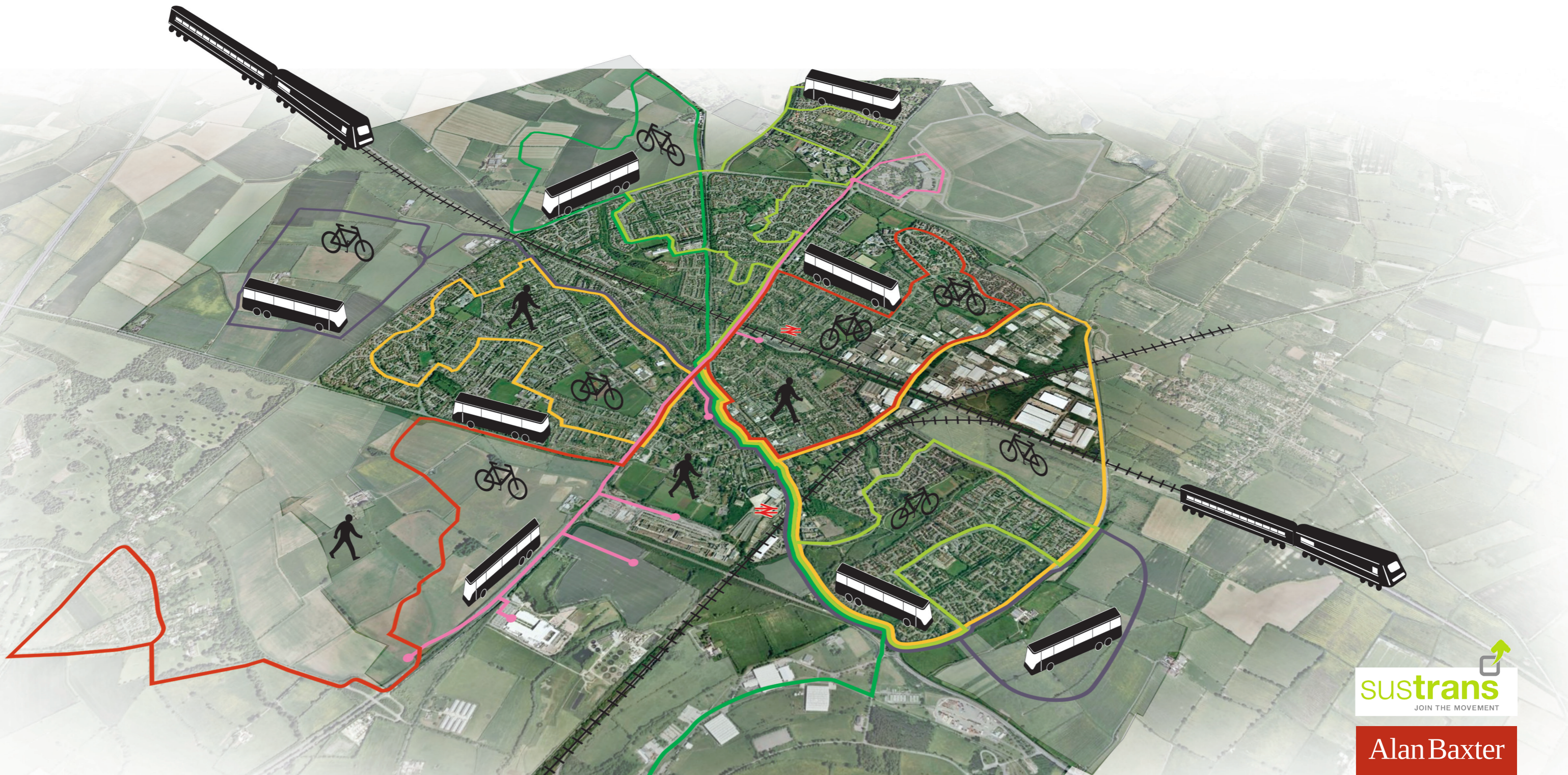# Bicester Sustainable Transport Strategy
Volume II
Prepared for Cherwell District Council
July 2015

Bicester Sustainable Transport Strategy
Volume II
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Contents

Alan Baxter

NATIONAL

NPPF
(National Planning Policy Framework)

LOCAL TRANSPORT WHITE PAPER

DOOR TO DOOR STRATEGY

Transport

LOCAL SUSTAINABLE TRANSPORT FUND

GROWTH DEAL GUIDANCE FOR LEPs

Funding

ECO TOWNS PPS

SUSTAINABLE TRAVEL TOWNS INITIATIVE

Eco / Sustainability

MANUAL FOR STREETS

MANUAL FOR STREETS 2

Urban Design

HEALTHY TRANSPORT = HEALTHY LIVES

NICE GUIDANCE PH8 PHYSICAL ACITIVITY

NICE GUIDANCE PH41 WALKING & CYCLING

Health

LOCAL

COUNTY

OXFORD & OXFORDSHIRE CITY DEAL

STRATEGIC ECONOMIC PLAN

LOCAL TRANSPORT PLAN

DISTRICT

CHERWELL LOCAL PLAN

CHERWELL COMMUNITY STRATEGY

TOWN

ECO BICESTER ONE SHARED VISION

BICESTER DRAFT MASTER PLAN

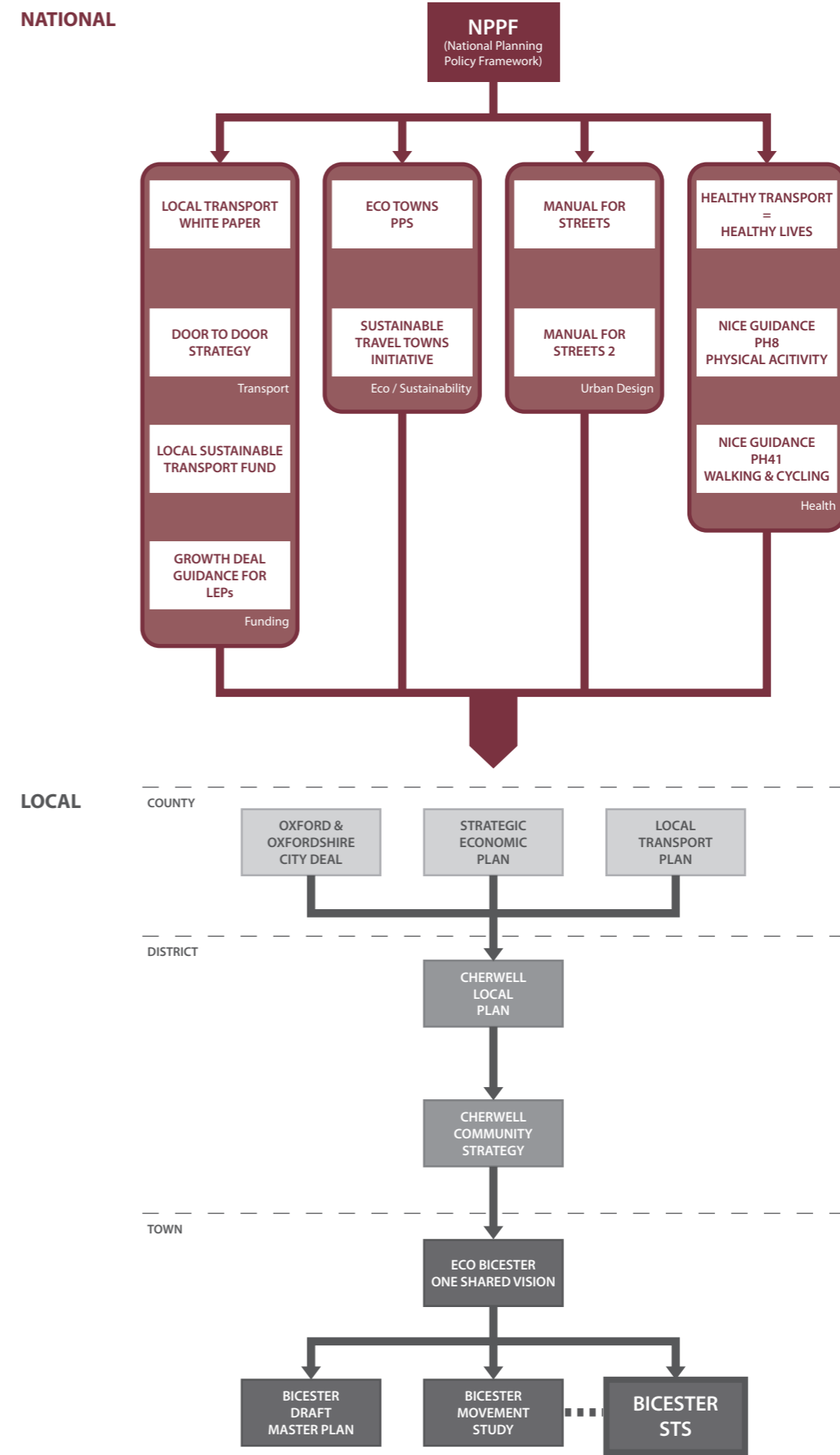BICESTER MOVEMENT STUDY

BICESTER STS

Figure 1.1 Relationship of the Bicester STS to other documents

Executive Summary

Bicester, a large market town in Oxfordshire with a population of 30,000 is due to undergo major expansion over the coming 20 years. Located on the train line between London and Birmingham, the town has strong relationships with Oxford and Banbury and lies within the Knowledge Spine. Development of Bicester has been relatively recent - up until 1961 the population was still only 5,500.

The town is roughly circular in form with peripheral and radial roads, between which residential areas are located. The conservation area of the town centre includes Market Square and Causeway, where St. Edburg's Church is located. Bicester's topography is relatively flat with large areas of open space including the nature reserve of Bure Park. Air quality is generally good but with some issues along the central corridor (King's End and Queen's Avenue), and there has been some flooding of the River Bure in the town centre in the past. Bicester has industrial areas, with the Bicester and Banbury College Campus well-known for its automotive focus. Retail destinations are the town centre and the internationally famous Bicester Village, to the south of the town. Local amenities - shops and schools - are located in the surrounding residential areas.

EcoBicester provides a sustainable vision for the growth of the town as a whole, while the Draft Bicester Masterplan outlines ambitions for the growth of the town including employment and housing in accordance with Local Plan requirements to 2031.

A wealth of national and local policy guides this strategy, from the National Planning Policy Framework to policy covering economic development, integrated transport and physical health. This is best understood graphically – see Figure 1.1. The strategy is also underpinned by previous transport studies of Bicester, including the Bicester Integrated Transport and Land Use Study, the Bicester Movement Study and the Travel Behaviour Demonstration Project, all of which aim to promote travel by sustainable means.

European and UK best practice examples are used to inform this strategy. Key messages from European towns for the successful implementation of sustainable transport include: the importance of commitment to policies favouring sustainable modes, implemented consistently over a sustained time period; the importance of investing in infrastructure; segregation of cycling; a coarse grid for motor vehicles and finer grid for cycling; the use of filtered permeability; the implementation of 20mph zones in residential areas; and integrated

ticketing. Houten (the Netherlands) in particular is used as a key example. It is similar to what Bicester may become and has a similar relationship to other major places and strategic infrastructure. While there are fewer outstanding examples within the UK, key messages from UK towns for the successful implementation of sustainable transport include: the importance of a governance structure that embeds cycling across a range of service areas for which a local authority is responsible; reducing vehicle speeds; investment in infrastructure; segregated cycling facilities; overcoming barriers and implementing smarter choices programmes.

Research on Sustainable Mobility and the Built Environment reveals a clear association between walking and cycling and the urban variables of density, land use mix, proximity and connectivity. Links between transport system characteristics and design characteristics are less clear, and evidence suggests that psychological and social factors mediate these associations. Research is now attending to models that propose that walking and cycling is dependent on demographic, psychosocial and physical environmental factors, and a multi-level approach is necessary to encourage behaviour change towards active travel.

A study of the existing movement network established existing conditions. Key findings were:

- **Walking and cycling**
  Walking and cycling within most residential areas is relatively easy, but the main radial roads have limited or poor quality provision – with the exception of Banbury Road north of the London-Birmingham railway. While the town centre is easily accessible on foot, the pedestrianisation of Sheep Street and one-way traffic on Causeway present significant barriers to cycling through the town. Provision of cycle parking in the town centre is limited and very well-used.

- **Trains**
  Bicester is well connected by rail with two train stations: Bicester North, which lies on the route between London Marylebone and Birmingham; and Bicester Town, which is currently undergoing redevelopment and will re-open providing service between Oxford and London Marylebone (2016), and eventually as far as Cambridge, forming part of East-West Rail.

- **Buses**
  While there are quite a number of bus routes serving Bicester and neighbouring towns and villages, the provision is somewhat confusing with some very infrequent and others under-used. The most frequent service is the S5, which runs every 15 minutes and serves the town, Kidlington and Oxford. There is also a taxibus service from Bicester North station and shuttle bus services to Bicester Village. The bus interchange is in the town centre on Manorsfield Road by the Pioneer shopping centre – this is newly built and provides a good level of bus stand and information.

- **Strategic Road Network**
  Bicester is well-situated in the strategic road network, located immediately east of the M40, with the A34 and A41 running south of the town. Within the town there are primary routes (peripheral route), secondary & tertiary routes (radial roads) and residential streets. Of these, the roads with the highest traffic flows are the A41 (>20,000veh/hr) and the ring road to the north and east of the town (flows between 16,000 and 19,000veh/hr). The speed limit within the town is 30mph. There is copious provision of car parking within the town centre, with car parks on average only at 50% capacity.

- **Accessibility and Connectivity**
  In terms of neighbourhood access and connectivity, access to residential neighbourhoods is generally from the radial roads, with less connectivity between neighbourhoods due to the predominant cul-de-sac form of the road layouts. The town centre is accessible on foot within 20 minutes from most areas of town. Bicester is very accessible by bike – most parts of the town are within a 10 minute cycle of the town centre and both train stations, with all of the existing development within an easy 15 minute cycle.

- **Movement**
  The existing movement profile for Bicester shows that residents generate a total of 86,500 trips per day, of which 56% are contained within the town. Overall, 31% of trips by residents are undertaken by sustainable modes and 69% by private motor vehicle. The future movement profile predicts that in 2031, residents will generate a total of 132,300 trips per day, of which 59% are contained within the town. Overall, 40% of trips by

residents will be undertaken by sustainable modes and 60% by private motor vehicle.

A level of behaviour change is necessary to achieve the NW Bicester goal of a modal share of at least 50% for sustainable modes, and the strategy goal of 40% for the town as a whole. The complexity of how modal choices are made is considered, establishing distance as a limiting factor. Bicester's compact size gives the town a great advantage in encouraging sustainable travel particularly for the purposes of leisure, education, town centre shopping and work. Future opportunities for Bicester include place-making, particularly the historic core; innovation, and branding with EcoBicester and Bicester Village.

The vision for the strategy is to create a network of transport infrastructure and services that make it easy and attractive to travel by sustainable means. The principles underpinning the strategy are that it be: Sustainable, Resilient, Incremental, Modal Priorities , A Spatial Hierarchy of Routes, High Quality and Integrated.

The future movement strategy considers all modes and their integration. Key points are:

- The walking and cycling network is divided into primary and secondary routes, and is based on the core principles of coherence, directness, safety, comfort and attractiveness. The base network of existing facilities requires upgrading in order to fulfil these principles, set out in a comprehensive schedule of improvements. The focus for improvements will be to crossing facilities at radial distributor roads and minor residential roads. In the town centre, through movement of motor vehicles is to be restricted, with cycling facilitated and traffic speeds slowed to less than 20mph.

- The strategy proposes interchange hubs at the two stations, encouraging multi-modal journeys. The possible closure of London Road level crossing is of major concern, impacting bus services and cutting off Langford Village, Graven Hill and East Bicester from the town centre.

- Bus provision is made legible by separating out longer distance and town services. A local retail relay route is established along the north south corridor (connecting also the new park and ride to the south), with all other town services passing through the town centre bus station - enhanced to form the major interchange hub. These changes would be phased and all new bus stock would be accessible, low carbon and have smart ticket readers.

- Changes in the town centre would allow the retail centre of Bicester to expand, in tandem with the town's wider expansion. This is a particular opportunity for Market Square, which is currently undervalued and dominated by parking and a one-way traffic gyratory. It is proposed to pedestrianise the northern and eastern sides of the Square as well as Causeway. Through traffic would be restricted to buses, taxis and cycles between the hours of 7am and 7pm. Implementation would take place gradually, and be supported by a servicing & deliveries and car parking strategy to ensure its successful operation.

- Current retail space is approximately 35,000m2 with car parking provision of 1,160 spaces, or one car parking space per 30m2 of retail space. With the town's expansion, retail space and parking provision should also increase. The additional parking would be provided by development on the site of the Claremount car park - forming a retail anchor to the south east of Market Square, which would mirror the retail anchor of Sainbury's/Vue to the north west. This would increase retail space in the town to approximately 45,000m2, and car parking provision to approximately 1,250 spaces.

- Even with sustainable transport gains, the modal share for car driving for Bicester would still be 60%. The use of electric and ULEV vehicles for these trips would make these car trips more sustainable. There is currently a high level of funding available for this, and ULEV are also more pleasant and healthy in terms of air pollution and noise levels. Recommendations include strategic placement of electric charge points and an electric car club. These improvements align with the EcoBicester vision and offer positive branding opportunities.

Infrastructure improvements are critical to creating an environment where sustainable travel is the most popular choice, but this will be most effective when supported by the management and implementation of a smarter choices and active travel programme. This should be funded and staffed appropriately. Particular opportunities for Bicester with potential for change are identified, and measures proposed include travel awareness campaigns, a sustainable travel roadshow, work with rail stations, sustainable transport hubs, workplace engagement, a commuter challenge, school engagement, residential personalised travel planning and community street design.

Alan Baxter

Appendix 1
Policy Review

National Policy and Guidance

National Planning Policy Framework (2012)

The National Planning Policy Framework set out the Government's planning policies for England and how these are expected to be applied. It provides a framework within which parish councils or Neighbourhood Forums can produce neighbourhood plans, which reflect the needs and priorities of their communities. Within the framework, there is a presumption in favour of sustainable development. The National Policy Framework further explains that there are three distinct dimensions of sustainable development; economic, social and environmental.

The Framework goes on to state that transport policies have an important role to play in facilitating sustainable development and identifies the following principles:

- Smarter use of technologies can reduce the need to travel.

- Transport polices contribute to wide ranging sustainability and health objectives.

- All developments that generate significant amounts of movement should be supported by a Transport Statement or Transport Assessment.

- Plans and decisions should take account of whether the opportunities for sustainable transport modes have been taken up depending on the nature and location of the site, to reduce the need for major transport infrastructure.

- Safe and suitable access to the site can be achieved for all people; and improvements can be undertaken within the transport network that cost effectively limit the significant impacts of the development.

- Development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe.

- Plans and decisions should ensure developments that generate significant movement are located where the need to travel will be minimised and the use of sustainable transport modes can be maximised.

- All developments which generate significant amounts of movement should be required to provide a Travel Plan.

- Plans should protect and exploit opportunities for the use of sustainable transport modes for the movement of goods or people. Therefore, developments should:

- be located and designed where practical to accommodate the efficient delivery of goods and supplies;

- give priority to pedestrian and cycle movements, and have access to high quality public transport facilities;

- create safe and secure layouts which minimise conflicts between traffic and cyclists or pedestrians, avoiding street clutter and where appropriate establishing home zones;

- incorporate facilities for charging plug-in and other ultra-low emission vehicles;

- consider the needs of people with disabilities by all modes of transport;

AlanBaxter
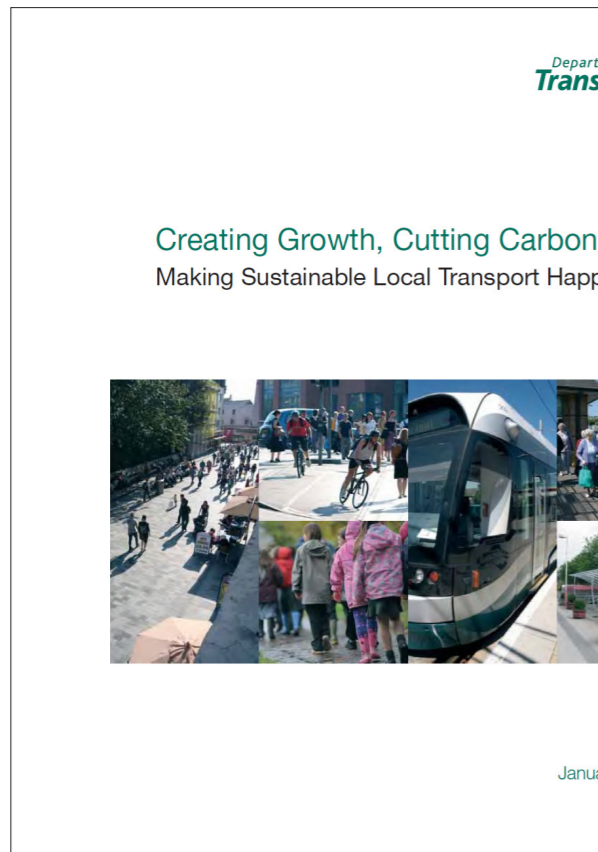
This paper sets out a vision for a transport system that is an engine for economic growth but is also greener, safer and improves the quality of life in local communities.

The paper explains the concept that effective sustainable local transport is delivered through solutions developed for the places they serve, tailored for the specific needs and behaviour patterns of individual communities. The paper goes on to say that encouraging sustainable travel choices does not just help create economic growth and cut carbon, but also contributes to improvements in road safety and in public health.

The paper also pledges specific funding for:

- Bikeability cycle training, to allow as many children as possible to undertake high quality on-road cycle training.

- Improving end-to-end journeys by enabling most public transport journeys to be undertaken with a smart ticket by December 2014.

- Reviewing the way in which investment decisions are made to ensure that the carbon implications are fully recognised.

- Setting out in a road safety strategy, by spring 2011, how to ensure that Britain's roads are among the world's safest;

- Reviewing traffic signs policy so as to provide more freedom for local authorities to reduce the number of signs they put up and to develop innovative traffic management solutions.

Creating Growth, Cutting Carbon
Making Sustainable Local Transport Happ

Appendix 1

Local Sustainable Transport Fund (December 2013)

The Department for Transport is committed to supporting sustainable travel initiatives which support the local economy, boost economic growth and cut carbon emissions. The Local Growth Fund is at the heart of this process. The Strategic Economic Plans that were completed by Local Enterprise Partnerships (LEPs) at the end of March 2014 will shape the allocation of the £6 billion DfT contribution to the Local Growth Fund from 2015/16 to 2020/21 as announced in the 2013 spending round.

LEPs must ensure they have a robust Strategic Economic Plan for local growth, based on a strong rationale, value for money evidence, and partnerships for delivery. The plans form the case for capital funding from the Local Growth Fund and include the following principles:

- Demonstrating wider commitment to growth.

- Aligning or pooling local authority capital and revenue spend on growth.

- Effective collaboration on economic development activities.

- Maximising the synergies with wider local growth programmes.

The Local Sustainable Transport Fund is a revenue funding stream which is expected to enhance the benefits of any sustainable transport related capital funding awarded via the Local Growth Fund. Bids should be ambitious, should engage local businesses, and should be focussed on improving health and quality of life for the local community.

The fund has a value of £560m to March 2015 and objectives are as follows:

- Support the local economy and facilitate economic development, for example by reducing congestion, improving the reliability and predictability of journey times or enhancing access to employment and other essential services.

- Reduce carbon emissions, for example by bringing about an increase in the volume and proportion of journeys made by low carbon sustainable modes including walking and cycling.

- Help to deliver wider social and economic benefits (e.g. accessibility and social inclusion) for the community; improve safety.

- Bring about improvements to air quality and increased compliance with air quality standards, and wider environmental benefits such as noise reduction.

- Actively promote increased levels of physical activity and the health benefits this can be expected to deliver.

The document covers applications for funding in 2015/16 during which there is £78.5m in revenue funding available for sustainable travel projects, including funding for the continuation of the Bikeability training programme. The grant is available for the period from 1 April 2015 to 31 March 2016. Project implementation should therefore begin after April 2015, and all grant funding must be fully committed by March 2016. The Government want to support as many bold and ambitious schemes as possible; therefore bids of up to a maximum of £1 million will be accepted.

While there are few constraints on the number or type of measures that may be proposed, bids need to demonstrate how proposals are linked to Local Growth Fund capital investment, and also demonstrate consideration of alignment with the Department for Transport's Door to Door Strategy and the Prime Minister's cycling announcement. Bids will be assessed on 5 areas or criteria: strategic, economic, financial, management (deliverability) and commercial.

HM Government

Growth Deals

Initial Guidance for Local Enterprise Partnerships

July 2013

The Government's Response to Lord Heseltine's Review [March 2013:Cm 8587] set out their vision for local growth: unleashing the ambition and creativity of local leaders by devolving resource and responsibility to those places which can demonstrate credible and compelling economic leadership, in pursuit of growth. The government is committed to a Growth Deal for every place, building on the success of City Deals, and ensuring that no place gets left behind.

The key principle is that Growth Deals will be a partnership between the Government and Local Enterprise Partnerships, and ensures a share of the Local Growth Fund for Local Enterprise Partnerships to spend on delivery of their Strategic Economic Plan. The document points out that the Local Growth Fund is just one of the investment options available to Local Enterprise Partnerships. Local Enterprise Partnerships will need to draw on a range of resources to fund the priorities identified in the Strategic Economic Plans. These will include:

• private sector investment;

• local authority funding: local authorities already invest significant resources in local economic growth, which could include resources acquired through retained business rates;

• resources from revolving funds such as Growing Places Fund, and also from Enterprise Zones retained business rates and City Deals;

• support from the Department for Transport's Local Sustainable Transport Fund (resource –separate from the capital element that is included in the Local Growth Fund), to be allocated following competition;

• use of Public Works Loan Board project rate;

• match funding from other local partners, such as Housing Associations, universities and colleges, who will play an important role in local delivery;

• surplus and redundant Public Sector Assets - ambitious plans for rationalisation and productive use of these assets can unlock resources which can be reinvested in Strategic Economic Plans.

The table below sets out the size and source of the Local Growth Fund:

Source	£ million 2015/2016
Local Authority Transport Major	819
Local Sustainable Transport Fund (Capital)	100
Integrated Transport Block	200
Further Education Capital	330
European Social Fund Match	170
New Homes Bonus	400
Total	2,019
Of which, capital	1,149

Figure A1.1: Size and source of Local Growth Fund

Appendix 1

Sustainable Travel Towns Initiative (March 2010)

The Department for Transport between approximately 2000 and 2009 promoted an initiative in which three medium sized-towns, Darlington, Peterborough and Worcester, were designated 'Sustainable Travel Towns'. A programme of funded measures was implemented in these towns between 2004 and 2009, intended to reduce car use. Most of the funding was spent on personal travel planning, followed by travel awareness campaigns, promoting walking and cycling, and public transport marketing. Smaller amounts were spent on workplace and school travel plans.

The results of the initiative have shown that the number of trips per head made by residents reduced slightly, and that car trips per person reduced and trips by more sustainable modes increased, illustrating the potential of this kind of initiative. The key results were the following:

- Car driver trips fell by 9% per person

- Car driver distance fell by 5% to 7%

- Bus trips per person grew by 10% to 22%

- Cycling trips per person grew by 26% to 30%

- Walking trips per person grew by 10% to 13%

The Smarter Choices Programme contributed positively to objectives of supporting economic growth, reducing carbon emissions, increasing health, promoting equality of opportunity, and improving quality of life.

The key elements of the strategies that were adopted in the towns were:

- Development of a strong brand identity

- A large-scale personal travel planning programme

- Travel awareness campaigns

- Cycling and walking promotion

- Public transport information and marketing

- School travel planning

- Workplace travel planning

Evidence from the study has shown that travel behaviour change in the towns involved a combination of mode shift, switch of destination and mode, and trip evaporation.

The experience of the Sustainable Travel Towns initiative has shown that delivery of Smarter Choices Programmes is staff intensive. It has also shown that it is important to plan a long-term programme, and to engage other partners and with elected members at an early stage.

The conclusions from the initiative are that it effectively managed to reduce car travel and increase the use of other modes, and that the programme implemented offered value for money.

Alan Baxter

Manual for Streets

Manual for Streets (MfS) was produced by the Department for Transport in 2007. Its objectives are to promote:

• Creative thinking in the delivery of streets to create high quality places

• Design which places a high priority on the needs of pedestrians, cyclists and public transport users and not just motor vehicles, so that growth in these modes of transport is encouraged

• Creation of streets that help build communities and meet the needs of all users

• Creation of streets that are attractive with a distinctive identity whilst forming part of a well connected network

• Creation of streets that are cost-effective in construction and maintenance and are safe

MfS discourages the building of streets that are:

• Primarily designed to meet the needs of motor traffic

• Unsafe and unwelcoming to pedestrians and difficult to serve by public transport

• Bland, unattractive and poorly designed and constructed

MfS 2 - Wider Application of the Principles, is a companion guide to MfS released in 2011 it was designed to be read alongside the original MfS and does not supersede it: Key aspects for MfS2 are:

• It builds on the philosophies set out in MfS and demonstrates through guidance and case studies how they can be extended beyond residential streets to encompass both urban and rural situations.

• It fills the perceived gap in design advice that lies between MfS and the design standards for trunk roads as set out in the Design Manual for Roads and Bridges.

Appendix 1

Communities
and Local Government

Planning shapes the places where people live and
work and the country we live in. It plays a key role in
supporting the Government's wider social,
environmental and economic objectives and for
sustainable communities.

PLANNING

Planning Policy Statement:

eco-towns
A supplement to Planning Policy Statement 1
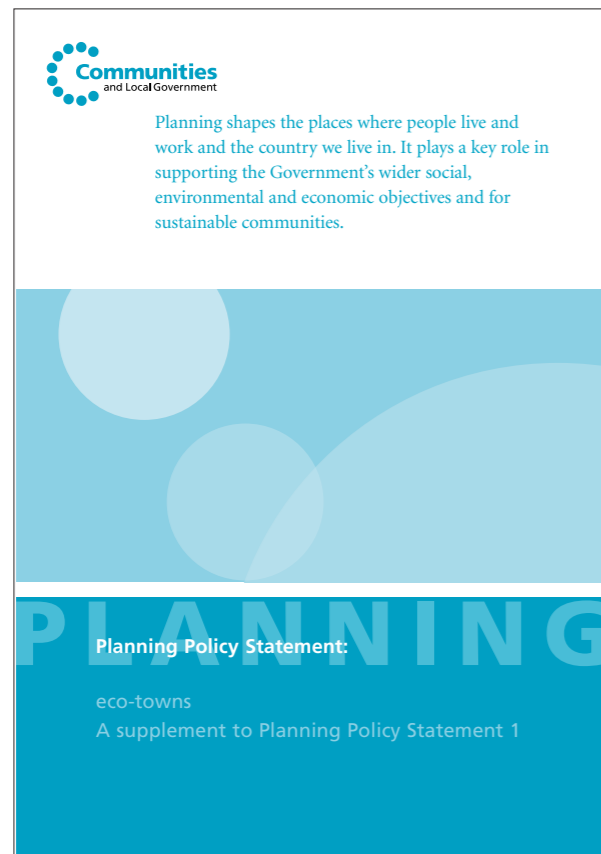
The Government's Planning Policy Statement on Eco-Towns sets out a range of minimum standards which are more challenging and stretching than would normally be required for new development. The standards act to ensure that ecotowns are exemplars of good practice, provide a showcase for sustainable living, and allow Government, business and communities to work together to develop greener, low carbon living. The design of eco-towns should take full account of the impact on local eco-systems, mitigating negative impacts as far as possible and maximising opportunities to enhance their local environments.

The Government is committed to substantial provision of new homes per annum by 2016 and to reduce CO2 emissions by 80 per cent below 1990 levels by 2050. Plans for eco-towns should make a significant contribution to these targets and help address the serious threat of climate change. To help address these challenges, the Government has identified 4 locations with the potential to be eco-towns, one of which is North West Bicester.

The Government's objectives for planning are set out in the NPPF and include: promoting sustainable development by ensuring that eco-towns achieve sustainability standards significantly above equivalent levels of development in existing towns and cities by, for example, taking advantage of significant economies of scale and increases in land value to deliver new technology and infrastructure such as for transport, energy and community facilities; and reducing the carbon footprint of development.

Policies specific to transport are:
ET 11.1 - Travel in eco-towns should support people's desire for mobility whilst achieving the goal of low carbon living. The town should be designed so that access to it and through it gives priority to options such as walking, cycling, public transport and other sustainable options, thereby reducing residents' reliance on private cars, including techniques such as filtered permeability. To achieve this, homes should be within ten minutes' walk of

(a)   frequent public transport and

(b)   neighbourhood services. The provision of services within the eco-town may be co-located to reduce the need for individuals to travel by private car and encourage the efficient use of the sustainable transport options available.

ET 11.2 - Planning applications should include travel plans which demonstrate:

(a)   how the town's design will enable at least 50 per cent of trips originating in eco-towns to be made by non-car means, with the potential for this to increase over time to at least 60 percent

(b)   good design principles, drawing from Manual for Streets, Building for Life, and community travel planning principles

(c)   how transport choice messages, infrastructure and services will be provided from 'day one' of residential occupation, and

(d)   how the carbon impact of transport in the eco-town will be monitored, as part of embedding a long term low-carbon approach to travel within plans for community governance.

ET 11.3 - Where an eco-town is close to an existing higher order settlement, planning applications should also demonstrate:

(a)   options for ensuring that key connections around the eco-town do not become congested as a result of the development, for example by extending some aspects of the travel plan beyond the immediate boundaries of the town, and

(b)   significantly more ambitious targets for modal share than the 50 per cent (increasing to 60 per cent over time) mentioned above and for the use of sustainable transport.

ET 11.4 - Where eco-town plans intend to incorporate ultra-low carbon vehicle options, including electric car schemes to help achieve a sustainable transport system, planning applications should demonstrate that:

(a)   there will be sufficient energy headroom to meet the higher demand for electricity, and

(b)   the scheme will not add so many additional private vehicles to the local road network that these will cause congestion.

ET 11.5 - Eco-towns should be designed in a way that supports children walking or cycling to school safely and easily. There should be a maximum walking distance of 800m from homes to the nearest school for children aged under 11, except where this is not a viable option due to natural water features or other physical landscape restrictions.

Door to Door Strategy: A Strategy for Improving Sustainable Transport Integration (March 2013)

Department for Transport

Door to Door
A strategy for improving sustainable transport integration

Door to Door is endorsed by the following organisations:

- **Association of Train Operating Companies**
- **Bicycle Association**
- **Campaign for Better Transport**
- **Confederation for Passenger Transport**
- **Cycle Rail Working Group**
- **Disabled Persons Transport Advisory Committee**
- **Living Streets**
- **The National Cycling Strategy**
- **Network Rail**
- **Passenger Focus**
- **Passenger Transport Executive Group**
- **Sustrans**
- **Transport for London**

March 2013

This Strategy sets out the government's vision for a more integrated transport system that facilitates and enhances door-to-door journeys by sustainable means. It also explains the actions that Government will take towards realising this vision.

The Government wants more journeys to be made by sustainable transport: public transport, supported by cycling and walking. This is essential to achieving the goal of reducing carbon emissions from transport.

However, for this to happen, it must become more attractive to use sustainable transport – not just for part of the journey, but the entire door-to-door journey. It must be as convenient and straightforward to make a door-to-door journey by public transport, by bike or on foot, or by combining these different means, as by private transport.

Traditionally, different modes of transport have been considered separately – with separate policy teams, separate funding and separate providers. While this might reflect how the industry operates, it does not reflect the way people think about their journeys. When planning the commute to work or a long-distance trip, people think about the cost, convenience and complexity of the entire door-to-door journey – not simply one element of it.

So to encourage and enable more people to choose sustainable transport for the whole journey it is necessary to focus on improving the entire door-to-door journey. That way, not only can carbon reduction targets be met but use of public transport will increase reducing congestion and encouraging healthier travel choices.

The strategy brings together, for the first time, the many areas of work within the Department for Transport that contribute to delivering more convenient and efficient door-to-door journeys by sustainable transport. It focuses on four core areas which need to be addressed so that people can be confident in choosing sustainable transport:

- Accurate, accessible and reliable information about the different transport options for their journeys;

- Convenient and affordable tickets, for an entire journey;

- Regular straightforward connections at all stages of the journey and between different modes and of transport; and

- Safe, comfortable transport facilities.

The strategy looks at each of the four areas above in turn, setting out clearly the actions to be taken to make door-to-door journeys by sustainable transport more attractive and convenient. In some cases, significant progress has already been achieved and large investments made. What the strategy shows is how each action fits into the broader picture.

Then the strategy focuses on the improvements being made to travel information, including:

- Further promoting door-to-door journey planning, building on the achievements of Transport Direct;

- Tasking the Transport Systems Catapult Centre to develop new information applications;

- Working with the industry to enable all travel information to be shared openly.

The case is then made for smart ticketing as a foundation for simplifying the door-to-door journey by sustainable transport. It explains how the DfT are:

- Investing in the South East Flexible Ticketing Programme, as a pivotal demonstration of the effectiveness of smart ticketing, and an opportunity to address technical and operational challenges;

- Striving for interoperability between existing local smartcard schemes and emerging technologies;

- Focusing on smart technology as the basis for more innovative, multi-operator ticketing offers across all public transport; and

- Working with local authorities, operating groups and small operators to enable them to gain the benefits of smart ticketing.

Appendix 1

The strategy then sets out how connections at different stages of the journey can be improved and will be supported, by:

- Encouraging timetable co-ordination between different operators;

- Investing in a high-quality cycling and walking environment; and

- Delivering more accessible transport.

Next the importance of transport facilities is considered, and it is demonstrated how the DfT are:

- Using the significant sums already committed to create high-quality stations and interchange hubs;

- Investing in cycling and walking facilities and putting stations at the heart of our plug-in hybrid vehicle programme; and

- Ensuring transport is part of longer-term planning and development.

Finally, a summary is provided of how the DfT are working with passengers, operators and representative organisations across the transport sector to bring these plans to fruition. The next steps are also set out, the most important of which is the DfT's forthcoming action plan, which will detail how the strategy will be delivered and how progress will be measured.
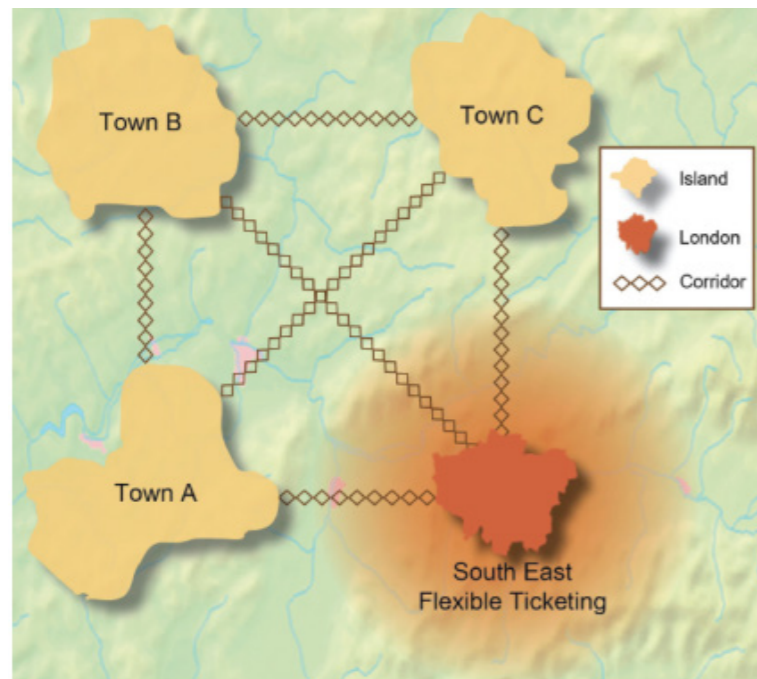
Smart schemes in conurbations A, B, and C are all connected to one another, and to SEFT. The conurbations are linked by corridors of intercity transport that can use the same smartcard.

Figure A1.2: Proposal for Regional Smart Ticketing Scheme

Alan Baxter

Making the Connection: The Plug-In Vehicle Infrastructure Strategy (June 2011)

There is currently a big drive in the UK to exploit the opportunities that electric and low emission vehicles present. 'Making the Connection' (2011) sets out the Government's initial vision for recharging infrastructure in the UK and the steps needed to make them a reality. This is an integrated and pragmatic approach to support market growth, including funding of trials, research and development. The document was developed from an evidence base informed by key programmes and bodies, such as the Technology Strategy Board's Ultra-Low Carbon Vehicle Demonstrator Programme, the energy utilities, plug-in vehicle manufacturers, chargepost manufacturers and a range of global initiatives.

The OLEV (Office for Low Emission Vehicles) programme has implemented the Plugged-In Places (PIP) scheme, which offers matched funding to install vehicle charging points and is the key mechanism for commencing the roll-out of recharging infrastructure in the UK. The goal was not for charge points on every street corner, but rather a targeted, convenient and safe recharging infrastructure. There was a desire to see the majority of charging taking place at home, at night, after the peak in electricity demand. To make this easy for people, measures included smart metering, support of smart grid projects through Ofgem's Low Carbon Network Fund and facilitation of the installation of domestic chargepoints. Recharging at home would be supported by workplace recharging for commuters and fleets (by providing incentives for businesses), with a targeted amount of public infrastructure where it would be most used. These should be easy to locate and access, positioned at key destinations, such as supermarkets, retail centres and car parks with some on-street infrastructure particularly for residents without off-street parking. Supporting measures included establishing: a National Chargepoint Registry, a common standard for plug-in vehicle smart cards and

a Permitted Development Right regarding planning permissions for installing chargepoints. As the industry favoured moving to a dedicated plug-in vehicle recharging connector (the IEC62196-2 Type 2 – to allow faster recharging rates than are possible with a three-pin plug), the Plugged-In Places would start to install public infrastructure with Type 2 connectors.

To help consumers overcome the initial price differential between conventional and low emission cars, the Plug-In Car Grant scheme was put in place in January 2011 and includes hydrogen-fuelled cars. It offers a grant of 25% towards the initial cost of the vehicle up to a maximum of £5,000. It was thought at the time that the document was written, that hundreds of thousands of plug-in vehicles could be on the road by 2020. However, early indications are of a slower than expected rate of growth: as of 31 March 2014, the cumulative number of eligible registered cars totalled only 8,696 units since January 2011, and as of 31 December 2013, a total of 404 claims had been made through the Plug-in Van grant scheme. The strategy supported a range of approaches for extending journeys, both through the Plugged-In Places (e.g. plans to install around 50 rapid chargers at key locations) and by including plug-in hybrids and extended-range electric vehicles within the scope of the Plug-In Car Grant.

It was recognised that the success of the proposals was dependent on the combined efforts of many, from local leaders to electricity distributors, and that it is a fast-moving market. Hence, while setting targets – e.g. asking the Society of Motor Manufacturers and Traders' Electric Vehicle Group, the Energy Retail Association and the Energy Networks Association to specify how the back office functions for recharging infrastructure will operate and to develop recommendations on the most cost-effective way to ensure that recharging occurs off-peak – it also stated that an update to the document would be provided at the start of 2013.

Driving the Future Today: A Strategy for ultra-low emission vehicles in the UK (September 2013)

It is recognised that, as road transport is so dominant in the UK, the solution in reducing carbon emissions will not be to remove cars from the UK's roads but rather to make road transport more sustainable. This document sets out the huge economic and environmental opportunity for the UK, presented by ultra low emission vehicles and technology (ULEV). The document gives background context, explains the technologies involved, documents progress thus far. It sets out measures to help support the purchase of ULEVs, to facilitate the provision of recharging infrastructure, to prepare for hydrogen fuel cell electric vehicles in the UK and to lower emissions from other vehicles. It then discusses the impact of ULEVs on the energy sector, documents the lessons learnt thus far and sets out the strategic approach in terms of vision, overarching principles and key commitments.

Strategic approach

The vision
The Government's overall vision for ultra low emission vehicles in the UK is ambitious, but realistic and for the long term. It wants to see:

- buoyant domestic fleet and private markets for ULEVs with every new car an ULEV from 2040 and an effectively decarbonised fleet by 2050 to meet the Carbon Plan targets;

- a network of supporting infrastructure that ensures ULEVs are an attractive customer proposition;

- world class skills and facilities for the development and manufacture of ULEV technologies, exporting vehicles globally;

- a smarter electricity grid that maximises the benefits to vehicle owners and the electricity system from the shift to ULEVs; and

- all of the above combining to make the UK the best place in Europe for the automotive sector and associated ULEV industries to invest.

Appendix 1

In delivering this vision for the ULEV sector in the UK, Government's activities will be consistent with the following overarching principles:

- Focusing on inward investment and the supply chain – The Government will continue to pursue the wider prize of securing the maximum possible benefits to the UK economy from the mass market adoption of ULEVs. This means focusing on enabling the UK supply chain to become pre-eminent in low carbon technologies.

- Technological neutrality – The Government will not seek to 'pick winners' in terms of emerging technologies at this early stage. Instead they will support activities that are backed by industry consensus, allowing the market to ultimately determine which technologies win through. They will generally specify the bulk of our policies in output rather than technology terms.

- Working with the EU on ambitious but realistic regulation – The Government will work to agree regulations that are ambitious, consistent with statutory carbon budgets and the target for 2050, and which encourage innovation but which are also realistic, deliverable and neither penalise the ordinary motorist, nor overburden industry.

- Addressing market failure – Government can speed the transition to ULEVs by addressing areas where the market alone might not deliver the best outcomes in the shortest possible timescale. The 'chicken and egg' problem of ULEV uptake and the provision of refuelling infrastructure is a good example of this.

- Consistent communications – The Government will engage early, openly and proactively with industry on all aspects of the developing ULEV sector, and we will support clear and consistent communications with consumers.

Government will take forward the ULEV agenda in the immediate term through a number of practical actions and commitments in five workstreams.

Workstream 1 – Supporting the early market

- To provide certainty for investors and consumers the existing plug-in vehicle grants will remain unchanged to May 2015, and consumer incentives will remain in place beyond this date.

- Working with a consortium of major ULEV manufacturers to explore the case for a national consumer communications campaign.

- Updating the Government Buying Standard for Transport by summer 2014 to encourage higher ULEV uptake in the public sector.

Workstream 2 – Shaping the required infrastructure

- Continue to provide a national package of up to £37 million through to May 2015 to support the installation of chargepoints in homes, residential streets, railway stations and public sector car parks and rapid chargepoints to facilitate longer journeys, inviting a second round of bids from train operators, local authorities and the wider public sector by 31 October 2013.

- Subject to further work in Phase 2 of UKH2Mobility, explore the options for Government grant funding to support industry's investments in the initial network of around 65 hydrogen refuelling stations estimated to be required to support the introduction of hydrogen fuel cell electric vehicles in the UK.

Workstream 3 – Securing the right regulatory and fiscal measures

- Maintain a strong, clear and lasting set of tax incentives for ULEVs until at least 2020.

- Work with industry and international partners to support ambitious but realistic and cost effective emissions targets in EU regulations for new vehicles beyond 2020 and to deliver UK ambitions on the Commission's Clean Power for Transport proposals.

Workstream 4 – Investing in UK automotive capability

- Continue to work through the Automotive Council to identify specific activities to develop and strengthen the UK ULEV supply chain and discuss with industry how best to target

- ULEV R&D funding out to 2020.

- Offer a prize of up to £10 million to develop long-life battery technology for the next generation of electric vehicles.

Workstream 5 – Preparing the energy sector

- Continue to require the national rollout of smart meters into homes by 2020 and ensure that this new technology acts as a platform which can support plug-in vehicle charging.

NICE Guidance PH8 Physical Activity (January 2008)

Issue date: January 2008

Quick reference guide

NHS
National Institute for
Health and Clinical Excellence

Physical activity and the environment

This quick reference guide presents the recommendations on 'Promoting and creating built or natural environments that encourage and support physical activity'. It is for NHS and other professionals who have a direct or indirect role in – and responsibility for – the built or natural environment. This includes those working in local authorities and the education, community, voluntary and private sectors. It may also be of interest to members of the public.

The guidance offers the first national, evidence-based recommendations on how to improve the physical environment to encourage physical activity. It demonstrates the importance of such improvements and the need to evaluate how they impact on the public's health.

NICE public health guidance 8
This guidance was developed using the NICE public health programme process.
NICE public health guidance makes recommendations on the promotion of good health and the prevention of ill health. This guidance represents the views of the Institute and was arrived at after careful consideration of the evidence available.

The National Institute for Health and Clinical Excellence's guidance on physical activity makes recommendations concerning strategies, policies & plans; transport; public open spaces; and schools, with the goal of ensuring that the potential for physical activity is maximised.

Among the recommended actions are:

- Ensure local facilities and services are easily accessible on foot, by bicycle and by other modes of transport involving physical activity. Ensure children can participate in physically active play.

- Assess in advance the likely impact of proposals on physical activity levels. (For example, will local services be accessible on foot, by bicycle or by people whose mobility is impaired?) Make the results publicly available and accessible.

- Ensure pedestrians, cyclists and users of other modes of transport that involve physical activity are given the highest priority when developing or maintaining streets and roads. (This includes people whose mobility is impaired.) Use one or more of the following methods:

- re-allocate road space to support physically active modes of transport (as an example, this could be achieved by widening pavements and introducing cycle lanes)

- restrict motor vehicle access (for example, by closing or narrowing roads to reduce capacity)

- introduce road-user charging schemes

- introduce traffic-calming schemes to restrict vehicle speeds (using signage and changes to highway design)

- create safe routes to schools (for example, by using traffic-calming measures near schools and by creating or improving walking and cycle routes to schools).

- Plan and provide a comprehensive network of routes for walking, cycling and using other modes of transport involving physical activity. These routes should offer everyone (including people whose mobility is impaired) convenient, safe and attractive access to workplaces, homes, schools and other public facilities. (The latter includes shops, play and green areas and social destinations.) They should be built and maintained to a high standard.

- Ensure public open spaces and public paths can be reached on foot, by bicycle and using other modes of transport involving physical activity. They should also be accessible by public transport.

- Ensure public open spaces and public paths are maintained to a high standard. They should be safe, attractive and welcoming to everyone.

- Ensure new workplaces are linked to walking and cycling networks. Where possible, these links should improve the existing walking and cycling infrastructure by creating new, through routes (and not just links to the new facility).

Appendix 1

NICE Guidance PH 41 Promoting Walking and Cycling (November 2012)

NICE National Institute for Health and Care Excellence

Walking and cycling: local measures to promote walking and cycling as forms of travel or recreation

Issued: November 2012

NICE public health guidance 41
guidance.nice.org.uk/ph41

NICE has accredited the process used by the Centre for Public Health Excellence at NICE to produce guidance. Accreditation is valid for 5 years from January 2010 and applies to guidance produced since April 2009 using the processes described in NICE's Methods for the development of NICE public health guidance' (2009). More information on accreditation can be viewed at www.nice.org.uk/accreditation

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NICE accredited
www.nice.org.uk/accreditation

The National Institute for Health and Clinical Excellence's guidance on walking and cycling makes recommendations as to how this activity can be promoted.

Increasing how much someone walks or cycles may increase their overall level of physical activity, leading to associated health benefits. These include:

• Reducing the risk of coronary heart disease, stroke, cancer, obesity and type 2 diabetes.

• Keeping the musculoskeletal system healthy.

• Promoting mental wellbeing.

An increase in walking or cycling can also help:

• Reduce car travel, leading to reductions in air pollution, carbon dioxide emissions and congestion.

• Reduce road danger and noise.

• Increase the number of people of all ages who are out on the streets, making public spaces seem more welcoming and providing opportunities for social interaction.

• Provide an opportunity for everyone, including people with an impairment, to participate in and enjoy the outdoor environment.

The key recommendations are:

• High-level support from the health sector

• Ensuring all relevant policies and plans consider walking and cycling

• Developing co-ordinated and cross sector programmes

• Personalised travel planning

• Town wide cycling programmes

• Community-wide programmes walking programmes

• Individual support, including the use of pedometers, for walking

• Active travel for journeys to school

• Develop strategies to promote walking and cycling in and around the workplace.

• Physical activity to be given by health professionals.

Healthy Transport = Healthy Lives (July 2012)

British Medical Association

Healthy transport = Healthy lives

July 2012

The BMA transport and health report Healthy Transport = Healthy Lives makes some valuable recommendations, including:

- Transport policy should aim to reduce the need to travel long distances to access jobs, education, services and other destinations, and encourage a modal shift away from private motor transport towards active forms of travel which benefit health.

- Prioritising accessibility over mobility in planning decisions to ensure local facilities and services are easily and safely accessible on foot, by bicycle and by other modes of transport involving physical activity.

- Reallocation of road space, restricting motor vehicle access, road-user charging schemes, and traffic-calming and traffic management (including area-wide 20 miles per hour speed limits).

- Provision of a comprehensive network of routes for walking, cycling and other modes of active travel that offer convenient, safe, well-designed and direct access to workplaces, homes, schools and other public facilities.

- Safe routes to school and the provision of suitable cycle and road safety training for all pupils.

- Ambitious growth targets for walking and cycling should be set at national and regional levels, with increased funding and resources proportional to target levels.

- Road safety should be addressed at a strategic level through a danger reduction approach that addresses the factors that put pedestrians and cyclists at risk, rather than seeking to reduce casualties by limiting pedestrians and cyclists from making the trips they need to undertake.

- Low carbon transport options and energy efficient technology should be adopted where car use and motorised transport is necessary. Any efficiency savings in engine technologies should be accompanied by regulation that prioritises active and sustainable forms of transport, and planning decisions that prioritise accessibility over mobility, to ensure efficiency savings are not translated into a higher prevalence of car use.

- There should be further development of, and incentives for, alternatives to traditional car usage patterns such as workplace car sharing schemes and car clubs.

- Public transport should be affordable to all to ensure that it represents an effective alternative to car use in cities, towns and rural areas. Special consideration should be given to the use of subsidy in rural areas.

- To maximise the potential for car-free travel, facilities should be improved for combining active travel with local and longer-distance public transport.

Appendix 1

Local Policy and Guidance

Summary

The relevant local policies and guidance are set out in the following documents:

- Oxford and Oxfordshire City Deal (2014)

- Strategic Economic Plan (2014)

- The Cherwell Local Plan (2014)

- Cherwell Sustainable Community Strategy (2010)

- Eco Bicester – One Shared Vision (2010)

- Local Transport Plan 2011-2030 (2012)

There is a substantial volume of policy that embraces Bicester at sub-regional, county, district and town level. Much of this sets a high level of aspiration for the future of the town generally and specifically in relation to the movement profile. Key messages from the policy that should guide this STS are as follows:

- Eco-Bicester sets a vision that uses the North West Bicester development to effect a town wide transition to a low carbon community. The aspiration is therefore for the movement patterns of existing residents to become more sustainable. The target for North West Bicester is at least 50% of journeys to be by sustainable modes – this should be adopted for the whole town.

- Substantial housing and employment growth in the town provides a significant opportunity to provide investment in a sustainable transport network.

- The level of out-commuting is high but planned development will provide more jobs in the town. A sustainable transport network is needed to support access to these jobs.

- Major investment in rail infrastructure is underway. Investment in road infrastructure is planned for the peripheral routes. There is the opportunity to improve the sustainable transport network within the outer ring road and prioritise sustainable modes.

- The City Deal introduces the concept of the Knowledge Spine and

Oxford Transit. The Transit stops need to be highly accessible on foot and by bike.

- 40% of all journeys are less than 3.0km in length and therefore there is potential for a large proportion of local journeys to be on foot or by bike.

- Sustainable movement should be prioritised in the town centre. An improved sense of place can be created in parts of the town centre by removing traffic and by improving the public realm.

- A network of walking and cycling routes should be integral to green infrastructure

- Vehicle congestion should be reduced on Kings End/Queens Avenue and there should be a stronger sense of place. This presents the opportunity to prioritise sustainable transport on this street.

- New developments will promote permeability on foot and by bike. Priority needs to be given to linking these new areas to the existing urban area.

- New developments need to connect by public transport to the town centre and rail stations

- Rail stations need to be highly accessible on foot and by bike.

Local Economic Partnerships

Cherwell District and Bicester fit within both the South East Midlands and Oxfordshire local Economic Partnerships. Both LEPs have published their strategic economic plans. The strategic economic plan of Oxfordshire (Oxford and Oxfordshire City Deal) covers Bicester comprehensively and has therefore been reviewed.

Oxford and Oxfordshire City Deal (January 2014)

The Oxford and Oxfordshire City Deal aims to unleash a new wave of innovation-led growth by maximising the area's world-class assets, such as the universities of Oxford and Oxford Brookes, and "big science" facilities such as those at the Harwell Oxford Campus and Innovation Campus. It acknowledges the region's strong track record of delivering growth and seeks to support those existing, and new, businesses in achieving their full potential.

The focus of the City Deal is the "Knowledge Spine" linking Bicester, Oxford and Science Vale (between Didcot and Wantage).

City Deal partners are committed to increasing connectivity along the "knowledge spine", connecting people to jobs, opening up a choice of housing to skilled workers and enabling specific sites. The ambition is to create the conditions that make Oxford and Oxfordshire the location of choice for the world's leading science and technology businesses. A transport system that is fit for purpose is central to creating investor confidence and ensuring residents have a good quality of life. Oxford and Oxfordshire and Government have agreed to invest in critical infrastructure to support the City Deal:

- A package of measures will improve access to the Science Vale Oxford Enterprise Zone from the national and local road network. This will increase reliability – and in turn provide the confidence necessary to attract business investment and high skilled employees

- Schemes to support the regeneration of Oxford's Northern Gateway and the A40 approaches to Oxford. The package of measures will relieve congestion and enable the delivery growth at the Northern Gateway development site including 500 houses and up to 8000 new jobs

- City Deal partners have a long-term ambition to transform public transport along the "knowledge spine"; the Oxford Science Transit will be a fully integrated public transport system that connects the area's centres of innovation and economic growth with the two universities. It will mean that people using Oxford Science Transit will be able to hop on, and off, high-frequency bus and rail services using "smart" tickets (akin to Oyster cards), planning their journeys using real –time information and updates. The City Deal will enable the first phase of the Science Transit by focusing on the major pinch points in the network: the A34 between Abingdon and south Oxford and the access into Oxford from the A34 along the Oxford Southern Bypass.

There is no explicit reference to walking or cycling in the City Deal but it is understood that a comprehensive cycle network forms part of the package for Science Vale. There is clearly an important role for walking and cycling to access the Oxford Science Transit public transport scheme.

Alan Baxter

Strategic Economic Plan (March 2014)

Oxfordshire Local Enterprise Partnership brings together business, the universities, colleges, research facilities and local authorities in our area: Oxford City Council, Cherwell District Council, South Oxfordshire District Council, Vale of White Horse District Council, West Oxfordshire District Council and Oxfordshire County Council.

The Strategic Economic Plan focuses on our priority localities of Science Vale Oxford in the south, through Oxford, to Bicester in the north of the county – the Oxfordshire Knowledge Spine. Bicester – where improved infrastructure, 28% population growth by 2016, and increased land availability will unlock the potential for significant increases in employment growth and low carbon development

The A34 has many roles. It is an important regional/national corridor for both freight and people movement between the South Coast and the Midlands. It is also the key spine route for Central Oxfordshire between Bicester, Oxford and Science Vale Oxford and it also acts as a western bypass for Oxford and has an important role for local traffic. The A34 is at capacity and suffers from severe journey time reliability problems which in turn cause major delays to users. All of the A34 through the county, except the southernmost section, is amongst the worst 20% for journey delays with the northern section around Oxford amongst the worst 10% and 34% of all journeys experience delay. Businesses cite the A34 and A40 as having a significant impact on business and it is identified as the key piece of infrastructure restricting innovative growth

The core rail stations – Bicester, Oxford Parkway, Oxford, Culham and Didcot – receiving investment to become 'state of the art' multi-modal interchanges and gateways through which existing businesses and investors can pass quickly and efficiently.

Census 2001 and 2011 journey to work data for Cherwell, South Oxfordshire and West Oxfordshire districts reveals that car use has increased from an average 61% (2001) to 64% (2011). Although these figures are still below national levels, this shows car use has risen outside of Oxford, so better inter-urban public transport, offering faster more comfortable journeys, and increased capacity at Park and Ride sites, is likely to become increasingly important as the county towns continue to expand.

East-West Rail is all about connecting people and connecting businesses, delivering significant economic, social and environmental benefits to Oxfordshire by connecting major centres of economic activity and growth. It will initially link Reading, Science Vale Oxford (Didcot and Culham), Oxford, Oxford Parkway, Bicester, Aylesbury, Milton Keynes and Bedford. Building on the initial £250m investment which has modernised the Chiltern route through Oxfordshire to London (the 'Evergreen' project), the western section of East West rail is being delivered in two stages:

Stage 1 will see a new service from Oxford to London Marylebone, operating via Bicester Town and a new Oxford Parkway Station at Water Eaton – this will provide a range of new strategic public transport connections across this side of Oxfordshire: the works involve upgrading the railway between Bicester and Oxford (including a new chord connecting two rail lines), a rebuilt and enlarged station at Bicester Town, a platform extension at Islip, a new parkway station at the existing Water Eaton Park & Ride and two new platforms at Oxford station. Stage 1 Services are due to begin operating between Marylebone and Oxford Parkway in summer 2015, continuing on to Oxford by Spring 2016.

BICESTER AREA STRATEGY

Mixed Use Developments

A North West Bicester (Eco Town)
Houses: 1800 (2014 – 2031)
Jobs: 1800 (2014 – 2031)

B Graven Hill
Houses: 1900 (2016 – 2031)
Jobs: 2470 (2026 – 2031)

C East Bicester
Houses: 800 (2014 – 2031)
Jobs: 3241 (2026 – 2031)

New Housing

D South West Bicester Phase 2
Houses: up to 726 (2014 – 2027)

E South West Bicester Phase 1 - (Approved)
Houses: 1700 (2012 – 2024)

New Business Parks

F Bicester Business Park
Jobs: 3850 (2021 – 2026)

G Bicester Gateway
Jobs: 940 (2021 – 2026)

H North East Bicester Business Park
Jobs: 1092 (2011 – 2026)

Tourism Development

I RAF Bicester

Town Centre Improvements including Market Square

Road Improvements

1 A4421 enhancements between Bicester Road and Launton Road

2 Central Corridor enhancements (King's End to Queens Avenue junction)

3 A41 / Oxford Road corridor enhancements

P+ Bicester Park and Ride site next to the Vendee Drive / A41 Oxford Road junction

● Junction Improvements

1 Howes Lane / Bucknell Road junction
2 Buckingham Road A4221 junction
3 M40 Junction 9 improvements

▬ Rail Improvements

a Charbridge Lane railway level crossing solution
b Bicester Town Station improvements
c London Road railway level crossing solution
d Rail Interchange for freight at Graven Hill
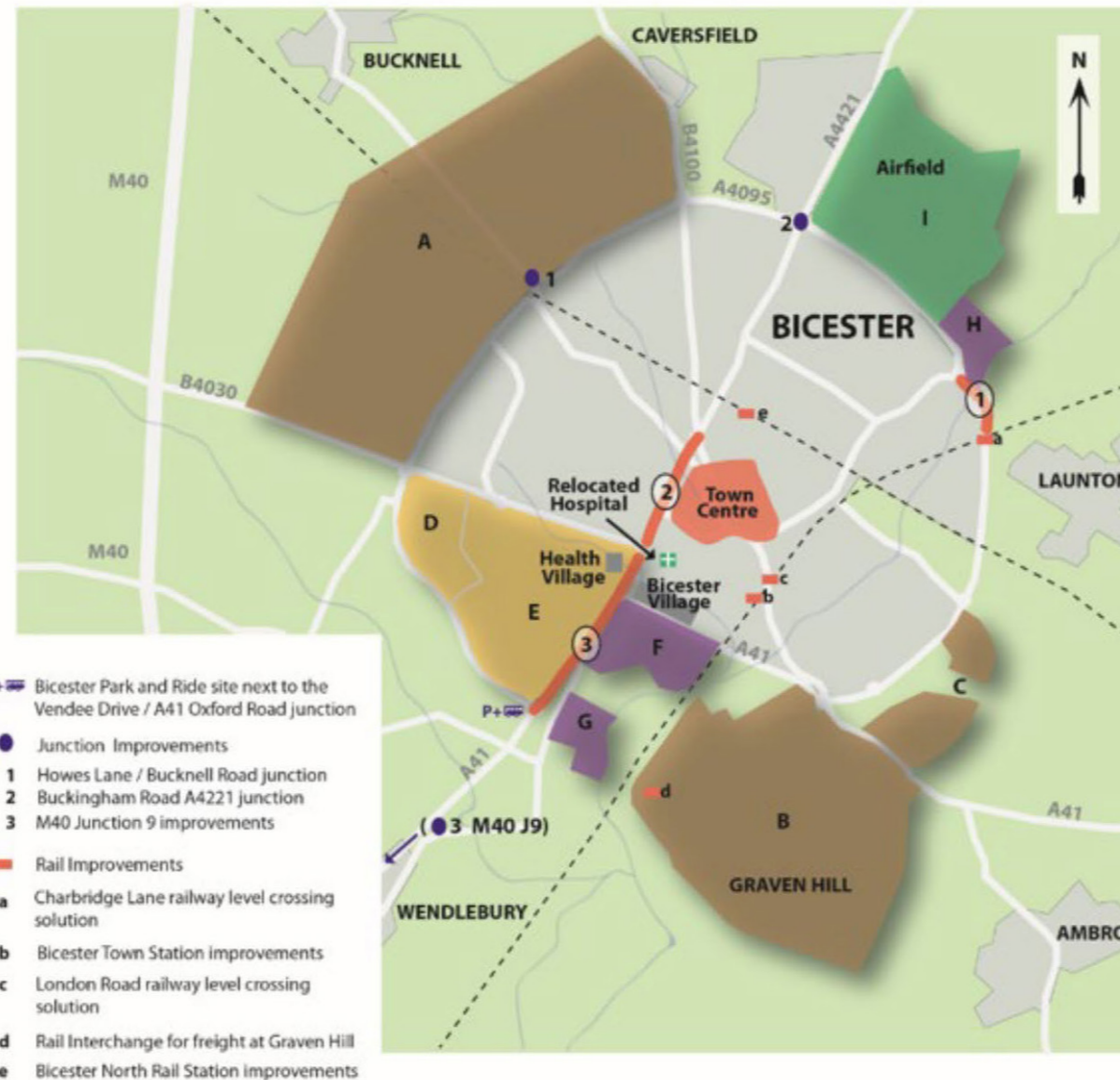**e** Bicester North Rail Station improvements

Figure A1.3 - Planned development in Bicester

Appendix 1

Stage 2 will see the line extend to Bedford and Milton Keynes, with services running through from Reading via Didcot, and for the railway to be fully electrified as part of the National 'Electric Spine' route. Passenger services are planned to be operating by 2017, with the fully electrified railway to follow. When fully open, the service will comprise two trains each hour from Reading via Oxford and Bicester to Bletchley, with one continuing to Milton Keynes and the other going to Bedford. There will also be an hourly London Marylebone to Milton Keynes service via Aylesbury to provide a connection with trains to and from Oxfordshire.

Bicester – Enterprise, People, Place and Connectivity

Bicester is the second largest town in Cherwell district. The town is a historic market centre and has strong links to the military, with Bicester Garrison located in Ambrosden. Bicester is home to approximately 31,000 people and is one of the fastest growing areas in Oxfordshire. It has excellent road links via the A34 and the M40, and rail links from its two stations to Oxford, London Marylebone, High Wycombe and Birmingham.

Bicester has major ambitions for growth through the development of the internationally recognised Bicester Village Shopping Centre, the recently completed £70m town centre redevelopment and the proposed North West Bicester Eco-town. Plans are for it to play a key role in the economic growth of the county given its advantageous location on the transport network which connects the town with Oxford, Science Vale Oxford and the wider south-east region.

With its major growth plans, Bicester is a significant anchor of the knowledge spine and becoming an increasingly significant location in the Oxford-Cambridge Arc, new opportunities are arising from for an increase in science and technology based businesses and exploiting innovations and spin-outs from academic research.

Bicester is one of the fastest growing economic centres in the county. Its economy is focused on storage, defence and distribution activities, food processing and engineering. Major employers include the Ministry of Defence, BGP (Printing), Fresh Direct and Paragon Fleet Solutions.

Of the 13,000 jobs in Bicester over 60% are accounted for B5 sectors: retail (20%), wholesale trade (14%), other business activities (12%), education (8%) and health and social work (7%). Bicester Village retail development is a significant UK tourist attraction, drawing in over 5.8 million visitors a year, including many from overseas. It benefits from good rail connections with London. The presence of the Bicester Village has placed the town on the international map and given the town a stronger retail offering than would be expected in a centre of this size.

Local firms have identified that there is currently significant growth potential, particularly in the manufacturing sector, but this is being frustrated by the lack of high quality sites and premises. The availability of land for commercial development is very limited and firms read the existing stock of commercial space as dated an unattractive. As a result Bicester is losing the kind of high quality firms that it needs to attract and retain.

The Cherwell Local Plan will enable employment development on allocated sites, with the aim of creating a diverse economy that attracts growth and investment from the business, manufacturing, science and hi-tech sectors. 155 hectares of land for employment uses (B use class) has been identified and land to provide approximately 15,000 jobs (including retail jobs on town centre sites) at Banbury and Bicester. Employment sites include the Bicester Business Park and South East Bicester which between them will introduce up to 7,000 new jobs. This will be supported by commensurate housing development and the Local Plan also seeks to strengthen the town centre to ensure that the town centre is vital and viable, and able to co-exist with Bicester Village in a mutually productive way) and create additional green and recreational space. The challenge is for Bicester to become a more attractive work location for many of its more-qualified and higher-earning residents.

Bicester will be able to take advantage of both materials engineering and biotechnology in its economic future, thanks to its location and the strength of those sectors already nearby. In addition, as these become more established the breadth of the towns' knowledge economy will increase to encompass other areas of innovation and creativity. Examples are in the motorsport engineering strengths of Banbury & Bicester College in Bicester and connections to local industry. Great potential exists for local Universities to lead in, for example, the transfer of green technology (Oxford Brookes University) and materials engineering (University of Oxford's Begbroke Science Park) in Bicester and across the whole district.

Providing the foundations of growth Bicester is looking to encourage:

- Green technology and the knowledge based sectors, exploiting its position in the Oxford/Cambridge Corridor

- Utilise the Ex-Ministry of Defence (MoD) land and facilitate the establishment of a modern logistics hub for the MoD

- Maintain and increase the motorsport industry and other performance engineering

- New opportunities for additional retail, leisure and cultural activities in an extended Town Centre

- Retailers and visitors to Bicester Town Centre

- Promotion and expansion of Bicester Village where complementary to improving the Town Centre

- High tech companies

- Higher value distribution companies

- Sustainability and self-sufficiency

The population of Bicester Town is expected to grow by 28% between 2006 and 2016, higher than the Oxfordshire average. Overall deprivation in the locality is low, but three parts of Bicester are among the 20% most deprived areas nationally in terms of education skills and training. Educational attainment in Bicester has improved in recent years although it is still below the county average. By Oxfordshire standards, a high proportion of the working age population has no qualifications and a relatively low proportion degree level or equivalent qualifications. Bicester has some excellent specialist training provision – most notably in motorsport – however in the whole training rates in the district fell between 2006 and 2009.

Unemployment in Bicester is relatively low compared to Banbury and Oxford, and is below the national and county averages. Unemployment in the Bicester hinterland is considerably below the Oxfordshire average. The Bicester locality is one of the few areas in Oxfordshire, outside of Oxford City, that has a relatively low percentage of over 65s, even in the rural parts around Bicester town. In the more rural parts, as with other rural areas across Oxfordshire, the more sparsely populated areas of Launton, Fringford, and Caversfield.

The Local Plan proposes 7,000 new homes by 2031, and a further 3,500 new homes by 2040. Around 2,700 of these homes have already been completed. The Local Plan acknowledges North West Bicester capacity for at least 5,000 new homes of which around 1,800 are anticipated during the Plan period although it does not preclude a faster delivery rate. The Local Plan identifies 122 ha of employment land at Bicester within the plan period.

Bicester town has relatively low house prices compared to Oxford. In October 2010 the median asking price for a house in Bicester was £220,000, below Oxford at £275,000.

The development of Bicester is centred on Eco-Bicester, a strategy to effect a town wide transition to a low carbon community as a result of the new eco-town at North West Bicester. The strategy looks to:

- Attract inward investment to provide environmentally friendly jobs and commerce, especially in green technologies

Alan Baxter

- Improve transport, health, education and leisure choices while emphasising zero carbon and energy efficiency

- Ensure green infrastructure and historic landscapes, biodiversity, water, flood and waste issues are managed in an environmentally sustainable way

Enhancing access to the strategic transport network and making it easier for people to travel between homes and jobs is critical in accelerating and accommodating future growth in Bicester. Investment in core transport infrastructure will boost the attractiveness and desirability of Bicester as a place where businesses want to locate and grow, and where people want to live and work. The ambition for Bicester is to provide highway infrastructure which effectively reduces current and predicted transport congestion in Bicester, to ensure Bicester is attractive for inward investment and supports the delivery of both housing and employment led development. It is essential to provide high quality access to the strategic highway and railway network to secure business investment and encourage people to make Bicester their home.

Walking levels are relatively high across the town, (as the second most popular mode of travel after driving), with pedestrian trips being particularly high in the areas closest to the main employment sites and being lowest in the new residential areas to the southeast and west (which are closest to the main road network). Surveys undertaken as part of the Travel Behaviour Demonstration work identified over 40% of all journeys throughout the day being less than 3.0km (1.86 miles) in length, suggesting that there is potential for a large proportion of local journeys to be carried out on foot or by cycle.

The transport priorities within Bicester are to provide the connectivity infrastructure which tackles the challenges identified in the Bicester Movement Study which included:

- Significant out-commuting from Bicester to Oxford, London and elsewhere

- Main movements are largely between the residential areas to the west of the town and the employment areas to centre and east of the town, particularly at Launton Road and in the town centre

- Large demand for retail and particularly leisure trips outside Bicester

- Key networks for public transport within the town centre currently congested

- High potential for local trips by walking / cycling across the town with a high percentage of walking trips identified for non-work related journeys in particular

- A good base sustainable transport network, with a network of walking and cycling routes to the eastern and western edges of the town along with a circular route following the perimeter roads

- Varying attitudes to sustainable modes of transport, with support for positive measures to encourage cycling and public transport, although demand management measures are less popular

The updated Local Transport Plan local area strategy has identified a series of improvements to increase the overall capacity of Bicester's transport networks and systems, enabling them to accommodate the additional trips generated by development; to adapt to their cumulative impact and to mitigate the local environmental impact of increased travel. It is expected that the majority of these improvements to be fully funded by development in and around the town.

As part of the SEP an application to the Local Growth Fund has been made for strategic transport infrastructure improvements. The Bicester Peripheral Road (assumed to be around the south east of the town) will create a route that is attractive to employment and longer distance traffic and thereby reducing the strain on the town centre and central corridor. It is estimated that this scheme will cost approximate £22 million with some sections directly delivered by development. The scheme will have a major impact on journey times across the Bicester network, predictions suggest that compared to a "do-minimum" scenario these improvements will provide a journey time benefit of 9 minutes across just the key routes in Bicester, based on growth to 2030, if a higher level of growth is delivered this rises to 13 minutes journey time saving.

With the level of service anticipated to deliver East-West rail, improvements are required to both London Road Rail Crossing and Charbridge Lane Rail Crossing as both current crossings are at-grade and would provide major delays forecast up to 20 minutes per hour. Charbridge Lane Rail Crossing is also essential to deliver the peripheral route journey time savings. Without this project the crossing could potentially neutralise the benefits of the peripheral route enhancements. Work with Network Rail on a solution for London Road is underway and it is anticipated that a pedestrian and cycling grade separated crossing will be delivered in early phases. The peripheral route enhancements allow for a review of the solutions at London Road by relieving the use of this route into the town centre, this will be developed as part of the continued detailed studies.

There is also a strong ethos within Bicester on strengthening the town's walking, cycle and bus networks to ensure good links to local employment opportunities and amenities within the town, as well as transport hubs, this Walking and Cycling Connectivity project, will lay the foundation of upgrading the network across Bicester to allow the new developments to access into a high standard non-motorised transport network this scheme will be important in supporting the Bicester Eco-town ambitions of delivering a development with reduced traffic impact and one that promotes cycling and walking and is fully connected to Bicester Town.

These schemes provide an important platform for the wider transport plans for Bicester and will be critical to attracting employment growth, especially for the peripheral development sites. Effective transport links between the residential areas, employment sites and other facilities will facilitate economic growth, and provide more opportunities for people to live and work in Bicester, thus reducing the current level of out-commuting. The reduction in the length of people's journeys provides opportunities for them to use non-car modes of travel. Complementary investment in the town's bus, walking and cycling network will have an essential role in accommodating growth, encouraging sustainable travel choices, and raising the quality of the environment.
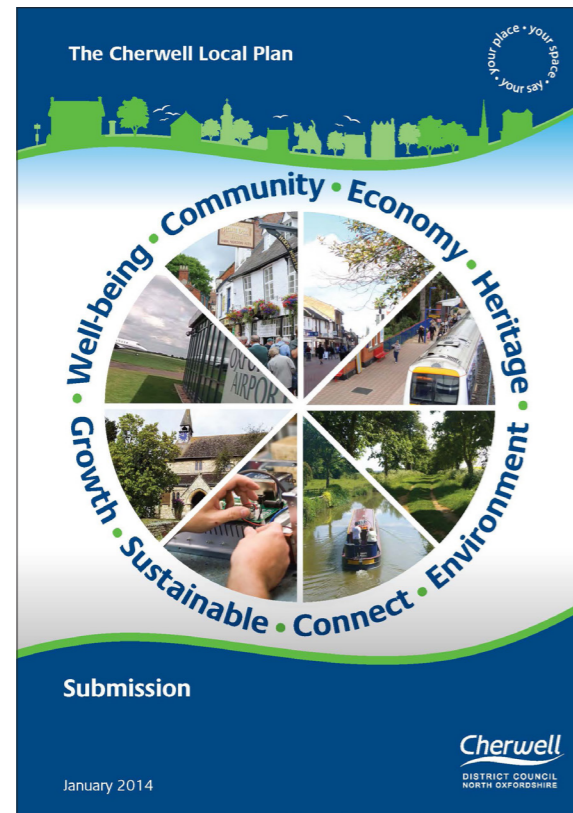
The Cherwell Local Plan sets out policies to support the local economy and communities over the coming decades. Policies that are relevant to transport in Bicester are set out below.

Policy SLE 2: Securing Dynamic Town Centres

Retail and other 'Main Town Centre Uses' will be directed towards the town centres of Banbury and Bicester and the village centre of Kidlington.

All proposals should:

- Reduce the need to travel by private car
- Be accessible and well served by a choice of means of transport, especially public transport, walking and cycling as well as by car

Policy SLE 4: Improved Transport and Connections

The Council will support the implementation of the proposals in the Movement Strategies and the Local Transport Plan to deliver key connections, to support modal shift and to support more sustainable locations for employment and housing growth.

Supported key transport proposals include:

- Transport Improvements at Banbury and Bicester in accordance with the County Council's Local Transport Plan and Movement Studies.
- Projects associated with East-West rail including new stations at Bicester Town and Water Eaton
- Rail freight associated development at Graven Hill, Bicester
- Improvements to M40 junctions

Policy ESD 1: Mitigating and Adapting to Climate Change

Measures will be taken to mitigate the impact of development within the district on climate change. At a strategic level, this will include:

- Distributing growth to the most sustainable locations
- Delivering development that seeks to reduce the need to travel and which encourages sustainable travel options including walking, cycling and public transport to reduce dependence on private cars

Policy ESD 18: Green Infrastructure

The district's green infrastructure network will be maintained and enhanced through the following measures:

- Ensuring that green infrastructure network considerations are integral to the planning of new development. Proposals should maximise the opportunity to maintain and extend green infrastructure links to form a multi-functional network of open space, providing opportunities for walking and cycling, and connecting the towns to the urban fringe and the wider countryside beyond

- All strategic development sites will be required to incorporate green infrastructure provision and proposals should include details for future management and maintenance

Policies for Cherwell's Places: Bicester

Following the analysis from the Bicester Masterplan CDC are looking to meet the transport needs of the town by:

- Delivering new strategic highway improvements including those on peripheral routes to help improve sustainable movements in the rest of the town, service the long term growth aspirations, through traffic and to service key employment sites, whilst considering any potential impacts on nearby villages.

- Reducing traffic congestion on Kings End/Queens Avenue and create a strong sense of place; Reducing traffic congestion into the Tesco and Bicester Village development; and establishing a park and ride

- Improving the linkages between Bicester Business Park, Bicester Village, Graven Hill, the town centre and improved railway station for the Town to take advantage of improvements to East-West rail

- Improving the connectivity and attractiveness of the pedestrian and cycle network across Bicester which will link strategic developments with the town centre, train stations, and other settlements

- Delivering improvements to J9 and J10 of the M40 to improve journey times and help tackle congestion in Bicester and its surrounding villages

- Secure an expanded Rail Freight Interchange at Graven Hill

In addition to the implementation of specific highway measures such as Junction 9 improvements and a south-west perimeter road, it is important that Bicester becomes more self-sufficient. Reducing out-commuting and providing sustainable transport choices would make a significant difference to Bicester's environment. There is a need also to improve the built environment and to provide more green infrastructure both for the benefit of existing residents and to improve the image of the town to attract new business, visitors and future residents. The provision of transport initiatives, including delivering new strategic highway improvements including those on peripheral routes, will secure substantial gains for the centre of the town by reducing the flow of through traffic.

The Plan has been subject to an Examination and has been found to be 'sound with modifications'. The Inspectors Report of 12th June 2014 can be found at http://www.cherwell.gov.uk/localplanexamination.

Cherwell Sustainable Community Strategy

Our District, Our Future

Cherwell local strategic **Partnership**

February 2010

This document sets out a vision for Cherwell in 2030.

By 2030, Cherwell will be a district more prosperous than it is today. Those who live and work in Cherwell will be happier, healthier and feel safer with high aspirations and expectations. People will feel they belong and diversity will be celebrated. Everyone will share in a better quality of life.

In Cherwell older people will lead independent and healthy lives for longer with access to excellent services. Young people will have high personal aspirations, satisfied by a wide variety of local opportunities to achieve appropriate skills, qualifications and jobs.

The quality of the natural and built environment will be protected and enhanced. Cherwell will embrace appropriate environmental technologies and adapt behaviour to meet the global challenge of climate change.

The economy will be vibrant and diverse; local people will be skilled and able to access good jobs. The economy will have grown to provide employment for the increasing population and reduce the need for residents to travel outside the district for work.

Cherwell will have maintained the vitality of the urban centres as economic, cultural and social hubs, offering improved leisure and shopping facilities as well as a diverse and vibrant evening economy. The villages will be 'lived in' as well as 'slept in', helping to sustain a rural way of life with an economic base that is not reliant entirely on agriculture.

By 2030 Cherwell will have many more homes and particular attention will be given to both their quality and affordability. Cherwell will ensure that careful investment in infrastructure will increase the capacity of our communities and address current deficiencies in provision. In particular, Cherwell will focus on measures aimed at managing road congestion through encouraging less car use, increasing cycle paths and improving public transport.

The Cherwell Local Strategic Partnership and people across the district are committed to working together towards achieving this vision of the future.

Environment and infrastructure

Cherwell residents travel further to work than people in the rest of the South East and nationally. Car ownership overall is high and residents in rural areas are particularly dependent on their cars. The dependence on cars has produced a number of congestion hotspots in the district, not least at junction 9 of the M40, on the A34, in the centres of Banbury, Bicester and Kidlington at times and in the villages with schools. Some residents are keen to push for a second M40 junction to service Banbury and a bypass/ring road for the town. Significant planned improvements to the railway infrastructure will better connect Bicester to Oxford and London. Such improvements will bring enormous benefits but will need to be complemented by much work to change attitudes to public transport and a willingness to walk more and cycle more.

Adapting to climate change

Traffic volumes and limited public transport across the area are two of the biggest challenges and there is considerable commuting within and to and from the district and heavy traffic at 'hotspots'. Ways need to be found to reduce car use and press for changes to public transport routes in line with public need.

Diverse and resilient – the economy in 2030

Reduce congestion in the town centres, reducing the numbers of people commuting out of the area to work by increasing the number and variety of jobs locally.

Encourage homeworking, shared travel to work scheme, networks and hubs for home workers and ensure that rural areas are able to access the technology and services they need to work sustainably in the district.

Connected and protected – the infrastructure and environment in 2030

Improve accessibility and tackle congestion including a shift in transport methods from reliance on the private car towards public transport and walking or cycling opportunities.

- Develop links with schools to integrate transport and travel to work patterns with young people to reduce congestion and increase walk to school rates

- Improve accessibility and tackle congestion by supporting a shift from reliance on the private car towards public transport and walking or cycling.

- Work with the county-wide stakeholders and representatives from key urban and rural areas to look at transport solutions and develop strategies to influence public transport development and the Highways Agency.

Appendix 1

Cherwell Low Carbon Environmental Strategy 2012

The UK Government vision is for a thriving, globally competitive, low carbon economy to be achieved through comprehensive action at a local as well as national level. The UK needs to become less reliant on imported fossil fuels to maintain security of energy supplies and so we are less exposed to higher and increasingly volatile energy prices in the future. The Climate Change Act 2008 established a long-term framework to tackle climate change by encouraging the transition to a low-carbon economy in the UK through unilateral legally binding emissions reduction targets.

The transition to a low carbon economy is essential for the competiveness of the business community and local economy. It provides an opportunity to reduce operating costs, develop new technology, products and services and create jobs.

The transition needs to be achieved whilst minimising costs to consumers, particularly those in poorer households who are more vulnerable to the risk and consequences of fuel poverty. The latest official fuel poverty figures (defined as those needing to spend more than 10% of household income on energy) released by the Department of Energy and Climate Change (DECC) show 3.54 million households in England in fuel poverty in 2010. In Cherwell in 2010, 5,447 households were considered in fuel poverty (9.70% of overall population).

Cherwell District Council intends to lead by example, continuing to work to reduce their impact on the natural environment and limit their use of natural resources. Their target is to reduce CO_2 emissions from operations by 22% from a 2009/10 baseline year by the end of financial year 2014/15. This equates to a reduction of 1195 tonnes of CO_2 over 5 years. They will continue working with partners in the public, private and voluntary sectors to encourage and support others in the district to reduce their own impact on the natural environment and limit their use of natural resources.

Whilst Cherwell District Council and its strategic partners recognise they have a responsibility to lead by setting a behavioural and strategic example its role will be principally a co-ordinating one as many actions will be taken by or in partnership with others.

According to government statistics published in September 2011, taking into account emissions resulting from energy used in industry and commerce, in homes and in non-motorway road travel, Cherwell District is responsible for 7.8 tonnes of CO_2 emissions per head of population, considerably worse than the 5.9 tonne average for the South East of England. This is also the second highest of the Oxfordshire districts, with Vale of the White Horse at 8.9 tonnes per capita being the highest. Cherwell's high emissions can be attributed in part to its industrial and commercial success and the A34 is no doubt a significant factor in the well above average road transport related emissions.

In 2008 the Cherwell Climate Change Partnership was established with all members having developed and signed up to environmental pledges around the Cherwell Sustainable Community Strategy "Our District Our Future" and give regular feedback on implementation. Pledges include actions relating to energy usage, recycling, transport, procurement and water conservation. Partners were encouraged to sign up to at least four pledges and many signed up to more. To broaden the remit of the Cherwell Climate Change Partnership it has been merged with the Environment Forum – giving Parish Councils and other community groups the chance to contribute.

The Cherwell Climate Change Partnership is one of the delivery groups forming part of the Cherwell Local Strategic Partnership. The Partnership has many aims among which to deliver environmental benefits within Cherwell, promoting and facilitating climate change mitigation and adaptation measures, raising awareness of climate change and associated risks and opportunities across all sectors of Cherwell, developing and promoting action within each partner organisation to reduce its carbon emissions. Regular attendees include: Cherwell District Council, NHS Oxfordshire, Banbury Town Council, Banbury Chamber of Commerce, Bicester Town Council, Bicester Chamber of Commerce, Bicester Youth Councillor, Kidlington Parish Council, Oxfordshire Rural Community Council, Thames Valley Police.

The action plan for reducing the District's Carbon Footprint is as follows:

- To work with local partners to raise awareness and encourage take up of low carbon and renewable energy technologies and CO_2 saving actions by residents.

- To actively encourage uptake of home energy efficiency measures and seek to provide additional support to those most in need.

- To work with industry to embrace the opportunities of a low carbon economy by developing green knowledge and skills and supporting innovation in green technologies.

- To encourage the take up of Green Travel Plans with Cherwell businesses and organisations.

- To work with the community in conjunction with the Oxfordshire Waste Partnership to further increase recycling and promote and facilitate waste minimisation and reuse.

- To work with local partners to gain better understanding of what a changing climate means for the Cherwell community and to improve.

Eco Bicester – One Shared Vision

December 2010
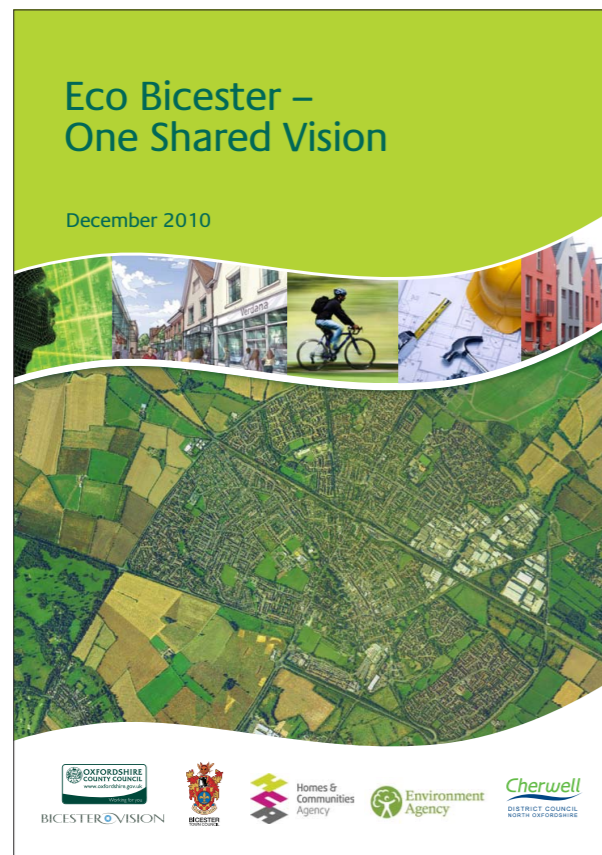
This document sets out the shared vision of the Eco Bicester Strategic Delivery Board (SDB). It contains the aims, aspirations and ambitions for the town of Bicester as a whole as it continues to grow in the long term.

In terms of transport and movement the vision is to encourage walking and cycling as the first choice for travel within the town to improve health, reduce carbon emissions and improve the quality of the environment. Key components in achieving this strategy are:

Travel by means other than the car

• Promote walking, cycling and public transport within the town

• Work with employers and educational facilities to encourage sustainable travel

• Support designs for new development which support walkable neighbourhoods, public transport and provide good access to day to day services locally

• Improve non-vehicular access links to town centre facilities and other important destinations from across the town

• Give priority to walking, cycling and public transport where possible

• Provide high quality cycle parking and storage

• Provide improved bus service information

• Encourage car clubs and car share schemes where occasional journeys by car are necessary

Travel Planning

• Ensure schemes and initiatives to promote sustainable travel planning (as set out in the Department for Transport's Sustainable Travel Towns document) are developed in more detail for Bicester

• Provide innovative approaches to personal travel, including reduced energy consumption, low emission vehicles

Improvements to the existing transport network

• Ensure sustainable locations for development and highway improvement schemes as part of the 'Bicester Integrated Transport and Land Use Study' commissioned by Oxfordshire County Council in partnership with Cherwell District Council

• Provision of improvements to walking and cycling provision in the town

• Support Chiltern Railways' improvements to the Bicester to Oxford line and services to London

• A perimeter road at 'South West Bicester' to relieve congestion in Bicester and reduce 'rat running' through surrounding villages

• Improvements to Junction 9 of the M40 to unlock the employment growth potential of the town (Phase 1 started in August 2010)

• Encourage electric vehicles and supporting infrastructure

Open Space and Green Infrastructure

Provide multi-functional green infrastructure incorporating footpaths and cycle paths, sports and recreational space, play, ecological enhancement, adopted sustainable urban drainage systems and flood alleviation

Eco Bicester development standards: Transport

Travel should support people's desire for mobility whilst achieving the goal of low carbon living. Options such as walking, cycling, public transport and other sustainable options should be prioritised, thereby reducing residents' reliance on private cars, including techniques such as filtered permeability. To achieve this, homes should be within ten minutes' walk of frequent public transport and neighbourhood services. The principle of co-location is supported to encourage the efficient use of the sustainable transport options available and reduce the need for individuals to travel by private car.

The following criteria should be considered in terms of travel planning:

- How the town's growth will enable at least 50 per cent of trips originating in North West Bicester or on any other large mixed use development, to be made by non-car means, with the potential for this to increase over time to at least 60 per cent

- Good design principles, drawing from Manual for Streets, Building for Life and community travel planning principles

- How transport choice messages, infrastructure and services will be provided from 'day one' of residential occupation, and

- How the carbon impact of transport in the eco-town will be monitored, as part of embedding a long term low-carbon approach to travel within plans for community governance.

- Options for ensuring that key connections around Bicester do not become congested as a result of the development, for example by extending some aspects of the travel plan beyond the immediate boundaries of the site, and

- Ultra low carbon vehicle options, including electric car schemes should be considered to help achieve a sustainable transport system.

- Bicester should grow in a way that supports children walking or cycling to school safely and easily. A maximum walking distance of 800m from home to the nearest school for primary school aged children will be sought.

	Oxford	Larger Towns	Smaller Towns	Rural Oxfordshire
Improve the condition of local roads, footways and cycleways, including resilience to climate change	Medium	Medium	High	High
Reduce Congestion	High	High	High	Low
Reduce casualties and the dangers associated with travel	Low	Low	Low	Medium
Improve accessibility to work, education and services	Low	Low	Medium	High
Secure infrastructure and services to support development	Medium	Medium	Medium	Medium
Reduce carbon emissions from transport	Medium	Medium	Medium	Medium
Improve air quality, reduce other environmental impact and enhance the street environment	Medium	Medium	Low	Low
Develop and increase the use of high quality, welcoming public transport	High	High	Medium	Medium
Develop and increase cycling and walking for local journeys, recreation and health	High	High	High	High

Figure A1.4: Transport Investment Priorities

Oxfordshire
Local Transport Plan
2011 -2030

April 2011

Chapter 1: Our Ambitions

Oxfordshire is a vibrant county where a thriving economy blends successfully with a high quality environment. Oxford is famous the world over as a seat of learning but today the county's fame stretches beyond academic excellence to the pivotal role it plays in international publishing, bio-technology, car manufacture and motor sport. The county has consistently low unemployment and is one of Europe's most prosperous areas.

Oxfordshire has a well-developed network of major roads, railways and high quality bus services. However, there are several critical pinch points – on the A34 Trunk Road, especially between Didcot and M40; on the A40 between Witney and Headington; around the Oxford Ring Road; on the rail corridor through Oxford; and on routes in and around our main towns. This Plan aims to tackle these problems, in the context of delivering local economic growth.

As part of all this, opportunities will be taken to develop a low carbon economy and innovative solutions through promotion of high quality public transport (including smartcard ticketing), provision for low emission / electric vehicles (including charging points). This will be complemented by considering travel behaviour, targeting personalised travel planning, promoting and incentivising car sharing and working with key partners such as local businesses on travel planning.

Four local transport goals were identified:

• to support the local economy and the growth and competitiveness of the county;

• to make it easier to get around the county and improve access to jobs and services for all by offering real choice;

• to reduce the impact of transport on the environment and help tackle climate change;

• to promote healthy, safe and sustainable travel.

It was acknowledged at an early stage in the Plan's development that needs and priorities vary across the county; this has resulted in an approach which breaks the county down into four types of settlement. Bicester is identified as a "larger town".

Of the infrastructure schemes the following strategic transport schemes were identified in the Local Investment Plan as being necessary to support development in the short term:

• Chiltern Railways Evergreen 3 Project

• East-West Rail (western section)

• Bicester park and ride

• M40 Junction 9 improvements

• SW Bicester perimeter road

• Transport improvements at and around Bicester

The Oxfordshire Growth Arc comprises three priority areas of economic growth, enterprise and housing development in Oxfordshire over the next twenty years. This is an evolution of the County's growth strategy into one that is business and economy led, aligned with aims of the Oxfordshire Local Enterprise Partnership. It has Oxford at the centre of a functionally interdependent City region, complemented by significant economic expansion at Bicester to the north and the Science Vale UK area to the south. The Growth Arc

has a particular emphasis on the hi-tech, high skill science-based and research & development sectors that will be the engine of future growth in the UK.

Bicester

A dynamic, fast growing urban centre with significant proposed business growth, focused on quality employment (15-20,000 jobs), supported by retail and housing development (including an eco-town proposal), that could see a doubling of population to 60,000 by the 2030s;
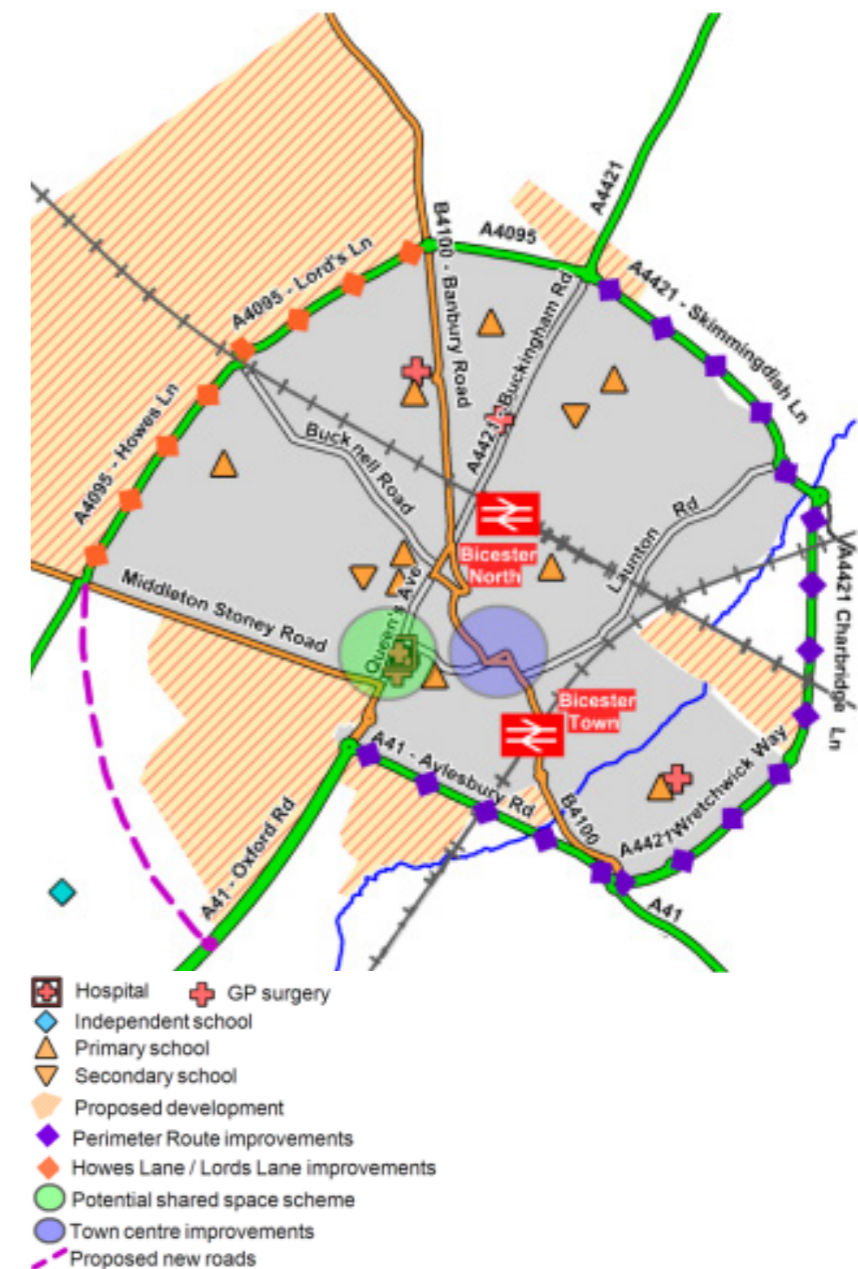
Figure A1.5: Future Developments in Bicester

Appendix 1

Significant business and residential development will lead to a step change in the size, function and importance of Bicester – 3,000 jobs are proposed for Bicester Business Park alone, a comprehensive redevelopment of the town centre is underway and consolidation of military activity is enabling the redevelopment of the MODs Graven Hill site. Bicester has unprecedented connectivity for a settlement of this type – close to the M40 (J9), at a rail "crossroads" of two major strategic routes and with good strategic bus links to central Oxford and elsewhere. Infrastructure needs to keep pace with and enable development – an overall masterplan for the area has been jointly developed by the county and district councils to help deliver this.

The aim is to drive Bicester forward for the next 20 years, during which time it is predicted to become the county's largest town. This is to be achieved by:

• Unlocking growth through delivery of key infrastructure as part of a strategic traffic network solution, for example stage 2 of the M40 J9 upgrade is required to enable Bicester Business Park to be fully developed.

• Developing and securing funding for future proposals – for example upgrading the Eastern Perimeter Road and developing a Park & Ride facility.

• Sustainable growth through development and implementation of connections to enhanced rail network and promote bus travel.

Chapter 7: Improving Accessibility

Objective 4 - Improve accessibility to work, education and services

The core objective for accessibility is to allow people to access the services they need to fully participate in the activities of the county; this will bring benefits both in terms of reducing social exclusion and developing the economy of the county.

Our strategy for improving accessibility includes:

• Improving the county's network of bus services

• Improving the county's walking and cycling networks

• Ensuring that services people need, such as healthcare, are accessible to all, including people with disabilities

• Improving access to and use of the county's waterways and countryside

A consistent policy of promoting public transport over the past quarter century has created a culture of bus use in Oxfordshire which is second to none among English rural counties. Continuing promotion of bus use will be essential to meet the council's objectives over the next two decades.

Oxfordshire has a large number of community transport schemes in operation. These range from car schemes whereby volunteers provide transport using their own cars, through to schemes providing shared minibuses to local groups, to schemes providing regular timetabled transport services similar to a conventional bus. Most community transport schemes in Oxfordshire are self-financing, but rising costs and legislative requirements are becoming a burden for some.

Parking policy is particularly important for disabled people, whether as drivers needing priority parking places, as users of the footway where obstruction by inappropriately parked vehicles is a hazard or as bus users needing close and level access onto the bus which can be impeded by parking at bus stops. Oxfordshire County Council will enforce parking regulations where it can do this effectively and encourage its district partners to do the same.

Over the last ten years the number of licensed hackney carriage and private hire vehicles has risen across four of Oxfordshire's five districts. The Vale of White Horse alone has had a reduction in the number of private hire vehicle licences since 2001. It is likely that the number of licensed hackney carriages and private hire vehicles in Oxfordshire will rise steadily in the next twenty years. Areas that are anticipating future growth such as Bicester, may experience a greater increase in taxis and private hire vehicles given the high number of new houses planned.

Chapter 9: Carbon Reduction

Objective 6 - Reduce carbon emissions from transport

Our core objective for carbon dioxide reduction is principally focused on encouraging trips to either not be made, or to be made by less carbon intensive transport modes.

Our policies to reduce congestion and promoting public transport, walking and cycling will also have an impact on meeting this objective.

Our strategy for carbon reduction includes:

• promotion of modal switch by encouraging low and non-carbon travel;

• the continued promotion and development of travel planning and actions to influence travel choice;

• providing for low and zero carbon vehicles.

Most vehicles emit carbon dioxide. The amount emitted depends on the type of vehicle used and how that vehicle is driven. In a French study, the average emissions per person kilometre of different vehicle types were shown to be:

CO^2 emissions (g/km per person)	Mode
0	Walking/Cycles
20	Train/Tram
65	Moped
80	Bus
85	125cc Motorcycles
115	Car (unleaded fuel)
115	400cc Motorcycle
133	Car (Diesel fuel)
160	Large Displacement Motorcycle
205	Sports Utility Vehicles (4x4)
230	Small Truck (less than 3.5 tonnes) Diesel

Figure A1.6: carbon Emissions of Different Modes of Transport

Walking and cycling are virtually carbon-free forms of transport and encouraging and trips made by these modes rather than by private vehicles will have a major role to play in local carbon reduction.

The planning system can play a major role in the encouragement of walking and cycling in new developments by encouraging developers to use designs where the most common journeys are shorter than might otherwise be the case and by providing convenient routes for pedestrians and cyclists between origins and destinations of trips.

Oxfordshire's level of car use on school journeys is one of the lowest in the South East and below that of most comparable shire authorities nationally. The results of school travel planning have varied widely; the most successful schools are those with a clear and enthusiastic commitment to reducing car use.

Workplaces are second only to schools as an established focus for travel planning. Measures for workplace travel planning include:

• working with organisations and businesses particularly in areas identified as important to Oxfordshire's economic prosperity; and

• providing advice to organisations and businesses on reducing car trips and on travel plan production, implementation and management, when appropriate.

Residential travel planning begins with the siting of new housing as well as the design of the built environment. It is therefore a mixture of personal travel planning, developer guidance, conditions on planning permissions and land use strategy. Distance is the fundamental factor determining choice of travel mode: if housing is further from workplaces, schools, shopping or public transport then more car journeys will be more likely. The design of the built environment can facilitate or hinder direct access by walking cycling and public transport. No amount of promotion of active modes will be likely to overcome serious flaws in the built environment.

Personal travel planning is a targeted marketing technique, providing travel advice and information to people based on an understanding of their personal trip patterns and needs. The techniques can be targeted at specific areas and are likely to be most effective where alternatives to car travel are already good, or immediately following major improvements.

Chapter 10: Reducing the Environmental Impact of Travel

Objective 7 - Improve air quality, reduce other environmental impacts and enhance the street environment

Our core objective for the environment is to ensure that transport contributes to improvements in the attractiveness and environmental quality of the county and that this is taken into account in decisions on economic development of the county.

Our strategy for meeting these objectives includes:

• developing air quality action plans and low emission strategies, in conjunction with district councils, to deal with areas where air quality problems have been identified;

• implementing strategies to address noise, vibration and other impacts, in conjunction with district councils, where appropriate;

• working with industry and local communities to deal with problems caused by inappropriate lorry traffic;

• developing and implementing strategies to improve the public realm, especially in town and local centres; and

• developing and implementing strategies to deal with the impacts of transport on the environment, particularly on landscape and biodiversity.

Air quality is monitored by District Councils in line with the National Air Quality Strategy. To date (2012) eight areas in Oxfordshire have been declared as Air Quality Management Areas (AQMAs) where the levels of nitrogen dioxide (NO2) exceed the objective levels set out in the strategy. In all of these areas the major source of these exceedances has been identified as road traffic. Monitoring by Cherwell and South Oxfordshire district councils currently suggests that additional AQMAs may be declared in the future in Banbury, Bicester, Didcot and Kidlington.

Oxfordshire has had considerable success in encouraging bus operators to reduce the impact of bus operations on air quality, in particular through encouraging drivers to switch off engines and encouraging operators to introduce (or retrofit) vehicles with improved emission standards.

The most effective means of reducing the amount of noise generated is to reduce the amount of traffic on the road in question. If this is not possible then adjusting the mix of traffic by reducing the amount of heavier vehicles may also have an impact. In some cases the amount of noise generated may be reduced by changing the characteristics of the road surface or by removing surface defects such as cracks or potholes.

Policy on freight needs to balance the economic benefits of efficient movement of goods and our desire for convenient access to those goods against the range of potential adverse impacts. Lorry numbers

have grown in recent years as a result of the adoption of business practices such as just in time deliveries and also through the growth in international goods movements. There may be scope to reduce the need for freight transport in the longer term, although this would require wider changes in the way that society and the economy operate.

A good public realm should engage people and encourage people to spend time there. It should encourage walking, promote health, encourage community cohesion and act as a deterrent to crime. It is important for the local economy, enhancing the shopping and leisure experience to help town centres or village shops compete with out-of-town retail and leisure parks. A high quality public realm can help businesses in an area. Investment in public spaces can boost tourism and visitor numbers, enhance an area's image, improve its business productivity and attract investment.

While there is a great deal of potential for creating good quality street environments by removing parking, proposals such as this are often controversial with shopkeepers and local residents. Many other forms of street scene improvement, including pedestrianisation, are often initially opposed locally, although the evidence is that such schemes bring substantial improvements to the local economy in the medium and long term.

Chapter 11: Public Transport

Objective 8 – To develop and increase the use of high quality, welcoming public transport

Oxfordshire has a successful public transport model, particularly for journeys into the centre of Oxford. Our core objective is to extend this model to other parts of Oxfordshire, including new developments to provide the whole county with a real choice of attractive, frequent and welcoming public transport.

Our strategy for increasing public transport use includes:

• providing infrastructure to allow attractive and reliable bus services to run across the county in order to reduce congestion and the associated environmental impacts;

• publishing comprehensive public transport information and promoting public transport;

• working with bus companies to improve the experience of bus travel;

• working with the rail industry to develop rail services, stations and railway enhancements to encourage increased rail use; and

working with district councils to ensure that taxis are available to complement public transport at times when travel choices are limited.

Where significant employment, service/retail or residential developments are proposed, but these are not situated adjacent to a Premium Route, then developers will be expected to provide appropriate levels of funding to deliver an agreed network of Bus Routes linking the development with nearby towns and transport hubs. These 'Development Routes' will operate to specified frequency levels and hours of operation during the evenings and on Sundays. These routes will be designed to attract significant numbers of passengers and will be complemented with appropriate travel plan measures, with the aim of achieving a commercial self-sustaining service after a period of pump-priming funding provided by the developer. For the larger developments, a Premium Route level of bus service will be specified, but for smaller developments, a better-than-hourly level of bus service with seven-day and evening operation will be requested.

Improving access and connectivity to bus stops and other interchanges (e.g. rail stations) from other modes, particularly walking and cycling, is essential to promoting walking and cycling and encouraging increased use of public transport. Oxfordshire County Council will consider access to walking and cycling networks and location of supporting facilities when investigating the siting of new bus stops. Bicester's Bure Place bus station will soon be replaced by a series of bus stops along Manorsfield Road, which will be adjacent to the new retail area. Significant new developments within the Bicester area are expected to generate demand for large numbers of additional buses, so some further modification to bus arrangements will be likely in the future.

Although Oxfordshire County Council has no direct control over the commercial services that bus operators choose to run, we work closely with them to influence services. Quality partnerships with bus operators will have an essential role in delivering service improvements. The benefits are that Oxfordshire County Council's investment in infrastructure is supported by operators investing in new vehicles, improved training and enhanced services.

Figure A1.7: Proposed Strategic Public Transport Network

Alan Baxter

The specific purposes of the rail strategy include:

- explaining how a safe, efficient and easily accessible rail network will help to deliver economic priorities for the county, in particular the creation of new jobs;

- setting out a coherent, evidence-based and realistic set of investments that the County Council would like the rail industry to help us plan and deliver; and

- identifying rail as an integral part of the county, regional and national transport system which provides an alternative to road for passenger and freight movements.

There are a number of strategically important projects that are either committed to being delivered within the next 2-3 years or are currently being planned for future delivery. These include:

- Evergreen 3 - a new half hourly service from Oxford to London (Marylebone) via Water Eaton Parkway and Bicester following the construction of a new railway chord connecting the Oxford-Bicester and London-Banbury lines and the upgrading of the line between Oxford and Bicester (by 2016);

- East West Rail – new passenger services connecting Oxford and the Oxfordshire Growth Arc with Milton Keynes and Bedford, together with a spur to Aylesbury, following a £270 million investment to reinstate the line between Bicester and Bletchley (by 2019).

The Rail Strategy looks at all the rail lines running through Oxfordshire and identifies a number of issues and aspirations at particular stations. These include:

- cycle access and parking - cycle routes to the station need to be planned and implemented to provide a fast and safe means of getting to the station from towns and villages and the Sustrans National Cycle Network;

- station improvements – joint projects and investment to enhance parking and other facilities at key stations;

- pedestrian access – the routes for walking to and from railway stations need to be considered and where appropriate improved, including access for disabled people;

- Station Travel Plans - a station travel plan is a strategy for managing the travel generated by a station with the aim of reducing its environmental impact, typically involving the promotion of sustainable modes of travel.

Chapter 12: Walking, Cycling and Rights of Way

Objective 9 - Develop and increase cycling and walking for local journeys, recreation and health

Walking and cycling provide travel options that have the lowest carbon footprint and few adverse environmental impacts, and they contribute to improving people's health. They can reduce congestion and improve accessibility. Our core objective is to create the conditions where a greater proportion of trips, especially in urban areas, are made on foot or by bicycle.

Cycling in built-up areas with high traffic volumes and speeds can be daunting to novice or 'lapsed' cyclists. Oxfordshire has a comprehensive cycle training education programme for primary school pupils (aged 9 years +) but access to cycle training for younger pupils, teenagers and adults is limited. This lack of training has an impact on cyclists   ability to assert themselves on the road. Appropriate training can dramatically enhance cycling safety, build confidence, and can influence other road users   behaviour. As resources allow, we will develop programmes for teaching better cycling techniques to all age groups.

Chapter 16: Bicester Area Strategy

An update to the Bicester Area Strategy in LTP3 was published in May 2014.

The stated intention of the strategy is to provide the transport infrastructure which supports the aspirations set out in the Local Plan and the iniatives for their implementation in the forthcoming Bicester and North West Bicester Eco-Town Masterplans. This includes tacking the challenges identified in the Bicester Movement Study and those specific to Central Government standards for transport in Eco Towns.

The strategy identifies a series of improvements to increase the overall capacity of transport networks and systems within the locality, enabling them to accommodate the additional trips generated by development; to adapt to their cumulative impact and to mitigate the local environmental impact of increased travel.

The strategy prioritises the requirement to provide high quality access to the strategic highway and railway network to secure business investment and encourage people to make Bicester their home.

The overall objectives are:

- Provide highway infrastructure which effectively reduces current and predicted transport congestion in Bicester;

- Increase highway capacity on perimeter routes to make these attractive to employment and longer distance traffic and thereby reducing the strain on the town centre and central corridor;

- Accommodate proposed strategic rail initiatives, including East West Rail and plans for electrification, and a possible future Rail Freight Interchange, in order to strengthen Bicester's position on the national rail network and maximise access to regional economic centres, such as Milton Keynes;

- Strengthen the town's walking, cycle and bus networks to reduce congestion, improve air quality and ensure good links to local employment opportunities and amenities within the town, as well as transport hubs.

There are three policies for the strategy:

BIC1 – We will seek opportunities to improve access and connections between key employment and residential sites and the strategic transport system by:

- Increasing capacity at Junction 9 of the M40 and supporting plans to improve Junction 10.

- Delivering a strategic perimeter route around the town.

- Working closely with partners to facilitate the delivery of proposed strategic rail initiatives, especially East West Rail.

- Working with the rail industry and developers to deliver solutions at the Charbridge Lane and London Road railway level crossing points.

- Supporting the proposals to secure a potential freight interchange at Graven Hill and working with the district and developers to achieve this.

- Working with developers to improve the A41 Oxford Road, including enhancements to the Pingle Drive junction, new site accesses, new bus stops and footpath and cycleway improvements.

- Creating a Park & Ride facility adjacent to the A41, close to the Vendee Drive junction, to serve Bicester town centre, employment centres and rail stations, Bicester Village and Oxford.

- Providing measures to reduce congestion through the central corridor (from Kings End (B4030) to the 3-arm Field Street, Buckingham Road and Banbury Road roundabout).

- Implementing focused enhancements to the A4421 (between the junctions with Bicester Road and Launton Road) to complement the transport solution at the railway level crossing at Charbridge Lane and facilitate development in the area.

- Improvements to the Buckingham Road / A4221 junction to provide the necessary capacity for the additional trips generated from nearby employment and residential development.

- Increasing capacity at the Howes Lane / Bucknell Road junction and approaches to accommodate the increase in traffic using this route.

- South East Link Road to enable residential and employment growth on the eastern side of the town, especially at the Graven Hill and East Bicester development sites.

BIC2 – We will work with strategic partners to develop the town's walking, cycling and bus networks and links between key development sites and the town centre and railway stations by:

- Enhancing pedestrian, cycle and public transport links to the two railway stations, in particular Bicester Town Station. We will use the opportunities offered by the redevelopment of Bicester Town Station to create a 'state-of-the-art' multi-modal interchange offering high quality facilities for pedestrians, bus users and cyclists, including a cycle hub incorporating hire and repairs.

- Improving Bicester's bus services along key routes to connect residential areas with existing and future employment centres, particularly Graven Hill, North West Bicester, the Launton Road Industrial estate and North-East Bicester Business Park.

- Significantly improving public transport connectivity with other key areas of economic growth within Oxfordshire, through access to high-quality, high frequency services on the core network between Bicester, Oxford and Science Vale.

- Providing improved public transport infrastructure, where there are identified needs arising from strategic development sites.

- Providing new sections of urban pedestrian and cycle routes to better connect residential developments with the town centre and key employment destinations. This includes:

- Public realm improvements in Bicester Market Square and The Causeway to enhance the quality of the pedestrian environment by creating a sense of 'place'.

- Securing green links between proposed development sites on the outskirts of the town and existing Public Rights of Way, providing a series of leisure / health walks.

BIC3 – we will work to get the most out of Bicester's transport network by investigating ways to increase people's awareness of the travel choices available in Bicester by:

- Undertaking travel promotions and marketing measures to complement the wider Bicester Vision place-making initiatives to strengthen the town as a place to live, work and invest in commercial enterprises.

- Developing a coordinated parking strategy in partnership with Cherwell District Council to identify an appropriate balance of parking provision in the town.

- Discourage undesirable routeing of traffic by developing a signage strategy, improving the directional signage on the town's road network by directing strategic traffic away from the town centre.

Appendix 1

Alan Baxter

Appendix 2
Central Corridor Designs

Notes:

INDICATIVE

N

Key:

	Walking/Cycling Space
	Footway
	Carriageway/Path Resurfacing
	Raised Table
	Green Surfacing
	Red Surfacing
	Planting
	Raised crossing point
	Uncontrolled Crossing Tactile Paving
	Crossing Tactile Paving
	Parking Bay Modification
	Sinusoidal Road Hump
	Quietway Route Alignment
	Kerb
	Dropped Kerb
	Yellow Line Marking
	Tree
	Sign & Post
	Lamp Column

Map labels:
- Oxford Road
- Middleton Stoney Road / Oxford Road roundabout
- Kings End / Queens Avenue junction
- Kings End
- Queens Avenue
- Queens Avenue / Bucknell Road / Field Street roundabout
- Field Street
- Banbury Road / Buckingham Road / Field Street roundabout
- Banbury Road
- Chilterns Approach
- Buckingham Road
- Bicester North Railway Station
- Buckingham Road / Churchill Road roundabouts
- Churchill Road
- Churchill Road / Boston Road junction

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Rev	Description	Drawn	Date

Project:
Bicester Travel Town

Title:
Town wide overview

Drawn	Checked:	Date:	Scale at A3:
MP	MP	11/07/2014	NTS

Status:
DRAFT

Drawing No:	Revision:
SUS/SE/Bic/SK19	

Notes:

INDICATIVE

N

Key:

	Walking/Cycling Space
	Footway
	Carriageway/Path Resurfacing
	Raised Table
	Green Surfacing
	Red Surfacing
	Planting
	Raised crossing point
	Uncontrolled Crossing Tactile Paving
	Crossing Tactile Paving
	Parking Bay Modification
	Sinusoidal Road Hump
	Quietway Route Alignment
	Kerb
	Dropped Kerb
	Yellow Line Marking
	Tree
	Sign & Post
	Lamp Column

A	Zebra's added, link path to new development added	MP	04-07-14
Rev	Description	Drawn	Date

Project:
Bicester Travel Town

Title:
Middleton Stoney Road /
Oxford Road
Junction Amendments

Drawn:	Checked:	Date:	Scale at A3:
MP	MP	12/06/2014	1:500

Status:
DRAFT

Drawing No:	Revision:
SUS/SE/Bic/SK01	A

Path link to new development to link into proposed shared facility

Widen existing path to 3.5m up to existing crossing. Note ground falls away at this point

Realign kerbline on approach / exit to roundabout. Return to verge where appropriate

New cycle zebra crossing, 5m wide

Old splitter island to be removed

Reconfigure current roundabout and tighten up junction geometry. New roundabout 5m internal diameter with 1.5m over run strip. Carriageway reduced to single circulatory lane 5m wide, Single lane approaches 3.65m wide.

Old kerb alignment

New splitter island designed to allow provision for future uncontrolled crossing point

New 3.5m wide shared use path to extend to existing bus stop

MIDDLETON STONEY ROAD

Widen existing path to 2.50m & improve link into Finchley Lane

New 3m wide shared use footway link

Garage accesses to be considered. Potential private landowners

Reduce width of on street parking lay-by to 2.50m to enable road alignment to be shifted across and space created for new 3.50m wide shared use footway. Road width reduced to 6.50m wide

New shared use paths to link into existing toucan crossing

Re position existing bus shelter or diver path to rear of existing arrangement. May require tree removal

BUS STOP

BUS STOP

Widen existing path to 3.5m

OXFORD ROAD

Old splitter island to be removed

Old kerb alignment

Old splitter island to be removed

New 5m wide cycle zebra crossing link to new DfT designs, with 3m pedestrian area and parallel 2m wide cycle crossing

School Access

KINGS END

Old kerb alignment
Amend radii to 4.5m

Bicester Travel Town

Kings End / Piggy Lane Shared Use Footway

Reduce width of on street parking lay-by to 2.50m to enable road alignment to be shifted across and space created for new 3.50m wide shared use footway. Road width reduced to 6.50m wide

Consider full closure of Kings Avenue junction, retain commercial access to existing business unit

Existing signalised crossing is pedestrian priority only, and below minimum acceptable width for pedestrian & cycle crossing facility.

Amend junction radii to 4.5m

New cycle off slip

Existing Kwik Fit access to be closed and footway converted to shared use to enable new toucan crossing to located closer to desire line link into Piggy Lane.

New vehicle entrance / exit into Kwik Fit

Existing Kwik Fit access to be closed & returned to footway.

Old kerb alignment

New 3.50m wide shared use footway

Hospital Access

Amend radii to 2m

Old kerb alignment

Move existing Piggy Lane road closure to back edge of footway.

shared use path minimum width 3.5m

Old kerb alignment

Reduce carriageway width on Kings End to 6.5m, with extra space generated used for shared use path

Old kerb alignment

shared use path minimum width 3.5m

KINGS AVENUE

PIGGY LANE

KINGS END

KINGS END

KINGS END

Key:

	Walking/Cycling Space
	Footway
	Carriageway/Path Resurfacing
	Raised Table
	Green Surfacing
	Red Surfacing
	Planting
	Raised crossing point
	Uncontrolled Crossing Tactile Paving
	Crossing Tactile Paving
	Parking Bay Modification
	Sinusoidal Road Hump
	Quietway Route Alignment
	Kerb
	Dropped Kerb
	Yellow Line Marking
	Tree
	Sign & Post
	Lamp Column

INDICATIVE

N

Notes:

KINGS END

KINGSCLERE ROAD

QUEENS AVENUE

QUEENS COURT

Private Access

Reduce carriageway width on Kings End to 6.5m, with extra space generated used for shared use path

Tighten geometry to 9m radius, remove pinch point & improve crossing visibility

Public realm improvements consider converting to verge 9m radius on kerbline at junction.

Upgrade existing shared path to 3.50m wide. Add detector loops into path to trigger toucan crossing countdown. Consider detector loops to warn motorists on Woodfield Avenue of cycle movement on crossing.

Consider full closure of Kingsclere Road, access for pedestrian & cycle movements retained, potential emergency access

Existing footway on Queens Avenue to remain as shared use path at current width

Amend junction geometry to 4.5m radii kerbline, to enable shared use path to be shifted away from existing stone wall and improve visibility.

shared use path 3.5m minimum width

New 4m wide cycle priority crossing on raised table. Crossing set back 9m from new junction channel line. A crossing set back 5m from new junction has compromised visibility between motorist on Kings End and cyclist heading North on shared path because of building lines.

Cycle slip off Kings End. Cycles to join Kings End using new priority crossing

Realign existing footway to shared use and reposition 1m of face of existing stone wall

Upgrade existing pelican crossing to toucan and widen to 4m, to give cyclists legal priority to utilise crossing. Detector loops in approach paths to reduce kerbside waiting times for pedestrians and cyclists

Existing footway to be converted to 3.5m wide shared use facility

Highlight crossing point using 400 x 400mm square "Elephants feet" road markings

Existing footway to be converted to 3.5m wide shared use facility

New raised table crossing over Queens Court - non priority because of visibility requirements

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A	Notes added, shared path W side Queens Ave shown	MP	05-07-2014
Rev	Description	Drawn	Date

Project:
Bicester Travel Town

Title:
Kings End / Queens Avenue Junction Amendments & shared use footway

Drawn: MP	Checked: MP	Date: 12/06/2014	Scale at A3: 1:500

Status: DRAFT

Drawing No: SUS/SE/Bic/SK03	Revision: A

Amend junction geometry to 4.5m radii kerbline, to enable shared use path to be shifted away from existing stone wall and improve visibility.

Tighten kerbline radius to 4.5m

QUEENS AVENUE

Existing footway on Queens Avenue to remain as shared use path at current width

BUS STOP

Existing footway to be converted to 3.5m wide shared use facility

Amend existing junction configuration to connect key cycle corridor on closed section of Queens Avenue with proposed shared use path

Raised table junction

QUEENS COURT

BUS STOP

Change in surface type to reiterate bus stop and waiting area.

Existing footway on Queens Avenue to remain as shared use path at current width

Reconfigure existing zebra to become cycle zebra, 2m wide bi directional cycle track alongside 4m wide standard zebra crossing. Design to reflect proposed changes to TSRGD. Place on raised crossing

Existing footway to be converted to 3.5m wide shared use facility

QUEENS AVENUE

Existing footway to be converted to 3.5m wide shared use facility

Existing footway link to Hunt Close

Reduce carriageway width to 6.50m, 2 x 3.25m traffic running lanes.

QUEENS AVENUE

BUCKNELL ROAD

FIELD STREET

LEFT ONLY

INDICATIVE
N

Existing footway to be converted to 3.5m wide shared use facility

Reduce carriageway width to 6.50m, 2 x 3.25m traffic running lanes.

Remove existing bypass slip and return to footway / public realm

Tighten geometry on existing roundabout. Central island diameter 5.66m. Relocate central diameter and reduce circulatory carriageway space to single lane 5m wide, with additional 1m wide over run strip. Entry and exit lane widths reduced to 3.25m

Reconfigure existing zebra to become cycle zebra. 2m wide bi directional cycle track alongside 4m wide standard zebra crossing . Design to reflect proposed changes to TSRGD. Place on raised crossing

New 4m wide pedestrian / cycle uncontrolled crossing on raised table

Tighten junction geometry to 9m & reduce crossing distance for pedestrians

Existing kerbline

Retain left turn only from Bucknell Road into Field Street. Tighten kerb radius to 2m to enable footway width to be increased to 2.8m; maximum achievable without potentially closing Bucknell Road left turn.

Existing kerbline

Reduce traffic lanes to 3.25m in each direction, 6.50m carriageway width overall.

This kerbline to rem...

New CYCLE ZEBRA. 2m wide bi directional cycle track alongside 4m wide standard zebra crossing . Design to reflect proposed changes to TSRGD

Improved area of public realm to include 3.50m wide bi directional cycle track within shared use facility. Use high quality materials and local tree pits / planters to green up area.

Existing kerbline

New 4m wide pedestrian / cycle uncontrolled crossing on raised table

Existing link path is key route for movement into town centre, currently "No Cycling" but consider revising to increase overall permeability from Bucknell Road

3.5m wide shared use path along this side of Field Street. Level differences with existing double height kerbs to be retained where appropriate.

Existing kerbline

Notes:

Key:
Walking/Cycling Space
Footway
Carriageway/Path Resurfacing
Raised Table
Green Surfacing
Red Surfacing
Planting
Raised crossing point
Uncontrolled Crossing Tactile Paving
Crossing Tactile Paving
Parking Bay Modification
Sinusoidal Road Hump
Quietway Route Alignment
Kerb
Dropped Kerb
Yellow Line Marking
Tree
Sign & Post
Lamp Column

| A | Notes amended. Crossings on Field St. position amended | MP | 06-07-2014 |
| Rev | Description | Drawn | Date |

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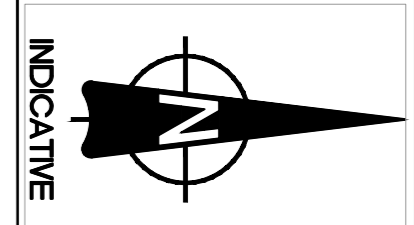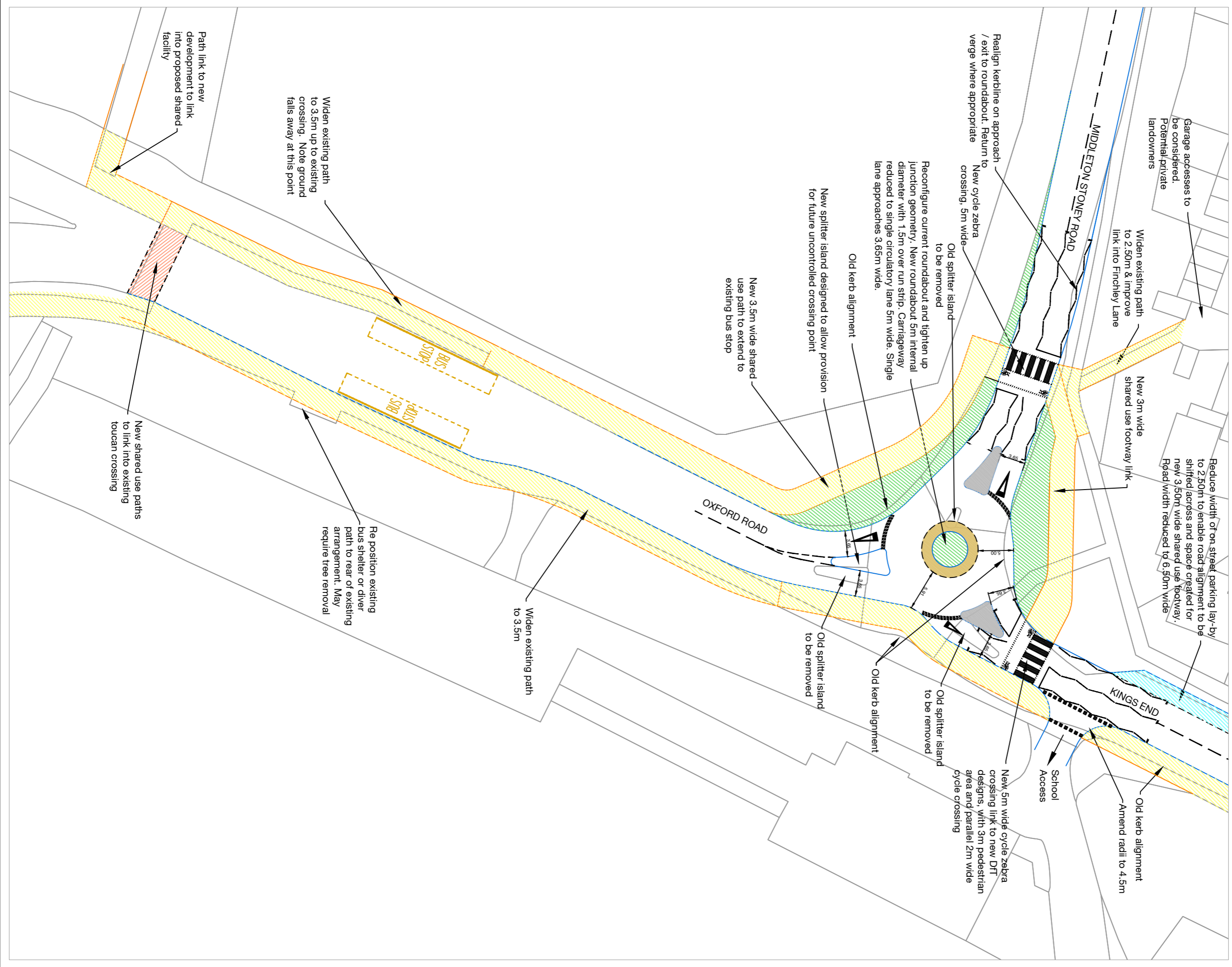0121 633 5500   www.sustrans.org.uk

Project:
Bicester Travel Town

Title:
Queens Avenue /
Field Street
Junction amendments
& shared use footway

| Drawn: MP | Checked: MP | Date: 12/06/2014 | Scale at A3: 1:500 |

Status:
DRAFT

| Drawing No: SUS/SE/Bic/SK05 | Revision: A |

Notes:

INDICATIVE

N

Key:

	Walking/Cycling Space
	Footway
	Carriageway/Path Resurfacing
	Raised Table
	Green Surfacing
	Red Surfacing
	Planting
	Raised table crossing
	Uncontrolled Crossing Tactile Paving
	Crossing Tactile Paving
	Parking Bay Modification
	Sinusoidal Road Hump
	Quietway Route Alignment
	Kerb
	Dropped Kerb
	Yellow Line Marking
	Tree
	Sign & Post
	Lamp Column

Haised tables with sinusoidal approaches preferred.

Kerbline untouched. All dimensions taken from this kerbline

FIELD STREET

Minimise impact of vehicle movements across shared use path and reduce access points into pub car park from 2 entrances to 1.

Kerbline amendments start from this point to tie in with roundabout geometry

Remove existing splitter island and replace with new 4m wide crossing on raised table

Existing kerbline

Cycle slip off

Re-align existing rough track access to residential properties. Consider closing off access at this point and use vehicle access via Hamilton Close.

Cycle off slip from Banbury Road onto improved footway space and enable connection to share use path and North Street link.

New shared use path between crossings, 3.5m wide

Tighten geometry on existing roundabout. Relocate central diameter and reduce circulatory carriageway space to single lane 4m wide, with additional 1m wide over run strip. Entry and exit lane widths reduced to 3.25m

NORTH STREET

ROMAN WAY

Improve existing dropped kerbs to 2.7m wide to connect new shared use area to North Street

Area of public realm improved as part of previous road closure scheme. Adjusted roundabout kerblines to expand area, cycle track to be demarked with setts.

Remove existing splitter island and crossing facility and replace with new 4m wide uncontrolled pedestrian / cycle crossing on raised table

Remove existing splitter island and crossing facility and replace with new 4m wide crossing on raised table

Remove existing splitter island and crossing facility and replace with new 4m wide crossing on raised table

Reduce usable carriageway width to 6.50m using edge of carriageway road mark (solid line) to visually narrow carriageway.

Remove all road markings from Banbury Road, replace with large diagram 1057 cycle logos at 50m intervals.

Traffic calming to be installed at regular intervals along Banbury Road. Raised tables with sinusoidal approaches preferred.

Make Banbury Road 20mph limit

20

Existing zebra crossing potential to be incorporated into a new raised crossing

BUCKINGHAM ROAD

This kerbline to remain untouched. All dimensions taken from this kerbline

New shared use path will require removal of existing trees and reduction in any verge width

New 3.5m wide shared use path

BUCKINGHAM ROAD

NEW STREET

Amend junction radii to 4.5m, and adjust kerblines to suit.

BUS STOP

BUS STOP

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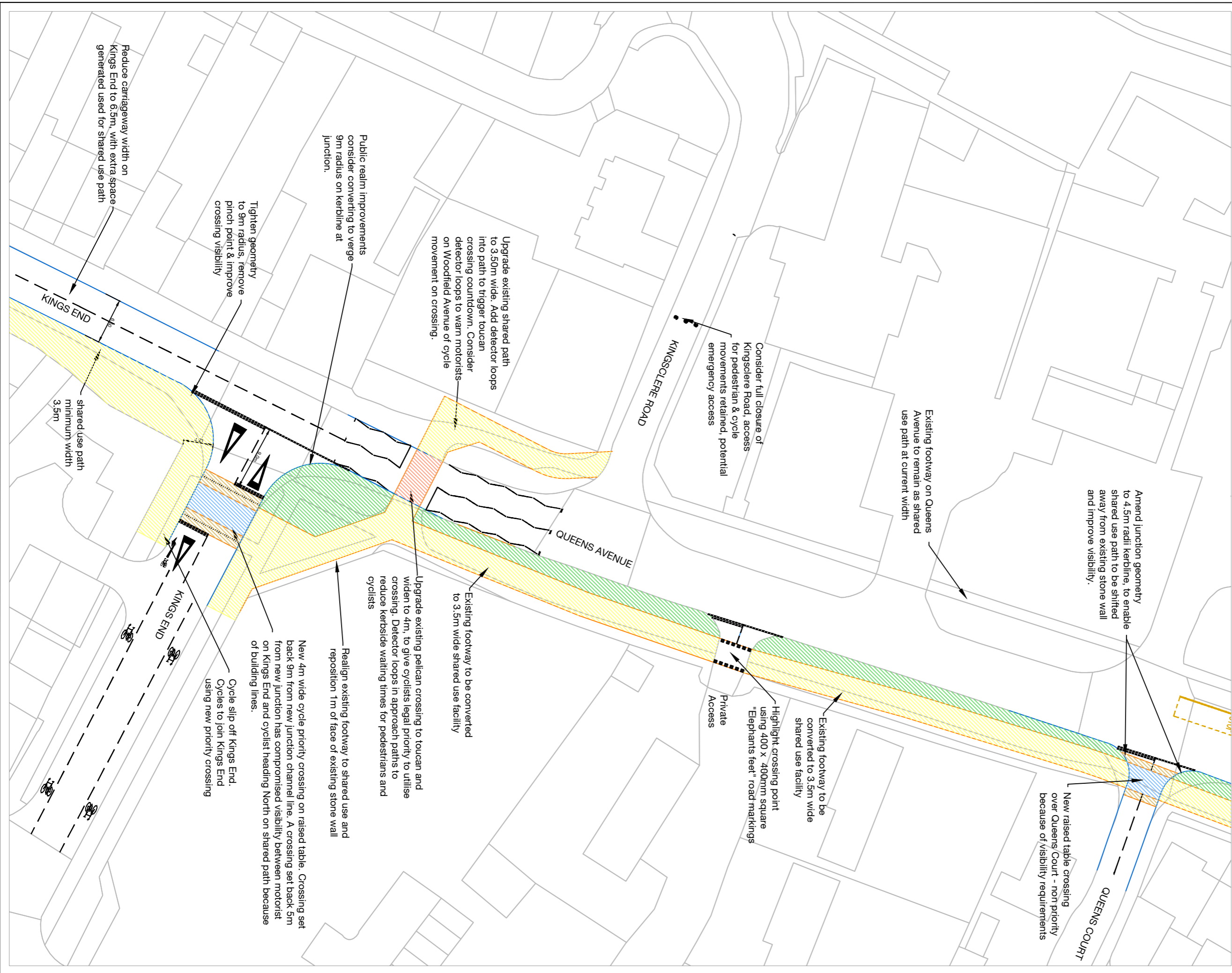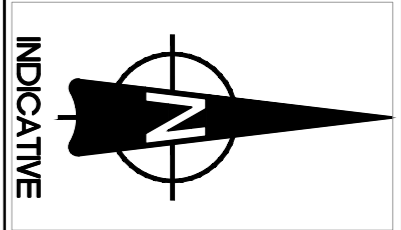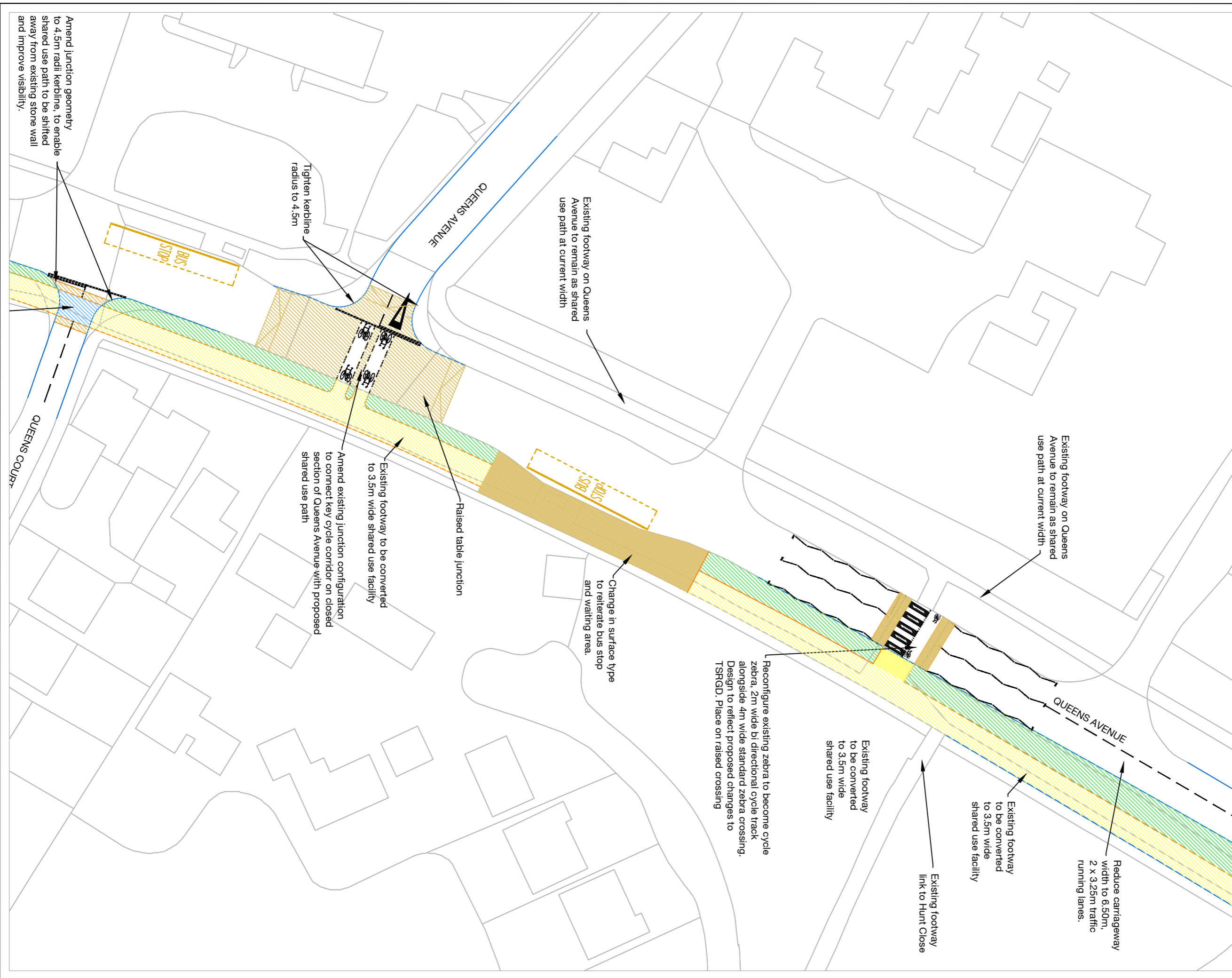0121 633 5500   www.sustrans.org.uk

Rev	Description	Drawn	Date
A	Notes amended, Banbury Rd / Buckingham Rd kerbline amended	MP	06-07-14

Project:
Bicester Travel Town

Title:
Buckingham Road / Banbury Road Junction amendments & shared use footway

Drawn:	Checked:	Date:	Scale at A3:
MP	MP	12/06/2014	1:500

Status:
DRAFT

Drawing No:	Revision:
SUS/SE/Bic/SK06	A

Notes:

INDICATIVE

N

Traffic calming to be installed at regular intervals along Banbury Road. Raised tables with sinusoidal approaches preferred.

Remove all road markings from Banbury Road, replace with large diagram 1057 cycle logos at 50m intervals.

Make Banbury Road 20mph limit

ROWAN ROAD

20

20 BANBURY ROAD

Traffic calming to be installed at regular intervals along Banbury Road. Raised tables with sinusoidal approaches preferred.

Existing footpath link to be upgraded with sealed surface & minimum usable width of 3m

Improve entrance into open space, simplify pedestrian & cyclist movements. Where necessary use double bollards to act as speed control.

Existing toucan crossing, pedestrian and cycle movements to be simplified to link approach paths with "diagonal across" movement to reflect desire lines.

Existing shared use path area to be extended to link to new crossing point

Footpath link

BANBURY ROAD

Existing shared use path link to Bure Park to be upgraded and vegetation management undertaken

Make Banbury Road 20mph limit

20

Improve entrance into open space, simplify pedestrian & cyclist movements. Where necessary use double bollards to act as speed control.

TOWN WALK WEST

PLAYGROUND

Existing kerblines to be retained at current width.

	Key:	
	Walking/Cycling Space	
	Footway	
	Carriageway/Path Resurfacing	
	Raised Table	
	Green Surfacing	
	Red Surfacing	
	Planting	
	Raised table crossing	
	Uncontrolled Crossing Tactile Paving	
	Crossing Tactile Paving	
	Parking Bay Modification	
	Sinusoidal Road Hump	
	Quietway Route Alignment	
	Kerb	
	Dropped Kerb	
	Yellow Line Marking	
	Tree	
	Sign & Post	
	Lamp Column	

A	Centreline road marking removed, notes added	MP	07-07-14
Rev	Description	Drawn	Date

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Project:
Bicester Travel Town

Title:
Banbury Road

Carriageway amendments & shared use footway

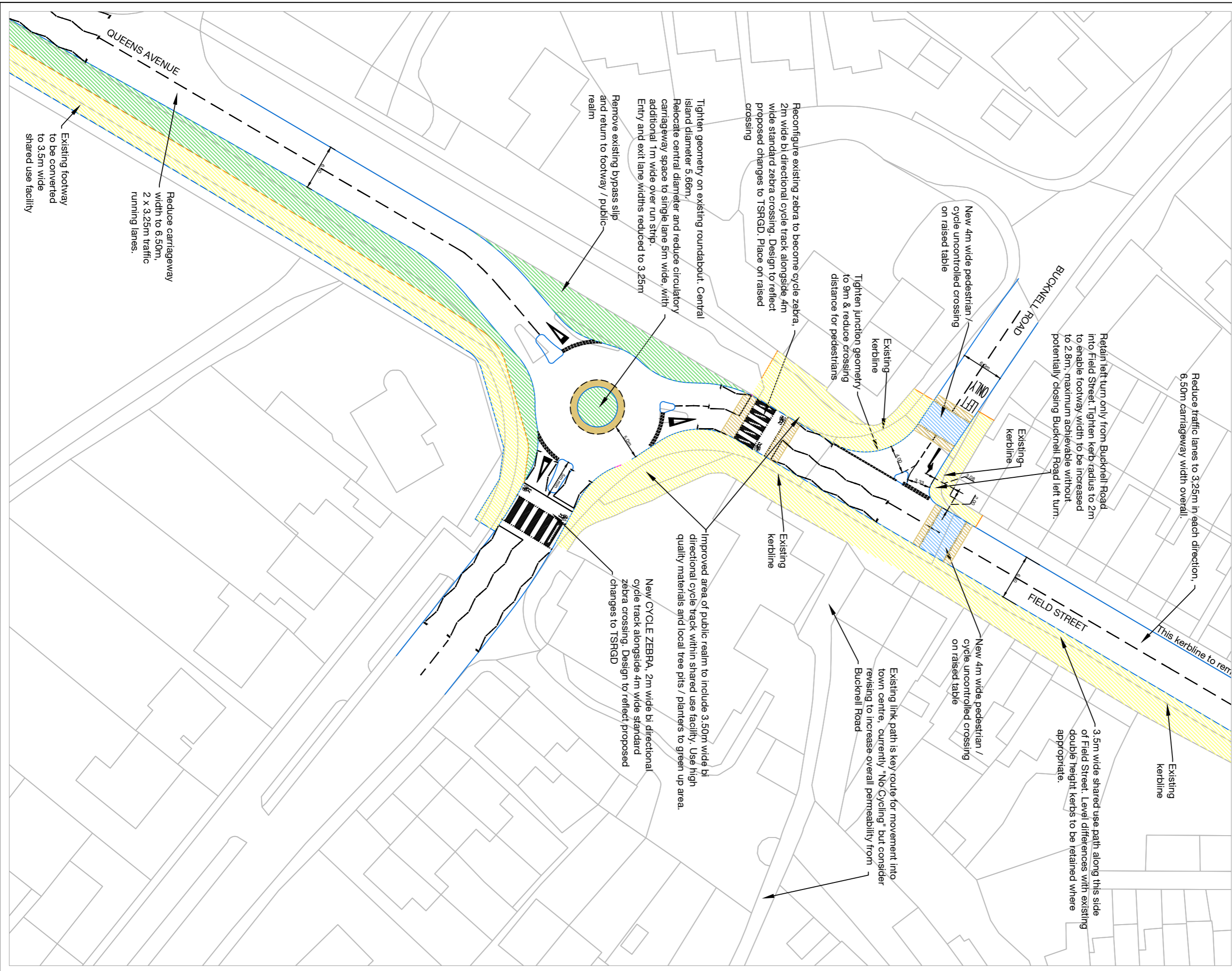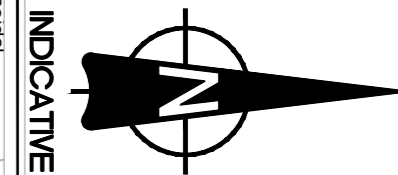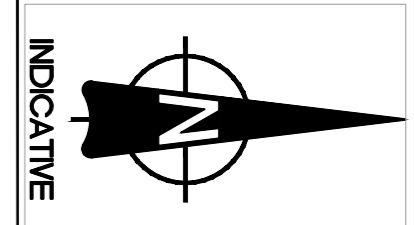| Drawn:	Checked:	Date:	Scale at A3:
MP	MP	12/06/2014	1:500

Status:
DRAFT

Drawing No:	Revision:
SUS/SE/Bic/SK07	A

Notes:

INDICATIVE

N

BUCKINGHAM ROAD

CUT LINE

CHILTERN APPROACH

TOWN WALK WEST

TOWN WALK EAST

BUCKINGHAM ROAD

CUT LINE

Remove short right turn filter lane & return carriageway to 2 traffic lanes, each 3.25m wide.

Amend junction to 4.5m wide access & 2.0m radii kerbs

Tighten kerbline to 20m radius

New 2.4m wide puffin crossing

Tighten kerbline to 4.5m radius

New 4m wide toucan crossing facility to be constructed across the station access road.

Single way working for vehicles under railway bridge, move kerbline to create 4m wide shared use path and reduce road width to 4.25m. Similar solution applied to Warwick Parkway station

Amend kerbline through this section to retain constant 4.25m traffic lane under bridge

Reconfigure existing path entrance & convert footway to shared use

Remove existing dropped kerb access arrangement to prevent cyclists overshooting into carriageway

New 3.5m wide shared use path

existing kerbline pinchpoint in path improved to 3.30m

new section of shared use footway to be constructed across rough ground, reflects desire line of pedestrians. Minimum path width 3.50m

Cycle off slip to link into shared path

Amend existing access kerbline to enable 3 traffic lanes, 3m wide.

Dropped kerbs to permit cycles to rejoin Chiltern Approach

Tighten kerbline geometry to 9m radius

4m wide shared footway under railway bridge with 4.25m wide traffic lane

Merge existing toucan crossing facility and existing station entrance traffic signals into one new set of lights, located to N side of railway bridge.

Set stop line 5m back from new crossing facility.

Reconfigure existing path entrance and convert footway to shared use 3.50m wide.

Key:

	Walking/Cycling Space
	Footway
	Carriageway/Path Resurfacing
	Raised Table
	Green Surfacing
	Red Surfacing
	Planting
	Raised table crossing
	Uncontrolled Crossing Tactile Paving
	Crossing Tactile Paving
	Parking Bay Modification
	Sinusoidal Road Hump
	Quietway Route Alignment
	Kerb
	Dropped Kerb
	Yellow Line Marking
	Tree
	Sign & Post
	Lamp Column

A	New crossing added at station entrance, notes amended	MP	07-07-14
Rev	Description	Drawn	Date

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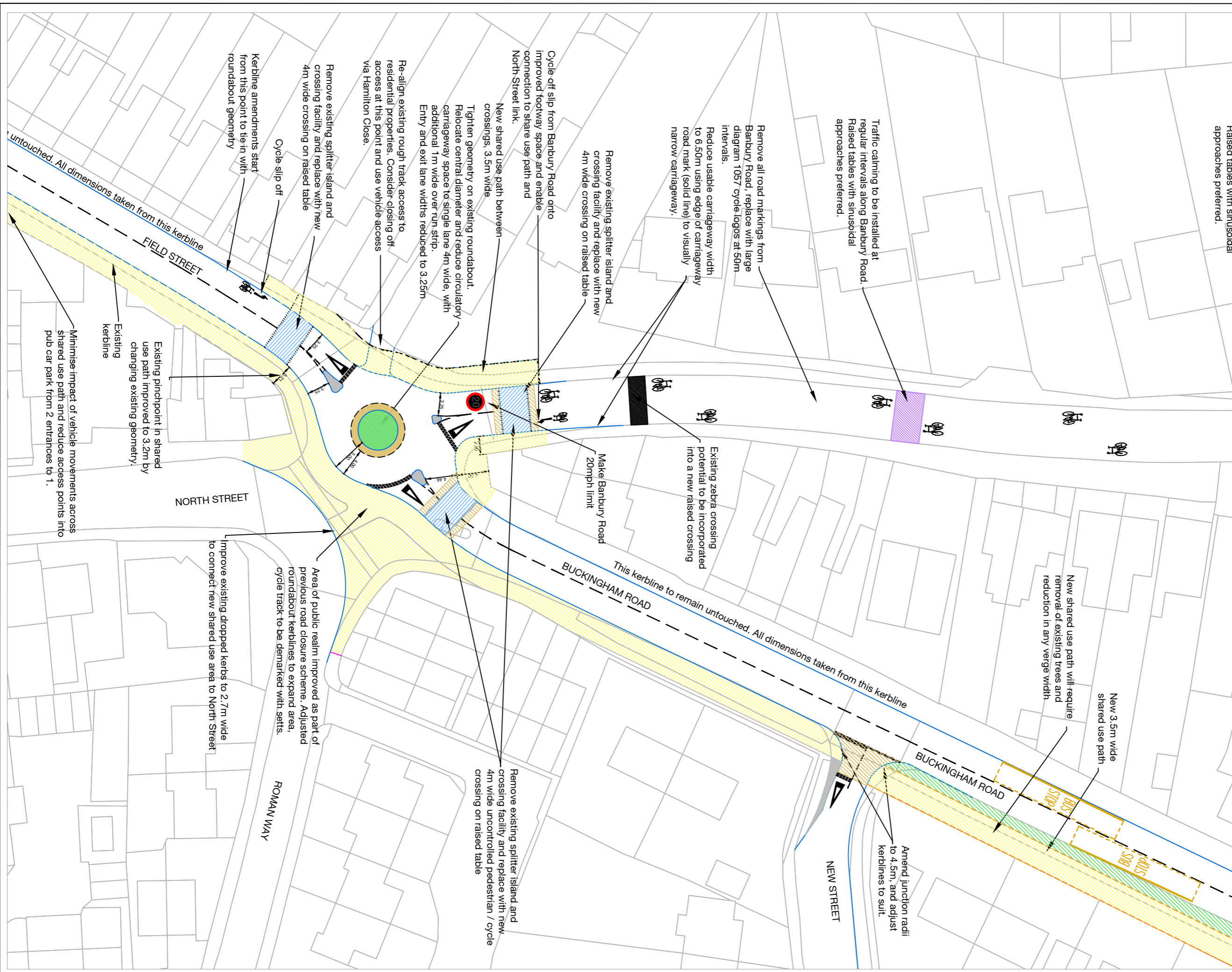0121 633 5500   www.sustrans.org.uk

Project:
Bicester Travel Town

Title:
Buckingham Road / Chiltern Approach

Drawn:	Checked:	Date:	Scale at A3:
MP	MP	12/06/2014	1:500

Status:
DRAFT

Drawing No:	Revision:
SUS/SE/Bic/SK08	A

WOODFIELD ROAD

BUCKINGHAM ROAD

CEDAR DRIVE

BUS STOP

BUS STOP

INDICATIVE

N

This kerbline to remain untouched. All dimensions taken from this kerbline

Reduce width of Buckingham Road to constant 6.50m width and leave 2 equal traffic lanes, 3.25m wide

Mark cycle link across Buckingham Road into Woodfield Road

Buckingham Road / Woodfield Road junction raised table. Reduce kerbline radii into Woodfield Road to 6m

Widen existing footway to 3.5m and convert to shared use

Reduce width of Buckingham Road to constant 6.50m width and leave 2 equal traffic lanes, 3.25m wide

Widen existing footway to 3.5m and convert to shared use

Reposition existing bus stops to give improved visibility to signalised crossing and reconfigured service road access

Widen existing footway to 3.5m and convert to shared use

Tighten junction radii to 4.5m

Cycle priority crossing set 5m back from channel

Key:

	Walking/Cycling Space
	Footway
	Carriageway/Path Resurfacing
	Raised Table
	Green Surfacing
	Red Surfacing
	Planting
	Raised table crossing
	Uncontrolled Crossing Tactile Paving
	Crossing Tactile Paving
	Parking Bay Modification
	Sinusoidal Road Hump
	Quietway Route Alignment
	Kerb
	Dropped Kerb
	Yellow Line Marking
	Tree
	Sign & Post
	Lamp Column

Rev	Description	Drawn	Date
A	Cedar Drive crossing raised. Shared path redrawn	MP	07-07-14

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Project:
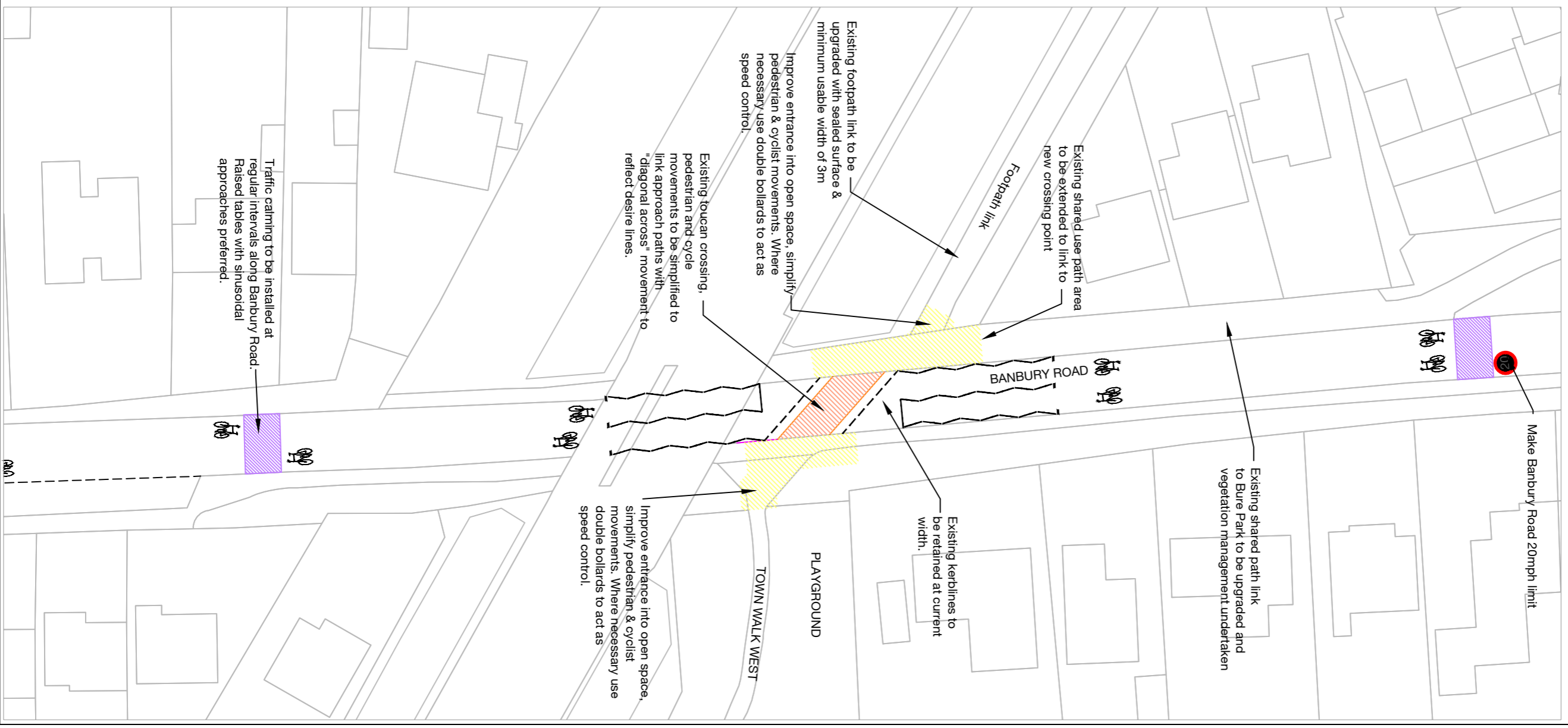Bicester Travel Town

Title:
Buckingham Road / Cedar Drive Shared use path

Drawn: MP	Checked: MP	Date: 12/06/2014	Scale at A3: 1:500

Status:
DRAFT

Drawing No: SUS/SE/Bic/SK09	Revision: A

Notes:

Notes:

INDICATIVE

N

Reposition existing bus stops to give improved visibility to signalised crossing and reconfigured service road access

BUS STOP

Tighten junction radii to 4.5m

Cycle priority crossing set 5m back from channel

Close off access road and create direct link for toucan crossing to feed into residential service road.

Existing signalised crossing to remain as pedestrian only

Widen existing footway and convert to shared use

This kerbline to remain untouched. All dimensions taken from this kerbline

BUCKINGHAM ROAD

New zebra crossing to link residential properties to local shops. Crossing installed at 5m to allow for changes to regulations and permit cycle use on parallel track

entrance to service road, and re-align private driveway access to allow new shared use path to connect

Reduce width of Buckingham Road to constant 6.50m width and leave 2 equal traffic lanes, 3.25m wide

Parallel networks along this section of Buckingham Road, with less confident cyclists using the residential service road rather than Buckingham Road

7.00

Tighten existing access link into residential service road to 7m width. Tighter kerbline radii 3m on junctions.

This kerbline remains untouched

Reduce width of Buckingham Road to 6.50m by realigning this kerbline, increases space at vehicle entry / exit point

5m wide shared use path link to residential service road

Shared use footway to connect with existing residential estate road. Speed control to consist of double row of bollards and will also prevent vehicle access.

Key:

	Walking/Cycling Space
	Footway
	Carriageway/Path Resurfacing
	Raised Table
	Green Surfacing
	Red Surfacing
	Planting
	Raised table crossing
	Uncontrolled Crossing Tactile Paving
	Crossing Tactile Paving
	Parking Bay Modification
	Sinusoidal Road Hump
	Quietway Route Alignment
	Kerb
	Dropped Kerb
	Yellow Line Marking
	Tree
	Sign & Post
	Lamp Column

A	Service road access points closed, notes amended	MP	10-07-14
Rev	Description	Drawn	Date

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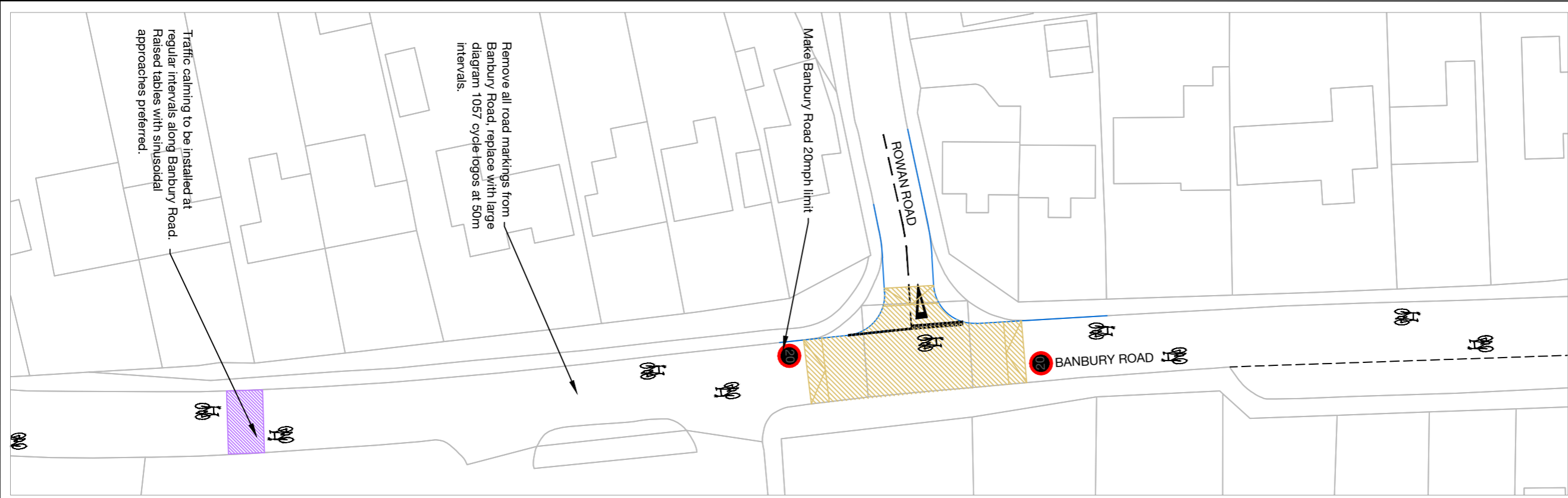0121 633 5500   www.sustrans.org.uk

Project:
Bicester Travel Town

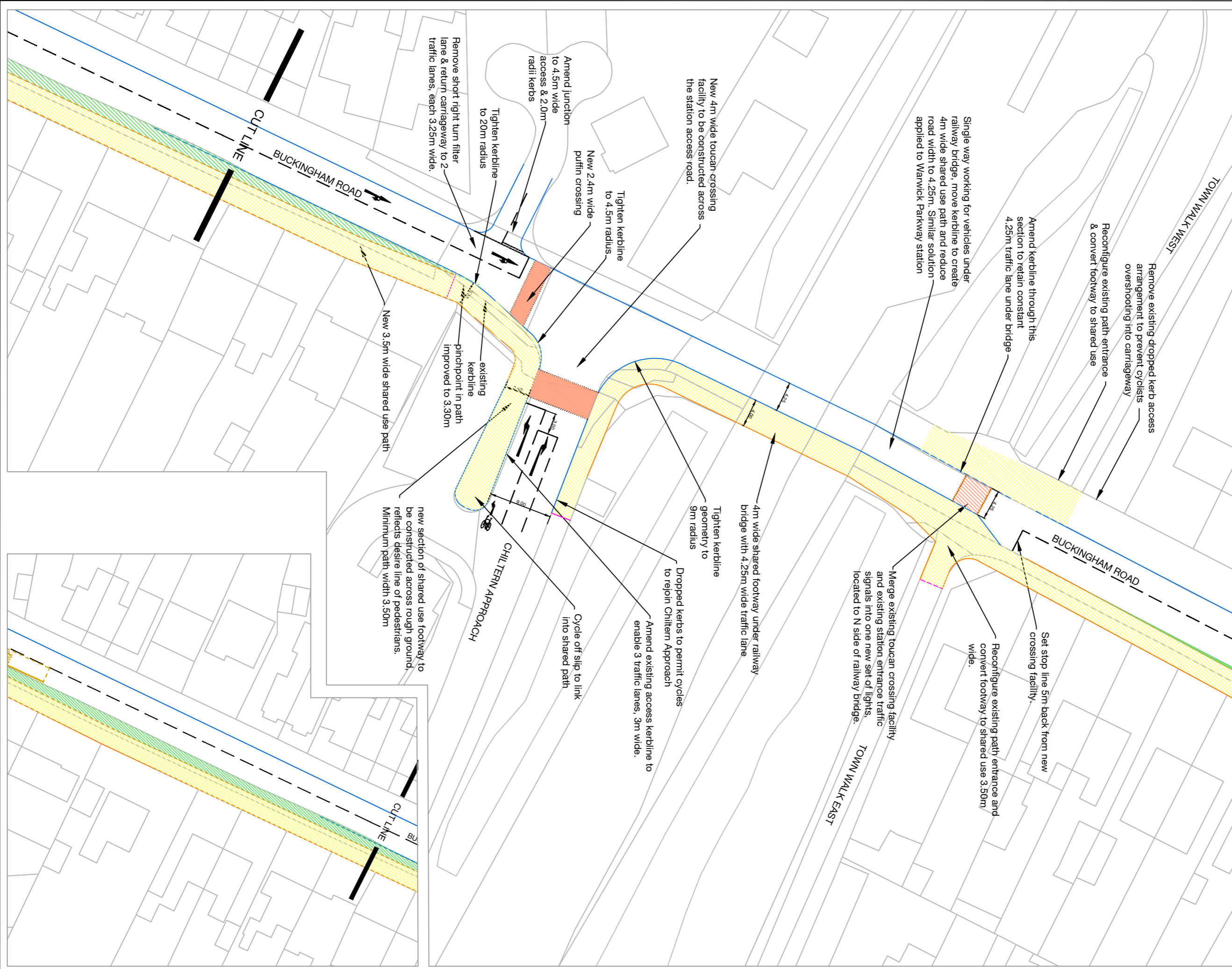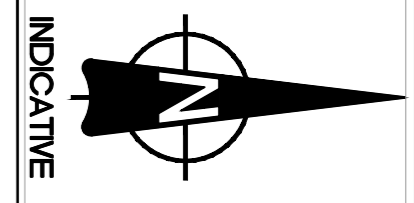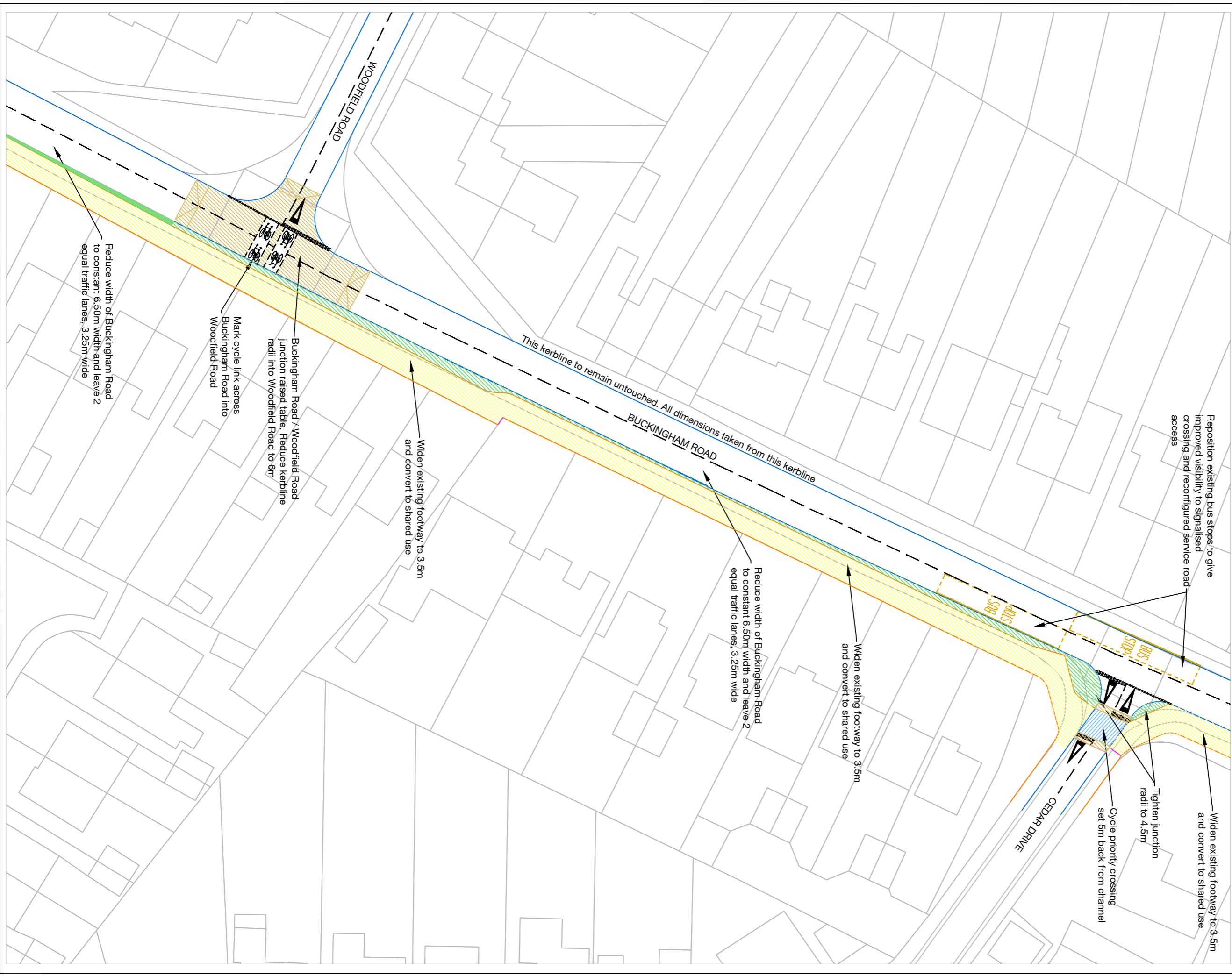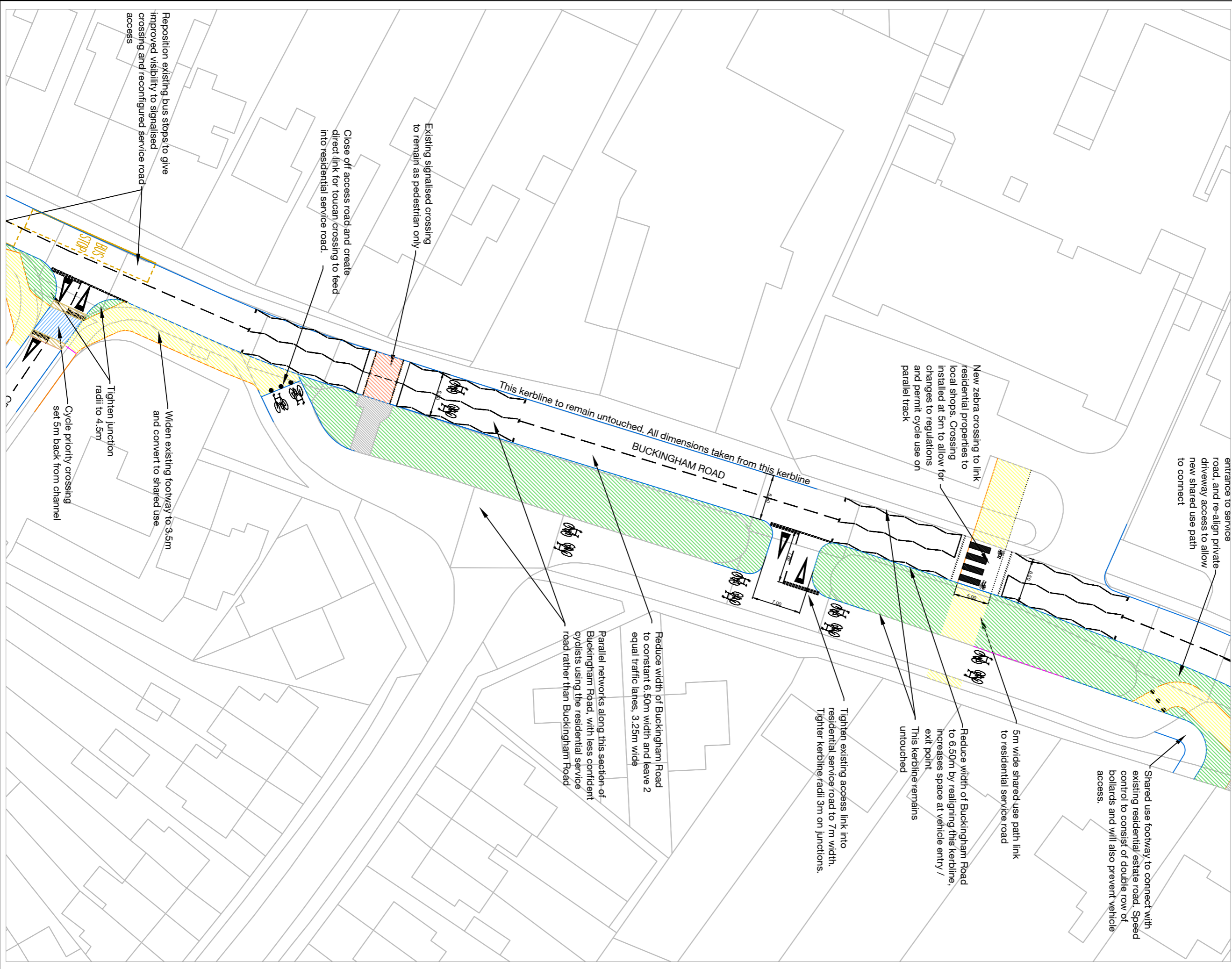Title:
Buckingham Road /
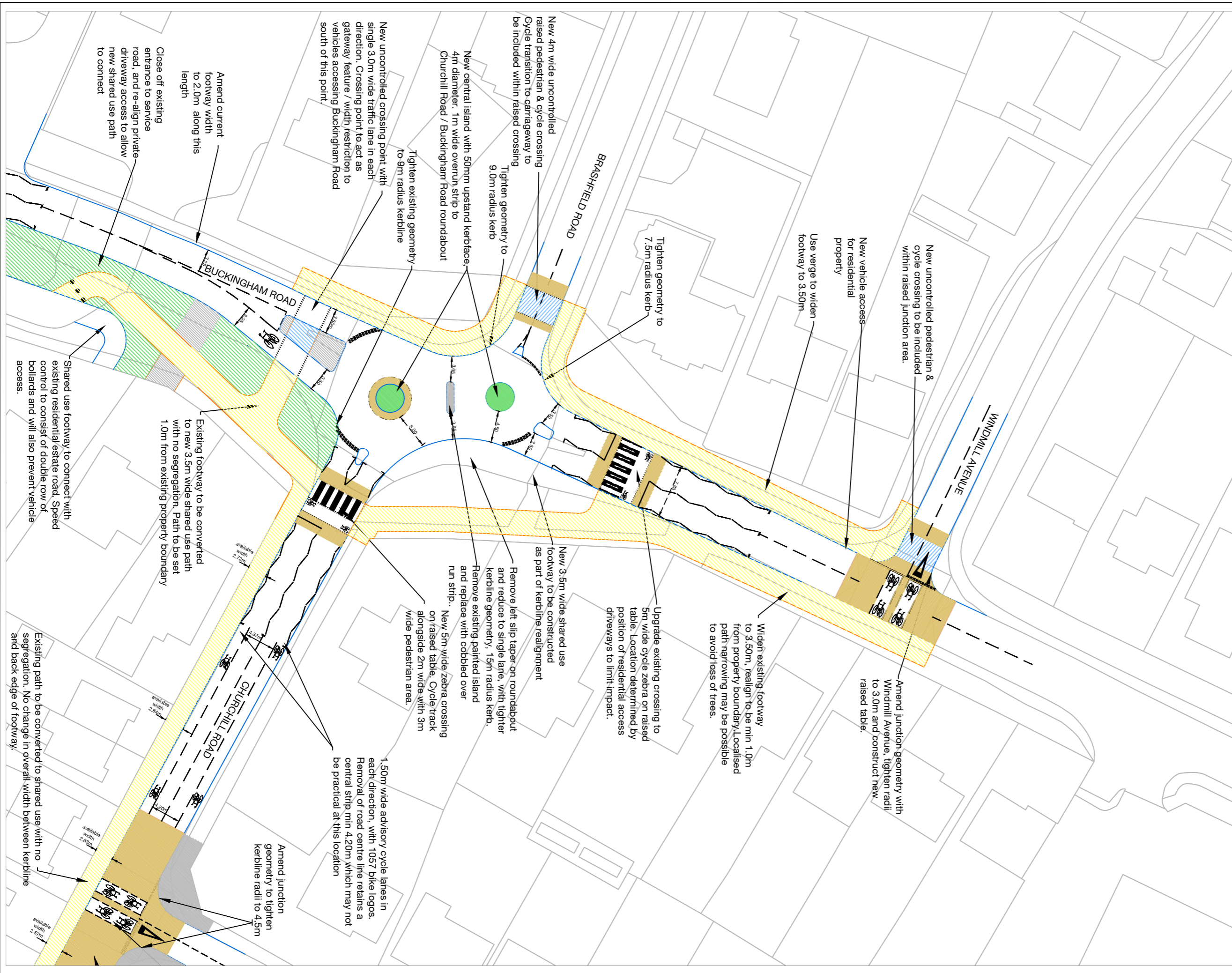Shared use path

Drawn:	Checked:	Date:	Scale at A3:
MP	MP	12/06/2014	1:500

Status:
DRAFT

Drawing No:	Revision:
SUS/SE/Bic/SK10	A

Notes:

Annotations (callouts)

- Close off existing entrance to service road, and re-align private driveway access to allow new shared use path to connect

- Amend current footway width to 2.0m along this length

- New 4m wide uncontrolled raised pedestrian & cycle crossing. Cycle transition to carriageway to be included within raised crossing

- New uncontrolled crossing point with single 3.0m wide traffic lane in each direction. Crossing point to act as gateway feature / width restriction to vehicles accessing Buckingham Road south of this point.

- New central island with 50mm kerbface. 4m diameter. 1m wide overrun strip to Churchill Road / Buckingham Road roundabout

- Tighten existing geometry to 9m radius kerbline

- Tighten geometry to 9.0m kerb

- Tighten geometry to 7.5m radius kerb.

- New uncontrolled pedestrian & cycle crossing to be included within raised junction area.

- Use verge to widen footway to 3.50m

- New vehicle access for residential property

- Widen existing footway to 3.50m, realign to be min 1.0m from property boundary. Localised path narrowing may be possible to avoid loss of trees.

- Amend junction geometry with Windmill Avenue, tighten radii to 3.0m and construct new raised table.

- Shared use footway to connect with existing residential estate road. Speed control to consist of double row of bollards and will also prevent vehicle access.

- Existing footway to be converted to new 3.5m wide shared use path with no segregation. Path to be set 1.0m from existing property boundary

- Remove left slip taper on roundabout and reduce to single lane, with tighter kerbline geometry. 15m radius kerb. Remove existing painted island and replace with cobbled over run strip.

- New 5m wide zebra crossing on raised table. Cycle track alongside 2m wide with 3m wide pedestrian area.

- New 3.5m wide shared use footway to be constructed as part of kerbline realignment

- Upgrade existing crossing to 5m wide cycle zebra on raised table. Location determined by position of residential access driveways to limit impact.

- 1.50m wide advisory cycle lanes in each direction, with 1057 bike logos. Removal of road centre line retains a central strip min 4.20m which may not be practical at this location

- Amend junction geometry to tighten kerbline radii to 4.5m

- Existing path to be converted to shared use with no segregation. No change in overall width between kerbline and back edge of footway.

Road labels
- BUCKINGHAM ROAD
- BRASHFIELD ROAD
- CHURCHILL ROAD
- WINDMILL AVENUE

Key:

	Walking/Cycling Space
	Footway
	Carriageway/Path Resurfacing
	Raised Table
	Green Surfacing
	Red Surfacing
	Planting
	Raised table crossing
	Uncontrolled Crossing Tactile Paving
	Crossing Tactile Paving
	Parking Bay Modification
	Sinusoidal Road Hump
	Quietway Route Alignment
	Kerb
	Dropped Kerb
	Yellow Line Marking
	Tree
	Sign & Post
	Lamp Column

1.50m wide advisory cycle lanes in each direction, with 1057 bike logos. Removal of road centre line retains a central strip min 4.20m which may not be practical at this location

Amend junction geometry to tighten kerbline radii to 4.5m

ST PETERS CRESCENT

CHURCHILL ROAD

Mark cycle link across Churchill Road into St Peter's Crescent

New raised table across junction with St Peter's Crescent.

Existing path to be converted to shared use with no segregation. No change in overall width between kerbline and back edge of footway.

Reposition existing bus stop from opposite junction to here.

Shared use path on each side of Churchill Road is substandard width, without significant reduction in carriageway space. Create dual use network to encourage more confident cyclists to remain on road and shared path arrangement for others.

Dropped kerbs to enable transition onto shared path.

BUS STOP

BUS STOP

Indicative road layout with removal of road centre line and allowing for 1.50m wide cycle lanes in each direction

Convert existing footway to shared use using available width and construct new 4m wide uncontrolled crossing point.

Tighten existing junction geometry. 4.5m radii kerblines into Somerville Drive.

Existing path to be converted to shared use with no segregation. No change in overall width between kerbline and back edge of footway.

SOMERVILLE DRIVE

Tighten existing junction geometry, 4.5m radii kerblines into St Annes Close.

Dropped kerbs to enable transition onto shared path.

ST ANNES CLOSE

Indicative road layout with removal of road centre line and allowing for 1.50m wide cycle lanes in each direction

Existing path to be converted to shared use with no segregation. No change in overall width between kerbline and back edge of footway.

Convert existing footway to shared use using available width and construct new 4m wide uncontrolled crossing point.

INDICATIVE

N

Notes:

Key:	
	Walking/Cycling Space
	Footway
	Carriageway/Path Resurfacing
	Raised Table
	Green Surfacing
	Red Surfacing
	Planting
	Raised table crossing
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	Crossing Tactile Paving
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	Lamp Column

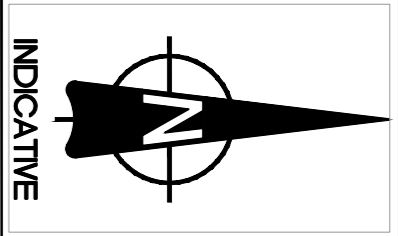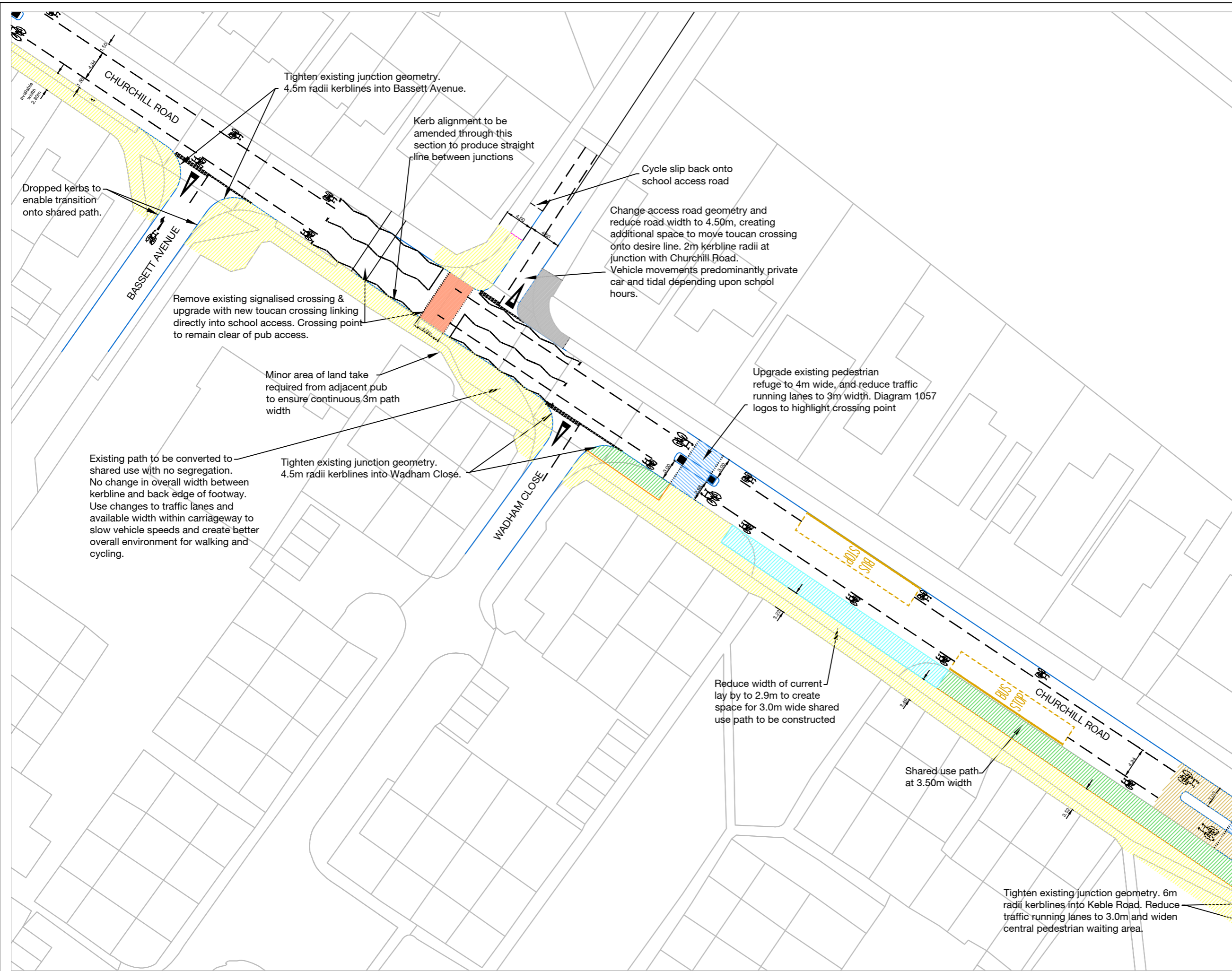| A	Somerville Dr raised table removed. Centreline removed on Churchill Road, notes amended		MP	10-07-14
Rev	Description		Drawn	Date

Project:

Bicester Travel Town

Title:

Churchill Road
Shared Use footway works

Drawn: MP	Checked: MP	Date: 12/06/2014	Scale at A3: 1:500

Status: **DRAFT**

Drawing No: SUS/SE/Bic/SK12	Revision: A

CHURCHILL ROAD

Tighten existing junction geometry.
4.5m radii kerblines into Bassett Avenue.

Kerb alignment to be
amended through this
section to produce straight
line between junctions

Cycle slip back onto
school access road

Change access road geometry and
reduce road width to 4.50m, creating
additional space to move toucan crossing
onto desire line. 2m kerbline radii at
junction with Churchill Road.
Vehicle movements predominantly private
car and tidal depending upon school
hours.

Dropped kerbs to
enable transition
onto shared path.

BASSETT AVENUE

Remove existing signalised crossing &
upgrade with new toucan crossing linking
directly into school access. Crossing point
to remain clear of pub access.

Minor area of land take
required from adjacent pub
to ensure continuous 3m path
width

Upgrade existing pedestrian
refuge to 4m wide, and reduce traffic
running lanes to 3m width. Diagram 1057
logos to highlight crossing point

Existing path to be converted to
shared use with no segregation.
No change in overall width between
kerbline and back edge of footway.
Use changes to traffic lanes and
available width within carriageway to
slow vehicle speeds and create better
overall environment for walking and
cycling.

Tighten existing junction geometry.
4.5m radii kerblines into Wadham Close.

WADHAM CLOSE

BUS STOP

Reduce width of current
lay by to 2.9m to create
space for 3.0m wide shared
use path to be constructed

BUS STOP

CHURCHILL ROAD

Shared use path
at 3.50m width

Tighten existing junction geometry. 6m
radii kerblines into Keble Road. Reduce
traffic running lanes to 3.0m and widen
central pedestrian waiting area.

INDICATIVE

N

Change surface colour / material to create feature around Keble Road junction

Tighten existing junction geometry. 6m radii kerblines into Keble Road. Reduce traffic running lanes to 3.0m and widen central pedestrian waiting area.

Formal kerbline reducing in height to tie in with raised table junction

Diagram 1057 logos at 2m ht to reinforce message to motorists

KEBLE ROAD

Widen existing footway to 3.5m using adjacent open space and convert to shared use.

Existing car parking layby to remain as is. Mark channel line edge with dashed white lining to help denote new cycle lanes.

Simplify existing bollard arrangement, add drop kerbs and connect into Bristol Road

BRISTOL ROAD

Widen existing footway to 3.5m using adjacent open space and convert to shared use.

Existing uncontrolled crossing to be improved to 4.0m wide toucan crossing and connected to wider network

Kerbline to be amended to permit new 1.50m wide cycle lanes and 4.40m wide central section to be created on Churchill Road

CHURCHILL ROAD

Existing parking layby width reduced to 2.6m, will allow some room for car door opening without restricting new cycle lanes

Widen existing footway by 0.50m by reducing parking lay by width. Convert footway to shared use

CHURCHILL ROAD

INDICATIVE

N

Notes:

INDICATIVE

N

Key:

	Walking/Cycling Space
	Footway
	Carriageway/Path Resurfacing
	Raised Table
	Green Surfacing
	Red Surfacing
	Planting
	Raised table crossing
	Uncontrolled Crossing Tactile Paving
	Crossing Tactile Paving
	Parking Bay Modification
	Sinusoidal Road Hump
	Quietway Route Alignment
	Kerb
	Dropped Kerb
	Yellow Line Marking
	Tree
	Sign & Post
	Lamp Column

KINGS END

KINGS END

KINGSCLERE ROAD

QUEENS AVENUE

Private Access

QUEENS COURT

Public realm improvements consider converting to verge 9m radius on kerbline at junction.

Upgrade existing shared path to 3.50m wide. Add detector loops into path to trigger toucan crossing countdown. Consider detector loops to warn motorists on Woodfield Avenue of cycle movement on crossing.

New cycle crossing - non cycle priority across side road. Crossing 4m wide on raised table

Tighten kerbline radius to 4.5m

Consider full closure of Kingsclere Road, access for pedestrian & cycle movements retained, potential emergency access

Tighten kerbline radius to 4.5m

New cycle crossing - open aspect visibility at this location, consider cycle priority and retain straight line desire line at this location

Existing footway to be converted to 3.5m wide shared use facility

Tighten kerbline radius to 3m

Existing footway to be converted to 3.5m wide shared use facility

Amend entrance arrangement to reduce crossing distance for pedestrians & cycles

Tighten kerbline radius to 3m

Change in surface type to reiterate bus stop and waiting area. Tree removal to be avoided wherever possible

New 4m wide cycle priority crossing on raised table.

Cycle slip off Kings End. Cycles to join Kings End using new priority crossing

Realign existing footway to shared use and reposition 1m of face of existing stone wall

Upgrade existing pelican crossing to toucan and widen to 4m. Detector loops in approach paths to reduce kerbside waiting times for pedestrians and cyclists

Existing footway to be converted to 3.5m wide shared use facility

Existing footway to be converted to 3.5m wide shared use facility

Existing kerblines on Queens Avenue to remain "as is" unless affected by junction / access works indicated.

Amend junction geometry to 4.5m radii kerbline, to enable shared use path to be shifted away from existing stone wall and improve visibility.

A	Side junctions amended, notes added		MP	11-07-2014
Rev	Description		Drawn	Date

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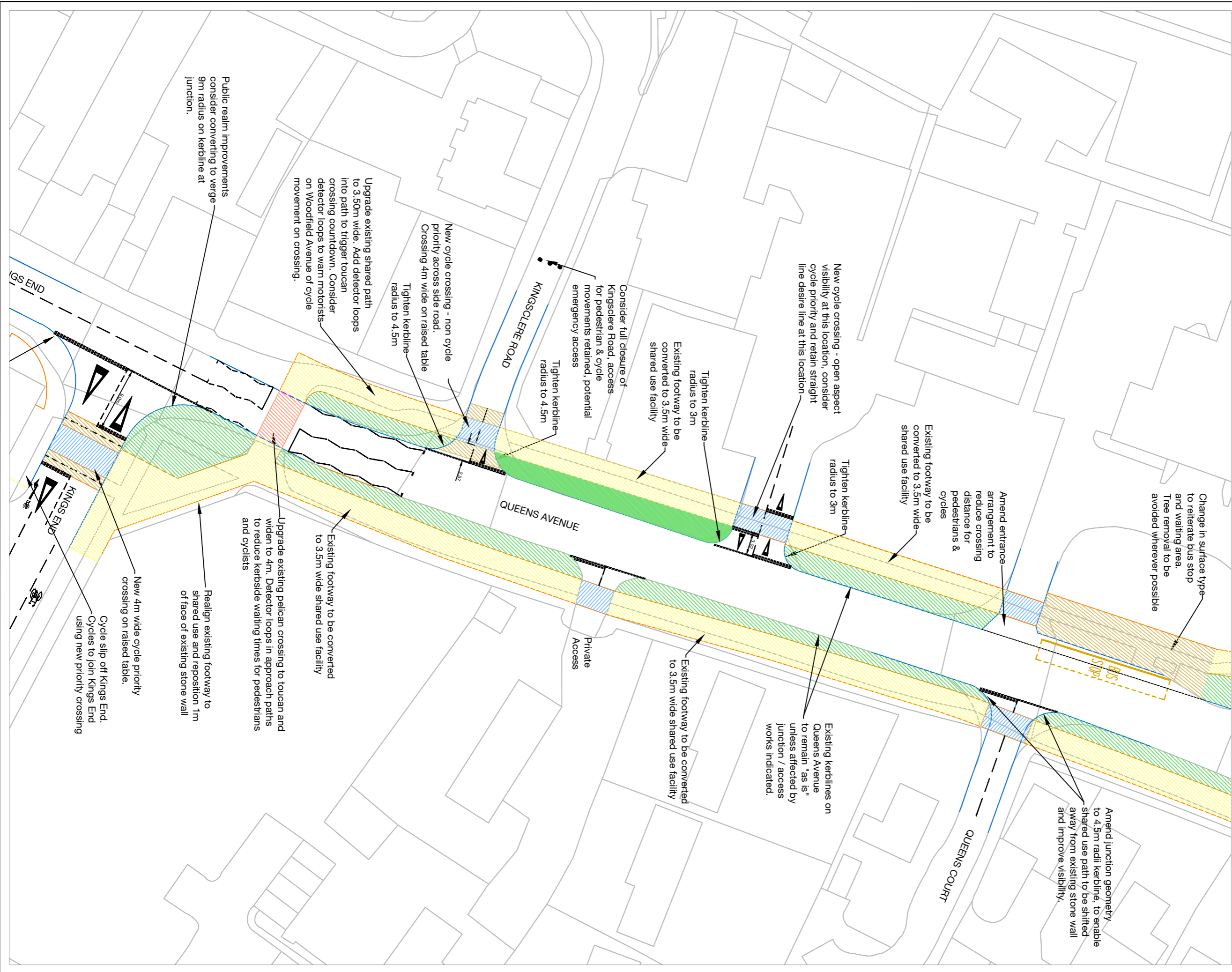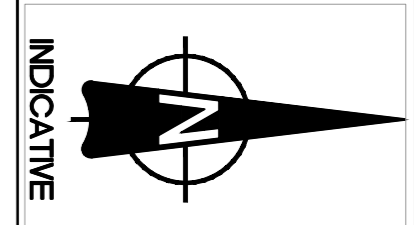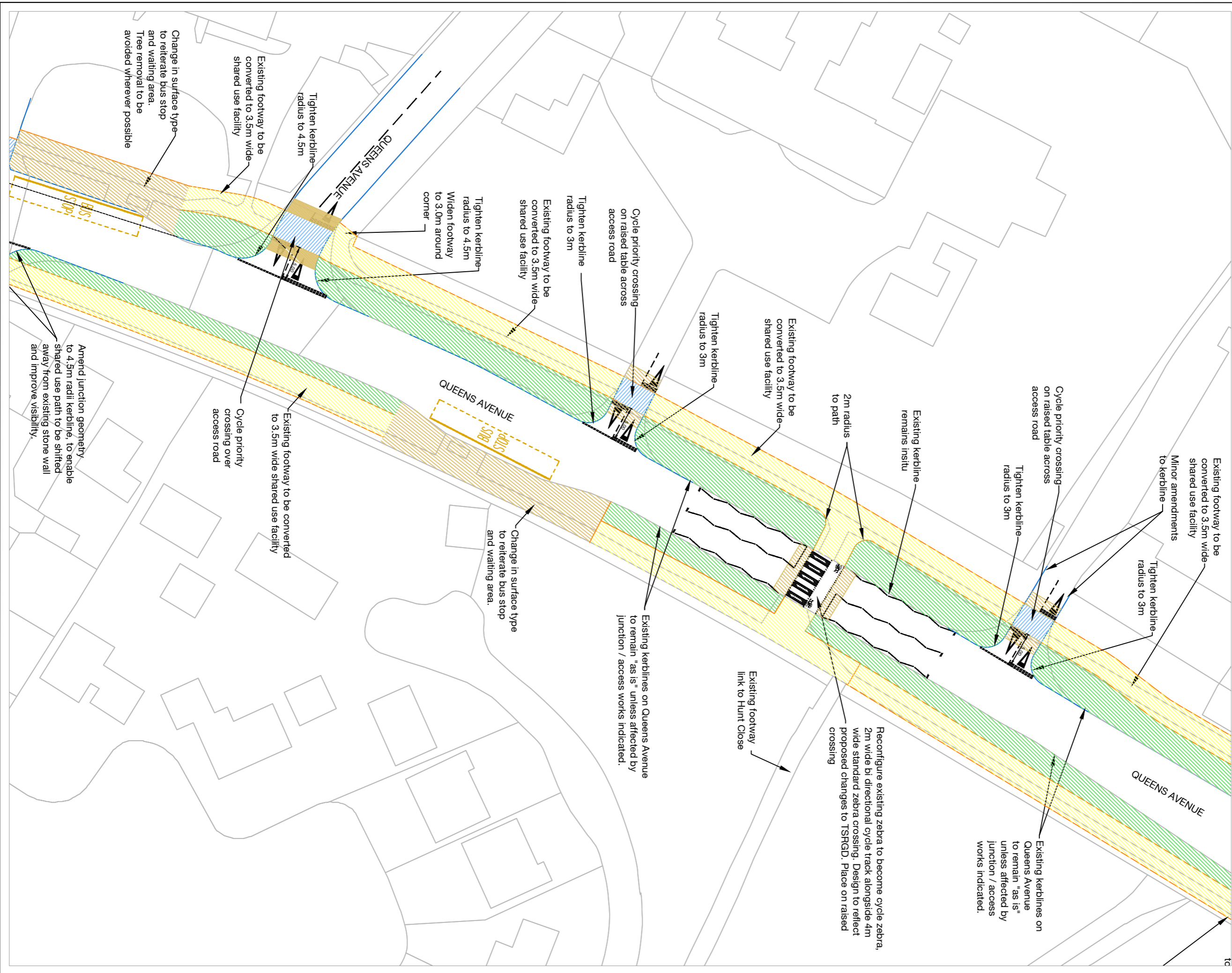**Bicester Travel Town**

Title:
**Queens Avenue
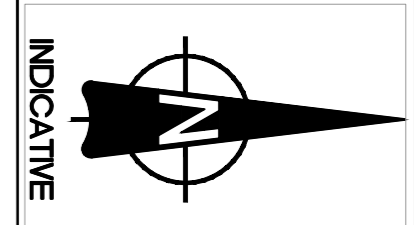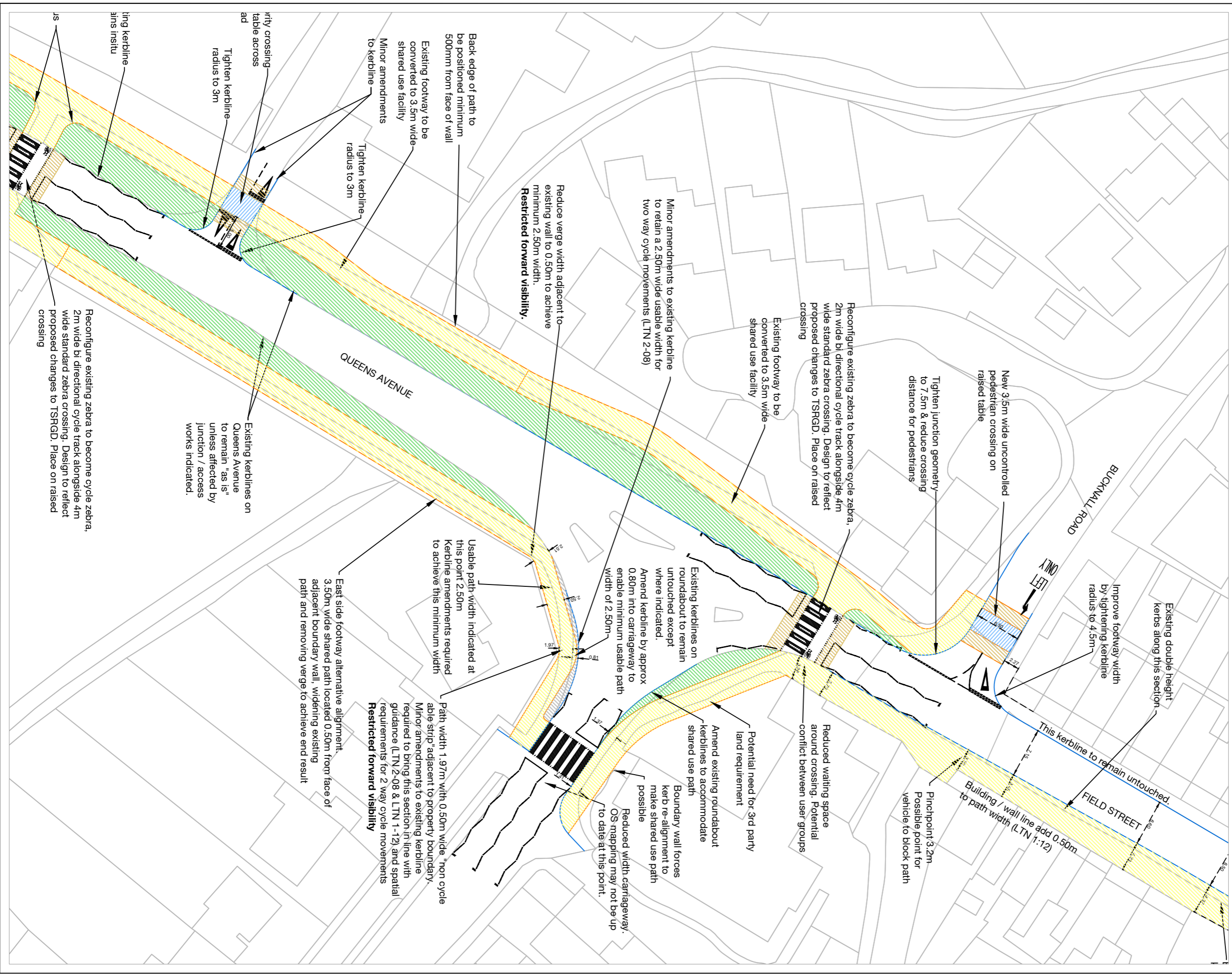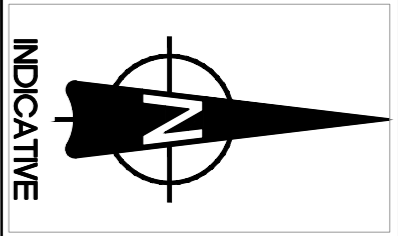Shared use path
Alternative Option
Sheet 1**

Drawn:	Checked:	Date:	Scale at A3:
MP	MP	12/06/2014	1:500

Status:
DRAFT

Drawing No:	Revision:
SUS/SE/Bic/SK15	A

Notes:

Change in surface type to reiterate bus stop and waiting area. Tree removal to be avoided wherever possible

Existing footway to be converted to 3.5m wide shared use facility

Tighten kerbline radius to 4.5m

QUEENS AVENUE

Tighten kerbline radius to 4.5m Widen footway to 3.0m around corner

Existing footway to be converted to 3.5m wide shared use facility

Tighten kerbline radius to 3m

Cycle priority crossing on raised table across access road

Existing footway to be converted to 3.5m wide shared use facility

Tighten kerbline radius to 3m

Existing footway to be converted to 3.5m wide shared use facility

Cycle priority crossing on raised table across access road

Minor amendments to kerbline

Tighten kerbline radius to 3m

Existing footway to be converted to 3.5m wide shared use facility

Tighten kerbline radius to 3m

BUS STOP

Amend junction geometry to 4.5m radii kerbline, to enable shared use path to be shifted away from existing stone wall and improve visibility.

Cycle priority crossing over access road

QUEENS AVENUE

BUS STOP

Existing footway to be converted to 3.5m wide shared use facility

2m radius to path

Existing kerbline remains insitu

Change in surface type to reiterate bus stop and waiting area.

Existing kerblines on Queens Avenue to remain "as is" unless affected by junction / access works indicated.

Existing footway link to Hunt Close

Reconfigure existing zebra to become cycle zebra, 2m wide bi directional cycle track alongside 4m wide standard zebra crossing. Design to reflect proposed changes to TSRGD. Place on raised crossing

Existing kerblines on Queens Avenue to remain "as is" unless affected by junction / access works indicated.

QUEENS AVENUE

INDICATIVE
N

Key:

	Walking/Cycling Space
	Footway
	Carriageway/Path Resurfacing
	Raised Table
	Green Surfacing
	Red Surfacing
	Planting
	Raised table crossing
	Uncontrolled Crossing Tactile Paving
	Crossing Tactile Paving
	Parking Bay Modification
	Sinusoidal Road Hump
	Quietway Route Alignment
	Kerb
	Dropped Kerb
	Yellow Line Marking
	Tree
	Sign & Post
	Lamp Column

A	Shared path to east side added notes added	MP	11-07-2014
Rev	Description	Drawn	Date

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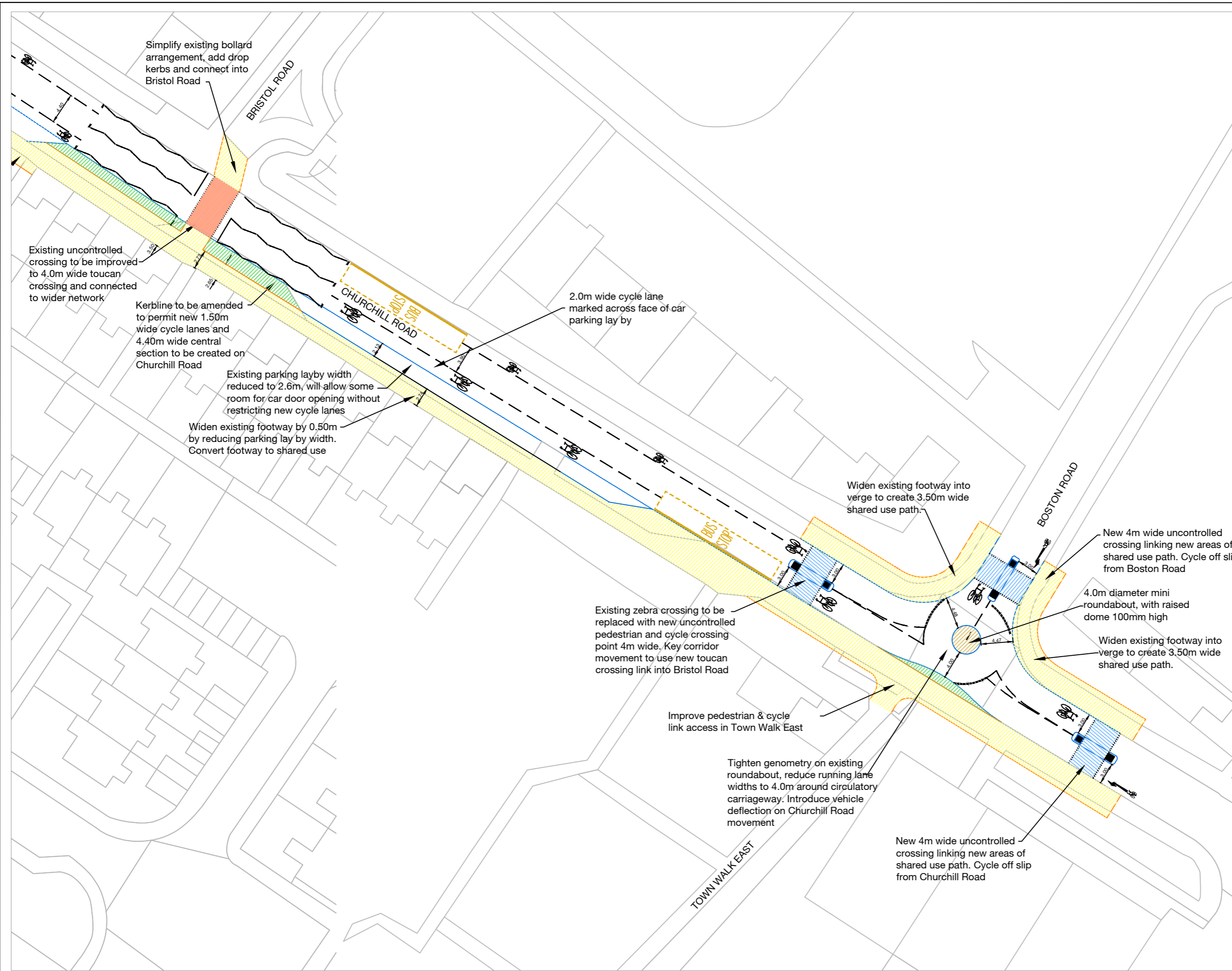0121 633 5500   www.sustrans.org.uk

Project:
Bicester Travel Town

Title:
Queens Avenue
Shared use path
Alternative Option
Sheet 2

Drawn:	Checked:	Date:	Scale at A3:
MP	MP	12/06/2014	1:500

Status:
DRAFT

Drawing No:	Revision:
SUS/SE/Bic/SK16	A

Key:

	Walking/Cycling Space
	Footway
	Carriageway/Path Resurfacing
	Raised Table
	Green Surfacing
	Red Surfacing
	Planting
	Raised table crossing
	Uncontrolled Crossing Tactile Paving
	Crossing Tactile Paving
	Parking Bay Modification
	Sinusoidal Road Hump
	Quietway Route Alignment
	Kerb
	Dropped Kerb
	Yellow Line Marking
	Tree
	Sign & Post
	Lamp Column

INDICATIVE

N

QUEENS AVENUE

BUCKNILL ROAD

FIELD STREET

LEFT ONLY

Reduce width path shown to south side roundabout. Minor kerbline changes to roundabout shown — A — MP — 11-07-2014

Rev	Description	Drawn	Date

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Project:
Bicester Travel Town

Title:
Queens Avenue
Shared use path
Alternative Option
shared use footway

Drawn: MP	Checked: MP	Date: 12/06/2014	Scale at A3: 1:500

Status:
DRAFT

Drawing No: SUS/SE/Bic/SK17

Revision: A

Notes:

Existing kerbline remains insitu

Tighten kerbline radius to 3m

Tighten kerbline radius to 3m

Back edge of path to be positioned minimum 500mm from face of wall

Existing footway to be converted to 3.5m wide shared use facility

Minor amendments to kerbline

Security crossing table across road

Reduce verge width adjacent to existing wall to 0.50m to achieve minimum 2.50m width. **Restricted forward visibility.**

Minor amendments to existing kerbline to retain a 2.50m wide usable width for two way cycle movements (LTN 2-08)

Reconfigure existing zebra to become cycle zebra, 2m wide bi directional cycle track alongside 4m wide standard zebra crossing. Design to reflect proposed changes to TSRGD. Place on raised crossing

Existing footway to be converted to 3.5m wide shared use facility

Reconfigure existing zebra to become cycle zebra, 2m wide bi directional cycle track alongside 4m wide standard zebra crossing. Design to reflect proposed changes to TSRGD. Place on raised crossing

New 3.5m wide uncontrolled pedestrian crossing on raised table

Tighten junction geometry to 7.5m & reduce crossing distance for pedestrians

Improve footway width by tightening kerbline radius to 4/5m

Existing double height kerbs along this section

Reconfigure existing zebra to become cycle zebra, 2m wide bi directional cycle track alongside 4m wide standard zebra crossing. Design to reflect proposed changes to TSRGD. Place on raised crossing

Existing kerblines on Queens Avenue to remain "as is" unless affected by junction / access works indicated.

Usable path width indicated at this point 2.50m Kerbline amendments required to achieve this minimum width

East side footway alternative alignment. 3.50m wide shared path located 0.50m from "face of adjacent boundary wall, widening existing path and removing verge to achieve end result

Path width 1.97m with 0.50m wide "non cycle able strip" adjacent to property boundary. Minor amendments to existing kerbline required to bring this section in line with guidance (LTN 2-08 & LTN 1-12) and spatial requirements for 2 way cycle movements. **Restricted forward visibility.**

Existing kerblines on roundabout to remain untouched except where indicated. Amend kerbline by approx 0.80m into carriageway to enable minimum usable path width of 2.50m

Amend existing roundabout kerblines to accommodate shared use path

Boundary wall forces kerb re-alignment to make shared use path possible

Reduced width carriageway. OS mapping may not be up to date at this point.

Potential need for 3rd party land requirement

Reduced waiting space around crossing. Potential conflict between user groups

This kerbline to remain untouched.

Building / wall line add 0.50m to path width (LTN 1:12)

Pinchpoint/3.2m. Possible point for vehicle to block path

Simplify existing bollard arrangement, add drop kerbs and connect into Bristol Road

Existing uncontrolled crossing to be improved to 4.0m wide toucan crossing and connected to wider network

Kerbline to be amended to permit new 1.50m wide cycle lanes and 4.40m wide central section to be created on Churchill Road

Existing parking layby width reduced to 2.6m, will allow some room for car door opening without restricting new cycle lanes

Widen existing footway by 0.50m by reducing parking lay by width. Convert footway to shared use

2.0m wide cycle lane marked across face of car parking lay by

Widen existing footway into verge to create 3.50m wide shared use path.

Existing zebra crossing to be replaced with new uncontrolled pedestrian and cycle crossing point 4m wide. Key corridor movement to use new toucan crossing link into Bristol Road

Improve pedestrian & cycle link access in Town Walk East

Tighten genometry on existing roundabout, reduce running lane widths to 4.0m around circulatory carriageway. Introduce vehicle deflection on Churchill Road movement

New 4m wide uncontrolled crossing linking new areas of shared use path. Cycle off slip from Boston Road

4.0m diameter mini roundabout, with raised dome 100mm high

Widen existing footway into verge to create 3.50m wide shared use path.

New 4m wide uncontrolled crossing linking new areas of shared use path. Cycle off slip from Churchill Road

BRISTOL ROAD
CHURCHILL ROAD
BOSTON ROAD
TOWN WALK EAST

Notes:

INDICATIVE

Key:

	Walking/Cycling Space
	Footway
	Carriageway/Path Resurfacing
	Raised Table
	Green Surfacing
	Red Surfacing
	Planting
	Raised crossing point
	Uncontrolled Crossing Tactile Paving
	Crossing Tactile Paving
	Parking Bay Modification
	Sinusoidal Road Hump
	Quietway Route Alignment
	Kerb
	Dropped Kerb
	Yellow Line Marking
	Tree
	Sign & Post
	Lamp Column

Rev	Description	Drawn	Date

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JOIN THE MOVEMENT

The Walker Building, 58 Oxford Street, Birmingham, B5 5NR
0121 633 5500 www.sustrans.org.uk

Project:
Bicester Travel Town

Title:
Churchill Road
Boston Road junction

Drawn:	Checked:	Date:	Scale at A3:
MP	MP	11/07/2014	1:500

Status: **DRAFT**

Drawing No:	Revision:
SUS/SE/Bic/SK18	

Appendix 3
Cycle Infrastructure Improvements

Primary Network Link	Sub Link Reference and Description		Existing provision	Improvement	Length (m)	Rate (£/m)	Cost	Priority	Comment
RR1: Buckingham Road	RR1a	Bicester Road (for Straton Audley) to Skimmingdish Lane (A4421)	2m shared path (reduced to 1.5m at layby & elsewhere by vegetation); no provision north of Thompson Drive	Widen existing shared path on west side to 3.0m min	690	100	£69,000	M	
	RR1b	Skimmingdish Lane to Windmill Avenue	Footways both sides of road with space to widen, no provision for cyclists	Widen existing footway on west side to 3.0m min	710	100	£71,000	M	
	RR1c	Windmill Avenue to Brashfield Road	Included in RR1d	Not required				N/A	
	RR1d	Brashfield Road/Churchill Road Junction	Double mini roundabout with no provision for pedestrians or cyclists	Tighten geometry, 4m wide shared uncontrolled crossings, 3.5m shared path on western side.			£150,000	H	See Sustrans drawing SUS/SE/Bic/SK11
	RR1e	Churchill Road to Cedar Drive	Service road on east side with footways on both sides	3.5m shared path on eastern side, use of service road, cycle priority crossing of Cedar Drive.	210		£20,000	H	See Sustrans drawing SUS/SE/Bic/SK10
	RR1e	Buckingham Road (north of Buckingham Crescent)	No crossing provision at shops	Zebra crossing			£20,000	H	See Sustrans drawing SUS/SE/Bic/SK10
	RR1f	Cedar Drive to Railway Bridge	Footways both sides of road with space to widen, no provision for cyclists	3.5m shared path on eastern side	210	110	£23,100	H	See Sustrans drawing SUS/SE/Bic/SK09
	RR1f	Woodfield Road Junction		Raised junction table			£25,000	H	
	RR1g	Railway Bridge	Shared footway on east side	Signal controlled shuttle at railway bridge, 4.0m shared path on eastern side beneath railway bridge, Toucan crossing north of railway bridge and at Chiltern Approach	70		£200,000	H	See Sustrans drawing SUS/SE/Bic/SK08
	RR1h	Railway Bridge to Roman Way	Footways both sides of road with space to widen, no provision for cyclists	3.5m shared path on eastern side	250	110	£27,500	H	See Sustrans drawing SUS/SE/Bic/SK06
	RR1h	New Street Junction		Raised junction table			£25,000	H	
	RR1g	Buckingham Road/Banbury Road roundabout	Three-arm roundabout, North Street recently closed to traffic. No provision for crossing of Buckingham Road	Tighten geometry, 4m wide shared uncontrolled crossings, 3.5m shared path on eastern side.			£75,000	H	See Sustrans drawing SUS/SE/Bic/SK06
RR2: Glory Farm - Withington Road	RR2a	Skimmingdish Lane (A4421) to Sunderland Drive	No provision for cycling & walking (open space available in sports ground)	3.0m min shared path on eastern edge of sports ground alongside mature tree/hedge line	120	100	£12,000	L	Requires 3rd party land or agreement to create right of way

Figure 10.6 Table of Infrastructure Improvments

Primary Network Link	Sub Link Reference and Description		Existing provision	Improvement	Length (m)	Rate (£/m)	Cost	Priority	Comment
	RR2b	Sunderland Drive	1.8m footway both sides; no provision for cyclists	20mph zone, traffic calming and cycle surface markings	430	50	£21,500	L	
	RR2c	Boston Road	1.8m footway both sides + partial advisory cycle lanes	20mph zone, traffic calming and cycle surface markings	400	75	£30,000	M	
	RR2d	Churchill Road/Boston Road Junction	No crossing to shared path (current zebra off-line)	Short section of shared path (3.0m min) on Boston Road, zebra crossing with cycle facilities			£30,000	H	Location of new zebra crossing to be resolved
	RR2e	Churchill Road to Withington Road	2.5m unsegregated/3m segregated shared path	Existing - not required	640	0	£0	N/A	
	RR2e	Churchill Road to Withington Road		Remove barriers	5	500	£2,500	QW	
	RR2f	Withington Road	Residential street with no provision for cyclists, footways both sides	20mph zone, traffic calming and cycle surface markings	270	50	£13,500	M	
	RR2g	Bell Lane	Access route for deliveries and shoppers, footways both sides	Bell Lane to be closed at Sheep Street. Bell Lane south of Crumps Butts becomes shared surface.	70			M	Cost depends on design of public realm
RR3: Launton Road	RR3a	Skimmingdish Lane to Churchill Road	Shared footway on west side, width varies ave. 2m	Widen existing shared path on west side to 3.0m min, cycle priority crossings at side roads	610	100	£61,000	H	
	RR3a	Boston Road Junction	No crossing provision	Raised crossing			£10,000	H	
	RR3a	Jarvis Lane Junction	No crossing	Toucan crossing			£60,000	L	
	RR3b	Launton Road/Churchill Road Junction	Mini roundabout with no provision for pedestrians or cyclists	Tighten geometry, 3.5m shared path on western side, zebra crossing with cycle facilities on Churchill Road arm.			£50,000	H	
	RR3c	Churchill Road to Longfields	Shared footway on west side ave. 2m	Widen existing shared path on west side to 3.0m min, cycle priority crossings at side roads	750	100	£75,000	H	
	RR3c	Murdock Road and Bessemer Close Junctions	Over-runnable build-outs at junction mouth (Bessemer Close)	Raised crossings			£20,000	H	
	RR3d	Longfields to London Road	2m shared footway on west side (no provision for cyclists: Victoria Road-London Road) - limited/no space for widening	20mph zone, traffic calming and cycle surface markings, on/offslip for access to shared path north of Longfields	400	75	£30,000	H	Potential for shared path to continue to Victoria Road

Primary Network Link	Sub Link Reference and Description		Existing provision	Improvement	Length (m)	Rate (£/m)	Cost	Priority	Comment
	RR3e	Launton Road/London Road Junction	No provision for pedestrians or cyclists	Redesign layout to prioritise vehicle movement between Launton Road and London Road. Minimise space for vehicles			£150,000	M	Potential for major public realm/ shared space scheme
RR4: Langford Village - Tubbs Crossing	RR4a	Wretchwick Way/Gavray Drive	No crossing	Toucan crossing on Wretchwick Way south of roundabout to provide future connection to East Bicester			£60,000	L	Developer funded
	RR4b	Gavray Drive	3m segregated shared path	Existing - not required	960			N/A	
	RR4b	Mallards Way Junction	No provision	Raised crossing			£10,000	M	
	RR4c	Gavray Drive to Tubbs Crossing	3m segregated shared path	Existing - not required	200			N/A	
	RR4d	Bridge at Tubbs Crossing	New footbridge recently installed	Existing - not required				N/A	
	RR4e	Tubbs Crossing to Launton Road	3m shared path	Existing - not required				N/A	
RR5: Langford Village to London Road	RR5a	Wretchwick Way to Peregrine Way	3m segregated shared path	Not required	440			N/A	
	RR5a	Wretchwick Way to Peregrine Way		Remove barriers	4	500	£2,000	QW	
	RR5a	Peregrine Way	No crossing facilities	Raised zebra crossing			£30,000	M	
	RR5b	Peregrine Way to Mallards Way	3m segregated shared path	Not required	280			N/A	
	RR5b	Peregrine Way to Mallards Way		Remove barriers	1	500	£500	QW	
	RR5c	Mallards Way to Railway Line	3m segregated shared path	Not required	340			N/A	
	RR5d	Parallel to Railway Line	Narrow 1.7m path	Widen to 3.5m min into Network Rail land or adjacent garden	50	150	£7,500	H	Requires 3rd party land
RR6: Graven Hill - London Road	RR6a	A41 Roundabout	1.2m footways with informal refuge crossings	Toucan crossings on A41 and London Road arms to provide connection to Graven Hill			£120,000	M	Developer funded
	RR6b	London Road (A41 to Mallards Way)	1.2m footway (with space in verge to widen)	Widen existing footway on east side to 3.0m min to create shared path	720	100	£72,000	M	
	RR6c	London Road/Mallards Way Junction	Informal crossing points	Raised table at uncontrolled crossing			£10,000	M	
	RR6d	Mallards Way to Level Crossing	2m footway west side & 1.2m east side	Widen existing footway on east side to 3.5m min to create shared path	240	100	£24,000	M	
	RR6e	London Road Level Crossing	Narrow footway marked across railway	Widen existing footway on east side to 3.5m min to create shared path				M	Potential for Network Rail to close level crossing
	RR6e	London Road Level Crossing	Narrow footway marked across railway	Footbridge or subway				M	Bridge or subway maybe required to addressed increased 'down time' of barriers or in response to permanent closure of level crossing

Primary Network Link	Sub Link Reference and Description		Existing provision	Improvement	Length (m)	Rate (£/m)	Cost	Priority	Comment
	RR6f	Level Crossing to Market Square	2 x 1.5m footways	20mph zone, traffic calming and cycle surface markings	340	75	£25,500	H	Not required if level crossing is closed
RR7: Wendlebury Road - Oxford Road	RR7a	Wendlebury Avenue adjacent to Bicester Avenue Retail Centre	Cycle route on road	Cycle surface markings	320	2	£640	L	
	RR7b	Bicester Avenue Retail Centre to A41	1.2m footway (with space in verge to widen)	Widen existing shared path on east side to 3.0m min	530	100	£53,000	M	New junction for access to business park and relocated Tesco
	RR7c	Oxford Road/A41 Junction	Toucan crossing set back from roundabout approx. 50m	Infrastructure to be improved as part of new junction scheme			£20,000	H	Developer funded. Junction improvement proposed as part of extension to Bicester Village
	RR7d	A41 Junction to Pingle Drive	Initially 3m shared path becomes 1.5m footway with no provision for cyclists	Infrastructure to be improved as part of new junction scheme	200	100	£20,000	H	Developer funded. Junction improvement proposed as part of extension to Bicester Village
	RR7e	Oxford Road/Pingle Drive Junction	Informal refuge crossing	Infrastructure to be improved as part of new junction scheme			£10,000	H	Developer funded. Junction improvement proposed as part of extension to Bicester Village
	RR7f	Pingle Drive to Middleton Stoney Road	3m footway on east side (interrupted by bus stop); no provision for cyclists	Widen existing shared path on east side to 3.5m min, bypass around bus stop	210	110	£23,100	H	See Sustrans drawing SUS/SE/Bic/SK01
RR8: Chesterton - Oxford Road	RR8a	Vendee Drive to Oxford Road	New 3m shared path through development	Not required				N/A	
	RR8b	Kinsgmere Access to Oxford Road/A41 Junction	Beaten track in verge on west side of A41 (space to create path)	Create shared path on west side 3.0m min	230	100	£23,000	H	
	RR8c	Oxford Road/A41 Junction	No crossing	Uncontrolled crossing of petrol filling station access road			£5,000	H	
	RR8d	A41 Junction to Pingle Drive	Beaten track in verge on west side of A41 (space to create path)	Create shared path on west side 3.0m min	210	100	£21,000	H	Junction improvement proposed as part of extension to Bicester Village
	RR8e	Pingle Drive to Middleton Stoney Road	Beaten track in verge on west side of A41 (space to create path)	Create shared path on west side 3.0m min, bypass around bus stop	140	100	£14,000	H	See Sustrans drawing SUS/SE/Bic/SK01
RR9: Chesterton Kingsmere	RR9a	Vendee Drive to Whitelands Farm	Unsurfaced public footpath	Widen existing footpath to 3m min with hard surfacing	400	100	£40,000	H	Developer funded
	RR9b	Whitelands Farm to Oxford Road	New 3m shared path through development	Not required				N/A	
RR10: Middleton Stoney Road	RR10a	NW Bicester to Vendee Drive/Howes Lane Junction	Yet to be developed	Create shared path on north side 3.0m min	1100	140	£154,000	M	Developer funded
	RR10b	Vendee Drive/Howes Lane Junction	Yet to be developed	Toucan crossing of new high street			£60,000	M	Developer funded

Primary Network Link	Sub Link Reference and Description		Existing provision	Improvement	Length (m)	Rate (£/m)	Cost	Priority	Comment
	RR10c	Vendee Drive/Howes Lane Junction to Whitelands Way	3m shared path at Howes Lane roundabout only	Create shared path on north side 3.0m min	600	100	£60,000	M	
	RR10d	Middleton Stoney Road/ Whitelands Way Junction	No crossing facilities	Toucan crossing west of roundabout			£60,000	M	
	RR10e	Whitelands Way	Informal crossing point	Raised table at uncontrolled crossing			£10,000	M	
	RR10f	Whitelands Way to Pingle Brook	No provision for cycling & walking - wide verge (3m+) available on south side	Create shared path on south side 3.0m min	300	100	£30,000	H	Land ownership to be clarified
RR11: Shakespeare - Blenheim - Leach - Kingsclere	RR11a	NW Bicester to Howes Lane	Yet to be developed	Toucan crossing of new high street			£60,000	M	Developer funded
	RR11b	Howes Lane to Blenheim Drive	Residential street with no provision for cyclists, footways both sides	20mph zone, traffic calming and cycle surface markings	520	50	£26,000	M	
	RR11c	Blenheim Drive	Residential street with no provision for cyclists, footways both sides	20mph zone, traffic calming and cycle surface markings	410	50	£20,500	M	
	RR11d	Leach Road	Residential street with no provision for cyclists, footways both sides	20mph zone, traffic calming and cycle surface markings	300	50	£15,000	M	
	RR11e	Kingsclere Road	Speed humps and footways both sides	20mph zone and cycle surface markings	730	2	£1,460	M	
RR12: Bucknell Road	RR12a	NW Bicester to Howes Lane/Lords Lane	Yet to be developed	Toucan crossing of new high street, create shared path 3.0m min on line of access road to Aldershot Farm			£60,000	M	Developer funded
	RR12b	Howes Lane/Bucknell Road Junction	T-junction with no provision for pedestrians or cyclists, difficult to access OR6 (limited space under bridge)	Raised junction			£25,000	M	Depends on future traffic levels - traffic flows will be much less than existing because of new peripheral route/high street
	RR12c	Howes Lane to George Street	On-carriageway advisory cycle lanes 0.75m with central hatching	20mph zone, traffic calming and cycle lanes	490	50	£24,500	M	Potential need to control on street parking
	RR12d	George Street to Graham Road	No provision for cyclists, footways both sides	20mph zone, traffic calming and cycle surface markings	390	50	£19,500	M	Potential need to control on street parking
	RR12e	Graham Road to Field Street	No provision for cyclists, footways both sides	20mph zone, traffic calming and cycle surface markings	610	50	£30,500	M	Potential need to control on street parking
RR13: George Street Queens Avenue	RR13a	George Street	Residential street with no provision for cyclists, footways both sides	20mph zone	590	20	£11,800	M	Community Street Design would be alternative approach

Primary Network Link	Sub Link Reference and Description		Existing provision	Improvement	Length (m)	Rate (£/m)	Cost	Priority	Comment
	RR13b	Community College Link	Segregated shared path	Not required	270			N/A	
	RR13c	Community College access road	Access road with footway on north side	20mph zone, traffic calming and cycle surface markings	180	50	£9,000	M	Community Street Design would be alternative approach
RR14: Bicester North Link	RR14a	North West Bicester to Lords Lane	Yet to be developed	Toucan crossing of new high street. 20mph zone, traffic calming and cycle surface markings on bus only street			£80,000	M	Developer funded
	RR14b	Lords Lane to Bure Park	Unmade track, 0.5-2m wide, in 3m-6m wide corridor	3.5m min shared path	580	110	£63,800	M	Public footpath - status to be confirmed with OCC
	RR14c	Bure Park to Banbury Road	Unmade track, 0.5-2m wide, in 3m-6m wide corridor	3.5m min shared path	620	110	£68,200	M	Public footpath - status to be confirmed with OCC
	RR14d	Banbury Road	Toucan crossing off desire line	Toucan crossing on diagonal alignment to match desire line			£60,000	H	See Sustrans drawing SUS/SE/Bic/SK07
	RR14e	Banbury Road to Buckingham Road	Multiple guardrails, fencing & barriers at Banbury Road	Remove barriers	3	500	£1,500	QW	
RR15: Banbury Road	RR15a	NW Bicester Exemplar to Lords Lane/Banbury Road Junction	Yet to be developed	3.0m min shared path on eastern and western sides	800	100	£80,000	H	To be provided by NW Exemplar site
	RR15b	Lords Lane/Banbury Road Junction	Associated with development	Toucan crossing on Lords Lane arm			£60,000	H	To be provided by NW Exemplar site - subway??
	RR15c	Lords Lane to Lucerne Avenue	3m segregated shared path	Not required	680			N/A	
	RR15d	Banbury Road/Lucerne Avenue Junction	Informal crossing via refuge	Improved uncontrolled crossing on Lucerne arm			£10,000	H	
	RR15e	Lucerne Avenue to Railway Bridge	3m segregated shared path with the section parallel to Reedmace Road partly obscured by vegetation	20mph zone to start 60m north of railway bridge. Widen path	140	50	£7,000	H	
	RR15f	Railway Bridge to Central Corridor	No provision for cyclists, footways both sides	20mph zone, traffic calming, cycle surface markings	360	150	£54,000	H	See Sustrans drawing SUS/SE/Bic/SK07
	RR15f	Almond Road Junction	No provision	Raised junction table			£25,000	H	
Central Corridor	CCa	Middleton Stoney Road to Kings End	Footways on both sides. Eastern footway 1.2m with limited space to widen	Shared path on east side 3.5m wide	250	140	£35,000	H	See Sustrans drawing SUS/SE/Bic/SK02
	CCa	Middleton Stoney Road/Oxford Road roundabout	Mini roundabout with informal refuge crossings	Tighten geometry, 3m wide shared uncontrolled crossings, 3.5m shared path on eastern side			£80,000	H	See Sustrans drawing SUS/SE/Bic/SK01
	CCa	Middleton Stoney Road	No provision	Cycle zebra crossing			£30,000	H	
	CCa	Kings Avenue	Pelican crossing south of junction	Toucan crossing			£60,000	H	

Primary Network Link	Sub Link Reference and Description		Existing provision	Improvement	Length (m)	Rate (£/m)	Cost	Priority	Comment
	CCb	Kings End Queens Avenue Junction	Pelican crossing used by cyclists	Toucan crossing & raised table			£80,000	H	See Sustrans drawing SUS/SE/Bic/SK03
	CCc	Queens Avenue	Footways both sides of road with space to widen, no provision for cyclists	Shared path on east side 3.5m wide	350	110	£38,500	H	See Sustrans drawing SUS/SE/Bic/SK03 & 04
	CCc	Hunt Close link	Zebra crossing used by cyclists	Raised table for existing zebra crossing			£15,000	H	
	CCe	Queens Avenue/St Johns Junction	New roundabout with no provision for cyclists	Tighten geometry, 6m wide raised zebra crossings			£80,000	H	See Sustrans drawing SUS/SE/Bic/SK05
	CCf	Bucknell Road/Field Street Junction	T-junction with no provision for pedestrians or cyclists	Tighten geometry, 4m wide pedestrian crossings			£20,000	H	See Sustrans drawing SUS/SE/Bic/SK05
	CCf	Field Street	Footways on both sides. Eastern footway 1.2m with limited space to widen	Shared path on east side 3.5m wide	150	140	£21,000	H	See Sustrans drawing SUS/SE/Bic/SK05 & 06
OR1: Skimmingdish Lane	OR1a	Buckingham Road to Launton Road	2.7m segregated shared path (4m wide south of Duxford Close); informal refuge crossing at Launton Road	Cycle priority crossings at side roads			£10,000	M	
OR2: Charbridge Lane	OR2a	Launton Road to Gavray Drive	3.5m segregated shared path (width reduced by vegetation); informal refuge crossings at side roads	Cycle priority crossings at side roads			£30,000	M	
	OR2a	NCN Route 51	Informal refuge crossing	Uncontrolled crossing with road markings			£5,000	M	
OR3: Wretchwick Way	OR3a	Gavray Drive to London Road	3m part-segregated shared path; informal refuge crossing at Launton Road	Cycle priority crossings at side roads			£20,000	M	
	OR3b	Wretchwick Way/Peregrine Way Junction	Associated with development	Toucan crossing on Wretchwick Way to provide future connection to East Bicester			£60,000	L	Developer funded
OR4: Vendee Drive	OR4a	Oxford Road to Middleton Stoney Road	New 3m shared path with no provision at side roads	Cycle priority crossings at side roads			£20,000	L	
OR5: Howes Lane	OR5a	Middleton Stoney Road to Shakespeare Drive	No provision for cycling & walking (10m highway width available: 6m carriageway+4m verges)	Traffic free cycling and walking lane				L	To be provided once new peripheral route/high street is implemented by the NW Bicester development
	OR5b	Shakespeare Drive to Bucknell Road	1.8m/1.2m footway; no provision for cyclists (about 10m highway width available)	20mph zone, traffic calming and cycle surface markings	400	50	£20,000	L	

Alan Baxter

Primary Network Link	Sub Link Reference and Description		Existing provision	Improvement	Length (m)	Rate (£/m)	Cost	Priority	Comment
OR6: Lords Lane	OR6a	Bucknell Road to River Bure	3m segregated shared path (no priority for cyclists at side roads)	Cycle priority crossings at side roads	2	10,000	£20,000	L	
	OR6b	River Bure to Banbury Road	3m segregated shared path (no priority for cyclists at side roads)	Cycle priority crossings at side roads	3	10,000	£30,000	L	
OR7: Caversfield	OR7a	Banbury Road to Buckingham Road	3m segregated shared path (no priority for cyclists at side roads)	Cycle priority crossings at side roads	3	10,000	£30,000	L	
PR1: Churchill Road	PR1a	Buckingham Road to Bassett Avenue	Footways both sides of road with space to widen, no provision for cyclists	Shared path on south side 3.0m wide with cycle lanes on carriageway	240	100	£24,000	H	See Sustrans drawing SUS/SE/Bic/SK12 & 13
	PR1b	Bassett Avenue to Boston Road	Footways both sides of road with space to widen, no provision for cyclists	Shared path on south side 3.0m wide with cycle lanes on carriageway	420	100	£42,000	H	See Sustrans drawing SUS/SE/Bic/SK13 & 14
	PR1c	Boston Road to Launton Road	Shared use footway (no priority for cyclists at side roads)	Cycle priority crossings at side roads			£10,000	H	
PR2: Langford Village	PR2a	Gavray Drive to Hawksmead	3m segregated shared path	Not required	570			N/A	
PR3: Bicester Village - Bicester Town Station	PR3a	Oxford Road to Tesco Access	2m footways both sides of road (with space to widen in northern verge); no provision for cyclists	Widen existing shared path on north side to 3.5m min	210	110	£23,100	H	
	PR3b	Tesco Access to MSCP Access	3m segregated shared path	Not required	350			N/A	
	PR3c	MSCP Access to Bicester Town Station	3m shared footway	Dropped kerb near station	360		£300	QW	
	PR3d	Bicester Town Station to London Road	1.8m footway; no provision for cyclists (one road hump)	20mph zone, traffic calming and cycle surface markings	180	20	£3,600	H	
PR4: Shakespeare Drive	PR4a	Blenheim Drive to Middleton Stoney Road	No provision for cyclists, footways both sides	20mph zone, traffic calming and cycle surface markings	620	50	£31,000	M	
PR5: Byron Way	PR5a	Shakespeare Drive to Bucknell Road	Residential street with no provision for cyclists, footways both sides	20mph zone	500	20	£10,000	L	Community Street Design would be alternative approach
	PR5b	Longfellow Close	Short link path to Bucknell Road	Remove barriers	1	500	£500	QW	
PR6: Highfield to Bure Park	PR6a	Bucknell Road to Fane Close	Residential street with no provision for cyclists, footways both sides	20mph zone	280	20	£5,600	L	Community Street Design would be alternative approach
	PR6b	Link to Railway Subway	Cyclists not currently permitted	Convert to shared use	90		£500	QW	Legal input required
	PR6b	Barry Avenue	Chicane barrier	Remove barriers	1	500	£500	QW	
	PR6c	Railway Subway to Lucerne Avenue	3m segregated shared path	Not required	430			N/A	
	PR6d	Lucerne Avenue to Banbury Road	3m segregated shared path	Not required	150			N/A	
	PR6d	Lucerne Avenue, Banbury Road	Chicane barriers	Remove barriers	3	500	£1,500	QW	

Appendix 3

Primary Network Link	Sub Link Reference and Description		Existing provision	Improvement	Length (m)	Rate (£/m)	Cost	Priority	Comment
PR7: Windmill Avenue	PR7a	Banbury Road to Windmill Avenue	2m shared path (with adjacent area of open space)	Widen path to 3m min	70	100	£7,000	M	
	PR7a	Windmill Avenue	Quiet road with footways both sides (no space to widen); no provision for cyclists	20mph zone	440	20	£8,800	L	Community Street Design would be alternative approach
CR1: Jarvis Lane	CR1a	Launton Road to Railway	Narrow tarmac road quickly becomes muddy, potholed track	Resurface as a shared path & close to traffic	410	100	£41,000	M	Right of way status of Jarvis Lane to be investigated
	CR1b	Railway Crossing	Currently at-grade	Bridge or subway				M	Potential for Network Rail to close level crossing
	CR1c	Railway Line to Bainton Close	Unsurfaced footpath	Convert footpath to shared use path 3.0m min	130	100	£13,000	M	
	CR1c	Bainton Close to Charbridge Lane	Unbound surface on public footpath	Convert footpath to shared use path 3.0m min	160	100	£16,000	M	
CR2: Charbridge Way	CR2a	Charbridge Way to Gavray Drive	Rough, unmade & incomplete track	Convert footpath to shared use path 3.0m min	730	100	£73,000	L	Ownership and rights of way to be investigated
CR3: Mallards Way	CR3a	Mallards Way to Tubbs Crossing	3m shared path	Not required	280			N/A	
	CR3b	Mallards Way to RR5	2m-3m shared path, unbound surface	Resurface in tarmac in areas of unbound gravel	350	100	£35,000	M	
CR4: Langford Park Farm	CR4a	Graven Hill to Langford Park Farm	Private farm road - tarmac parallel to railway, unbound surface past farm	Adopt as highway			£500	M	Developer funded & 3rd party land issues
	CR4b	A41 subway London Road link	Guardrails both sides with narrow gap	Remove barriers	1	500	£500	M	
	CR4b	A41 subway London Road link	Narrow overgrown footpath	Convert footpath to shared use path 3.0m min	70	100	£7,000	M	Land ownership to be investigated
	CR4b	A41 subway London Road link	Tarmac access road	Use access road	60			N/A	
	CR4b	London Road	No provision	Raised zebra crossing			£30,000	M	Uncontrolled crossing if London Road level crossing closed
CR5: Talisman Road	CR5a	Talisman Road	Industrial estate access road	20mph zone, traffic calming and cycle surface markings	160	50	£8,000	L	
	CR5b	Talisman Road to Langford Park Farm	No provision	Create new shared use path 3.0m min with subway beneath A41	480		£2,000,000	L	Requires 3rd party land
CR6: Goodwood Close	CR6a	Middleton Stoney Road to RR9	New 1.2m footpath through development	Widen existing footpath to shared use path 3.0m min	450	100	£45,000	M	
CR7: Chalvey Road	CR7a	Middleton Stoney Road to Kingsclere	Residential street with no provision for cyclists, footways both sides	20mph zone	270	20	£5,400	L	Community Street Design would be alternative approach

Primary Network Link	Sub Link Reference and Description		Existing provision	Improvement	Length (m)	Rate (£/m)	Cost	Priority	Comment
CR8: Kings Avenue	CR8a	Chalvey Road to Kings End	Residential street with no provision for cyclists, footways both sides	20mph zone	290	20	£5,800	L	Community Street Design would be alternative approach
CR9: Tubb Close	CR9a	Lawrence Way	Residential street with no provision for cyclists, footways both sides	20mph zone	220	50	£11,000	M	Community Street Design would be alternative approach
	CR9b	Lawrence Way to Ruck Keene Close	Existing surfaced path varies ave. 2m	Create new shared use path 3.0m min, including bank protection	50	150	£7,500	M	Potential 3rd party land land issues
	CR9c	Ruck Keene Close	Residential street with no provision for cyclists, footways both sides	20mph zone	100	20	£2,000	L	Community Street Design would be alternative approach
	CR9d	Ruck Keene Close to Tubb Close	Existing path 1.2m with space to widen	Convert narrow path to shared use path to 3.0m min	50	100	£5,000	M	
	CR9e	Tubb Close to Middleton Stoney Road	Grass strip across 6m wide	Create shared use path 3.0m min through green space adjacent to watercourse	150	100	£15,000	M	Potential 3rd party land land issues
CR10: Greenwood Drive	CR10a	Shakespeare Drive to Greenwood Drive	Existing path 1.2m with space to widen	Convert path to shared use path 3.0m min	250	100	£25,000	M	
	CR10b	Greenwood Drive	Residential street with no provision for cyclists, footways both sides	20mph zone	90	20	£1,800	L	Community Street Design would be alternative approach
	CR10c	Greenwood Drive to Howes Lane	Existing path 1.2m with space to widen	Convert path to shared use path 3.0 min.	160	100	£16,000	M	
	CR10c	West of Howes Lane	Yet to be developed	Create new shared use path 3.5m through western green space				M	
CR11: River Bure	CR11a	Lords Lane to railway subway	2m shared path, unbound surface	Resurface in tarmac in areas of unbound gravel to 3.5m	530	110	£58,300	M	
	CR11a	Bridge over river	2m wide footbridge	Widen footbridge			£20,000	M	
CR12: Southwold	CR12a	Banbury Road to Willow Drive	3m segregated shared path	Not required	180			N/A	
	CR12b	Willow Drive to Holm Way	3m segregated shared path	Not required	280			N/A	
	CR12c	Holm Way to Hornbeam Road	3m segregated shared path	Not required	300			N/A	
	CR12a- c	Southwold	Highly restrictive barriers throughout	Remove barriers	10	500	£5,000	QW	
CR13: Balliol Road - Murdock Road	CR13a	Town Walk West	2.5m wide shared path, cycling is permitted	Widen path if land can be acquired	210	130	£27,300	M	Network Rail land needed for widening
	CR13b	Balliol Road	Dropped kerb is too short	Dropped kerb extension	1	200	£200	QW	

Primary Network Link	Sub Link Reference and Description		Existing provision	Improvement	Length (m)	Rate (£/m)	Cost	Priority	Comment
	CR13c	Balliol Road - Keble Road - Hertford Close	Residential street with no provision for cyclists, footways both sides	20mph zone	380	20	£7,600	L	Community Street Design would be alternative approach
	CR13d	Hertford Close	Chicane barrier	Remove barriers	1	500	£500	QW	
	CR13e	Murdock Road	Industrial estate access road	20mph zone, traffic calming and cycle surface markings	380	50	£19,000	M	
CR14 North Street - Sheep Street	CR14a	Field Street to St John's Street	Residential street with no provision for cyclists, footways both sides	20mph zone	250	20	£5,000	M	Community Street Design would be alternative approach
	CR14b	St John's Street to Sheep Street	Commercial street with no provision for cyclists, footways both sides	Extension to pedestrian area	90			M	Part of wider public realm scheme for town centre
	CR14c	Sheep Street	Pedestrianised throughout with no cycling currently permitted	Pedestrian zone - cycling permitted only 6pm to 10am			£500	H	Legal input required
CR15: St John's Street - Manorsfield Road	CR15a	St John's Street	Town centre access road	20mph zone, traffic calming and cycle surface markings	140	75	£10,500	H	
	CR15b	St John's Street to Hanover Gardens	Town centre access road and bus station, 3m shared footway on west side	20mph zone, traffic calming and cycle surface markings	330	75	£24,750	H	Existing shared footway
	CR15c	Hanover Gardens to Market Square	Town centre access road	Shared surface	90			M	Part of wider public realm scheme for town centre
CR16: Hunt Close	CR16a	Queens Avenue to Manorsfield	Shared path 2.5m wide	Widen existing shared path to 4.0m min	110	120	£13,200	M	Investigate bridge widening
CR17: Kings End - Causeway - Market Square	CR17a	Kings End to Church Lane	Town centre access road	20mph zone, traffic calming and cycle surface markings	360	50	£18,000	M	Community Street Design would be alternative approach
	CR17b	Causeway	Narrow one-way street (no cycle contraflow)	Pedestrian zone - cycling permitted at all times	110			M	Part of wider public realm scheme for town centre
	CR17c	Market Square North and East side	Town centre access road	Pedestrian zone - cycling permitted only 6pm to 10am				H	OCC are already progressing a scheme
	CR17d	Market Square South side	Town centre access road	Shared surface with access restrictions - cycling permitted at all times				H	OCC are already progressing a scheme
CR18: Piggy Lane	CR18a	Kings End to Cemetery Road	Limited vehicle access, eastern section unmade	Re-surface, 20mph zone and cycle surface markings. Move bollards to western end.	100	110	£11,000	M	
	CR18b	Cemetery Road	Narrow historic street	20mph zone	100	20	£2,000	M	Community Street Design would be alternative approach
CR19: Old Place Yard	CR19a	Pingle Drive to Old Place Yard	Shared 3m path across Pingle Field	Not required	160			N/A	OK

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Primary Network Link	Sub Link Reference and Description		Existing provision	Improvement	Length (m)	Rate (£/m)	Cost	Priority	Comment
	CR19b	Old Place Yard	Residential street with no provision for cyclists, footways both sides	20mph zone	110	20	£2,200	L	Community Street Design would be alternative approach
CR20: East Street, Ashby Road	CR20a	The Approach, Hudson Street & East Street	Residential streets with no provision for cyclists, footways both sides	20mph zone	280	20	£5,600	L	Community Street Design would be alternative approach
	CR20b	George Street to Ashby Road	Narrow footpath between allotments and college	Widen existing path to 3.0m min	200	130	£26,000	M	
	CR20c	Ashby Road	Residential street with no provision for cyclists, footways both sides	20mph zone	130	20	£2,600	L	Community Street Design would be alternative approach
	CR20d	Ashby Road to Kingsclere Road	Residential street with no provision for motor vehicles	Dropped kerbs at both ends	2	300	£600	QW	
	CR20e	Ashdene Road	Residential street with no provision for cyclists, footways both sides	20mph zone	70	20	£1,400	L	Community Street Design would be alternative approach
	CR20f	Ashdene Road to Middleton Stoney Road	Existing footpath 1.5m with space to widen, grass only south of St Mary's Close	Widen existing path to 3.0m min	380	100	£38,000	L	
	CR20g	Middleton Stoney Road	Existing footway 1.2m with verge space to widen	Widen existing footway to 3.0m min	50	100	£5,000	L	
CR21: Boston Road	CR21a	Boston Road	On-carriageway advisory cycle lanes 1.2m wide with no centre line	Not required	590			N/A	
CR22: Longfields	CR22a	Longfields	Residential street with no provision for cyclists, footways both sides	20mph zone, traffic calming and cycle surface markings	480	50	£24,000	L	Community Street Design would be alternative approach
CR23: Danes Road	CR23a	Danes Road & Langford Gardens	Residential street with no provision for cyclists, footways both sides	20mph zone	200	20	£4,000	L	Community Street Design would be alternative approach
	CR23b	Langford Gardens to Leach Road	Narrow footpath bounded by playing fields fence	Widen existing path to 3.0m min	110	130	£14,300	M	

£6,632,050

Appendix 4
# Accessibility and Connectivity Analysis

Appendix 4
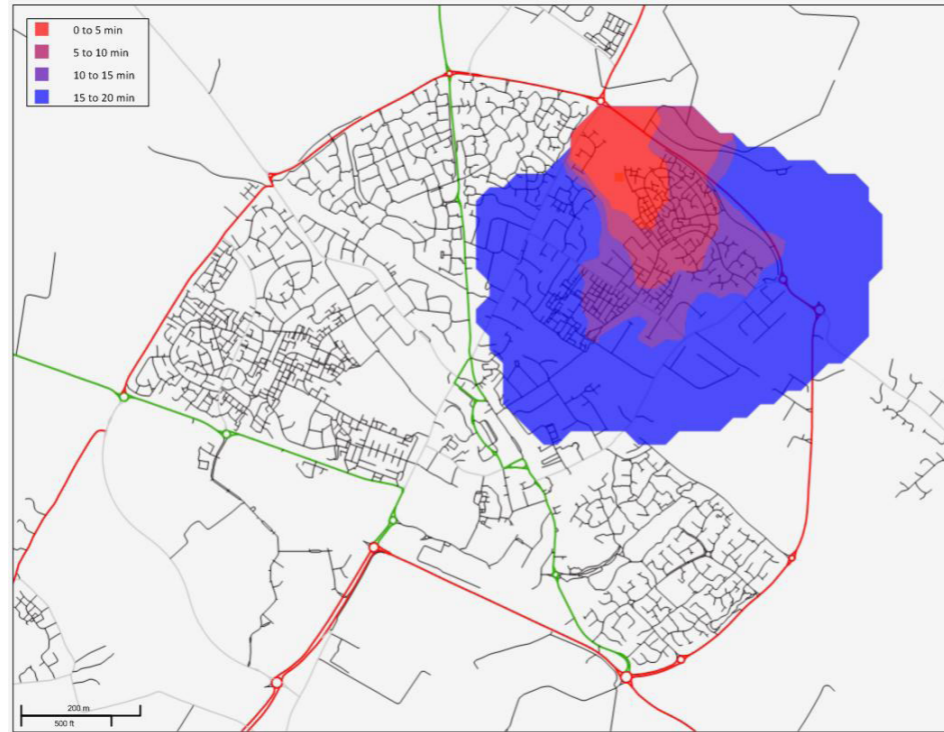

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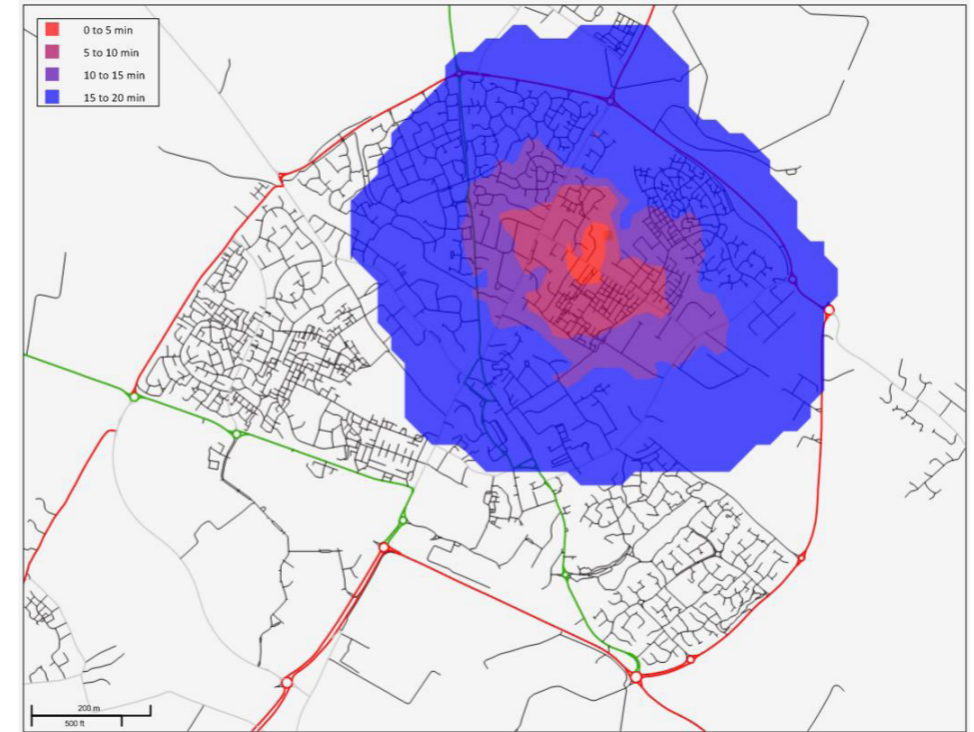
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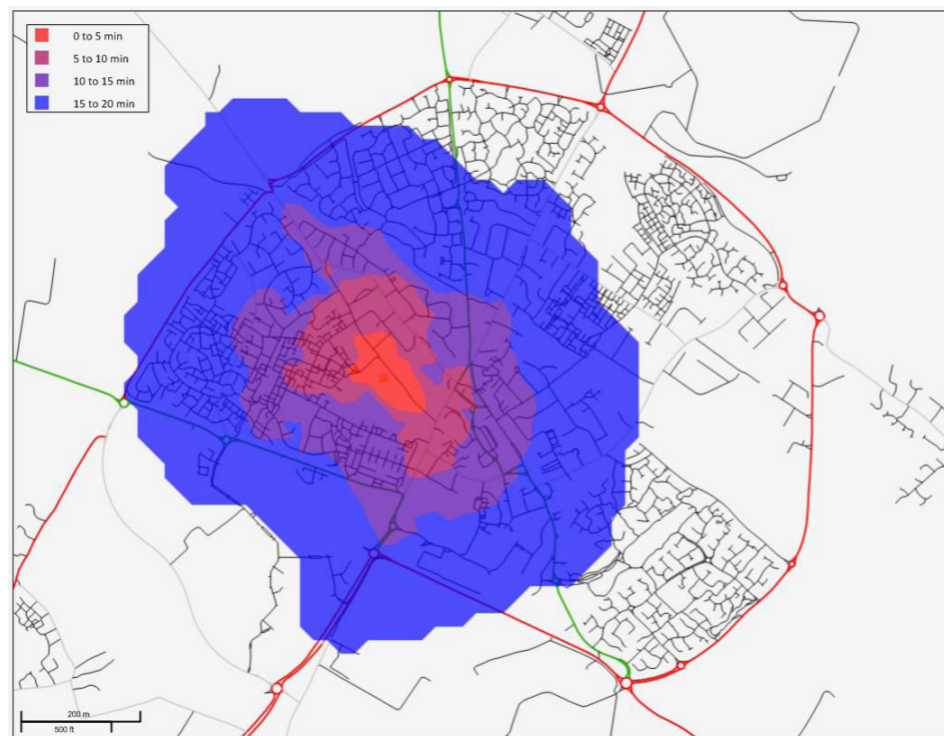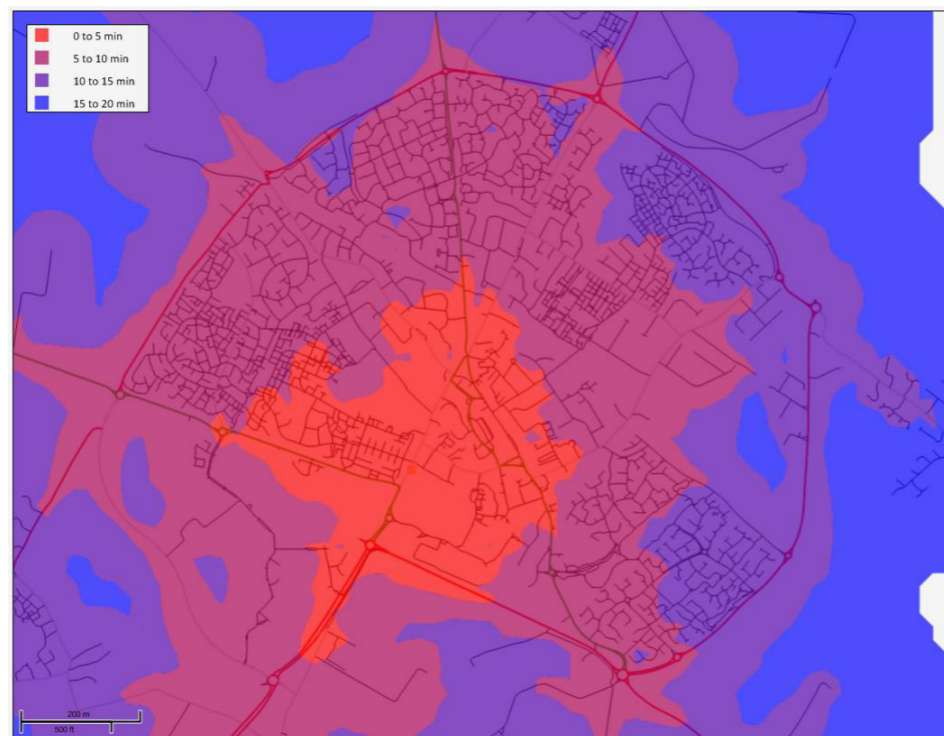

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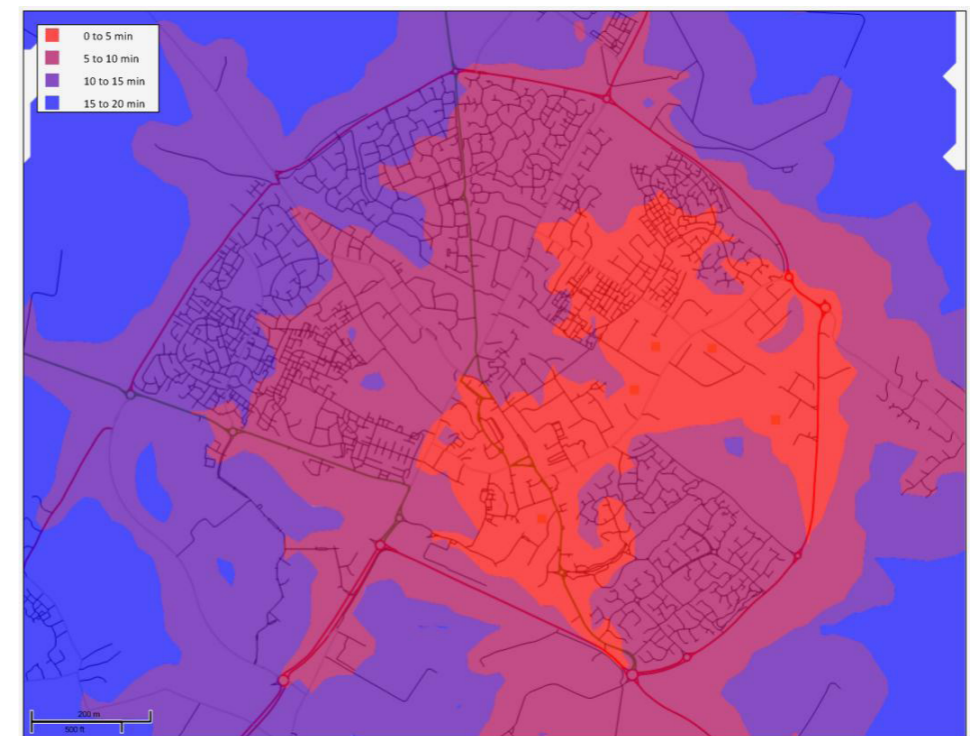

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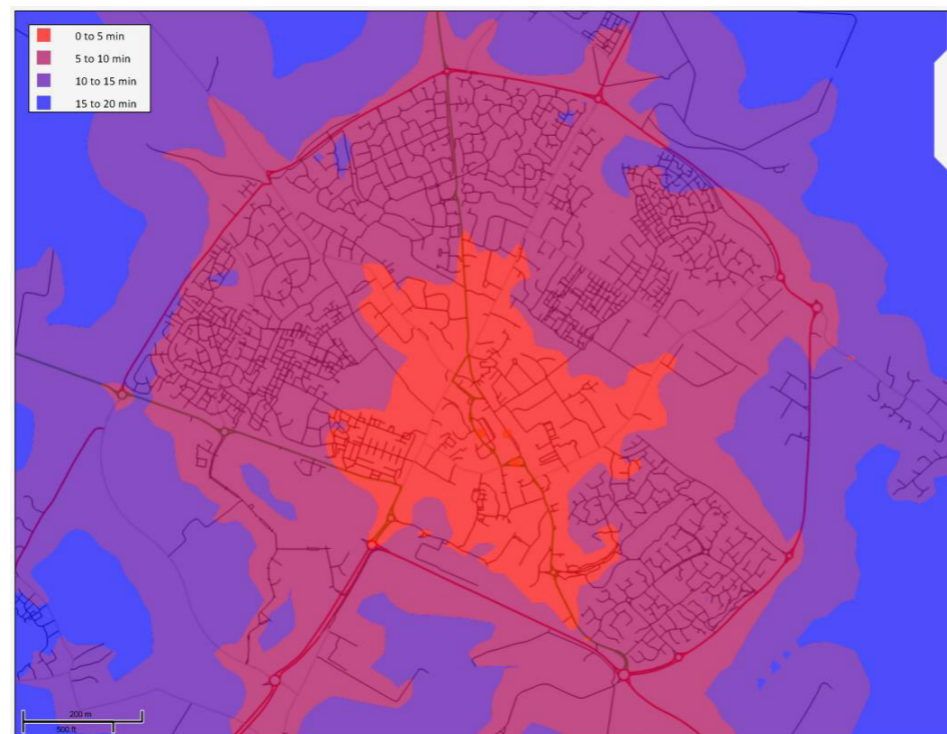
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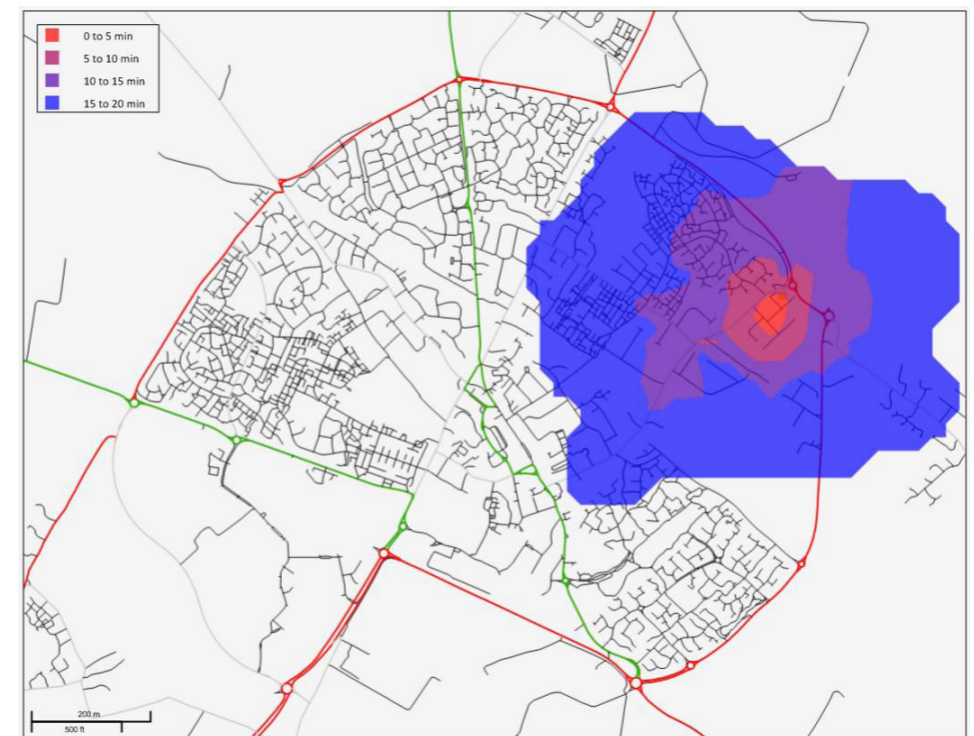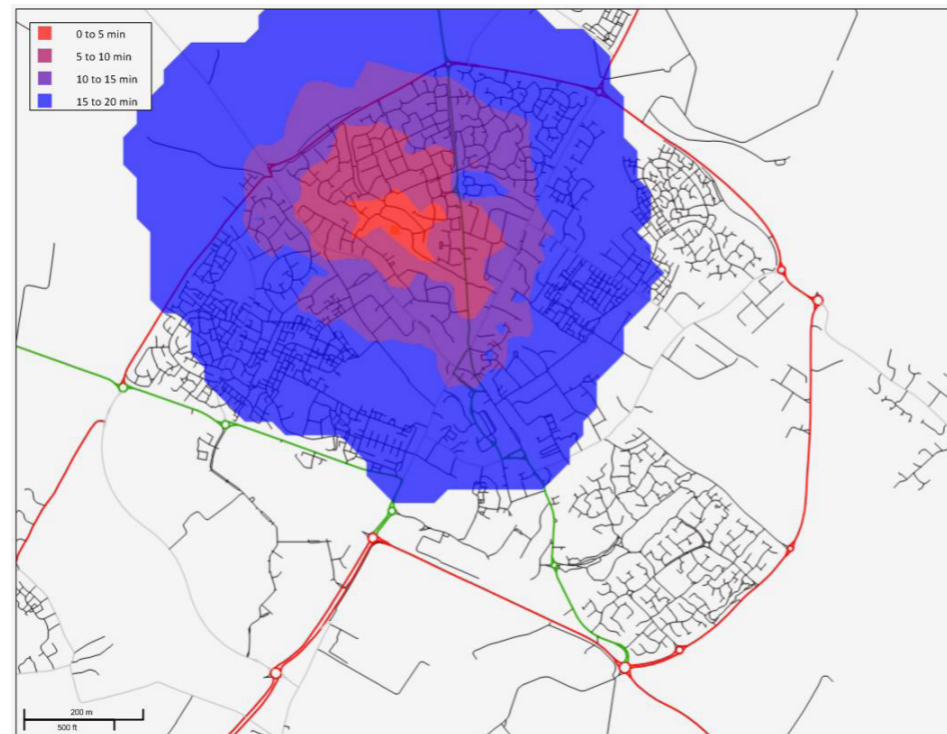
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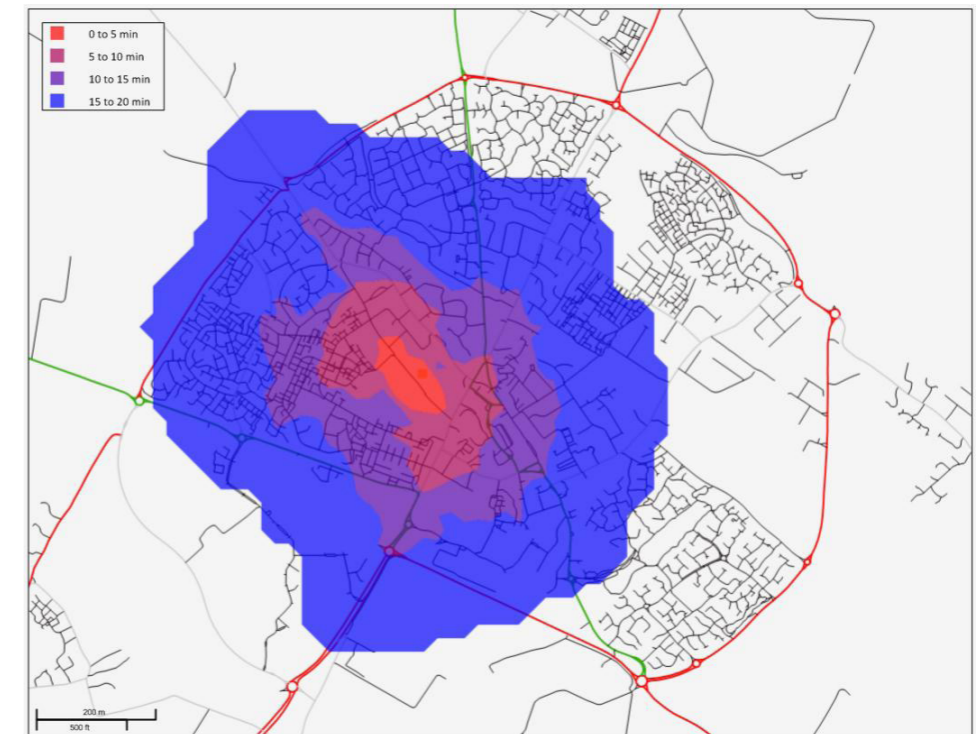
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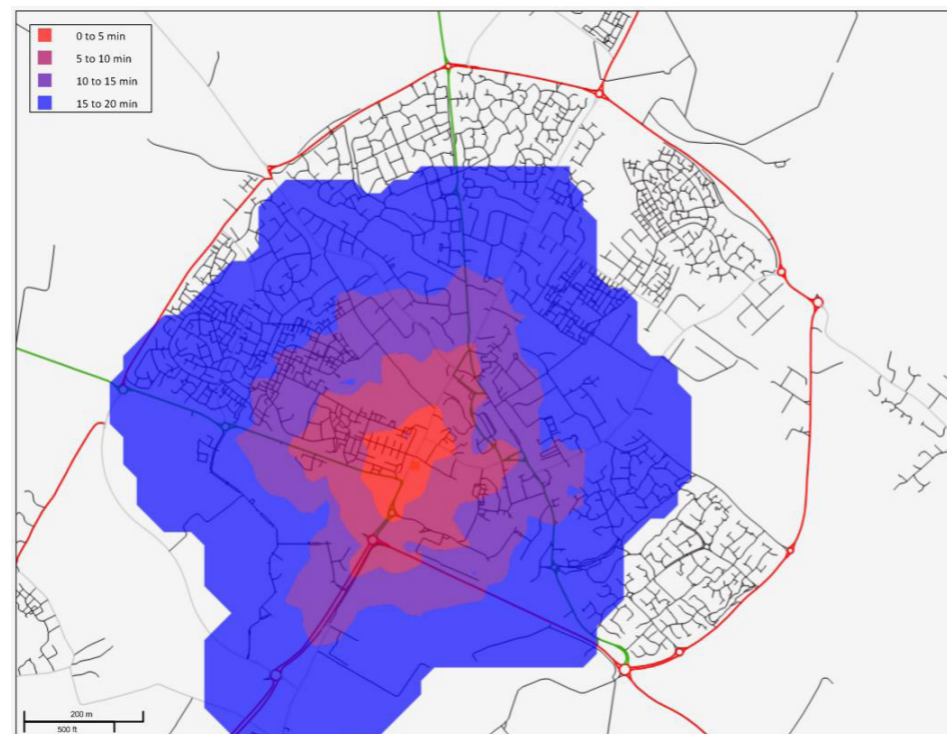
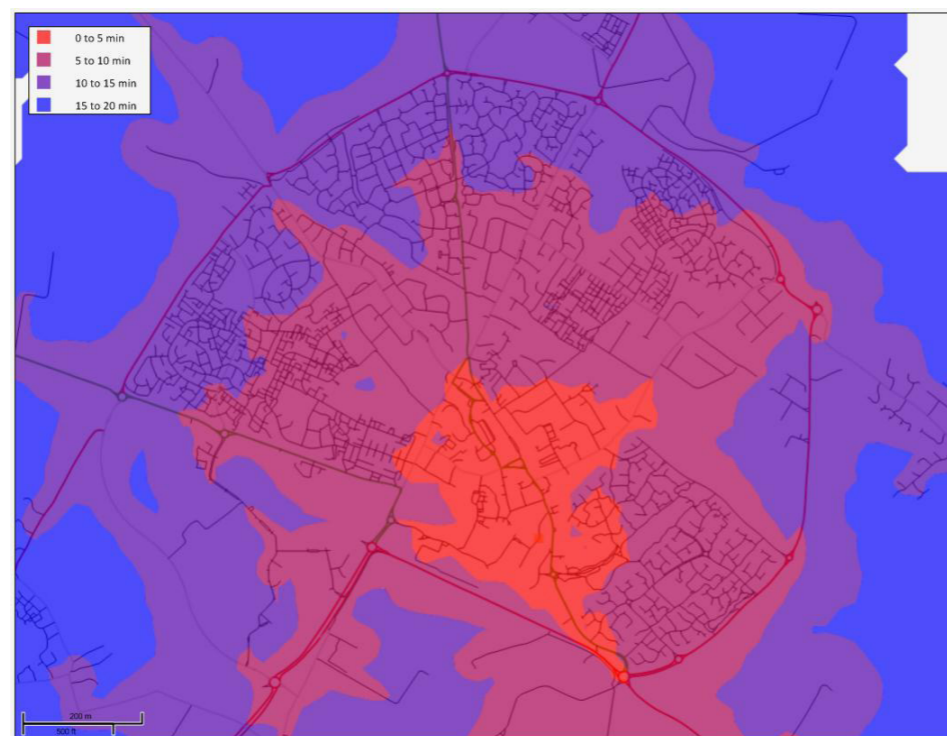Walking accessibility for Bicester Community Hospital
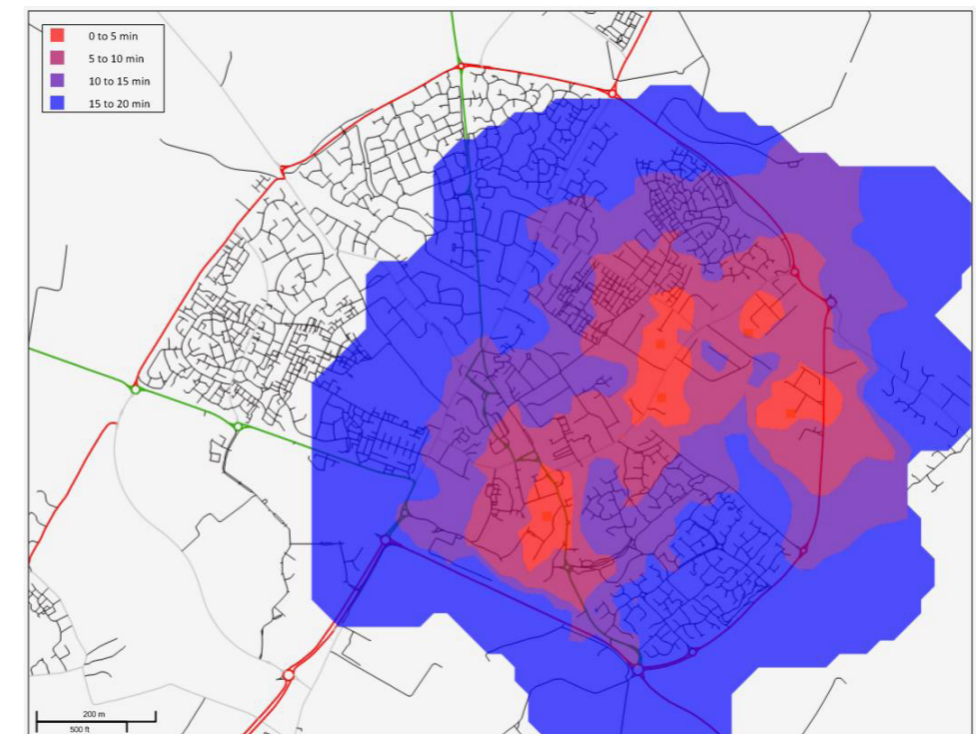
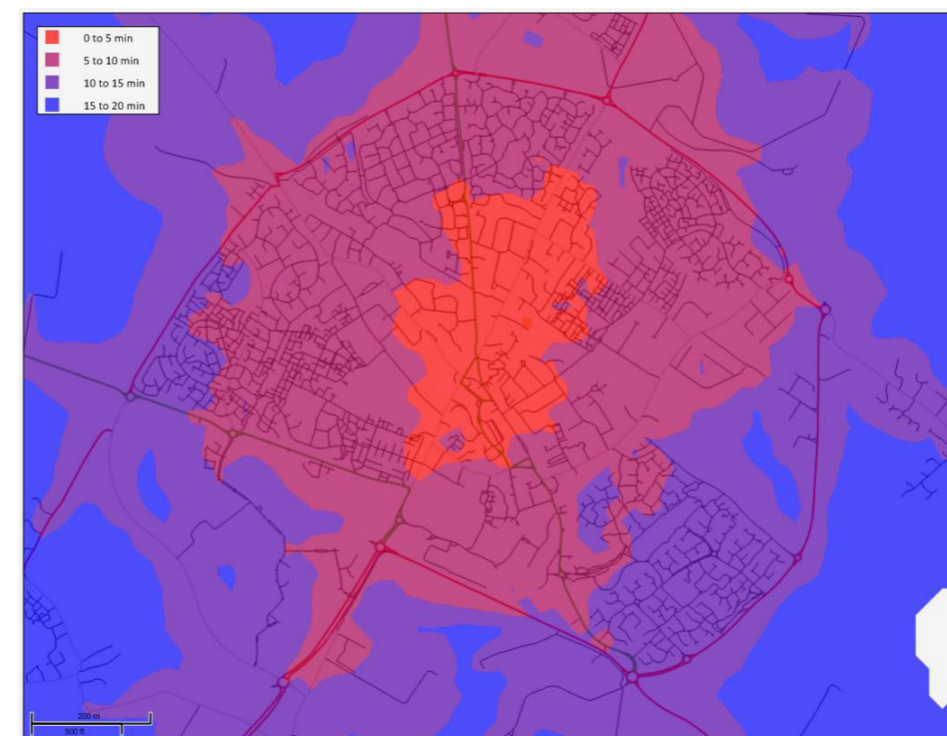Walking accessibility for the industrial areas within Bicester
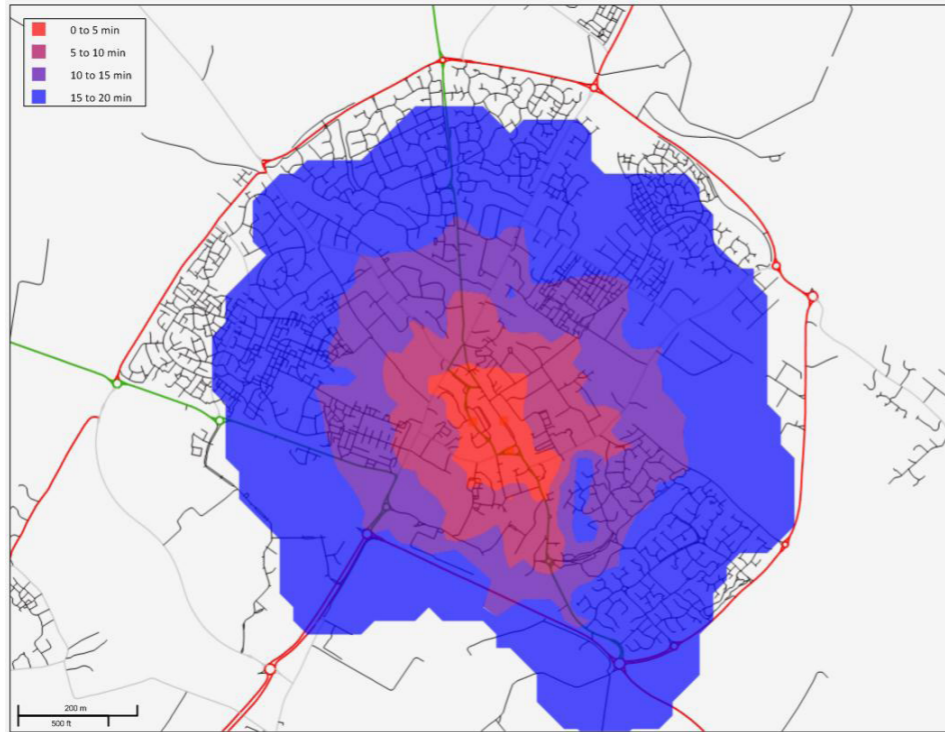
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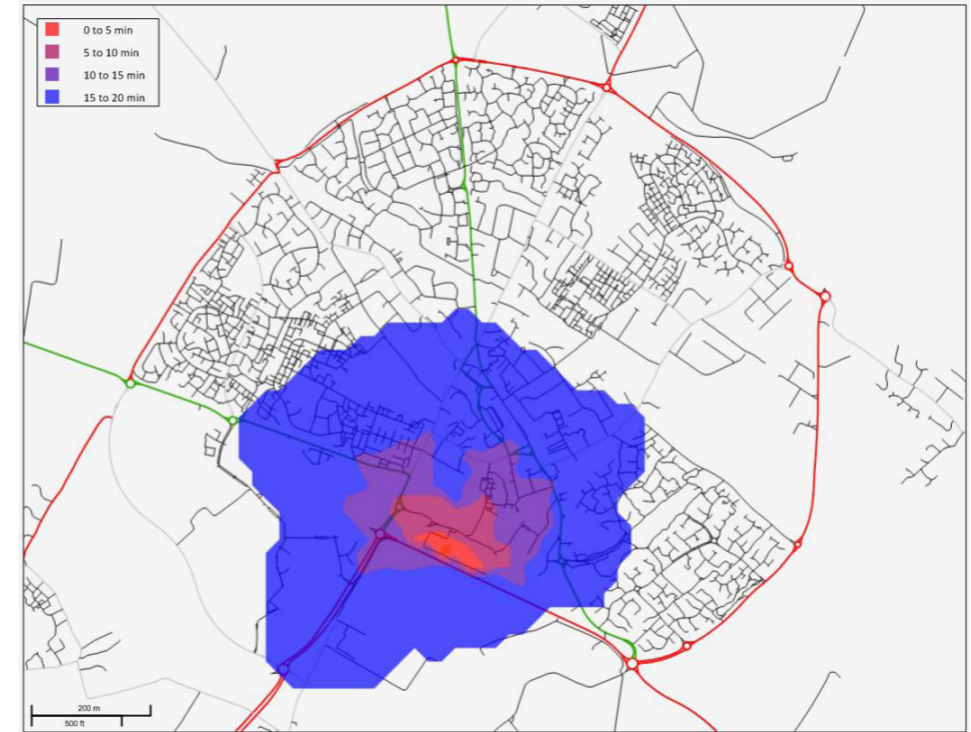
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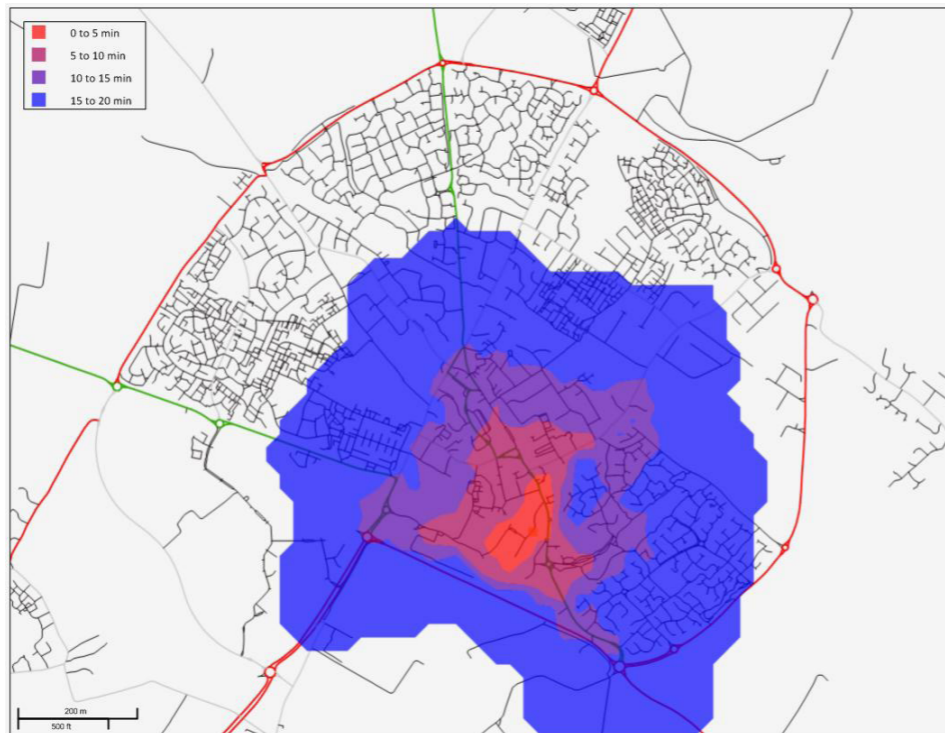
Walking accessibility for Bicester Town Station

Walking accessibility for Bicester North Station

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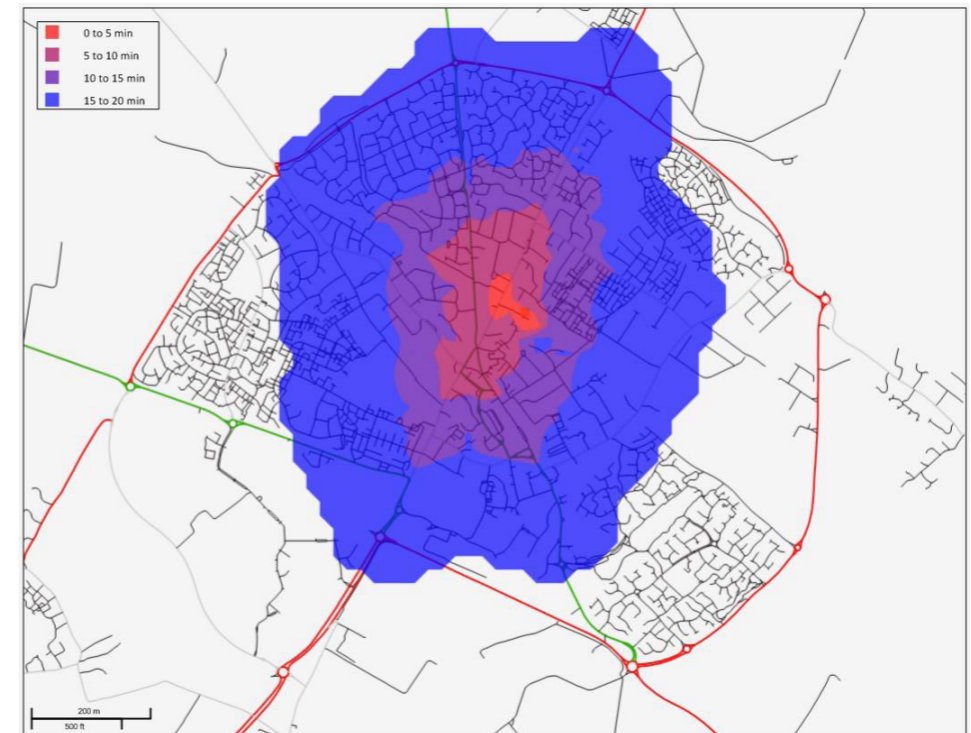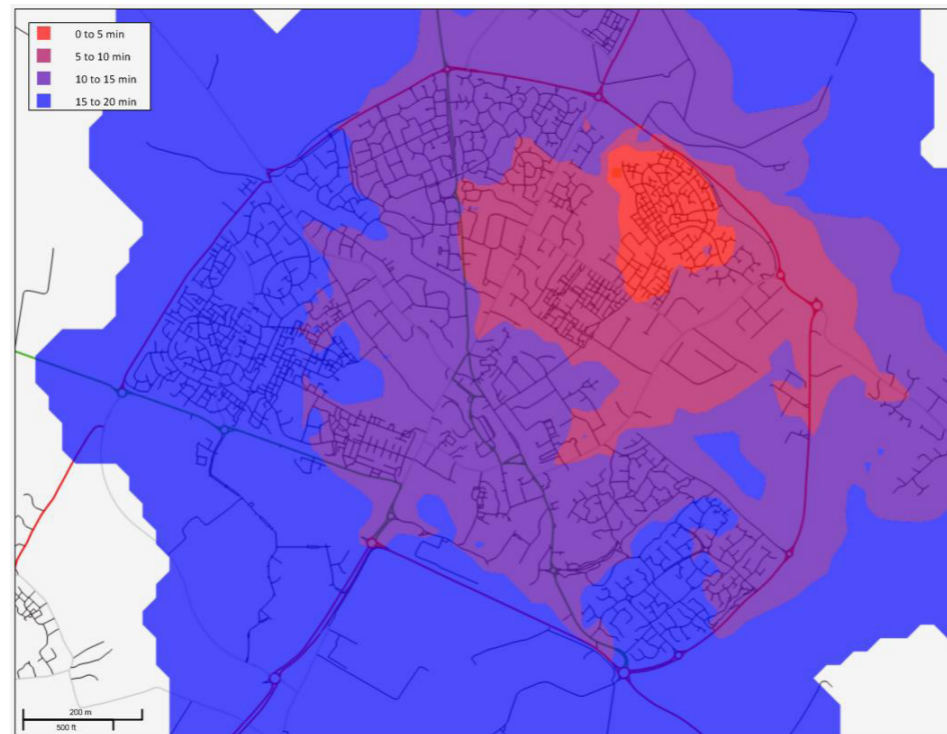
Cycling

Cycling accessibility for Bardwell School
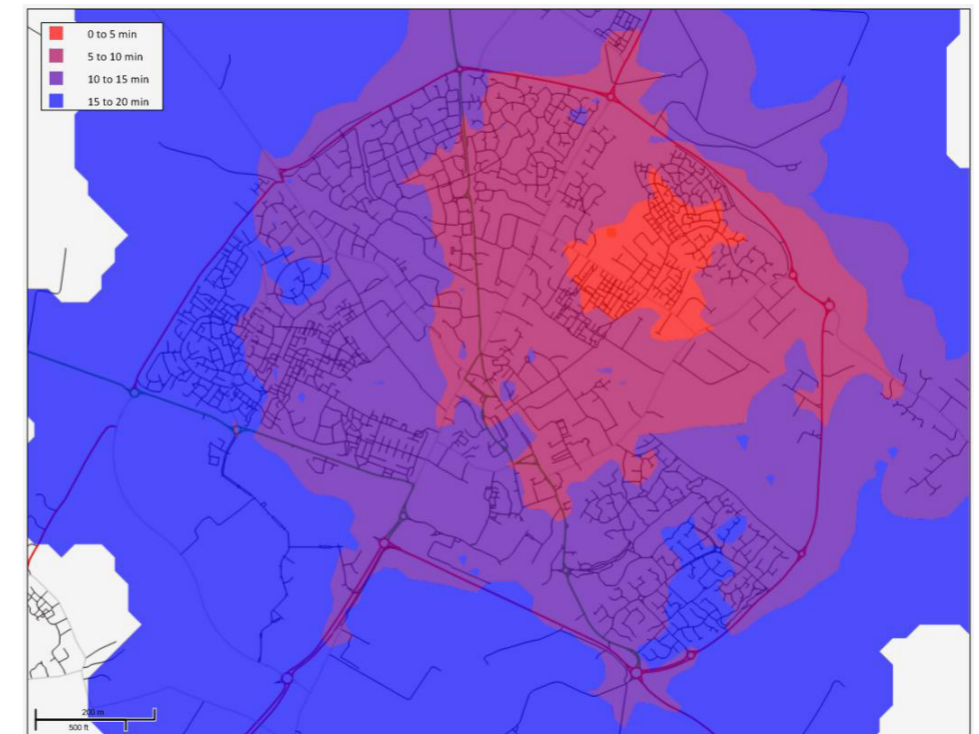
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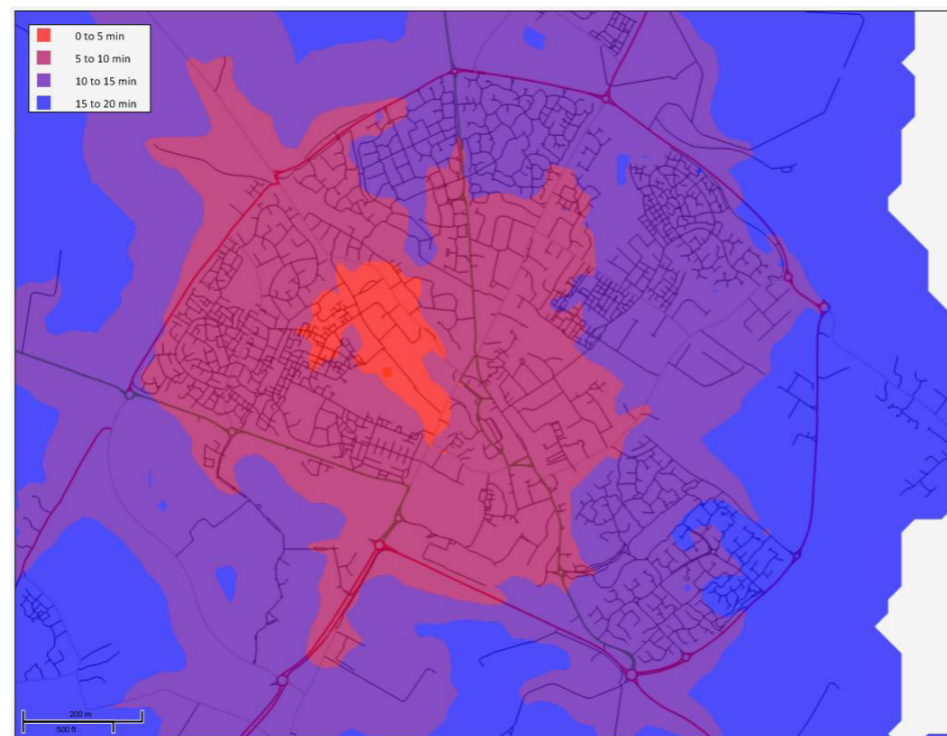
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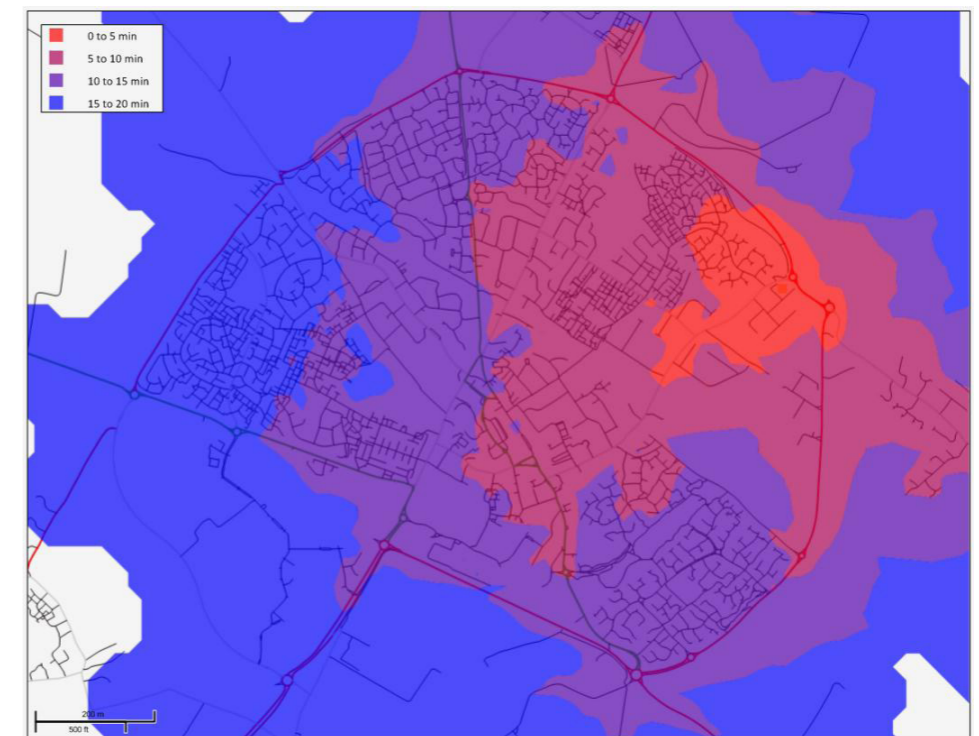
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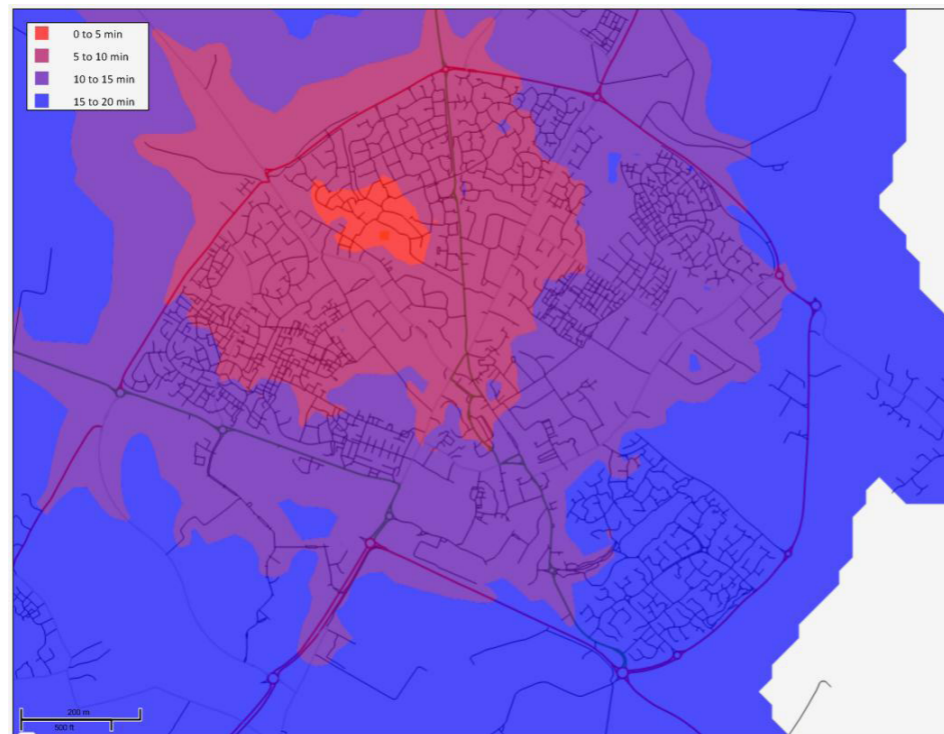
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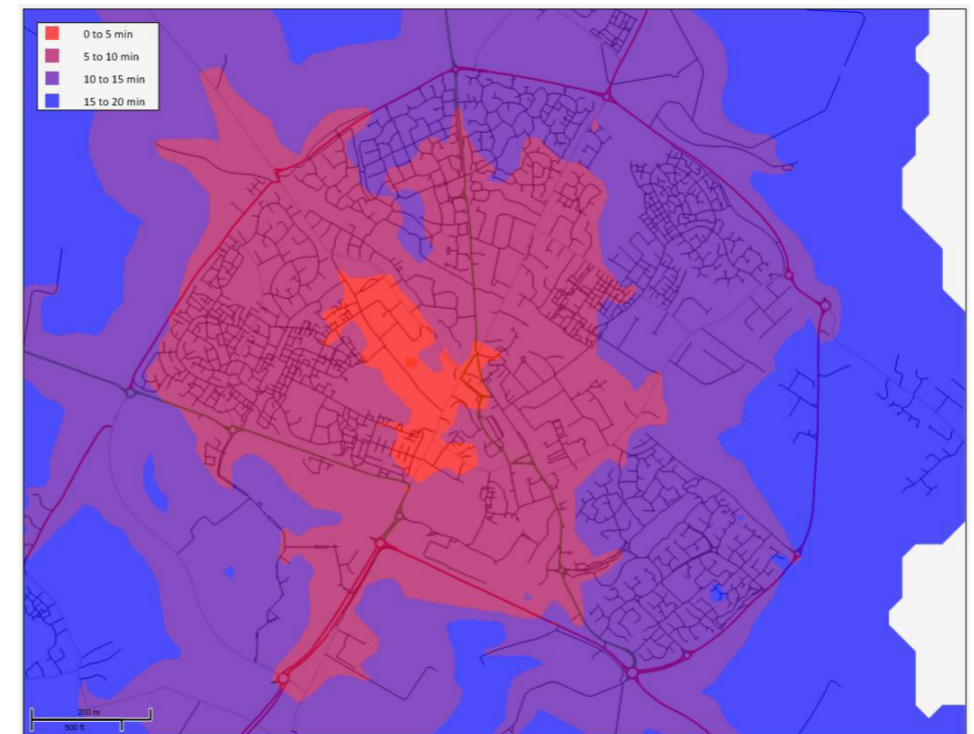
Cycling accessibility for Bicester Leisure Centre

Cycling accessibility for Bicester Community Hospital

Cycling accessibility for the industrial areas within Bicester

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Cycling accessibility for three locations in the Town Centre
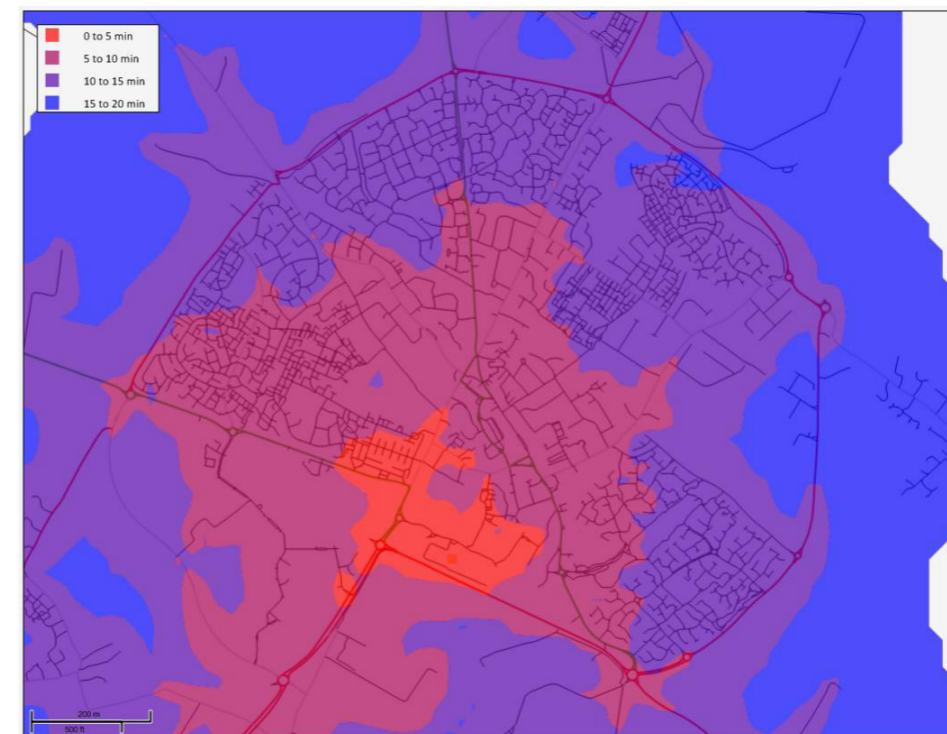
Cycling accessibility for Bicester Village

Cycling accessibility for Bicester Town Station

Cycling accessibility for Bicester North Station

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