sharing / pooling	STP18 Promote electric & hybrid cars STP20 Charging points	
	Unallocated		
Payment systems *(1 scheme)*	C&P1 Cashless payment system		
	Unallocated		
Road Safety *(5 schemes)*	RS1 Prebend Str/Midland Rd RS2b Wilmer Junction RS3 Ampthill Rd (Hospital) RS5 Ford End Road		
	Unallocated *RS4 Ampthill Rd (South)*		