



Cherwell Street, Banbury Bus Service Improvement Scheme

Options report

July 2024

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Issue and Revision Record

Revision	Date	Originator	Checker	Approver	Description
A	2 April 2024	Anna Whittle and Patrick Noonan	Nick Ovenell	Richard Brown	First draft
B	26 April 2024	Anna Whittle and Patrick Noonan	Nick Ovenell	Richard Brown	Final draft
C	5 July 2024	Patrick Noonan	Nick Ovenell	Richard Brown	Updated modelling results

Information class: Standard

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1 Introduction

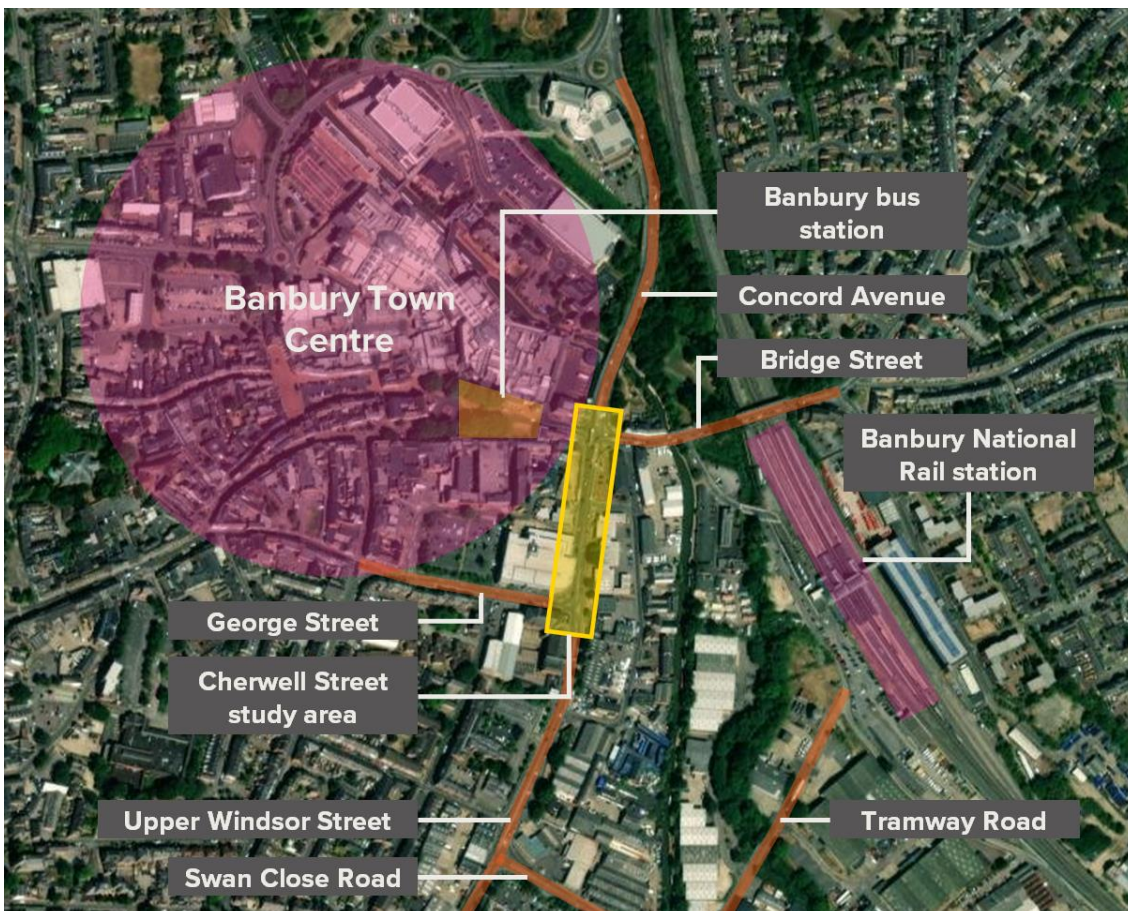
The signalised junction of Cherwell Street and Bridge Street in Banbury, Oxfordshire, is of particular importance for Banbury's local and inter-urban bus network, as it is the gateway to the bus terminal area within Banbury town centre. The junction operates over-capacity during peak periods for motorised vehicles resulting in significant delays to buses, both into and out of the town centre.

This junction, along with Cherwell Street between Bridge Street and George Street, was identified in the Oxfordshire BSIP (Bus Service Improvement Plan) as the location for a proposed capital scheme C5, envisaged to include a bus lane on Cherwell St and a package of junction improvements, with the aim of reducing bus journey times and ensuring that all bus trips are reliable and consistent between George Street and the Bridge Street Bus Station and on-street bus hub throughout the day.

Oxfordshire County Council (OCC) was awarded £2.3m by the Department for Transport (DfT) as part of OCC's BSIP award to implement capital scheme C5, and this funding can be supplemented by up to £500,000 of funding support accrued through Section 106 contributions. The DfT funding must be spent by the end of March 2025.

The location of the scheme study area in relation to Banbury town centre is shown in Figure 1.1.

Figure 1.1: Location of the Cherwell Street bus improvement scheme study area in the context of Banbury town centre.



The strategic objective to improve journey times and service reliability for buses accessing the town centre from Cherwell Street will require consideration of options that improve the flow of buses through two traffic signal junctions (Cherwell Street with both George Street and Bridge Street) and along Cherwell Street itself, to benefit approximately 16 buses per hour. There is also an opportunity to take a place-based approach to the scheme and consider complementary improvement measures for people walking and cycling in this area as part of the scheme, and to address existing safety issues at the junctions. Whilst the initial scheme must be delivered to meet the timescales of the BSIP funding award, it is envisaged that the scheme could form part of a wider phased package of improvements to the bus network in Banbury, potentially including routing and termination changes in the longer term.

1.1 Project aims

The main aims of this project are to:

- a. Produce a feasibility design for a bus improvement scheme for Cherwell Street, Banbury to reduce journey times into the town centre.
- b. Engage with and incorporate the inputs of key stakeholders including Cherwell District Council, Banbury Town Council, and bus operators.
- c. Identify an initial long list of interventions and use an assessment framework to identify a short list by ruling out those that will not meet the scheme objectives, or the budget and time constraints.
- d. Assess the short list in detail and through technical work and engagement, propose a preferred option to take through a public engagement process.
- e. Produce a costed design for the preferred option and handover to OCC's delivery team; provide supporting advice to the appointed contractor.

1.2 Report structure

This optioneering report summarises the long list of options, short list of combined options, preferred options and methodology undertaken to produce these options.

Following this introductory section, this report is structured as follows:

- Section 2 outlines and summarises the methodology used to assess the options from the long list of options to the preferred option.
- Section 3 presents the long list of options including the possible interventions, assessment and feasible schemes.
- Section 4 presents the short list of options including the option combinations, modelling results and final assessment.
- Section 5 presents the next steps for the project.

This report has been prepared alongside several other reports documenting the development of this scheme, including:

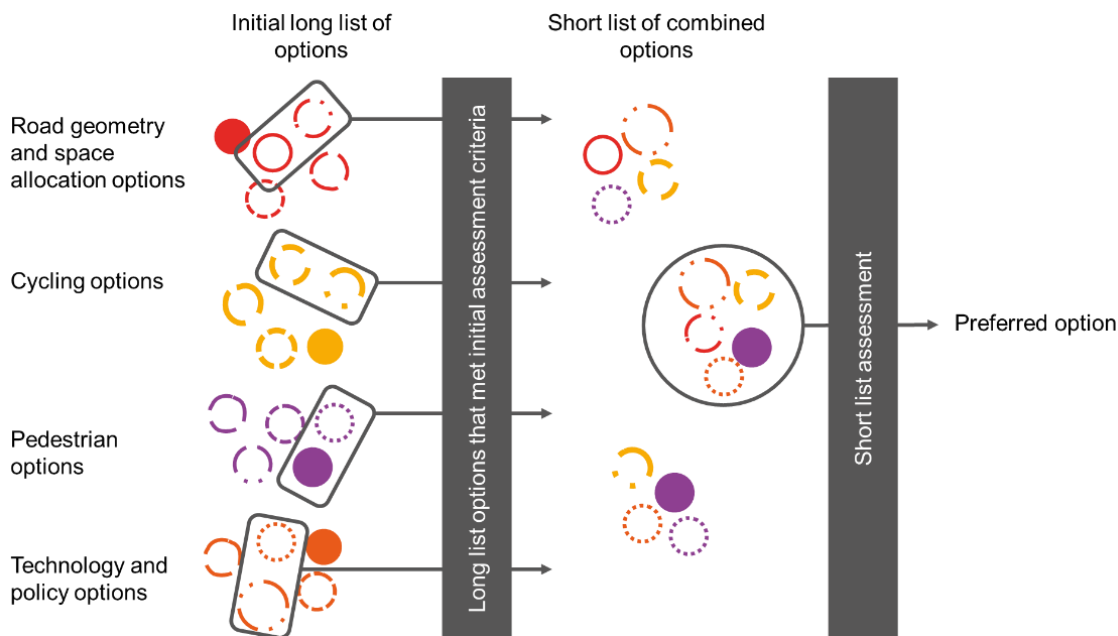
- **Data Assimilation Report**, summarising the strategic and policy context and the existing conditions on Cherwell Street.
- **Options Report** (this report)
- **Modelling Report**, documenting the methodology and results of traffic modelling for the various options identified in this report.
- **Feasibility Design Final Report**, which will document relevant details of the preferred option.

2 Optioneering and shortlisting methodology

This chapter presents an overview of the methodology followed to identify a preferred option for the Cherwell Street bus priority improvement scheme. The methodology is focused on the sifting and assessment process to reduce a long list of individual transport interventions to a short list of schemes, and then an eventual preferred option. The methodology incorporates the objectives set out in the Assessment Criteria Framework in the Data Assimilation report.

This overall process is illustrated in Figure 2.1.

Figure 2.1: Optioneering Methodology



2.1 Long List of Options

In section 6.2 of the Data Assimilation report, the Assessment Criteria Framework was presented. The themes, objectives and sub-objectives defined from policies and documents reviewed were outlined and it was proposed that these were to be used for the appraisal of the long list of schemes and the identification of a shortlist, since this will facilitate the testing of each option against the main motivations for undertaking the work. These are presented in Table 2.1.

Table 2.1: Themes, Objectives and Sub-Objectives

No	Theme	Sub-Objective	Document basis
1	Sustainable Mode Shift	1.1. Seek to make the bus a natural first choice through development of infrastructure and network management measures which give greater priority over the private car and improve journey times and reliability.	LTCP Policy 18

No	Theme	Sub-Objective	Document basis
		1.2. Maintain a commercially sustainable and comprehensive network of services which is accessible and attractive to as many residents as possible.	LTCP Policy 18
		1.3. Reduce journey time for trips into Banbury by non-car modes	LTCP Policy 18 Oxfordshire BSIP
		1.4. Improve level of integration and connectivity between bus and other sustainable transport modes by improving pedestrian access between Banbury Rail Station, Banbury Bus Station and the walking and cycling network	LTCP Vision
2	Safety and Well-Being	3.1. Reduce the risk of road traffic collisions, through good design and / or by reducing the amount of traffic on the highway	LTCP Vision
		3.2. Reduce the risk of collisions involving pedestrians and cyclists through good design and / or reducing the amount of traffic on the highway	LTCP Vision
		3.3. Improve journey quality through the reduction of driving-related stress for motorists, and the provision of a safer environment for pedestrians and cyclists.	Inferred from other policies and agreed with project team
		3.4. Improve the resilience of the transport network in Banbury	Inferred from other policies and agreed with project team
		3.5. Increase proportion of visitors satisfied with their journey to Banbury	Oxfordshire BSIP
3	Environment, Place and Resilience	3.1. Reduce greenhouse gas emissions to net zero by improving the flow of traffic and by reducing the volume of traffic on the road	National policy
		3.2. Improve air quality by reducing congestion in sensitive and populated areas	National policy
		3.3. Reduce negative traffic impact in inappropriate and historically sensitive parts of Banbury	Cherwell Local Plan Part 1
		3.4. Improve the quality of place and liveability of Banbury through improved public realm	Cherwell Local Plan Part 1 Canalside SPD Banbury Masterplan
		3.5 Promote resilience to extreme weather and global turmoil	National policy
4	Inclusivity	4.1. Ensure that new strategic development is integrated with, and supports, high quality bus infrastructure and is fully accessible by bus and other forms of public transport	LTCP Policy 18
		4.2. Ensure bus services and infrastructure (including highways on which buses run) are accessible by all people regardless of level of mobility	LTCP Policy 18
		4.3. Reduce inequalities in access to Green and Blue Infrastructure by improving access by walking, wheeling and public transport and reducing dependency on private transport	GBI Strategy
		4.4. Help to overcome social isolation of people without access to a car	GBI Strategy LTCP Policy 18
		4.5. Create sustainable independent travel options for all people over the age of 12	National Policy

No	Theme	Sub-Objective	Document basis
5	Vibrant Economy	5.1. Foster sustainable economic growth within Banbury by improving access to employment, education and amenity	Banbury Masterplan
		5.2. Support increased residential dwellings and retail expansion in Banbury by contributing to an improved streetscape, reduced traffic noise and improved air quality	Banbury Masterplan
		5.3. Help reduce the level of deprivation by improving the bus network, securing benefits achieved through specific development proposals and by economic growth and diversification	Banbury Masterplan Cherwell Local Plan Part 1
		5.4. Facilitate an increase in visitor numbers to return to and exceed pre-pandemic levels	Banbury Masterplan
		5.5. Create sustainable independent travel options for all people over the age of 12	National Policy

Source: Mott MacDonald

However, these by themselves are not considered sufficient to adequately test the suitability of a specific scheme, since they do not include any pragmatic measure of practicality in terms of delivering the scheme options. Without this, the highest intervention schemes will often score most highly with no consideration given to the affordability, constructability, or acceptability of such an option.

To counter this, we propose to include a further set of criteria and sub-criteria that fall under the theme of 'Deliverability'. To this end, the following set of sub-criteria have been agreed with the project team.

No	Theme	Sub-Objective
6	Deliverability	6.1 Affordability – How much does the option cost and is there a potential funding route for this?
		6.2. Stakeholder Acceptability – What is the likely level of support (on balance) between core stakeholders for the option?
		6.3. Public Acceptability – What is the likely level of support (on balance) from the general public for the scheme?
		6.4. Ease of Construction: Infrastructure and Programme - How easy will the option be to construct in terms of the amount of new infrastructure and anticipated programme for delivery?
		6.5. Ease of Construction: Intrusiveness and Complexity – How easy will the option be to construct in terms of during construction impacts on network users and complexity of works involved
		6.6. Land / Space Availability – Is there sufficient space or available land to construct the option? Will complex land acquisition be required

Source: Mott MacDonald

2.1.1 Scoring

Scoring for each option was undertaken using Mott MacDonald's INSET tool. INSET reflects the process recommended by HM Treasury's Green Book for assessing investment options.

Each of the options in the long list was scored against each sub-criterion on a 7-point scale (-3 to +3) using the Do Nothing scenario as a base for comparison.

- If only positive outcomes are expected from intervention, this would start at 0 (no benefit compared to Do Nothing) with maximum score being +6 (very positive benefit compared to Do Nothing).
- If only negative outcomes are expected, the scoring would run from -6 (very negative outcome compared to Do Nothing) to 0 (no impact compared to Do Nothing).
- If the outcomes could be either positive or negative, the scoring would run from -3 (very negative impact compared to Do Nothing) to +3 (very positive benefit compared to Do Nothing), with 0 indicating a neutral outcome.

2.1.2 Weighting and Results

The outcomes of the assessment framework were determined by summing up the scores received against each sub-objective for each possible intervention.

INSET allows for two levels of weighting to modulate the scores according to the relative importance of different objectives or sub-objectives.

By default, sub-objectives are weighted equally within each objective grouping. Similarly, objectives are weighted equally, regardless of how many sub-objectives are contained within them.

Sub-objectives can be weighted so that they are more significant within their top-level objective group, but this will not affect the overall weighting of the top-level objective compared to other top-level objectives. The overall score for each top-level objective, which is comprised of the sub-objective scores, can then be weighted relative to other top-level objectives to reflect priorities for the project.

In this way the overall result of each intervention to be compared with each other intervention is a combination of the score received, the weighting of the individual sub-criteria, and the weighting of the top level sub-criteria relative to each other.

The top-level objectives were weighted under the following scenarios to test the sensitivity of different priorities to how each long list option was scored. These scenarios were:

- Baseline scenario: no weightings applied; all objectives had the same weighting.
- Mode shift and regeneration: Objective 1 Mode Shift and Objective 5 Vibrant Economy were weighted five times that of the other objectives.
- Mode shift and deliverability: Objective 1 Mode Shift and Objective 6 Deliverability were weighted five times that of the other objectives.
- Deliverability: Objective 6 Deliverability was weighted five times that of the other objectives.

Any options that received a negative overall score in any scenario were then not considered in developing the short list of combined options.

2.2 Shortlisting and further assessment

Of the remaining short list of options, these interventions were then combined to create five schemes that reflected a variety of ambitions for the Cherwell Street town centre and bus corridor, considering the amount of space, available funding, impact due to construction, and timeframe available to deliver the scheme.

High-level concepts were then developed for these five options using AutoCAD, and they were modelled using VISSIM to determine the impacts on car journey times, bus journey times, and junction performance.

2.2.1 Traffic modelling methodology

Modelling was undertaken for a do minimum (DM) scenario, as well as for each of the short list options that were developed. This was undertaken using an existing model provided by OCC (as used for modelling the Tramway scheme in Banbury), and validated using updated survey data that was collected for the project. The DM scenario maintains the existing sub-standard junction configuration at the Bridge Street/Cherwell Street junction and the George Street/Cherwell Street junction.

The 2023 DM demand was taken from the 2023 base models and zones were adjusted where necessary. The demand for 2031 was taken from the existing Cherwell Street Model. The demand for 2040 was calculated by applying a growth factor on the existing 2031 matrices from TEMPro 7.2.

The DM model outputs were compared against the model outputs for the initial five options for the year 2040. The DM model and further options were then modelled for years 2023, 2031 and 2040 and compared across all years.

Details on the modelling methodology and results can be found in Appendix B.

3 Long list of options

A long list of options was developed which considered interventions that could be categorised into four different general categories: road space geometry and road space reallocation, cycling improvements, pedestrian improvements, and technology and policy. Overall, 22 options were identified which may help contribute to improved bus journey times on Cherwell Street and at the Bridge Street and Cherwell Street junction, along with meeting the various objectives identified in the Assessment Criteria Framework. These options are presented below.

3.1 Possible interventions

The full list of possible interventions that were considered are listed in Table 3.1, below.

Table 3.1: Long list of options considered.

Category	Intervention	Description
Road space geometry and road space allocation interventions	Nearside northbound bus lane between George Street and Bridge Street	To connect to the George Street bus lane. Will likely require the loss of a northbound general traffic lane.
Road space geometry and road space allocation interventions	Widen bus lane on George Street	Currently the bus lane is very narrow, and bus tends to encroach into the adjacent lanes.
Road space geometry and road space allocation interventions	Bus lane on western arm approach of Bridge Street	Bus lane directly feeding from the bus station to the Bridge Street stop line.
Road space geometry and road space allocation interventions	Long bus lane from Gatteridge street to Bridge Street	There is space available for a long lane between Gatteridge Street and Bridge Street, however current bus frequencies are very low to the south of the Swan Close Road junction.
Road space geometry and road space allocation interventions	Roundabout replace signals at Bridge Street Junction	Replacement of the traffic signal junction with a 35-40m ICD roundabout with controlled pedestrian facilities on all arms. However, this is unlikely to fit into the existing road space.
Operational, technology and policy interventions	Remove Roundabout of Bridge Street/Market Place	This removal would not be required if the buses were to be routed southbound down the High Street as a turnaround for buses would not be needed. There are also significant public realm improvement options here.
Road space geometry and road space allocation interventions	Signalise Swan Close Road/Tramway Road Junction	In support of introducing a bus route service serving Banbury station via Tramway Road, also develop pedestrian control facilities.
Cycling interventions	Shared use all arms of both junctions with toucan crossings	Improved facilities for cyclists where they are currently lacking.
Cycling interventions	Improve walking and cycling facilities for access to the railway station	There is a strong demand for both walking and cycling access for the station.
Cycling interventions	LTN1/20 compliant junctions (impact on traffic capacity)	Straight and direct pedestrian crossings with CYCLOPS type arrangement.
Pedestrian interventions	Simplify junction for pedestrians by removing traffic islands and providing an all red	Currently junction runs to a 220 seconds signal cycle time, normally the target is 90 seconds in a town centre environment.
Pedestrian interventions	Take Bridge Street down to single lane approach and widen footways	Footway on southern side of Bridge Street is very narrow, widen footway using a short traffic flare.

Category	Intervention	Description
Pedestrian interventions	Rationalise George Street junction to improve and modernise the pedestrian facilities	The signal equipment is old and outdated. The pedestrian facilities are off the desire lines, and some are also uncontrolled and need improving.
Pedestrian interventions	Improve walking and cycling facilities for access to the railway station	There is a strong demand for both walking and cycling access for the station.
Pedestrian interventions	LTN1/20 compliant junctions (impact on traffic capacity)	Straight and direct pedestrian crossings with CYCLOPS type arrangement.
Operational, technology and policy interventions	Re-route George Street bus services via High Street to the bus station	Would require buses to share space through pedestrianised area. 16 buses per hour and potentially include physical bus gate.
Operational, technology and policy interventions	Bus Priority through signals	This requires modelling and specific sensors however may not be that beneficial due to level of congestion.
Operational, technology and policy interventions	Provide bus service which connects to rail station	No bus services directly serve the rail station, and the closest bus stop is fairly remote.
Operational, technology and policy interventions	Linking up Signal Junctions e.g Scoot	Improve signal coordination through the network for the three signalised junctions at Bridge Street/Cherwell Street, George Street/Cherwell Street and George Street/Broad Street
Operational, technology and policy interventions	Ban right turns to Bridge Street	This would force traffic to re-route via the A361.
Operational, technology and policy interventions	Reduce traffic on Windsor Street by reassigning to the A361	There is a need to understand the wider origin-destination traffic movements. It is understood that the A361 is a highly congested road and a heavy traffic route.
Operational, technology and policy interventions	Introduce the additional northbound bus stops on Cherwell Street	There are currently no bus stops that exist along this section of Cherwell Street and these could be introduced, however there is also, currently, little to generate or attract demand in this location..
Operational, technology and policy interventions	Improve on street bus stops and waiting areas on Bridge Street	These are very popular bus stops; however, the shelters are aged and in need of improvement. There are also no accessible kerbs at these stops.
Operational, technology and policy interventions	Re-route George Street bus services via Broad Street and High Street to the bus station	This would require buses to share the space through pedestrianised area. Currently there are 16 buses per hour. This intervention could also potentially include a bus gate.

3.2 Assessment

An assessment was undertaken using Mott MacDonald's INSET tool to assess the long list of options that were considered. A summary of the results of this assessment, including for the different sensitivity tests described in section 2.1.2 are presented in Table 3.2.

Long list options which scored a negative result in any of the scoring scenarios are highlighted in red. These options were mostly not taken forward for inclusion in the short list of schemes, although it is noted that some of these may be considered again as part of a longer-term bus routing and transport strategy for Banbury as part of the ongoing Cherwell 2050 visioning work. Detailed scores for the Baseline INSET scoring are presented in Appendix A.

Table 3.2: Long list of options scoring results

Investment Option	Baseline		Mode shift and regeneration		Mode shift and deliverability		Deliverability	
	Score	Rank	Score	Rank	Score	Rank	Score	Rank
Provide bus service which connects to rail station	1.2	1	1.6	1	1.1	1	0.9	1
Improving walking and cycling facilities for access to rail station	1.1	2	1.4	2	0.5	6	0.2	4
Shared-use all arms of both junctions with toucan crossings	0.8	3	0.8	8	0.5	3	0.5	3
Improve on-street bus stops and waiting areas on Bridge Street	0.7	4	0.9	6	0.2	13	0.1	8
Simplify junction for pedestrians by removing traffic islands and providing an all-red	0.7	5	0.6	10	0.6	2	0.7	2
Re-route George Street bus services via Broad Street and High Street to the bus station	0.6	6	1.3	3	0.4	8	-0.2	14
Re-route George Street bus services via High Street to the bus station	0.6	7	1.2	4	0.3	10	-0.3	16
Nearside northbound bus lane between George Street and Bridge Street	0.6	8	1.0	5	0.5	4	0.1	6
LTN 1/20 compliant junctions (impact on traffic capacity)	0.5	9	0.6	11	0.2	14	0.1	10
Take Bridge Street down to single lane approach and widen footways	0.5	9	0.6	11	0.2	14	0.1	11
Rationalise George Street junction to improve ped facilities (modernise)	0.5	11	0.4	17	0.2	12	0.1	7
Signalise Swan Close Rd / Tramway Rd junction	0.5	12	0.8	9	0.3	11	0.1	9
Long bus lane from Gatteridge Street to Bridge Street	0.4	13	0.9	7	0.0	17	-0.6	20
Bus priority through signals (requires modelling and specific sensors)	0.4	14	0.6	13	0.5	5	0.1	5

Investment Option	Baseline		Mode shift and regeneration		Mode shift and deliverability		Deliverability	
	Score	Rank	Score	Rank	Score	Rank	Score	Rank
Remove roundabout of Bridge Street / Market Place	0.3	15	0.4	18	-0.3	21	-0.4	18
Introduce additional northbound bus stops on Cherwell Street	0.3	16	0.5	15	0.1	16	-0.1	13
Linking up signal junctions e.g. SCOOT	0.2	17	0.5	16	0.4	9	0.0	12
Reduce traffic on Windsor Street by reassigning to A361	0.1	18	0.6	14	0.5	7	-0.3	15
Bus lane on western arm approach of Bridge Street	0.0	19	0.2	19	-0.1	18	-0.4	17
Widen bus lane on George Street	-0.2	20	0.1	20	-0.2	20	-0.6	21
Ban right turn to Bridge Street	-0.3	21	-0.1	21	-0.2	19	-0.5	19
Roundabout replace signals at Bridge Street junction	-0.6	22	-0.3	22	-0.6	22	-0.9	22

It was decided to carry two negatively scoring options forward for consideration in the short list of options, with the following reasons:

- Banning the right turn from Cherwell Street (northbound) into Bridge Street (eastbound). This was taken forward to gain an understanding of how significantly this kind of change would impact traffic on Cherwell Street.
- Widening the bus lane on George Street. This was included for all options as an important road safety measure, and as part of a wider improvement for pedestrians at the George Street junction. Buses using this existing bus lane often encroach into the adjacent general traffic lane.

Scoring of some of the options not taken forward was based on the following reasoning:

- They were outside the project remit and considered to be difficult to deliver over the short term, such as implementing changes to bus routes to avoid Cherwell Street and using a re-designed High Street and Broad Street, or to reallocate general traffic to the A361. These are long-term strategic options which need to be considered in the broader context of Banbury.
- The installation of a roundabout at Bridge Street and Cherwell Street would have significant detrimental impact on pedestrian amenity and safety.
- The removal of the roundabout at the Market Place would introduce significant disbenefits for bus operations which would ultimately negate any benefits to pedestrians.
- Other options, such as the addition of new bus stops, a longer bus lane extended along Windsor Street to Gatteridge Street, or a bus lane on the western side of Bridge Street were not considered to provide adequate benefit and would likely exceed the cost and funding envelope available for the project.

4 Short list of options

A short list of options was developed which reflected a range of different priorities, in line with the project's Assessment Criteria Framework objectives. The short list of options incorporated each of the interventions that passed the long list assessment at least once.

These options were developed into concept designs to set out each of the key features and assess for their feasibility given the spatial constraints within the study area. The concept designs were then used to inform the modelling for each, which in turn influenced the assessment of each option. Any modelling results referred to in this section are in reference to the 2040 modelled year, unless otherwise specified.

4.1 Short list schemes

In addition to the Do Minimum option, we identified six initial schemes that packaged together different intervention options from the long list of components. These included:

- Two pedestrian facility improvement packages (an “intermediate pedestrian” and “maximum pedestrian”) that improve both the Bridge Street and George Street junction for pedestrians.
- One bus priority improvement package that provides a bus lane on Cherwell Street from George Street to Bridge Street.
- One maximum intervention package that bans the right turn from Cherwell Street and creates a bus lane on Cherwell Street from George Street to Bridge Street.
- One junction optimisation package that optimises and reconfigures the junctions slightly to provide better pedestrian amenity and improve the flow of traffic through the Bridge Street and Cherwell Street junction for all vehicles, including buses.
 - A sub-option of this package that retained the turning flare on Bridge Street for eastbound traffic.

Safety in design

During site visits several road safety issues were observed by the project team that have influenced the development of these options. These included:

- Severely damaged or degraded pedestrian islands, including evidence of vehicle crashes against pedestrian guardrails.
- Vehicles mounting the footway on the westbound lane of Bridge Street at the junction with Cherwell Street in order to access the left turn flare.
- Vehicles slowing down or stopping at the northbound approach to the George Street and Cherwell Street junction due to insufficient space for two vehicles to travel side-by-side in the marked two lanes provided.

For compliance and safety reasons all developed options were initially modelled with a single lane approach to:

- the Cherwell Street and Bridge Street junction from Bridge Street (westbound)
- the George Street and Cherwell Street junction from Windsor Street (northbound)
- the George Street and Cherwell Street junction from George Street.

In all instances this was due to the lane widths being narrower than current guidelines require.

Similarly, all options involve the removal of pedestrian islands or where they have been retained, their reconstruction. On George Street at the junction with Cherwell Street, the

pedestrian island separating the bus lane from general traffic has been enlarged in all options to accommodate a new pedestrian crossing at the northern side of this junction.

Some of these safety-in-design changes reduce road capacity, and the modelling results reflect this. However, there is a responsibility to improve road safety standards where they are identified within the project’s physical scope. As such, the discussion of each option below should be read with cognisance that this project is aiming to reduce journey times and meet its objectives as identified in the Assessment Criteria Framework, as well as improve road safety standards for all road users in the study area.

Table 4.1: Short list of schemes developed for assessment

Option	Bridge Street Junction	George Street Junction
Do Minimum	<ul style="list-style-type: none"> No changes 	<ul style="list-style-type: none"> No changes
Option 1 Pedestrian Intermediate	<ul style="list-style-type: none"> Remove pedestrian islands. 3 lane approach on Cherwell Street northbound and Concord Avenue southbound. Bridge Street westbound reduced to 1 lane. Tighten geometries to create wider footways. Long right turn lane on Cherwell Street northbound (no kerb changes). 	<ul style="list-style-type: none"> Bus lane terminates in a give-way Uncontrolled crossing on bus lane Controlled crossings on all other arms (including new crossing on northern arm) George Street eastbound reduced to one lane
Option 2 Bus Priority	<ul style="list-style-type: none"> Remove pedestrian islands. 3 lane approach on Cherwell Street northbound and Concord Avenue southbound. Bridge Street westbound reduced to 1 lane. Tighten geometries to create wider footways. Nearside bus lane on Cherwell Street. Kerbed central median and filling station and Lower Cherwell Street LILLO only. 	<ul style="list-style-type: none"> Bus lane terminates in a give-way with yellow box junction Uncontrolled crossing on bus lane Controlled crossings on all other arms (including new crossing on northern arm) George Street eastbound reduced to one lane
Option 3 Pedestrian Max	<ul style="list-style-type: none"> Remove pedestrian islands. 2 lane approach on Cherwell Street northbound and Concord Avenue southbound. Bridge Street westbound reduced to 1 lane. Wide toucan crossings on all four arms. 	<ul style="list-style-type: none"> All arms signal controlled, including across bus lane and new crossing on northern arm George Street eastbound reduced to one lane
Option 4 Maximum intervention	<ul style="list-style-type: none"> Remove islands. No right turn and no left turn for general traffic northbound on Cherwell Street. 2 lane approach on Cherwell Street northbound. 3 lane approach on Concord Avenue southbound. Bridge Street westbound reduced to 1 lane. Nearside bus lane on Cherwell Kerbed central median and filling station and Lower Cherwell Street LILLO only. 	<ul style="list-style-type: none"> Bus lane terminates in a give-way Uncontrolled crossing on bus lane Controlled crossings on all other arms (including new crossing on northern arm) George Street eastbound reduced to one lane
Option 5 Junction Optimisation	<ul style="list-style-type: none"> Optimise signals to improve traffic capacity Bridge Street westbound reduced to 1 lane 	<ul style="list-style-type: none"> Bus lane terminates in a give-way Uncontrolled crossing on bus lane Controlled crossings on all other arms (including new crossing on northern arm) George Street eastbound reduced to one lane

Option	Bridge Street Junction	George Street Junction
Option 5a Junction Optimisation (Sensitivity Test)	<ul style="list-style-type: none"> Turning flare for westbound traffic on Bridge Street retained and adjusted to improve safety for pedestrians on the southern footway. 	<ul style="list-style-type: none"> As Option 5

Each of these options are explored in further detail below, including initial modelling results and an assessment of the feasibility and outcomes achieved from each scheme. Further information on the modelling results and the implications of these for each option are provided in the separate Modelling Report for the project appended to this document.

4.1.1 Do Minimum

The Do Minimum option involved no changes to the road network within the study area. Impacts to how the transport network operates would only be due to committed schemes or initiatives that are nearby. In this instance, this is specifically referencing the Tramway Road scheme.

This means that existing conditions, including sub-standard lane widths and safety issues for pedestrians, cyclists and motor vehicles would not be addressed, which exacerbates how the existing junction does not address other future objectives of the study area, such as mode shift, reducing traffic volumes, economic development and urban regeneration.

Table 4.2: Alignment of Do Minimum with Assessment Framework

Objective	Comments	Assessment
1. Sustainable mode shift	Does not encourage mode shift by making bus a natural first choice, creating or maintaining a sustainable network of services, reducing journey times for buses or improving integration between different modes of transport.	x x
2. Safety and well-being	Does not provide for the reconstruction or refurbishment of severely damaged road infrastructure such as guardrails, which are currently in a state of disrepair. Does not address existing safety issues such as narrow lane widths within the study area, which will continue to pose as a road safety risk.	x x x
3. Environment, place and resilience	No provision made to address quality of place or environment, which will continue to degrade with increasing traffic volumes into the future.	x
4. Inclusivity	The Do Minimum option will prevent the any ongoing improvement to accessibility to the Banbury town centre and Canalside redevelopment.	x
5. Vibrant economy	Cherwell Street remaining in its current state will actively prevent the effective regeneration of invigoration of the town centre by discouraging new development and attracting new visitors.	x x x
6. Deliverability	No cost or deliverability issues.	✓ ✓ ✓

4.1.2 Option 1 Pedestrian intermediate

The key benefits of this option were focused around providing additional space for pedestrians at the junction of Cherwell Street and Bridge Street, where the road geometry was tightened, particularly on the eastern side of the junction, to reduce crossing distances and provide more space for pedestrians. On Cherwell Street, line marking has been modified to provide a clearer and longer turning lane for northbound vehicles turning right into Bridge Street.

While this option had reasonable benefits for pedestrians, modelling indicated that it had a negative impact on buses travelling on Cherwell Street in the AM peak and on buses and general traffic travelling on Bridge Street in the PM Peak.

Figure 4.1: Option 1 Pedestrian intermediate

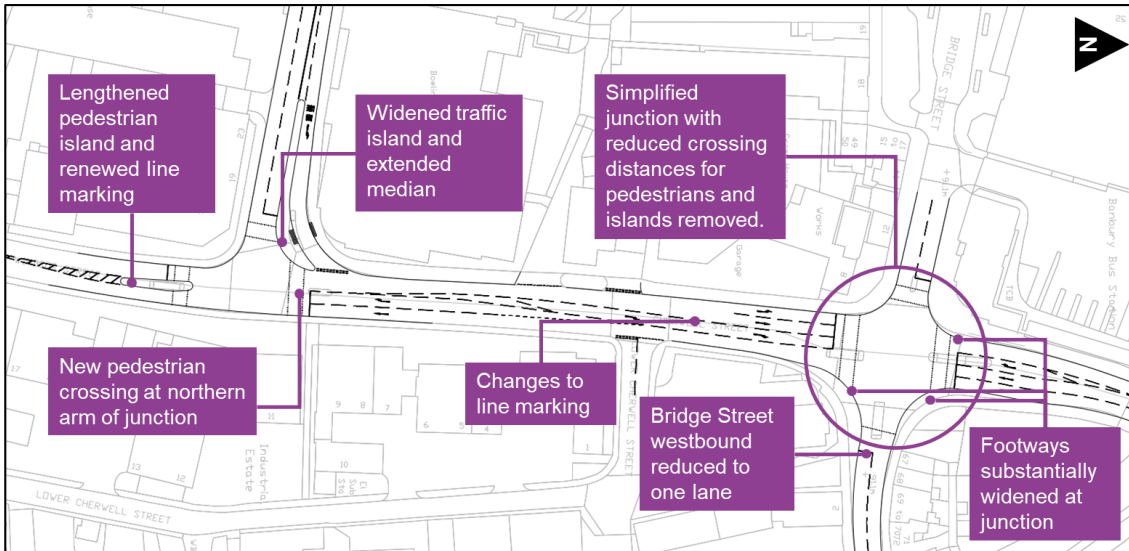


Table 4.3: Alignment of Option 1 Pedestrian intermediate with Assessment Framework

Objective	Comments	Assessment
1. Sustainable mode shift	Supports pedestrian journeys as part of longer journeys that involve travelling by bus, but does not provide any bus prioritisation.	✓
2. Safety and well-being	Substantially improves amenity and safety for pedestrians as part of their experience of central Banbury, including the walk between Banbury railway station and Banbury town centre. Reduces-driving related stress and aggressive behaviour by making the driving experience better through renewed road infrastructure.	✓✓
3. Environment, place and resilience	Neutral impact. Improves placemaking in central Banbury but likely to worsen traffic congestion and therefore air quality in sensitive parts of Banbury.	-
4. Inclusivity	Improves the experience of central Banbury for those with disabilities and no access to private vehicles.	✓
5. Vibrant economy	Supports revitalisation of central Banbury ahead of the Canalside redevelopment, and improved streetscape will encourage higher footfall on streets for people of all ages and abilities.	✓
6. Deliverability	This scheme is of relatively low complexity to deliver and could be delivered comfortably within the funding envelope. No additional land is required. Key stakeholder feedback indicates support for improved pedestrian amenity. There may be some opposition from local road users (car drivers and bus passengers) with regard to increased journey times.	✓

4.1.3 Option 2 Bus priority

This bus priority option represents the original intervention envisaged as part of the BSIP scheme for Cherwell Street by providing a bus lane between George Street and Bridge Street. As with Option 1, it provides substantial improvements for pedestrian amenity and safety at both the George Street/Cherwell Street junction and the Bridge Street/Cherwell Street junctions. In

order to accommodate the bus lane, Cherwell Street northbound is reduced to one lane of general traffic along most of its length, and the right turn flare lane for northbound traffic on Cherwell Street is significantly reduced to accommodate the necessary median along the centre of the road.

Despite the inclusion of the bus lane, the position of the Morrisons Daily petrol station on Cherwell Street will continue to cause congestion with many cars weaving to access the petrol station and then departing to access the right turn lane to Bridge Street. This caused increased delay for all traffic including buses which were caught in congestion prior to being able to enter the bus lane.

As a result, this option resulted in a negative impact on buses and general traffic on Cherwell Street in the AM peak, a negative impact on buses on Bridge Street in the PM peak, and a substantial negative impact on general traffic on Bridge Street in the PM Peak.

Figure 4.2: Option 2 Bus priority

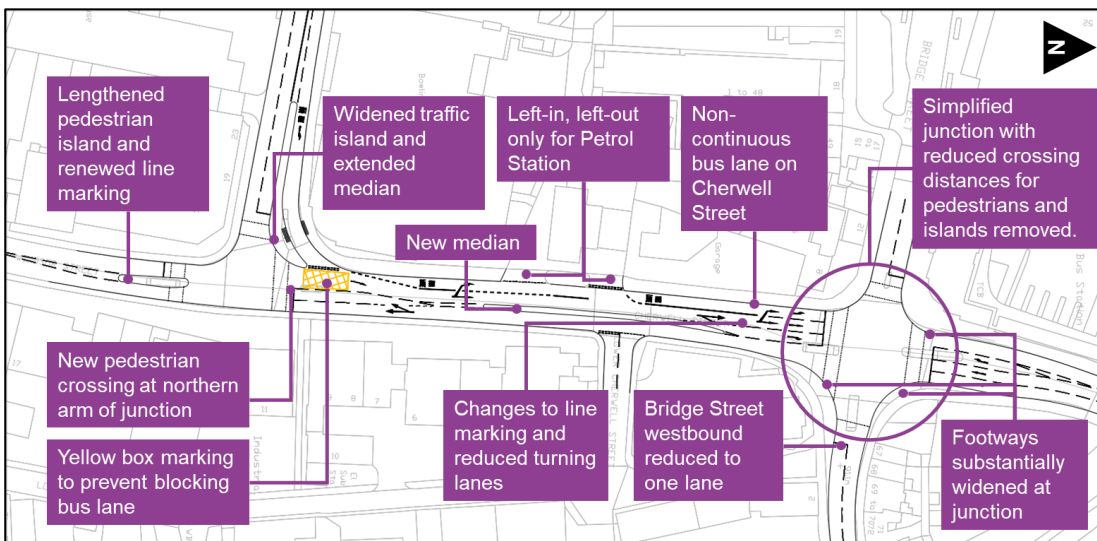


Table 4.4: Alignment of Option 2 Bus priority with Assessment Framework

Objective	Comments	Assessment
1. Sustainable mode shift	Supports more sustainable journeys by prioritising bus travel, walking and cycling. This is tempered by modelling results which indicate that other local conditions, such as the petrol station on Cherwell Street, undermine this investment.	✓✓
2. Safety and well-being	Substantial potential benefits to pedestrian safety and journey reliability for buses is countered by increased driving stress through the reduction in general traffic lanes on Cherwell Street.	✓
3. Environment, place and resilience	Benefits to central Banbury such as improved placemaking may be offset by increased congestion, reduced air quality, and increased carbon emissions from general traffic.	-
4. Inclusivity	Improves the experience of central Banbury for those with disabilities and no access to private vehicles.	✓✓
5. Vibrant economy	Supports revitalisation of central Banbury ahead of the Canalside redevelopment, and improved streetscape will encourage higher footfall on streets for people of all ages and abilities.	✓

Objective	Comments	Assessment
6. Deliverability	This scheme involves some complexity in delivery, including more substantial roadworks within the roadway. No additional land is required. Key stakeholder feedback indicates support for improved pedestrian amenity. It is expected that there would be local opposition to the reallocation of road space to bus use.	-

4.1.4 Option 3 Pedestrian maximum

Option 3 Pedestrian maximum focuses on providing more space to pedestrians to make it more pleasant to travel around central Banbury by foot. This supports an increase in bus journeys insofar as all bus passengers are pedestrians at some point on their journey and the scheme may encourage more people to travel to central Banbury by public transport.

Key features of this scheme option include substantially widened footways and reduced crossing distances at the Bridge Street and Cherwell Street junction, a widened footway on the western side of Cherwell Street between George Street and Bridge Street and controlled (or signalised) crossings for all pedestrian crossings. This option also reduces the number of northbound lanes on Cherwell Street to two lanes but increases the length of the right turn lane for northbound traffic into Bridge Street eastbound. The provision of the bus lane also provides the largest benefit for cyclists out of any of the schemes considered.

Modelling indicates that this option would have a largely negative impact on buses and general traffic on both Cherwell Street and Bridge Street in the AM peak and PM peak.

Figure 4.3: Option 3 Pedestrian maximum

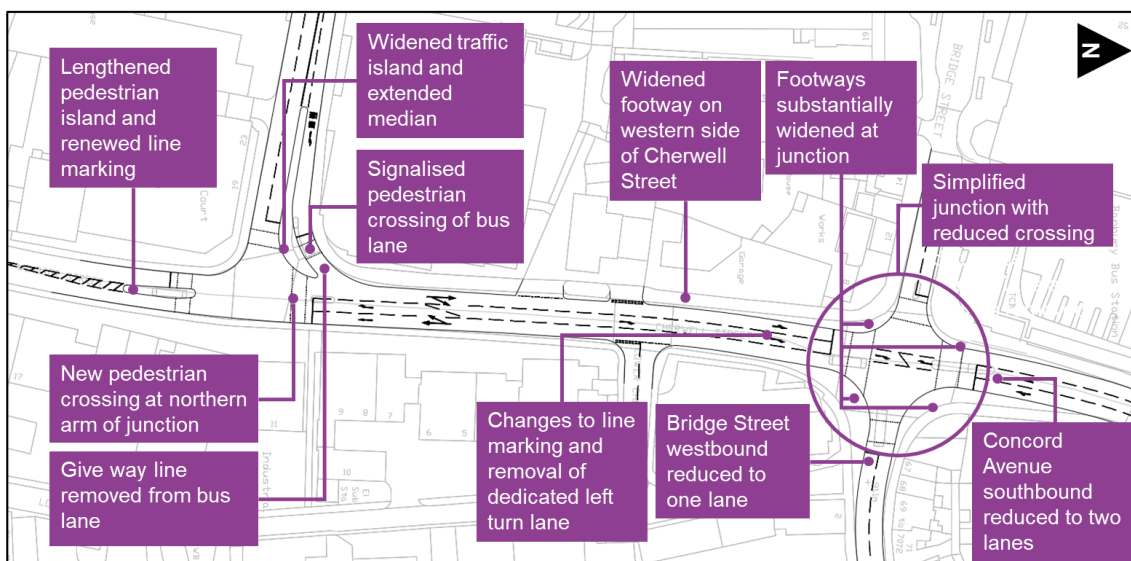


Table 4.5: Alignment of Option 3 Pedestrian maximum with Assessment Framework

Objective	Comments	Assessment
1. Sustainable mode shift	No scheme components specifically encourage sustainable mode shift; some components are likely to increase journey times for buses, making it less appealing to existing and potential users.	xx
2. Safety and well-being	Improvements to line-marking and road geometry would make driving easier for road users, and provision of additional pedestrian space creates safer environment for people on the street.	✓✓✓

Objective	Comments	Assessment
3. Environment, place and resilience	Neutral impact. Improves placemaking in central Banbury but likely to worsen traffic congestion and therefore air quality in sensitive parts of Banbury.	-
4. Inclusivity	Improves the experience of central Banbury for those with disabilities and no access to private vehicles.	✓✓
5. Vibrant economy	Benefits of improved pedestrian experience and placemaking is offset by increased traffic congestion. This will make it more difficult and less appealing to travel to central Banbury.	✗
6. Deliverability	There is likely to be some community opposition to the reduction in the number of traffic lanes on Cherwell Street, as well as some complexity in realigning kerblines to deliver wider footpaths across such a large area. These negatives are offset by stakeholder acceptance of improved placemaking and pedestrian experience.	✗

4.1.5 Option 4 Maximum intervention

This option was included to determine how significant the impact would be if a greater intervention scheme was developed, aimed at promoting sustainable travel options and disincentivising travel by private vehicles. Key elements of this scheme include banning the right turn movement from Cherwell Street northbound to Bridge Street, restricting the left turn movement from Cherwell Street northbound into Bridge Street to buses and authorised vehicles only, as well as introducing a bus lane on Cherwell Street between George Street and Bridge Street. There would also be substantial pedestrian improvements at both junctions.

This option would have substantial negative impacts for general traffic in both the AM and PM peak hours, as well as a substantial negative impact on buses in the AM peak on Cherwell Street. It would, however, slightly improve journey times for buses on Bridge Street in the AM Peak, though congestion in the PM peak removes any benefit for buses at this time of day.

Figure 4.4: Option 4 Maximum intervention

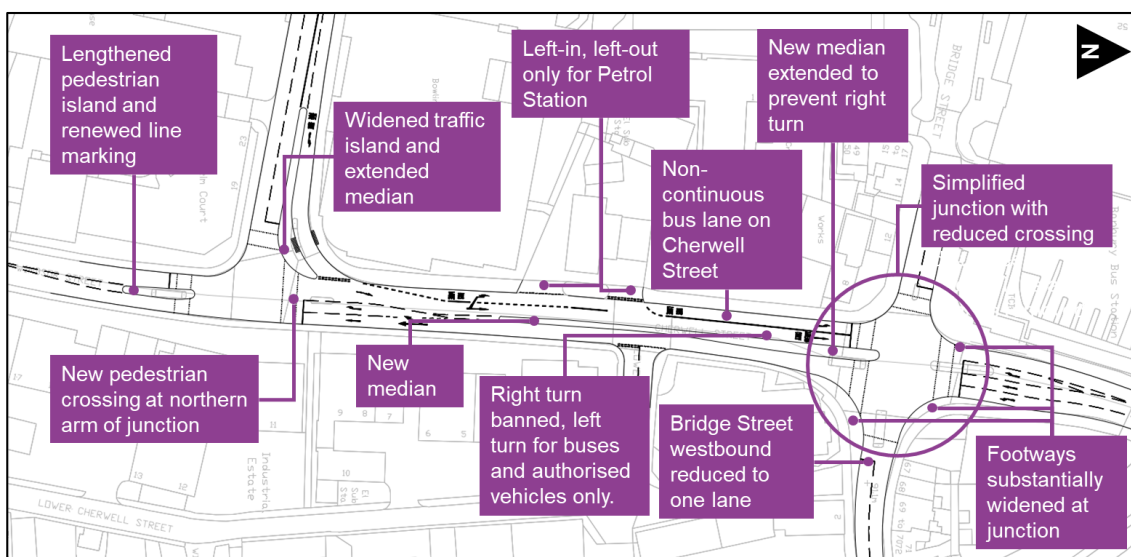


Table 4.6: Alignment of Option 4 Maximum intervention with Assessment Framework

Objective	Comments	Assessment
1. Sustainable mode shift	This scheme provides significant disincentives for drivers through this part of Banbury, and encourages mode shift to more sustainable modes of transport. However, the impacts on general traffic may also impact bus journey times on Cherwell Street, tempering the benefits of encouraging people to use public transport.	✓✓
2. Safety and well-being	This scheme would reduce the resilience of the transport network in Banbury by providing fewer routes to the M40. Restricting driver movements may also lead to more dangerous driving as people attempt to reduce journey distance or use unauthorised routes.	x
3. Environment, place and resilience	Less congestion on Cherwell Street would improve local air quality, and larger footways would improve placemaking.	✓✓
4. Inclusivity	Scheme supports the creation of a more inclusive and accessible town centre in Banbury.	✓✓
5. Vibrant economy	This scheme would likely have an impact on the economic performance of Banbury town centre due to the amount of people who drive to access the town centre and who would be negatively impacted by this scheme.	x
6. Deliverability	Substantial complexities in delivering the project along Cherwell Street in the timeframes required, and potentially costing more than the funding envelope allows. The banning of turning movements at the Bridge Street/Cherwell Street junction is expected to be unacceptable to stakeholders and the community.	xxx

4.1.6 Option 5 Junction Optimisation

The final option presented the case of minimal physical intervention and an adjustment of the traffic signals at each of the junctions (George Street/Cherwell Street and Bridge Street/Cherwell Street) to optimise traffic movements while reducing pedestrian wait times.

This option had minor negative impacts on bus and general traffic journey times in AM and PM peak on both Cherwell Street and Bridge Street, with slightly greater negative impacts for buses on Bridge Street and general traffic on both streets in the PM peak. Overall, it presented as the option with the least negative impacts for both buses and general traffic out of all the initial options considered.

Figure 4.5: Option 5 Junction optimisation

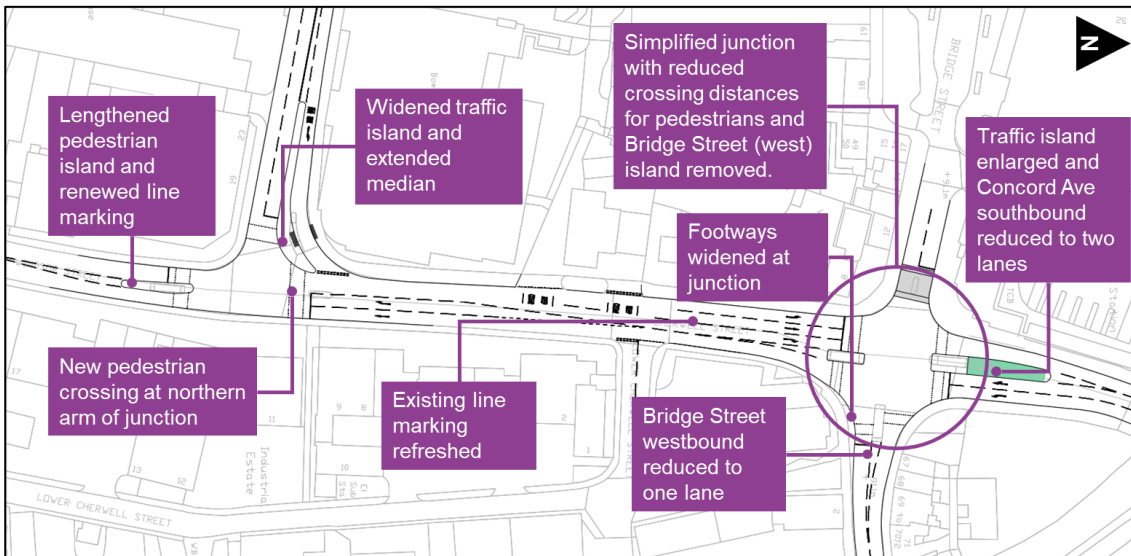


Table 4.7: Alignment of Option 5 Junction optimisation with Assessment Framework

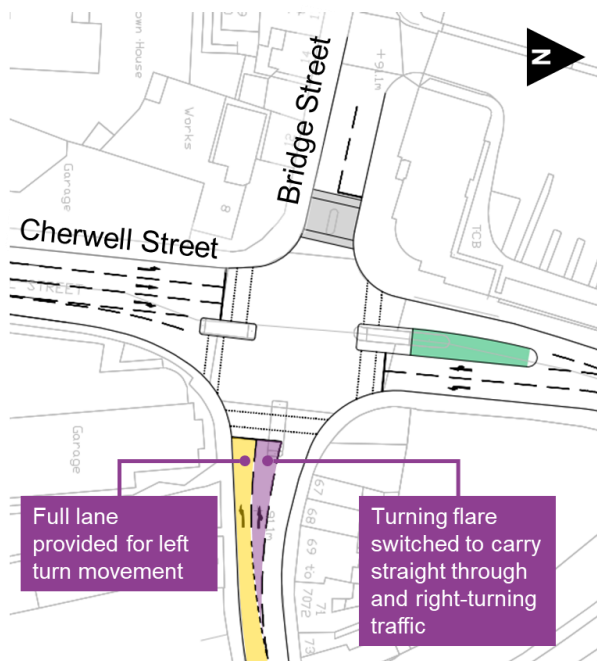
Objective	Comments	Assessment
1. Sustainable mode shift	This scheme presents the least impact to bus journey times of all modelled options, supporting passenger growth in the future.	✓
2. Safety and well-being	Some pedestrian safety issues addressed through renewed crossings and bringing roads to current guidelines.	✓
3. Environment, place and resilience	Negligible improvements to placemaking and environment.	-
4. Inclusivity	Some improvements to access via bus, and upgrades to existing crossings.	✓
5. Vibrant economy	Negligible benefit to the vibrancy or economy of central Banbury.	-
6. Deliverability	Minimal construction required, resulting in a lower cost, lower complexity project to deliver that can be easily delivered within the timeframes and budget of the project.	✓✓✓

4.1.6.1 Option 5a – Junction Optimisation sensitivity test

Early modelling was undertaken to understand the impact of providing a flare and a second short lane on the eastern approach to the Cherwell Street and Bridge Street junction. The modelling highlighted a significant improvement in the amount of queuing on this arm and a reduction in the negative impact of this queuing on bus journey times.

This modelling result is expected given that the core five options that were modelled reduced the capacity at this junction to a single lane, whereas this sub-option maintained the existing arrangement. The inclusion of two standard-width lanes at the approach to the junction was achieved through the removal of the pedestrian island on the Bridge Street (east) arm of the junction, allowing for the inclusion of a turning flare.

Figure 4.6: Option 5a Sensitivity test, showing the reversal of the lane arrangement on approach to the Bridge Street/Cherwell Street junction on Bridge Street.



4.2 Further options

Given the modelling results of the initial six options, and the promising results of the sensitivity test on Option 5, it was decided to develop further the two options which improved journey times for buses and alter these to incorporate the beneficial design elements of Option 5a. These options were also modelled for two additional year scenarios (refer to the Traffic Modelling note for further details). In addition to Option 5, Option 2 was chosen to progress for further refinement instead of Option 1 as it incorporated a balanced mixture of bus priority measures alongside improvements targeted at pedestrians and therefore would provide a better experience for a wider range of people. Option 2 was chosen to progress for further refinement instead of Option 4 as it was considered that Option 4 would be considered an unacceptably drastic departure from existing conditions for stakeholders, and too expensive to implement given the budget for the scheme.

Both further options (Option 2+ and Option 5+) contained the following changes:

- The northbound approach to the George Street and Cherwell Street junction was retained as two lanes.
- The westbound approach to the Bridge Street and Cherwell Street junction was retained with the straight-through lane and turning flare flipped.
- A long right turn lane from Cherwell Street to Bridge Street
- Yellow box covering the whole of the George Street junction instead of just the end of the bus lane
- New modal filter between Bridge Street East and Lower Cherwell Street
- Pedestrian island retained at George Street between Christchurch Court and Britannia Road
- **Option 2+ only:** bus lane on Cherwell Street between George Street and Bridge Street, including new median and retention of two northbound lanes of general traffic. Lower Cherwell Street is made one-way eastbound.

4.2.1 Option 2+ Refined bus priority

One of the key benefits of this option was the provision of a full bus lane along Cherwell Street while maintaining two lanes of general traffic for northbound vehicles on Cherwell Street between George Street and Bridge Street.

However, to achieve this, the option reduces the width of the western footway on Cherwell Street, and has a more complex implementation, including a longer programme, higher costs associated with the addition of new kerbside infrastructure, and the risk of relocating unmapped underground services as part of the kerb realignment along Cherwell Street.

Modelling indicates that this option provides journey time savings of up to approximately 60 seconds for buses travelling northbound on Cherwell Street in the AM Peak, and up to approximately 90 seconds for general traffic travelling northbound and southbound on Cherwell Street in the AM Peak. However, it will also result in increases in journey times for buses and general traffic in the PM Peak.

Figure 4.7: Option 2+ Refined bus priority

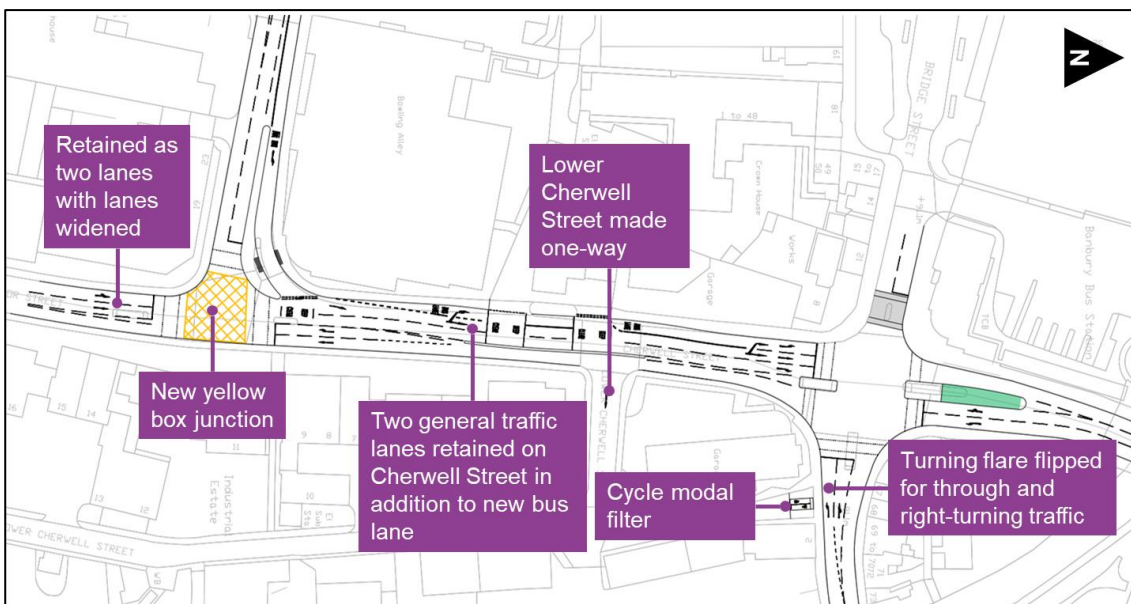


Table 4.8: Alignment of Option 2+ Refined bus priority with Assessment Framework

Objective	Comments	Assessment
1. Sustainable mode shift	Strongly supports more sustainable journeys by prioritising bus travel, walking and cycling. This is tempered by modelling results which indicate that other local conditions, such as the petrol station on Cherwell Street, undermine this investment.	✓✓✓
2. Safety and well-being	Substantial potential benefits to pedestrian safety and journey reliability for buses.	✓✓
3. Environment, place and resilience	Reduced traffic congestion and attraction to bus as an alternative form of transport to central Banbury will help to reduce local air pollution.	✓
4. Inclusivity	Improves the experience of central Banbury for those with disabilities and no access to private vehicles.	✓✓
5. Vibrant economy	Supports revitalisation of central Banbury ahead of the Canalside redevelopment, and improved streetscape will encourage higher footfall on streets for people of all ages and abilities.	✓

Objective	Comments	Assessment
6. Deliverability	This scheme involves some complexity in delivery, including more substantial roadworks within the roadway and the extensive realignment of kerblines along Cherwell Street. No additional land is required, though part of the western footway on Cherwell Street is taken to facilitate the bus lane. Key stakeholder feedback indicates support for improved pedestrian amenity, so the reduction in footway width on the western side of Cherwell Street may have some negative impacts. However, as a scheme it is likely to present good value for money without compromising on the views of many stakeholders.	-

4.2.2 Option 5+ Refined junction optimisation

Modelling indicates that this option improves bus journey times in the AM and PM Peak for buses accessing the bus station and Bridge Street (west). However, as a result of the proposed changes to the Bridge Street and Cherwell Street junction to bring it to standard, journey times for buses travelling to and from Bridge Street (east) are increased in the AM and PM Peak. General traffic journey times on Cherwell Street in the AM peak are improved for all vehicles travelling north on Cherwell Street and accessing Bridge Street (west), but there is a negative impact on general traffic journey times in the PM peak for all movements.

The option doesn't address one of the key issues on Cherwell Street, which is the conflicting movement for vehicles as they exit the Morrisons Daily petrol station and attempt to manoeuvre to the right turn lane to access Bridge Street westbound. However, it is considered likely that this petrol station will be relocated at a point in the near future, either in parallel with the Canalside redevelopment, or the wider Cherwell 2050 Vision improvements expected over the next few years.

This option presented as more beneficial compared to Option 2+ as it requires the least amount of physical intervention in the roadway while achieving approximately the same benefits overall to journey times for buses and general traffic.

Figure 4.8: Option 5+ Refined junction optimisation

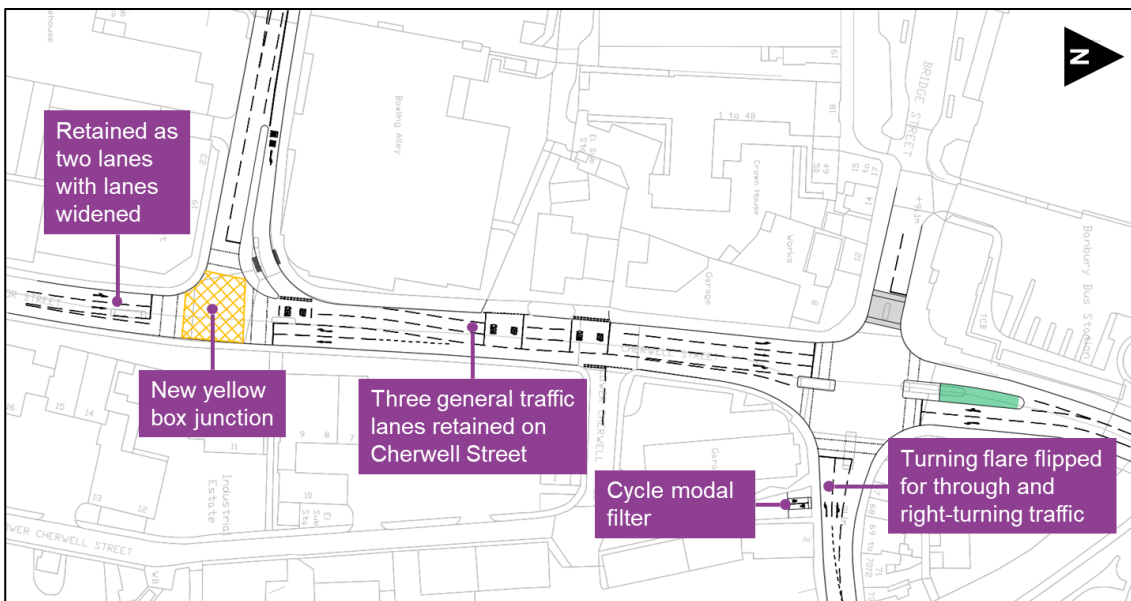


Table 4.9: Alignment of Option 5+ Refined junction optimisation with Assessment Framework

Objective	Comments	Assessment
1. Sustainable mode shift	Strongly supports more sustainable journeys by prioritising bus travel and improving walking amenity.	✓✓
2. Safety and well-being	Some pedestrian safety issues addressed through renewed crossings and bringing roads to current guidelines.	✓✓
3. Environment, place and resilience	Reduced traffic congestion and attraction to bus as an alternative form of transport to central Banbury will help to reduce local air pollution.	✓
4. Inclusivity	Improves the experience of central Banbury for those with disabilities and no access to private vehicles.	✓✓
5. Vibrant economy	Renewed roadway and crossings creates more pleasant area in central Banbury for people to visit.	✓
6. Deliverability	Minimal construction required, resulting in a lower cost, lower complexity project to deliver that can be easily delivered within the timeframes and budget of the project.	✓✓✓

4.3 Summary of modelling results

Table 4.10 below provides a qualitative summary of the modelling results which are presented in more detail in the appended Modelling Report for the study. The below scores are awarded on a -3 to +3 scale depending on the level of benefit or disbenefit experienced by each of the cohorts of users in each case. It considers modelled journey times in the year 2040 for that option against the Do Minimum scenario for 2040.

A score of 0 indicates a negligible impact on journey times, while a positive score indicates a journey time saving, and a negative score indicates an increase in journey times.

Table 4.10: Traffic modelling results for initial five options – changes to journey times for buses travelling on identified routes in 2040.

Bus route	Option 1		Option 2		Option 3		Option 4		Option 5	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Bus Station to George St	-3	-3	-3	-3	-3	-2	-3	-2	-1	0
George St to Bus Station	3	0	2	1	-1	-2	1	1	0	1
Bus Station to Middleton Road	-2	-2	-2	-2	-3	-3	-1	-1	-1	1
George St to Bridge St	3	1	3	2	-1	-1	3	2	1	1
Bridge St to Bankside	-2	-1	-2	1	-2	3	-3	2	-1	1
Bridge St to Cherwell Drive	0	0	-1	1	-2	0	0	1	0	0
Bridge St to George St	-3	-1	-3	-2	-2	2	-3	-2	0	-1

As noted in Chapter 4.2, Option 2 and Option 5 were chosen for refinement. The results from the modelling of the refined options, Option 2+ and Option 5+ are shown in Table 4.11. This shows a comparison of results for a wider selection of potential movements.

Table 4.11: Traffic modelling results for refined options – changes to journey times for buses travelling on identified routes in 2040.

Modal Impact	Option 2+		Option 5+	
	AM	PM	AM	PM
Bridge St West to Bridge St East	2	3	1	2
Bridge St West to Cherwell Drive	0	2	2	1
Bridge St West to Cherwell St North	2	1	2	1
Bridge St West to George Street	-1	-1	0	1
Bridge St West to Swan Close	-1	-1	0	1
Bridge St East to Bridge St West	-3	-3	-2	-2
Bridge St East to Cherwell St South	-3	-3	-2	-2
George Street to Bridge St West	3	1	3	1
Swan Close to Bridge Street West	-2	-3	3	-2

Both Option 2+ and Option 5+ outperform the initial five tested options, with Option 5+ performing slightly better than Option 2+ for buses approaching the Cherwell Street and Bridge Street junction from Bridge Street (East), and Option 5+ performing better for northbound buses on Cherwell Street in both the AM and PM Peaks. However, there is still an overall negative impact for general traffic journey times compared to the Do Minimum scenario. This is considered a necessary trade-off given the benefits to buses, the significant improvements to pedestrian facilities at the two junctions, and the necessary improvement of the junction design to meet current standards.

4.4 Final assessment

A summary of how each short list scheme scores against the project’s Assessment Criteria is presented in Table 4.12.

Table 4.12: Alignment with Assessment Framework for all short list schemes.

Objective	Option 1	Option 2	Option 2+	Option 3	Option 4	Option 5	Option 5+
1. Sustainable mode shift	✓	✓✓	✓✓✓	xx	✓✓	✓	✓✓
2. Safety and well-being	✓✓	✓	✓✓	✓✓✓	x	✓	✓✓
3. Environment, place and resilience	-	-	✓	-	✓✓	-	✓
4. Inclusivity	✓	✓✓	✓✓	✓✓	✓✓	✓	✓✓
5. Vibrant economy	✓	✓	✓	x	x	-	✓
6. Deliverability	✓	-	-	✓✓	xxx	✓✓✓	✓✓✓

From an assessment of each of these options, the refined further options (Option 2+ and Option 5+) present the most benefit and align with the objectives set out in the Assessment Criteria Framework.

It is recommended that Option 5+ Refined junction optimisation is progressed to Feasibility Design. This is based on the following:

- It would have a lower cost and shorter programme to deliver compared to Option 2+, and a lower risk of the scheme not being delivered by September 2025.
- Feedback from stakeholders indicated that Option 5+, with its minimal intervention approach, would be less politically sensitive and therefore less likely to suffer delays in delivery due to community opposition.
- The current volume of buses on Cherwell Street during peak periods is unlikely to justify a bus lane. Additionally, any benefits from the installation of a bus lane are unlikely to be fully realised unless the Morrisons Daily petrol station were to close and a continuous bus lane can be installed along the kerbside lane on Cherwell Street.

Proceeding with Option 5+ is recommended on the basis that the installation of a bus lane in line with the scheme presented in Option 2+ is retained for consideration in the future once required, either due to increased traffic volumes or to support the regeneration of Banbury town centre through projects such as the Canalside redevelopment and wider Cherwell 2050 Vision transport strategy works.

5 Next steps

Following the confirmation with the project team and key stakeholders, the preferred option (Option 5+ Refined junction optimisation) will be exhibited during a four-week community consultation period in March 2024.

The outcomes of this consultation period will help inform the development of a feasibility design as part of the next stage of the project. The next activities for this project are:

- Collate feedback from the consultation exercise into the project consultation report
- Update the initial concepts based on this feedback and confirm this with key stakeholders
- Develop a concept design with more design details and an accompanying technical report
- Handover the feasibility design to the engaged design and construct team to progress the scheme further.

Appendices

A.	INSET outputs	30
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C.	Concept designs for short list options	34

A. INSET outputs

A.1 Baseline scenario (all objectives weighted equally)

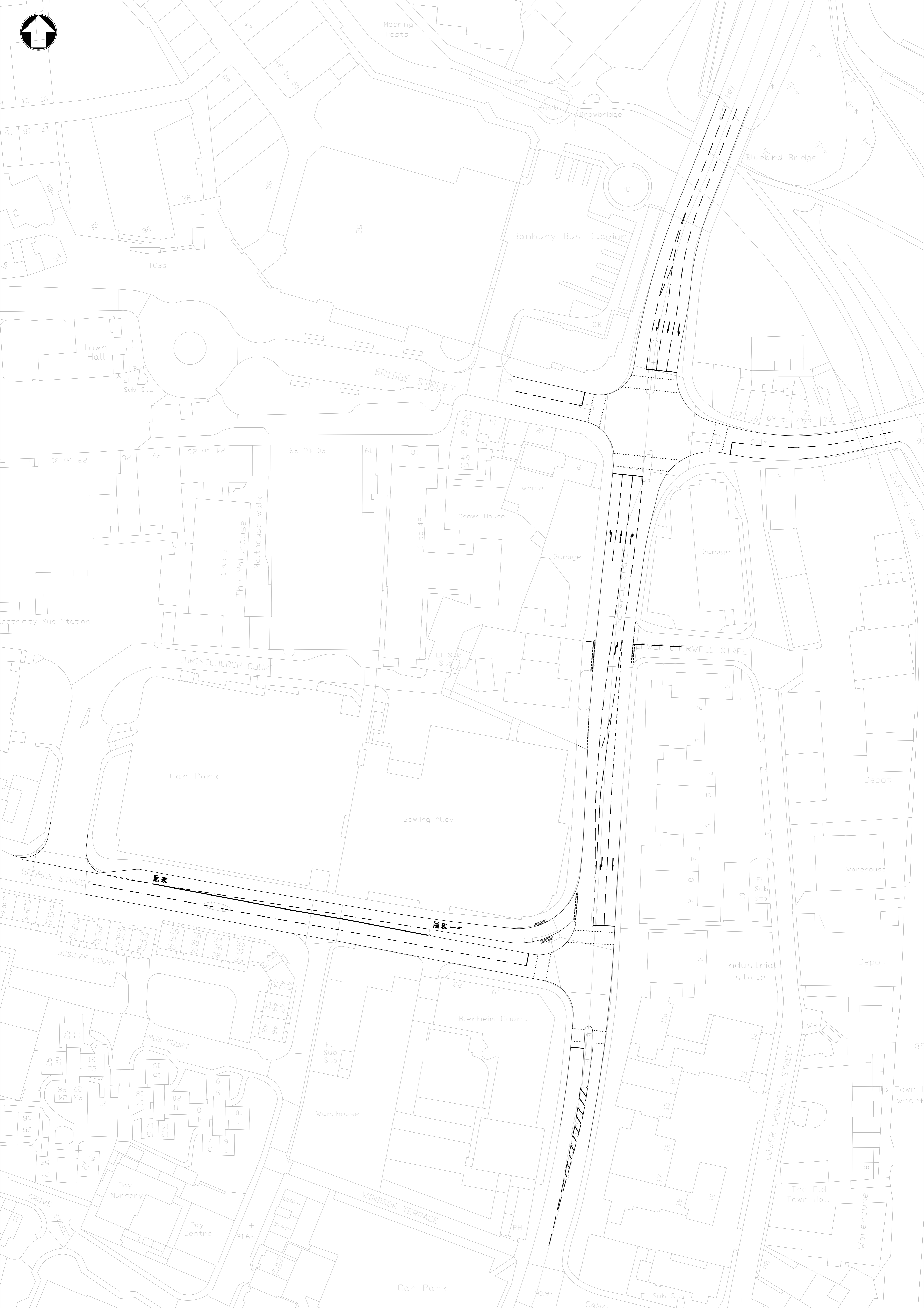
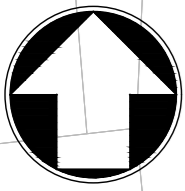
Rank	Scheme	Objectives						Total Score (Weighted Average)
		Sustainable mode shift	Safety and well-being	Environment and resilience	Inclusivity	Vibrant economy	Deliverability	
1	Provide bus service which connects to rail station	1.50	1.00	0.20	2.00	2.25	2.50	0.95
2	Simplify junction for pedestrians by removing traffic islands and providing an all-red	0.25	1.00	0.40	1.20	0.75	3.33	0.69
3	Shared-use all arms of both junctions with toucan crossings	0.75	0.60	0.60	1.60	1.00	0.00	0.46
4	Improving walking and cycling facilities for access to rail station	1.00	1.40	0.60	2.20	2.25	-5.00	0.25
5	Nearside northbound bus lane between George Street and Bridge Street	1.50	0.40	0.40	0.60	1.00	-2.50	0.14
6	Bus priority through signals (requires modelling and specific sensors)	1.00	0.40	0.20	0.20	0.25	-0.83	0.12
7	Rationalise George Street junction to improve ped facilities (modernise)	0.50	1.20	0.40	1.20	0.25	-2.50	0.11
8	Improve on-street bus stops and waiting areas on Bridge Street	0.50	0.80	0.80	1.60	1.50	-4.17	0.10
9	Signalise Swan Close Rd / Tramway Rd junction	0.75	1.20	0.00	0.00	1.25	-2.50	0.07
10	LTN 1/20 compliant junctions (impact on traffic capacity)	0.50	0.20	0.80	1.60	0.75	-3.33	0.05
11	Take Bridge Street down to single lane approach and widen footways	0.50	1.00	0.40	1.20	0.75	-3.33	0.05
12	Linking up signal junctions e.g. SCOOT	1.00	0.20	0.00	0.20	0.00	-1.67	-0.03
13	Introduce additional northbound bus stops on Cherwell Street	0.50	0.00	0.20	1.00	0.75	-3.33	-0.09

		Objectives						
14	Re-route George Street bus services via High Street to the bus station	1.75	1.00	0.00	0.60	1.75	-7.50	-0.24
15	Reduce traffic on Windsor Street by reassigning to A361	2.25	-0.80	0.20	0.40	-0.50	-4.17	-0.26
16	Bus lane on western arm approach of Bridge Street	0.50	0.20	0.20	0.20	0.00	-5.00	-0.39
17	Remove roundabout of Bridge Street / Market Place	0.00	0.60	1.00	1.20	0.75	-7.50	-0.40
18	Ban right turn to Bridge Street	0.75	-0.80	-0.60	0.00	-0.50	-4.17	-0.53
19	Long bus lane from Gatteridge Street to Bridge Street	1.50	0.80	0.40	0.60	1.00	-10.00	-0.57
20	Widen bus lane on George Street	0.75	-0.60	-0.20	0.00	0.00	-5.83	-0.59
21	Roundabout replace signals at Bridge Street junction	0.00	-1.20	0.00	-1.20	0.00	-6.67	-0.91

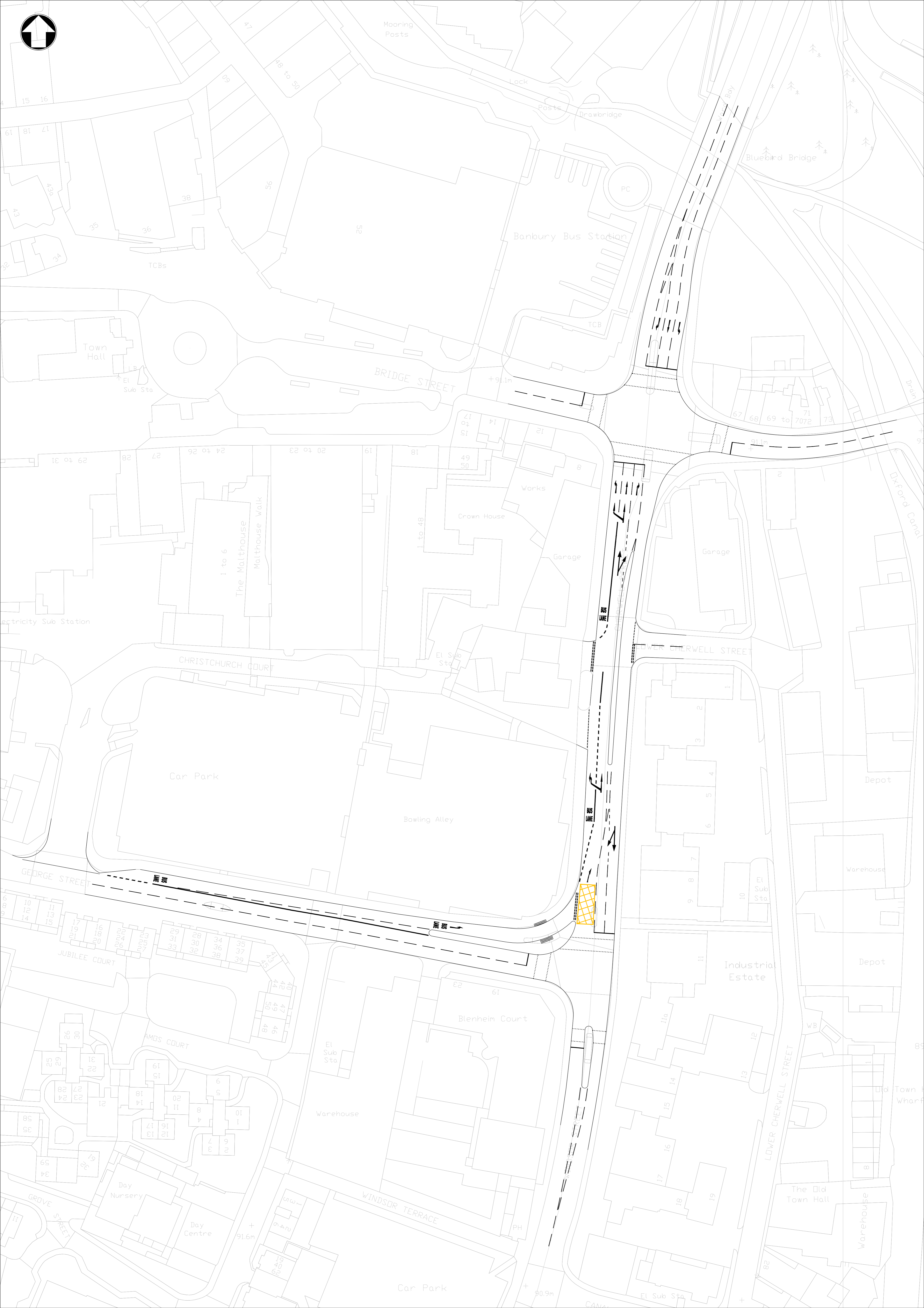
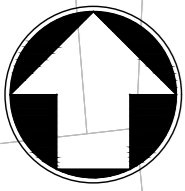
B. Modelling report

C. Concept designs for short list options

C.1 Option 1 – Pedestrian intermediate

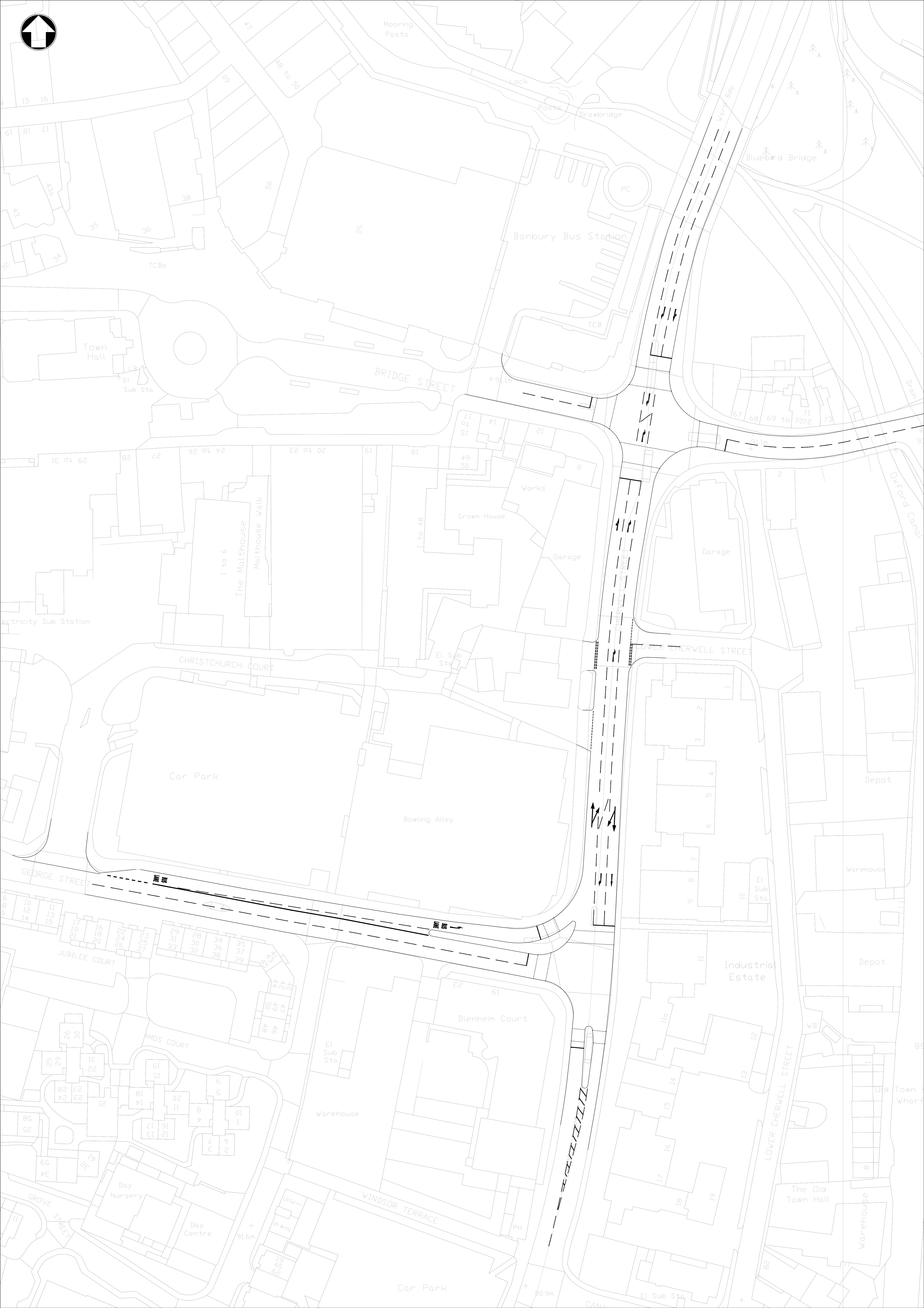
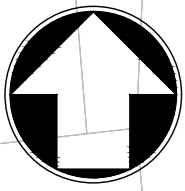


C.2 Option 2 – Bus priority

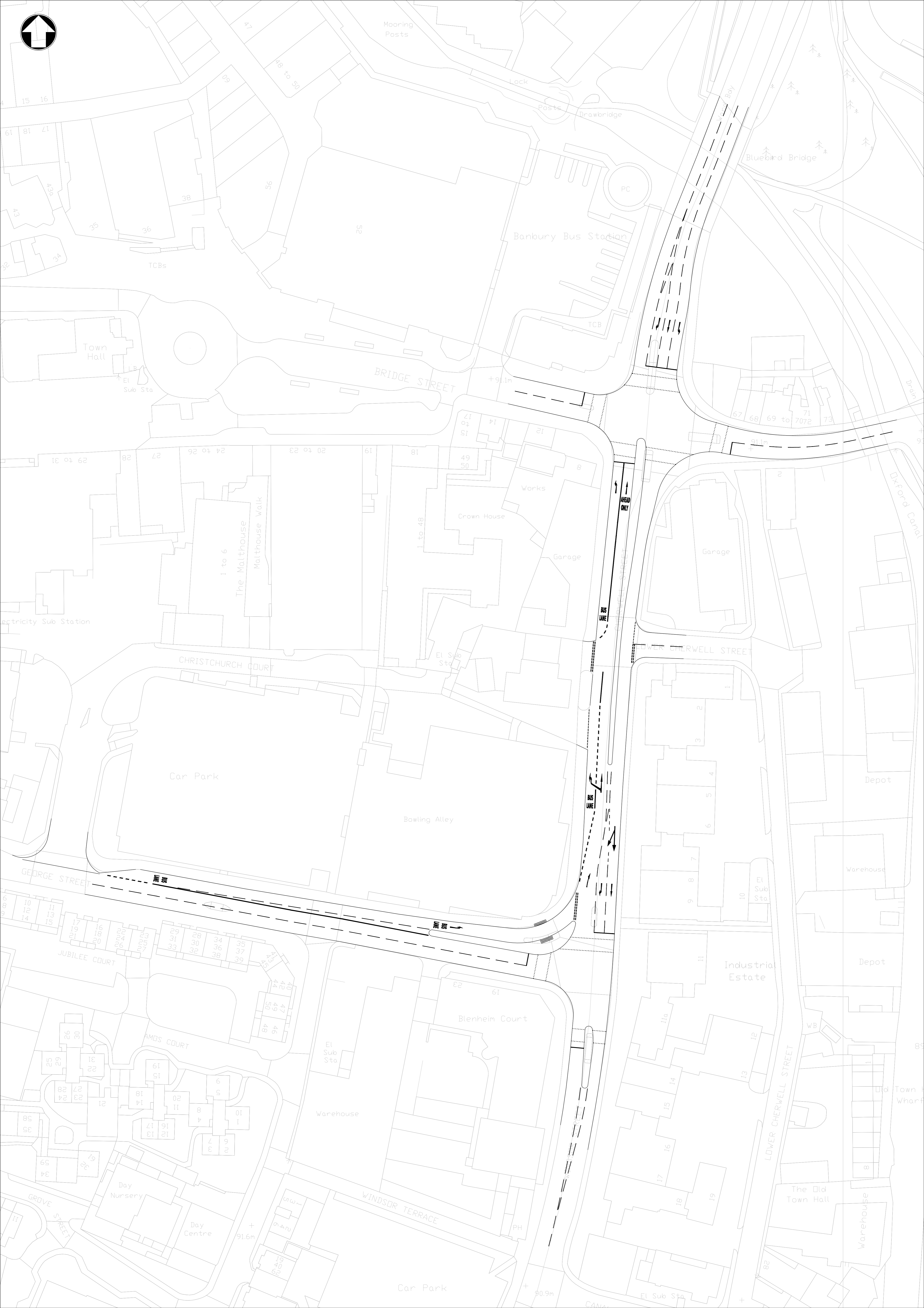
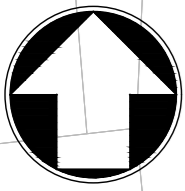


C.3 Option 2+ – Refined bus priority

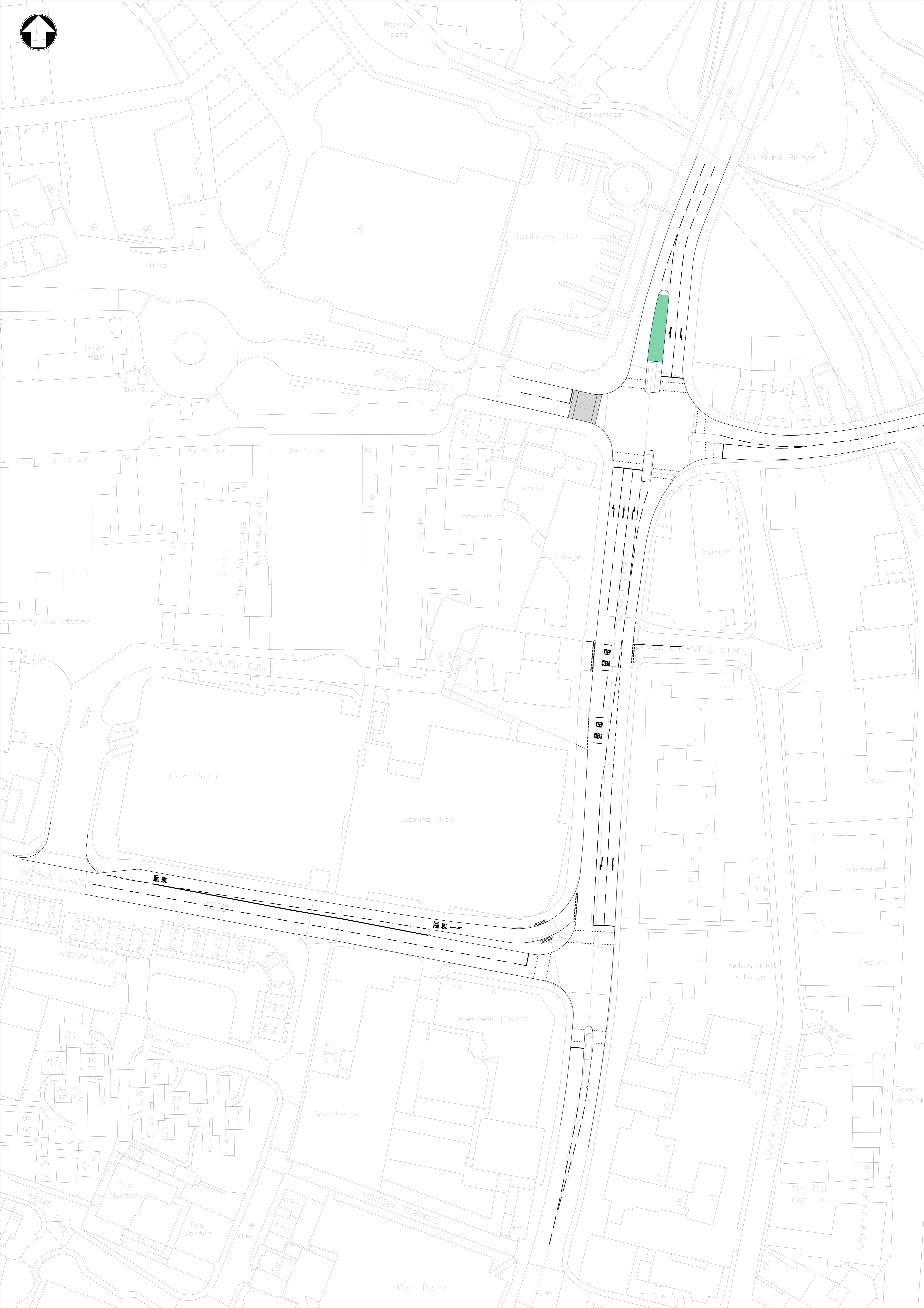
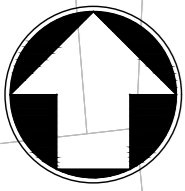
C.4 Option 3 – Pedestrian max



C.5 Option 4 – Right turn removed with bus lane



C.6 Option 5 – Junction optimisation



Mooring Posts

Lock

Posts

Drawbridge

Wary Bay

Bluebird Bridge

PC

Banbury Bus Station

TCBs

TCB

Town Hall

El Sub Sta

BRIDGE STREET

+91.1m

67 68 69 to 71 7072 73

+91.1m

Works

Crown House

Garage

Garage

The Malthouse
Malthouse Walk

1 to 6

1 to 48

El Sub Sta

CHRISTCHURCH COURT

Car Park

Bowling Alley

LOWER CHERWELL STREET

Depot

Warehouse

GEORGE STREET

KEEP CLEAR

KEEP CLEAR

9 8 7 6 5 4 3 2 1

El Sub Sta

Depot

Warehouse

Industrial Estate

Depot

JUBILEE COURT

AMOS COURT

Blenheim Court

Warehouse

El Sub Sta

11a

15 14

17 16

18 19

13

WB

11

82

89

Old Town Hall Wharf

Warehouse

GROVE STREET

Day Nursery

Day Centre

+91.6m

WINDSOR TERRACE

PH

Car Park

+90.9m

CANAL

El Sub Sta

+

C.7 Option 5+ - Refined junction optimisation

