Low Traffic Neighbourhood Strategy

Final Draft Strategy

| V6

May 2020

Bath & North East Somerset

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Low Traffic Neighbourhood Strategy

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Executive Summary

Background

The declaration of a Climate Emergency within Bath & North East Somerset (B&NES) in March 2019 outlined the resolution for the authority to be carbon neutral by 2030. This requires a transformational change in how people choose to travel and how goods are transported across the authority. The necessary revolution in the transport system requires the development of solutions at local level which go beyond the schemes and policies set out in the newly adopted Joint Local Transport Plan 4 (JLTP4) and Getting around Bath Transport Strategy.

B&NES Council recognise the importance of responding to the Climate Emergency, which demands a fundamental step-change in methods of travel by residents, visitors and people who work in B&NES. It requires a major shift to public transport, walking and cycling in order to reduce transport emissions. A wide range of initiatives will play a part in delivering this, with low traffic neighbourhoods identified by the Council as a priority for the future as an important step in delivering the necessary changes across B&NES.

It should be noted that the proposals and principles of this strategy were developed before the Covid-19 pandemic and its emerging effects. The significant reductions in traffic seen within all areas as a result of the Covid-19 pandemic and lockdown has seen increases in people walking to local amenities and key workers cycling to work. As well as a greater focus on improving public spaces for people rather than continuing to allow cars to dominate.

The '*Decarbonising Transport, Setting the Challenge*' paper[1] published by Department for Transport (DfT) in March 2020 states that "*public transport and active travel will be the natural first choice for our daily activities. We will use our cars less and be able to rely on a convenient, cost-effective and coherent public transport network…. Clean, place-based solutions will meet the needs of local people*".

Vision and strategic objectives

Our vision is to create better places across B&NES that promote active travel and public transport use, improve community health and reduce the need for short car journeys.

Strategic objectives

- Improve air quality and respond to the climate emergency;
- Improve public realm and quality of life - creating better places for residents, businesses and visitors, as well as sympathetically accommodating emerging EV infrastructure requirements;
- Enable more local trips by active modes of travel and public transport, through providing easy, safe and comfortable routes within neighbourhoods in line with the wider public health outcomes; and
- Reduce the impact of "rat-running" vehicles along unsuitable residential roads, to support prosperity and improve community connectivity, whilst safeguarding access for residents and the needs of mobility impaired people.

What is a low traffic neighbourhood?

"Low traffic neighbourhoods" are being successfully introduced both across the UK and abroad as a means of tackling traffic issues in communities. They are typically considered in predominately residential areas, where several streets are grouped and organised in a way to discourage through-vehicle traffic or "rat-running". Importantly residents remain able to drive on their streets, park on their streets and receive deliveries although it is noted that strategies should be in place to help reduce car ownership and usage by residents within any low traffic neighbourhood area.

Measures typically used in low traffic neighbourhoods include:

- implementation of speed or carriageway width restrictions;
- partial or full road closures and the use of model filters;

[1] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/876251/decarbonising-transport-setting-the-challenge.pdf

- implementation of bus gates;
- reallocation of road space or on-street parking to improve pedestrian and cycle infrastructure; and
- changes in priorities at junctions.

Key to low traffic neighbourhoods are the opportunities that reclaiming road space can then provide for public realm improvements, such as:

- areas for seating and meeting;
- locations for cycling infrastructure and storage;
- tree planting and green space; and
- locations for on-street EV charging infrastructure.

Ultimately low traffic neighbourhoods, whilst primarily focused on the reduction of vehicle intrusion within an area, are only effective if they also encourage residents within and between those neighbourhoods to consider active travel opportunities, reduce congestion on roads, improve connectivity and make the local environment safer and more attractive for journeys on foot, bike or public transport.

Principles

Low traffic neighbourhoods provide a valuable tool to reconsider how streets are managed to enable inclusive and safer environments, to promote active travel and encourage mode shift away from private cars. Principles of a low traffic neighbourhood focus on reducing the dominance of traffic to deliver attractive, healthy, accessible and safe neighbourhoods for people. This generates opportunities in residential areas to improve conditions for walking and cycling, as well as access to public transport and community spaces.

London Cycling Campaign and Living Streets have developed 'a guide to low traffic neighbourhoods'[2] following the success of projects in London Borough of Waltham Forest and continued roll-out across wider London (as Living Streets), with proposals in Camden, Enfield and Harrow. The guidance outlines key principles for the development of low traffic neighbourhoods, including:

Size: low traffic neighbourhoods should ideally include a group of residential streets, bordered by a main road (those used by LGVs, HGVs, buses and through-traffic), which is walkable within 15 mins (approximately 1km^2).

Location: low traffic neighbourhoods should be in close proximity to key amenities and services, especially key transport interchanges.

Infrastructure: a range of infrastructure can be used to support the implementation of low traffic neighbourhoods which could include modal filters, active mode development and public realm improvements.

Community involvement/engagement: active community engagement should be embedded from the start of the process, through to co-designing elements and continue through the active feedback and monitoring stages.

In B&NES, those which are likely to be most suitable include:

- modal filtering of residential streets through bollards, width gates, bus gates or planters;
- public realm enhancements, such as shared space, parklets and green infrastructure;
- alignment or consideration with residents' parking schemes;
- time-limited access restrictions through school streets; and
- blended / "Copenhagen" crossings to reinforce pedestrian and cyclist priority in an area.

It should be acknowledged that many streets, particularly in Bath, are narrow and as part of the implementation of some of these measures, there could be implications for on-street parking capacity. For example, as part of the installation of a modal filter, to ensure sufficient space for turning vehicles, it may be necessary to remove additional parking spaces from residential streets.

B&NES residents' parking scheme policy has been revised to sit alongside this strategy. A review of existing residents' parking zone boundaries may be necessary as part of the development of low traffic neighbourhoods and wider transport strategies, along with the consideration of whether a residents' parking scheme is required in the absence of one.

[2] https://londonlivingstreets.files.wordpress.com/2018/09/lcc021-low-traffic-neighbourhoods-detail-v9.pdf

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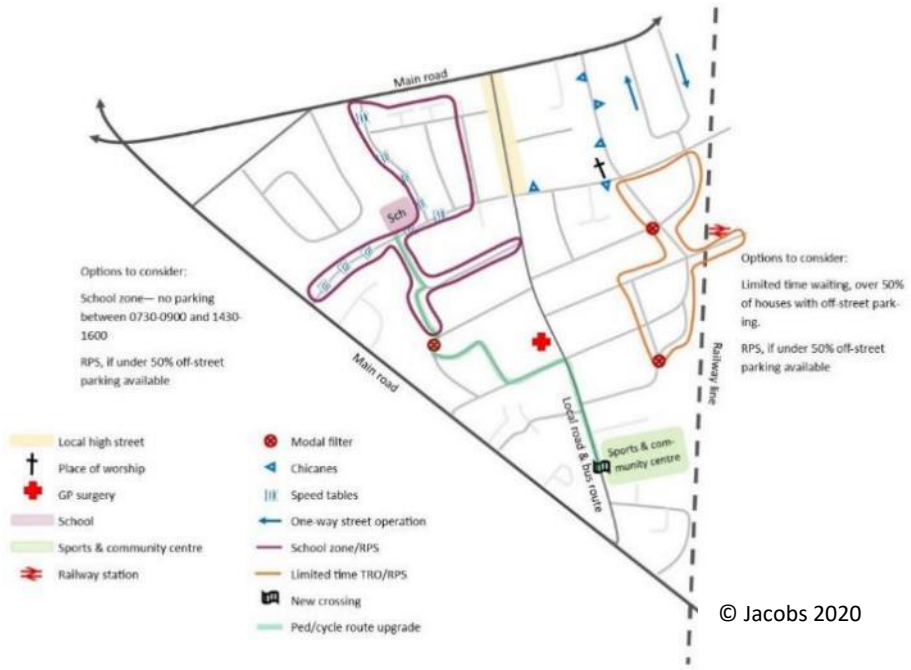

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Early engagement is a key tenet of delivering low traffic neighbourhoods, it provides the opportunity to inform communities of what the schemes aim to achieve, whilst moderating expectations by outlining the processes involved, levels of influence and potential timescales.

Importantly engagement offers an opportunity to have open discussions about any potential trade-offs.

Measures within B&NES must also be carefully considered in terms of their impact on air quality and heritage.

Given that a CAZ will be implemented in the city centre and AQMAs have been declared across B&NES, it must be ensured that measures will not have a negative impact of the clean air plans and air quality compliance in the long term. Additionally, the heritage city and conservation areas require close consideration to ensure that measures implemented are consistent with the environment through following relevant design guidance and material pattern books.

Low traffic neighbourhoods in B&NES

As the majority of these transport-related problems and issues are more prevalent within urban areas, the predominant focus of implementation for low traffic neighbourhoods is within the city of Bath. Proportionate consideration of these issues in Keynsham/Saltford and other areas within B&NES has been undertaken within this strategy, as there may be potential for some measures or themes of low traffic neighbourhoods to be delivered within streets or smaller geographical areas. Many of the transport issues are multi-layered and interlinked, therefore they could be improved by low traffic neighbourhoods but are unlikely to be directly tackled through these schemes alone.

Outcomes of low traffic neighbourhoods in B&NES include:

- Promote mode shift to more active modes, by increasing walking and cycling uptake of residents for local trips.
- Improved public health through increasing levels of physical activity, getting out within the neighbourhood and choosing not to drive.
- Local air quality improvements by reducing through-traffic on residential roads and encouraging mode shift from private cars to more sustainable modes.
- Improved community and social connectivity through the reduction in traffic on residential streets and providing opportunities to create more public realm and community space.
- Reduced traffic and vehicle speeds, including the reduction in traffic dominated public realm, reduced rat-running traffic and inappropriate routeing by HGVs, and assistance in reducing inappropriate traffic speeds on residential streets.
- Reallocation of road-space to remove the pressure for non-residential parking (through residents' parking scheme), improve public realm and provision for enhanced walking and cycling infrastructure.

During previous consultations, the promotion of active travel and its uptake have often resulted in responses regarding the topography of Bath and how the steep street gradients can discourage people from walking and cycling more. However, whilst it is recognised that this is a concern for some residents of Bath, active travel for short trips to key local services and public transport links can still be promoted by safer walking and cycling routes through the implementation of low traffic neighbourhoods. The promotion and take-up of electric bikes (e-bikes) and electric scooters (e-scooters) where appropriate and legal also has the potential to overcome some of these barriers to active travel by making it easier to navigate steeper inclines.

Low traffic neighbourhoods should be considered, designed and implemented specifically for the local area and respond to local problems, issues and opportunities. Low traffic neighbourhoods are not about rewarding one group of people

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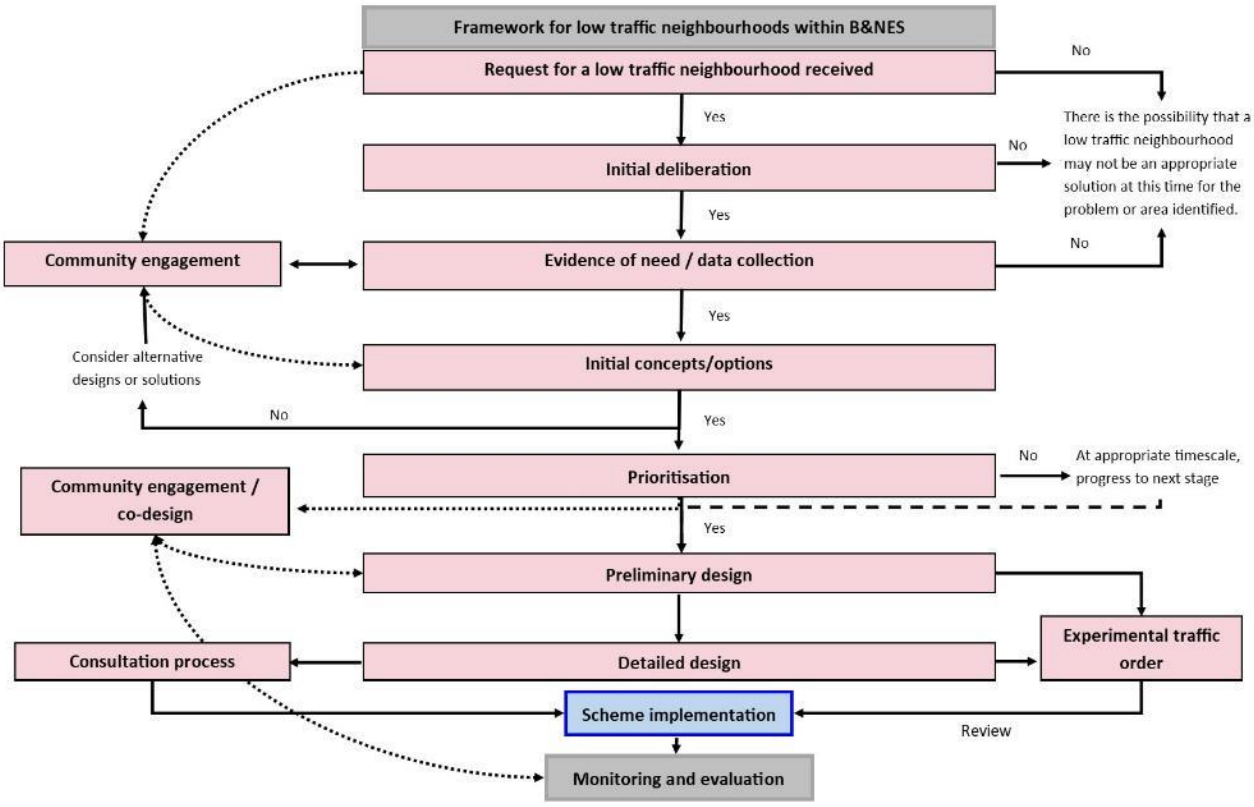
while punishing another, but about making long-term decisions about how people travel, by delivering safer environments for people to travel by a range of sustainable modes. It is important that during the development of low traffic neighbourhoods, cognisance of the location and heritage of the neighbourhood is considered, particularly in the selection of interventions and materials.

This strategy sets out the approach to how B&NES will consider low traffic neighbourhood projects, reinforcing their development and implementation through an iterative, collaborative and holistic process. As proposals come forward and are developed and implemented, the associated ongoing monitoring and evaluation will inform the evolution of the strategy, framework, processes and prioritisation of schemes.

The summary process flow below highlights the broad stages for low traffic neighbourhood consideration and implementation. Section 4 of this strategy provides guidance on consideration of a how a proportional approach should be taken based on the issues experienced, severity and geographical scale. The timeframe for this process will vary on a location-by-location basis.



The initial development of the low traffic neighbourhood framework will further expand this strategy, to provide a basis for communities and B&NES Council to implement low traffic neighbourhoods. Prioritisation against other low traffic neighbourhood proposals, along with wider delivery programme and available budgets will be considered on a six-monthly rolling review.

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1. Vision

1.1 Context

The declaration of a Climate Emergency within Bath & North East Somerset (B&NES) in March 2019 outlined the resolution for the authority to be carbon neutral by 2030. This requires a transformational change in how people choose to travel and how goods are transported across the authority. The necessary revolution in the transport system requires the development of solutions at local level which go beyond the schemes and policies set out in the newly adopted Joint Local Transport Plan 4 (JLTP4) and Getting around Bath Transport Strategy.

B&NES Council recognise the importance of responding to the Climate Emergency, which demands a fundamental step-change in methods of travel by residents, visitors and people who work in B&NES. It requires a major shift to public transport, walking and cycling in order to reduce transport emissions. A wide range of initiatives will play a part in delivering this. Low traffic neighbourhoods are an important step in delivering the necessary changes across B&NES and have been identified by the Council as a priority for the future.

It should be noted that the proposals and principles of this strategy were developed before the Covid-19 pandemic and its emerging effects. However, there are obvious and significant parallels as low traffic neighbourhoods are focussed on improving public spaces for people rather than continuing to allow cars to dominate. The significant reductions in traffic seen within all areas as a result of the Covid-19 pandemic and lockdown has seen increases in people walking to local amenities and key workers cycling to work.

For many, this has reminded us what our streets and public spaces could be like. Families when exercising were able, in many cases for the first time, to cycle on roads that were previously deemed too busy and dangerous under normal conditions. Whilst social distancing has highlighted that pavements in many areas are too narrow, as road space is allocated disproportionately in favour of motor vehicles. The delivery of low traffic neighbourhoods supports residents choosing to walk or cycle to undertake all of their normal tasks, such as a trip to local shop or to school, rather than using car to make the same journey. This change is perhaps once in a generation and provides an opportunity to capture benefits from such a devasting pandemic.

The recent '*Decarbonising Transport, Setting the Challenge*' paper[3] published by Department for Transport (DfT) in March 2020 sets out the Government's position on decarbonising transport to assist in achieving 'net zero' greenhouse gas (GHG) emissions by 2050. With transport playing a huge role in the economy reaching net zero, it outlines the vision of how a net zero transport system will benefit everyone:

"*Public transport and active travel will be the natural first choice for our daily activities. We will use our cars less and be able to rely on a convenient, cost-effective and coherent public transport network…. Clean, place-based solutions will meet the needs of local people. Changes and leadership at a local level will make an important contribution to reducing national GHG emissions*".

Therefore by reducing the intrusion of vehicles into residential areas, this enables the return of neighbourhood streets to the people who live and work there. Low traffic neighbourhoods, in addition to residents' parking schemes where necessary, are one of the key ways in which this could be realised across B&NES; by combating the impact of traffic and on-street parking on residential streets, improving air quality, enhancing connectivity and helping to create an environment which better encourages walking and cycling.

London Cycling Campaign published their '**Climate Safe Streets**' report in March 2020, which whilst focusing on London, outlines some key considerations for encouraging substantial mode shift and enable people to choose non-car modes more easily. '*Streets must become safer and more convenient for walking and cycling; bus travel must become cheaper, more reliable and more convenient; and people must have easy access to zero-carbon shared motor transport as an attractive alternative to car ownership'.*

The report states that the issue is not just about moving traffic, but it is also about parked vehicles. '*In the UK, the average car is in use for around 4% of the time, therefore shifting journeys out of private cars and into more sustainable modes of transport, provides opportunities to free up space currently used by parked cars for cycling and walking infrastructure, shared mobility options and public space improvements'*

This report sets out the strategy for the implementation of low traffic neighbourhoods in B&NES. It draws on case studies and best practice examples to consider how low traffic neighbourhoods could benefit local communities.

[3] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/876251/decarbonising-transport-setting-the-challenge.pdf

1.2 What is a low traffic neighbourhood?

"Low traffic neighbourhoods" are being successfully introduced both across the UK and abroad as a means of tackling traffic issues in communities. They are typically considered in predominately residential areas, where several streets are grouped and organised in a way to discourage through-vehicle traffic or "rat-running". Importantly residents remain able to drive on their streets, park on their streets and receive deliveries although it is noted that strategies should be in place to help reduce car ownership and usage by residents within any low traffic neighbourhood area.

Source: Waltham Forest Cycling Campaign https://wfcycling.wordpress.com/mini-holland/mini-holland-key-issues-successes/)

A low traffic neighbourhood also includes the introduction of a number of measures to encourage non-local traffic to use main roads (those used by LGVs, HGVs, buses and general traffic) by making it more difficult to drive directly between main roads, on what are often deemed unsuitable roads.

Measures typically used in low traffic neighbourhoods include:

- implementation of speed or carriageway width restrictions;
- partial or full road closures and the use of model filters;
- implementation of bus gates;
- reallocation of road space or on-street parking to improve pedestrian and cycle infrastructure; and
- changes in priorities at junctions.

Key to low traffic neighbourhoods are the opportunities that reclaiming road space can then provide for public realm improvements, such as:

- areas for seating and meeting;
- locations for cycling infrastructure and storage;
- tree planting and green space;
- locations for on-street EV charging infrastructure; and
- consolidated delivery points

Ultimately low traffic neighbourhoods, whilst primarily focused on the reduction of vehicle intrusion within an area, are only effective if they also encourage residents within and between those neighbourhoods to consider active travel opportunities, reduce congestion on roads, improve connectivity and make the local environment safer and more attractive for journeys on foot, bike or public transport.

In B&NES there is an opportunity to introduce low traffic neighbourhoods in suitable areas (likely focused on Bath, but also in other areas where appropriate) and to, in parallel, review related policies on residents parking.

1.3 The vision

This strategy has been developed in the context of national, regional and local policy[4], along with the overarching B&NES vision for the future. The vision for low traffic neighbourhoods below looks to reflect the wider aims of local planning and transport policy as well as the key priorities for B&NES in addressing the climate emergency. It also aligns with the purpose, core policies and principles outlined in B&NES Corporate Strategy, adopted in 2020.

Our vision is to create better places across B&NES that promote active travel and public transport use, improve community health and reduce the need for short car journeys.

[4] Appendix A contains the wider policy review

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A core principle of this vision is to empower people to make the fundamental step-change in how they choose to travel, by making sustainable choices more accessible.

1.4 Strategy objectives

In order to realise the Vision and facilitate the development of this low traffic neighbourhood strategy, the objectives of the strategy are to:

- Improve air quality and respond to the climate emergency;
- Improve public realm and quality of life - creating better places for residents, businesses and visitors, as well as sympathetically accommodating emerging EV infrastructure requirements;
- Enable more local trips by active modes of travel and public transport, through providing easy, safe and comfortable routes within neighbourhoods in line with the wider public health outcomes; and
- Reduce the impact of "rat-running" vehicles along unsuitable residential roads, to support prosperity and improve community connectivity, whilst safeguarding access for residents and the needs of mobility impaired people.

Best practice examples have advocated the importance of community engagement throughout the delivery of low traffic neighbourhoods. Although not outlined as a strategy objective, a key tenet woven through this strategy and associated policies will be stakeholder and community engagement.

1.5 This strategy

This report outlines the strategy and policies for the use of low traffic neighbourhoods within B&NES, supported by policy considerations for residents' parking. Whilst Bath is the predominant focus of this strategy, the policies will be applicable throughout the B&NES authority area.

The structure of this strategy document includes:

- Principles of a low traffic neighbourhood;
- Low traffic neighbourhoods in B&NES;
- Approach to implementation of low traffic neighbourhoods in B&NES; and
- Summary

This strategy also sits alongside the revised residents' parking policy and the on-street electric vehicle (EV) charging strategy, which reflects opportunities and considerations for EV charging infrastructure within B&NES.

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2. Principles of a low traffic neighbourhood

2.1 Introduction

Low traffic or 'liveable' neighbourhoods and streets are on the rise within the UK, as car-dominance and their intrusion into residential areas have become more prevalent, resulting in traffic and air quality concerns which impact the health and quality of life for residents.

Low traffic or 'liveable' neighbourhoods have been introduced in various UK and EU locations, under different guises and at differing scales for several decades. From the large-scale strategies implemented as part of Van den Berg's traffic circulation plan in the Dutch city of Groningen, to the more recent implementation of Barcelona's 'superblocks'. These area-wide strategies involve the fundamental re-prioritisation of road space and access within cities has been changed from car-dominance to pedestrian, cycling and public transport users.

The principles identified as part of these ambitious plans have recently been translated to a more local level, with the 'mini-Holland'-style low traffic neighbourhoods successfully implemented in the London Borough of Waltham Forest and being rolled out across wider London as part of the 'liveable neighbourhood' initiative, including Brixton in London Borough of Lambeth[5]. Smaller projects such as School Streets, examples of which have recently been implemented in Birmingham, are showing positive results in improving local air quality and safety specifically around schools. Overall there is a growing awareness of the role of low traffic neighbourhoods as part of a wider package of measures to tackle transport and environmental issues.

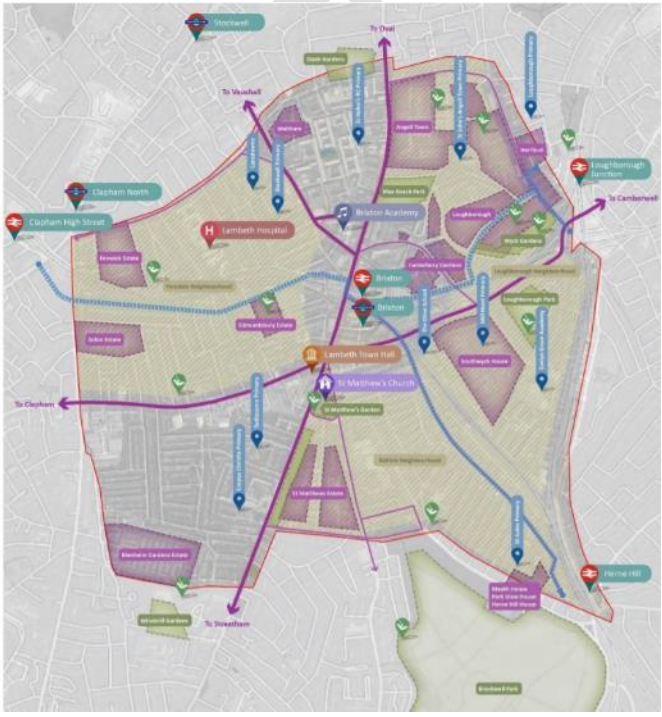

Figure 2-1: Proposed 'liveable' neighbourhood in Brixton

Low traffic neighbourhoods provide a valuable tool to reconsider how streets are managed to enable inclusive and safer environments, to promote active travel and encourage mode shift away from private cars. Principles of a low traffic neighbourhood focus on reducing the dominance of traffic to deliver attractive, healthy, accessible and safe neighbourhoods for people. This generates opportunities in residential areas to improve conditions for walking and cycling, as well as access to public transport and community spaces.

Additionally, low traffic neighbourhoods provide the potential to review on-street parking provision as well as electric vehicle charging considerations, particularly given increasing demand and the wider Climate Emergency.

2.2 Principles

London Cycling Campaign and Living Streets have developed 'a guide to low traffic neighbourhoods'[6] following the success of projects in London Borough of Waltham Forest and continued roll-out across wider London, with proposals in Camden, Enfield and Harrow. The guidance outlines key principles for the development of low traffic neighbourhoods, including:

- Size
- Location
- Infrastructure and interventions
- Community involvement

[5] https://s3-eu-west-1.amazonaws.com/commonplace-customer-files/brixtonlnmap/Brixton%20Liveable%20Neighbourhood%20Project%20Summary.pdf
[6] https://londonlivingstreets.files.wordpress.com/2018/09/lcc021-low-traffic-neighbourhoods-detail-v9.pdf

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These key principles have been further developed following a best practice review, to incorporate additional considerations and potential outcomes. It should be noted that these principles provide guidance for the development of low traffic neighbourhoods, not absolute requirements. Therefore, their consideration should also reflect location-specific details and be adjusted as necessary.

2.2.1 Size

Low traffic neighbourhoods should include a group of residential streets, bordered by a main road (those used by LGVs, HGVs, buses and through-traffic). Ideally these groups of streets should be walkable within 15 mins (approximately 1km^2), with the size of a low traffic neighbourhood making it easier for walking and cycling to become an incidental part of a daily routine, either as a main mode of travel or as part of a longer public transport journey[7].

The main road(s), such as A or B roads, bordering an area identified for a potential low traffic neighbourhood should be suitable to (and already carry) through-traffic, bus routes, LGVs and HGVs. This key principle of a low traffic neighbourhood is important in order to encourage traffic which may currently be rat-running/travelling through residential areas to re-route via more appropriate main roads. Local roads (i.e. B roads or classified unnumbered roads) can often include routes within communities that carry bus services and provide access to local shops and amenities.

The illustrations in Figure 2-2 below outline some of the key elements for consideration when determining the size of a low traffic neighbourhood, in the context of rat-running through traffic.

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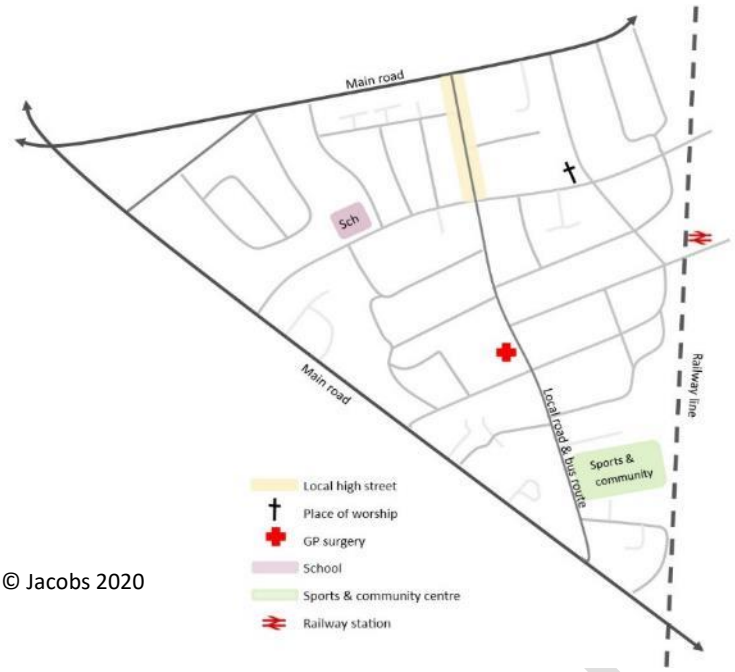
Figure 2-2: Illustrative considerations for the size of low traffic neighbourhoods

When identifying the size of a low traffic neighbourhood or 'cell', an area too small or compact (see blue dashed area in Figure 2-2 above) could push rat-running traffic onto other, equally unsuitable roads within a neighbourhood (identified in orange). Therefore, it is important to consider potential displacement of any issues (i.e. traffic or on-street parking) to neighbouring residential streets.

[7] Aldred, R., Croft, J., & Goodman, A. (2019) Impacts of an active travel intervention with a cycling focus in a suburban context: One-year findings from an evaluation of London's in-progress mini-Hollands programme Transportation Research Part A: Policy and Practice Vol 123, May 2019, Pg147-169 https://www.sciencedirect.com/science/article/pii/S0965856417314866

It is not recommended to have low traffic neighbourhoods across main through roads, due to traffic volumes and speeds. However, where neighbouring 'cells' are located across main through roads, it is vital to provide high-quality pedestrian and cycling links through safe crossing points and cycle infrastructure. Failure to provide these facilities can reduce the number of people choosing to walk and cycle, particularly those with disabilities or who use adapted cycles.

2.2.2 Location



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Successful low traffic neighbourhoods, or groups of neighbourhoods, are often in close proximity of key amenities and services and where possible these should serve as the focus of the area. The identification of these elements within an area is crucial in order to understand travel patterns within a neighbourhood and identifying the future opportunities that changes to the travel patterns could bring.

Key amenities and services may include locations such as: schools, doctor surgeries/hospitals, high streets, key businesses/employment sporting facilities, railway stations, supermarkets, places of worship and community centres.

When identifying the amenities and services, it is essential to consider the type of use (i.e. short-stay duration, all-day access), the times of day that attract trips and the number of people using the services.

Figure 2-3: Illustrative considerations for the location of low traffic neighbourhoods - amenities

This is particularly important as some amenities may also be a contributing factor in the problems trying to be addressed with a low traffic neighbourhood. For example, a school will have different patterns for access compared to a supermarket or a leisure centre; with hospitals or medical facilities also having different requirements for access. Importantly, different amenities will serve different geographical areas, as well as attracting trips from outside the neighbourhood. Understanding these issues is critical to ensuring the design of a low traffic neighbourhood does not adversely hinder local access or have other unintended consequences.

This will also help inform whether measures proposed as part of the low traffic neighbourhood are needed on a permanent basis (i.e. speed restrictions or infrastructure) or whether interventions could be considered at particular times of the day (school streets or a residents' parking scheme during typical commuting hours).

It is also vital to consider access within an area, particularly for businesses (loading), cul-de-sacs/no-through roads and one-way streets, as well as continued access for emergency and refuse vehicles along all streets and for public transport vehicles where relevant.

In considering the suitability of areas as low traffic neighbourhoods, recognising constraints in an area can assist in identifying boundaries, along with main roads. For example, railway lines, rivers and canals can contribute to severance within an area due to limited crossings available for pedestrians, cyclists, public transport and vehicles. However, rivers and canals can also provide opportunities for improved connectivity with traffic-free pedestrian and cycling links between low traffic neighbourhoods and key amenities, such as a city centre.

Other constraints to recognise may include the cultural heritage of an area, particularly those designated as Conservation Areas or containing protected sites. Careful consideration of any historic street patterns, access to properties or key landmark features needs to be included when categorising an area, particularly if proposals have the potential to change the character of the area. The identification of opportunities to improve these areas is equally important, where restoration or enhancement of infrastructure can improve the historic context of a neighbourhood.

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There may already be measures in place within the area to help alleviate some of the issues a low traffic neighbourhood looks to address. Examples include: existing residents' parking schemes, time-limited on-street parking, speed restrictions or one-way streets. Categorising these factors informs how an area is currently functioning and enables a review of whether they are effective measures to be incorporated into the proposals or whether changes need to be made.

Not every area will be suitable for a low traffic neighbourhood, however there are opportunities for elements or considerations to be incorporated into an area. In some cases, local issues may be better addresses via other methods or solutions. For example, existing residents' parking schemes may need to be altered, in terms of the area covered and the operational time-periods, to account for wider low traffic neighbourhood requirements. Consideration should also be given to the implementation or amendment of a residents' parking scheme, which in isolation may resolve acute issues in certain locations, without the need for a low traffic neighbourhood. The residents' parking policy document provides more information on the process for delivering residents' parking schemes within B&NES.

2.2.3 Infrastructure and interventions

Principles of a low traffic neighbourhood focus on delivering attractive, healthy, accessible and safe neighbourhoods for people. This involves the consideration how streets are managed, which can be via infrastructure changes along with enforcement of speed and parking controls, to enable inclusive and safer environments for residents and business owners. These measures can encourage active travel and mode shift away from private cars, by changing residential areas and improving conditions for walking and cycling, as well as reducing traffic dominance. Further complementary measures that promote active travel and public transport use over private vehicle use can follow.

Figure 2-4: Example of modal filter with active mode promotion[8]

The types of infrastructure and traffic management controls typically used in low traffic neighbourhoods do not stop residents from being able to access their homes, nor delivery and service vehicles accessing dwellings and businesses when required. It is however likely to mean a slightly more indirect route if travelling by car, as the interventions make it is more difficult to drive straight through from one main road to the next (and in so doing, encourage non-essential traffic to use more appropriate routes). Interventions can be implemented on a trial or permanent basis, with changes including:

- *Modal filters* – partial or full road closures, implementation of bus gates or carriageway width restrictions (i.e. width gates);
- *Active mode promotion* – reallocation of road space or on-street parking (secure with rentable spaces) to improve pedestrian and cycle infrastructure, on-street cycle parking, change in priorities at junctions to provide better crossings;
- *Public realm improvements* – reclamation of space following implementation of modal filters and width gates can enable development of options such as parklets, build outs, tree planting; and
- *Encouragement towards low emission vehicles* – through incorporation of EV charging points within low traffic neighbourhoods (making use of reclaimed road space).

[8] Source: https://www.enjoywalthamforest.co.uk/about-mini-holland/

Interventions associated with the implementation of a low traffic neighbourhood could deliver additional opportunities, including the unlocking of space for further public realm improvements (i.e. parklets). Additionally, changing the way vehicles access and move around a neighbourhood could provide opportunities for the review and optimisation of bus routes within the area (in line with Transport Delivery Plan). Particularly if bus gates are considered on some local roads, or modal filters and changes to traffic circulation patterns reduce conflicting traffic flows along bus routes. Improvements to walking and cycling routes within a community may also improve connectivity to bus stops or railway stations.

The various types of interventions that can be used in low traffic neighbourhoods are summarised in Table B-1, in Appendix B. These have been developed from Manual for Streets guidance and best practice research. It has been assumed that implementation of these interventions is predominately within the highway boundary and, where possible, does not impact on third party land/access or highway improvement lines.

Table B-1 does not provide an exhaustive list of measures; however it aims to provide information on the main types of measures, their appropriate applications, details of the potential benefits and disbenefits and considerations for use specifically within B&NES. Improving the public realm within residential areas is another key principle in encouraging more community interaction and providing more attractive environment for walking and cycling. Table B-1 also summarises examples of these measures which would be implemented in conjunction with other interventions. It is likely some of these measures may require the reallocation of road space to facilitate their delivery within the neighbourhood. When requesting a low traffic neighbourhood, communities (through their local councillor) will be asked to sign up to a Community Charter outlining their understanding of the potential requirements and their ongoing commitments to the low traffic neighbourhood.

Interventions have differing costs, whether for implementation or ongoing maintenance and enforcement[9]. Therefore, experimental traffic orders (ETO) are a useful tool to be able to trial proposals enabling the delivery of potential benefits earlier, monitoring impacts and checking the scheme is suitable before a permanent scheme is implemented. It also facilitates engagement with the communities throughout the process.

Once an ETO is in place, there is a statutory six-month period in which objections must be considered. Changes to the scheme can be made during the first six months of the experimental period to any of the restrictions (except charges). However, an ETO can only stay in force for 18-months before a decision must be made on whether to make the changes permanent. If feedback or an objection is received during the period that suggests an immediate change to the trial, the change can be made, and the trial can then proceed. It should be noted that without a decision, the ETO lapses and the changes must be reverted.

The success of low traffic neighbourhoods depends on residents and businesses taking responsibility for the overall scheme and their travel choices. Interventions can only encourage changes in behaviour by removing or limiting through-traffic and delivering the potential for quieter, safer-feeling streets. Complementary scheme initiatives, led by the community, could also be promoted during engagement and the implementation of low traffic neighbourhoods, to inform residents and visitors of their behaviour change opportunities.

If a low traffic neighbourhood is to be trialled using an ETO, this offers the time and opportunity for the community advocates to provide promotional activities to the public, such as cycle maintenance and cycle training sessions or hosting a ‘play street’ for one day with community events (music, games etc.). These activities help show the potential of low traffic neighbourhoods by bringing the community together and promoting sustainable travel.

2.2.4 Community involvement/engagement

A key tenet of all low traffic neighbourhood projects has been active community engagement from the start of the process, including identifying issues and opportunities, through to co-designing elements and active feedback and monitoring.

Initial discussions and engagement with residents and businesses is key to understanding issues and opportunities within an area, what people want from their neighbourhood and how they use their neighbourhood. Residents will likely have different views and priorities to business owners. Engagement is essential to ensure the identification of solutions that are locally supported.

[9] See Appendix C for some indicative costs for interventions, along with wider costs for scheme implementation and engagement.

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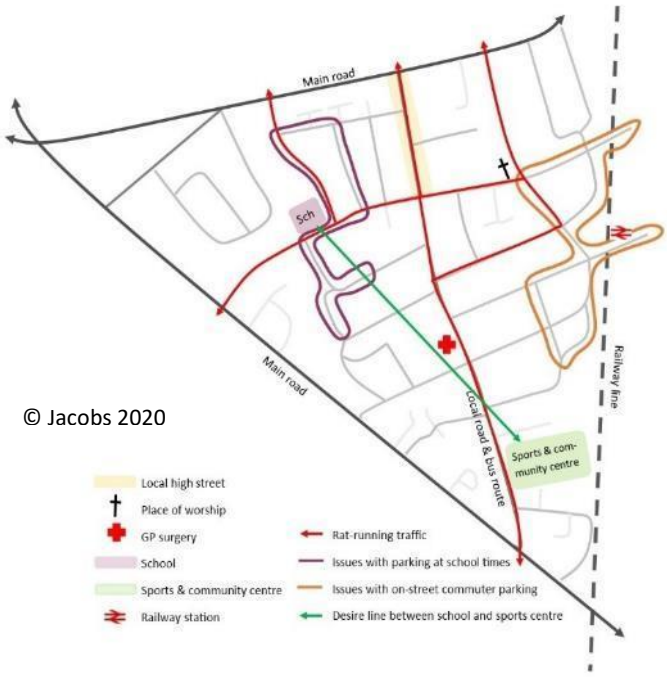

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Figure 2-5: Community-led engagement – mapping issues and opportunities

Different methods of engagement are critical to understanding the views of residents and businesses, as perceptions of issues can differ in terms of severity and importance depending on an individual, their perspective and the value they put on certain issues.

For example, someone who works outside of the neighbourhood during the week may not place as much value in school traffic and parking issues during the day, as they do not see it directly impacting them. That same person may be concerned about weekend traffic around the high street, including local air quality concerns, as well as the subsequent rat-running traffic along residential roads to bypass the high street.

Mapping out issues and opportunities (see Figure 2-5) following initial discussions provides a record of engagement and forms a good basis for investigation and option development. Example of methods for engagement have been summarised in Table 2-1 below.

Table 2-1: Example engagement methods

Engagement method/technique		Types of stakeholders
Informal public forums, exhibitions or drop-ins	Share, collect and compile information, enabling topics to be discussed in an informal environment Inform the public of principles May provide an indication of levels of support	Residents, general public, individuals
Workshops	Share and collect information Focused themes for discussions Specific issues to be deliberated and solutions identified	Owners of businesses, hotels/guest houses
Community street audits[10]	Working with residents and businesses to evaluate the quality of street from the view point of people using them Small groups of local residents, traders, officers and Councillors assess the route on foot.	Businesses and residents, Councillors
Discussions with community representatives	Wider conversations with representative groups Empowerment of groups to engage locally	Residents associations, community groups, Councillors
Focused conversations with individuals or groups	Specific issues and requirements to be discussed Working through issues/concerns to identify solutions	Schools, disability groups, GP surgeries, emergency services, Council services
Design sessions/co-design	Working through issues/concerns to identify solutions and creating design responses with stakeholders	Residents, traders/businesses, community groups, schools, disability groups

Active community engagement not only assists in problem identification, but also solution generation (Figure 2-6).

[10] https://www.livingstreets.org.uk/products-and-services/projects/community-street-audits

Key considerations should include the direct and potential indirect impacts of issues to residents and businesses, along with what people want from their neighbourhood that could be achieved within the remit of a low traffic neighbourhood. However, all discussions should be framed within an understanding of the requirements of those with disabilities or specific needs. Engagement with "harder to reach" groups within a community is particularly important, including older people, families with young children, unemployed, people with disabilities and people for who English is not their first language.

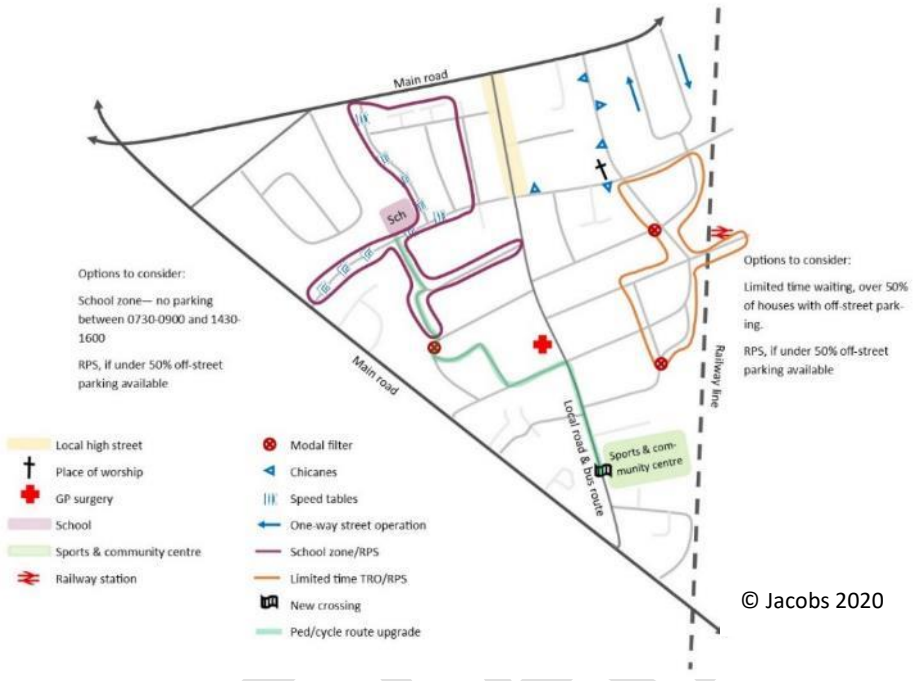

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Figure 2-6: Community-led engagement – interventions and proposals

Early engagement also provides the opportunity to inform communities of what a low traffic neighbourhood aims to achieve, whilst moderating expectations by outlining the processes involved, levels of influence and potential timescales.

Importantly engagement offers an opportunity to have open discussions about any potential trade-offs. For example, implementing a low traffic neighbourhood may offer many benefits, but lead to a small loss of parking or an increase in journey length for some trips. These issues are important to discuss early and honestly, particularly in the context of communities taking a lead on scheme development. However when considering the delivery of wider strategic transport aims, a balance will likely be required, with communities not having a veto on the implementation of a scheme where it is required to achieve strategic transport needs.

Best practice example: Walthamstow Village, Waltham Forest

A public consultation period for the permanent scheme lasted for three weeks, with results showing 44% were in favour of the traffic changes and 41% were against; however importantly, 74% were in favour of the safer environment plans with 13% against.

A detailed review of the changes was carried out by the Council around one year after scheme implementation was completed. 49% of residents identified road closures as the least beneficial part of the scheme, however only 17.6% stated they wished to adjust this measure after the scheme was completed. Overall, 55% of residents said they would make no changes to the scheme and only 1.7% said they wish to scrap the scheme and remove all changes.

Further information on the Walthamstow Village example is located in **Appendix C**.

It is also important not to under estimate the amount of engagement required throughout the process. However engagement should also be proportionate to the schemes proposed, particularly responding to the context of the issues to be addressed and level of intervention required.

Best practice examples illustrate that there can be almost as much opposition as support for schemes, particularly in the initial stages of development, with LCC guidance advising Councils to be ready to handle the dissent as well as support.

It is possible that, in some cases, early plans may initially be supported by the community, but concerns and objections may begin to emerge as details progress (and trade-offs become clearer). Therefore, ongoing engagement is important to work through these issues and manage expectations.

Community-led engagement not only reduces pressure on Council resources, but more importantly can be a mechanism to ensure a more inclusive process, reaching groups within communities that may not be engaged and encourage active participation in the development of proposals. It can also inspire a community to take ownership of their area and the proposals going forward[11].

Following implementation of a low traffic neighbourhood, monitoring is an important element to understand whether the scheme is delivering benefits to the area. Depending on the proposed interventions, this could include: further road safety audits, traffic and air quality monitoring, parking surveys, cycling and walking audits etc. It is expected that the Community will continue to lead throughout the period of assessment and ongoing monitoring, supported by the Council with the feedback and data provided from residents and businesses defining the successes and any subsequent concerns.

Best practice example: Turnpike Lane/West Green DIY Streets project, Haringey

The Turnpike Lane/West Green DIY Streets project is a collaboration initiative funded by London Borough of Haringey Council and created by Sustrans. It was a two-year initiative involving working closely with the local community to deliver an affordable, community-led improvement scheme to transform an area around Turnpike Lane Tube Station.

The project aimed to improve many aspects of the neighbourhood including reducing traffic speeds and through-traffic, enhancing the environment and improving residents' sense of community within their area.

Further information on this example is located in **Appendix C.**

2.2.5 Outcomes

Low traffic neighbourhoods have the capability to enhance residential environments and improve community connectivity through reducing the impact of rat-running traffic, improving air quality and encouraging more local trips by sustainable transport modes. Low traffic neighbourhoods have the potential to be good value for money for the outcomes achieved, as interventions themselves can often be lower-cost in comparison to larger-scale infrastructure projects. However, interventions are not the only costs to be considered, with engagement and development costs not to be underestimated as well as the possibility to be resource-intensive, depending on the proposals and level of support.

Promoting mode shift to more active modes

Best practice example: Waltham Forest

"Monitoring (one-year) following the implementation of the Waltham Forest schemes showed that residents were walking over 30 minutes more a week, with cycling increasing by nearly 10 minutes more a week. Reasons for the increase in active mode travel choices provided by respondents included: quieter roads, slower vehicles and an improved environment to walk and cycle within".

Further information on this example is located in **Appendix C**.

Best practice examples of low traffic neighbourhoods within the UK and EU show the benefits of reducing traffic and reallocating road space for community use to provide safer, more attractive environments for walking and cycling.

The climate emergency requires a significant shift in people choosing to walk and cycle for local trips in particular. London Cycling Campaign's 'Climate Safe Streets' report (March 2020) states that a revolutionary approach must be taken to transport in order to begin to tackle climate change. As such, it outlines a range of priorities including the need for infrastructure to be improved to enable people to choose to walk or cycle for their everyday journeys. Similarly, the B&NES Climate Emergency Outline Plan approved in October 2019 recommends a major shift to mass transport, walking and cycling to reduce transport emissions is necessary. It suggests that a modal shift is needed to create 7% reduction in car travel.

Maintaining and improving walking and cycling links have the ability to transform how people consider travelling within their neighbourhoods. Well-designed and well-maintained infrastructure, which limits obstacles (i.e. difficult crossings, street clutter, conflicts with higher volumes of traffic) and prioritises access for non-motorised users can encourage more daily active travel and healthy physical activity. The 'Climate Safe Streets' report (LCC, 2020) details that in the UK, the average car is in use for only around 4% of the time, with parked cars having a considerable impact on space availability on local residential roads. Therefore, by encouraging sustainable travel choices, particularly for local trips, this offers the potential to influence levels of car ownership and the demand for on-street parking.

[11] https://www.haringey.gov.uk/sites/haringeygovuk/files/turnpike_lane_area_diy_streets_statutory_notification_document.pdf

However, as a consequence of people choosing to walk or cycle to work and using their car less (but retaining vehicle ownership), there may be an increase in demand for residential on-street parking, particularly during the day and where off-street parking is not available. This may result in the consideration or review of residential parking controls, such as residents' parking zones.

Provision of cycle parking and its security are essential for supporting the development of cycling as a practical transport choice. By catering for the needs of cyclists of all types, including those with disabilities and adapted cycles, in the form of good quality long and short-stay cycle parking and by providing secure, well-lit locations, people will be reassured that their bicycle will be safe where it is parked and that they will be safe accessing and using the parking. Additional space for secure cycling parking could be unlocked through the implementation of low traffic neighbourhood measures, particularly those interventions which release road space and review the need for on-street vehicle parking.

The example from Blackhorse Village in Figure 2-7 below, shows the opportunities provided by the implementation of a permanent modal filter and associated reallocation of road space. Pedestrian and cycle access has been enhanced and access to properties maintained. Both sheffield stands and secure cycle parking have been provided, with public realm improvements and soft landscaping further improving the streetscape. The scheme has involved the removal of through-traffic and some residents' parking closest to the junction. This example illustrates a high-quality option of potential interventions. Types of interventions and materials used will also be dependent on location-specific requirements and funding availability, with the likelihood of lower cost temporary measures implemented and tested prior to permanent infrastructure changes.

Figure 2-7: Examples of before and after scheme implemented on Northcote Road, Blackhorse Village (Waltham Forest)

The changes delivered through low traffic neighbourhood interventions may also enable opportunities for the review of local bus routes, through the installation of bus gates on local roads improving bus journey times, along with the potential reduction of conflicting traffic movements by implementing modal filters and width restrictions.

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Improved public health

The majority of adults in England in 2017 were overweight or obese (64%)[12], with 28.7% classified as obese and a further 35.6% as overweight. There are considerable health risks associated with obesity, including increased prevalence of chronic diseases (such as type-2 diabetes, raised blood pressure, coronary heart disease and strokes) as well as some types of cancer. Obesity is a complex problem that requires action from individuals and society across multiple sectors, including social, economic and physical environments. One important action is to modify the environment so that it does not promote sedentary behaviours, creating places where people are supported to maintain a healthy weight[13].

Regular physical activity is a key contributor to a person's energy balance, helping to prevent obesity and excess weight. Physical activity that can be incorporated into everyday life, moderate exercise has been found to be as effective for weight loss as supervised exercise programmes. Figure 2-8 illustrates the intensity of exercise and types of activities[14].

Daily active travel, such as walking and cycling, can contribute to the recommended 150 minutes of moderate intensity exercise a week for a healthy life. Even lower volume and intensity of physical activity may provide health benefits.

Figure 2-8: Types of physical activity and their intensities with examples of everyday activities and exercises

Local air quality improvements

Air pollution is one of the largest environmental risks to public health in the UK, with an estimated 28,000 and 36,000 deaths a year attributed to human-made air pollution. NOx (oxides of nitrogen) emissions from transport make the largest contribution to the UK total, accounting for 34% in 2016[15]. Public Health England published a report following a review of interventions to improve air quality in 2019. As part of the review, it considered that traffic management interventions, such as access restrictions, have the potential to improve air quality and encourage the public to consider travel behaviour change and active travel options. It also considers that air quality within urban areas is likely to be improved by interventions that promote the uptake of low- and zero-emission vehicles, particularly electric vehicles.

The implementation of low traffic neighbourhoods within Waltham Forest found that levels of exposure to NO_2 significantly decreased between 2007 and 2017. The number of households exposed to more than the EU recommended maximum amount of NO_2 (40µg/m^3) has reduced from 61,316 to 6,377. Figure 2-9[16] illustrates the comparison locations of relevant exposure in Waltham Forest between 2007 and 2017.

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[12] https://digital.nhs.uk/data-and-information/publications/statistical/statistics-on-obesity-physical-activity-and-diet/statistics-on-obesity-physical-activity-and-diet-england-2019/part-3-adult-obesity

[13] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/256796/Briefing_Obesity_and_active_travel_final.pdf

[14] https://www.gov.uk/government/publications/physical-activity-guidelines-uk-chief-medical-officers-report

[15] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/795185/Review_of_interventions_to_improve_air_quality.pdf

[16] Source: Air Quality Consultants (2018), Population Exposure Comparison: 2007 and 2017

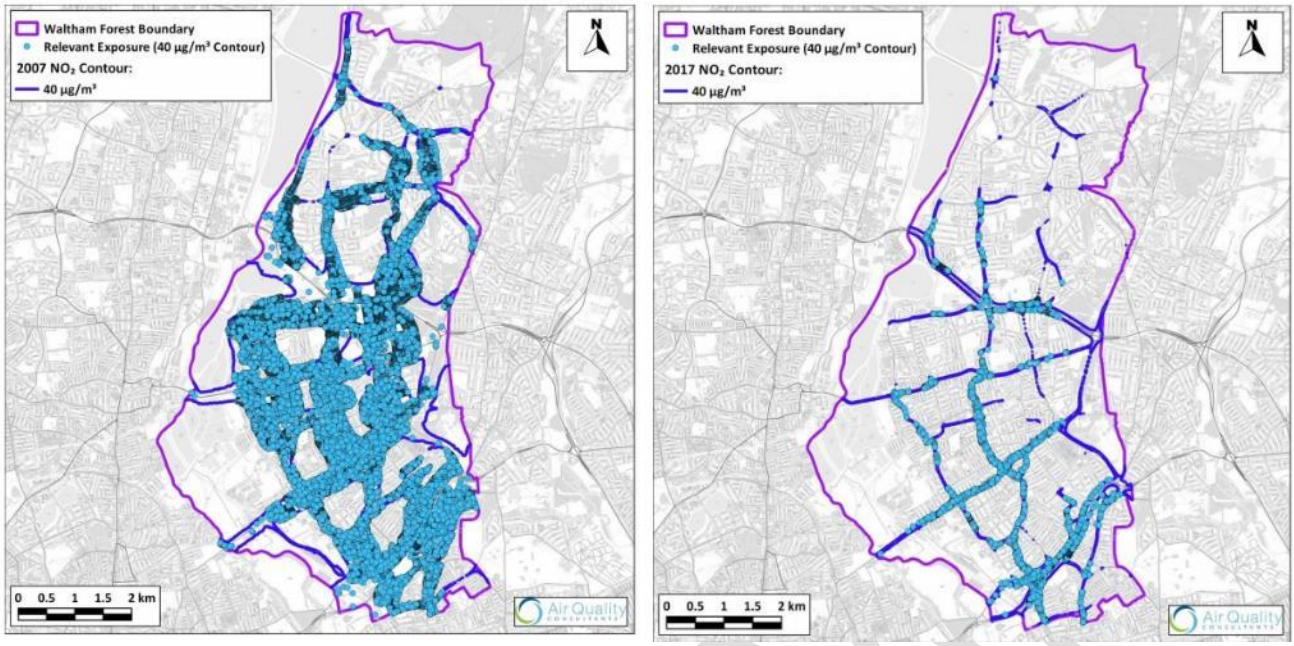

Figure 2-9: Comparison of locations of relevant exposure in Waltham Forest between 2007 and 2017

Improved community and social connectivity

Research undertaken by Donald Appleyard (Liveable Streets, 1981) which was further developed by Hart and Parkhurst (2011[17]) outlined the effects of traffic on the lives of local residents, in terms of social interaction within residential streets.

Their findings detail correlations between the number of connections residents have with neighbours and the level of traffic travelling along the street, with more lightly trafficked streets creating better places for social interaction and community cohesion.

Low traffic neighbourhoods can provide opportunities to enhance the public realm, with enhanced greenspace and parklets transforming road space into places for whole communities that will encourage people to get out and about.

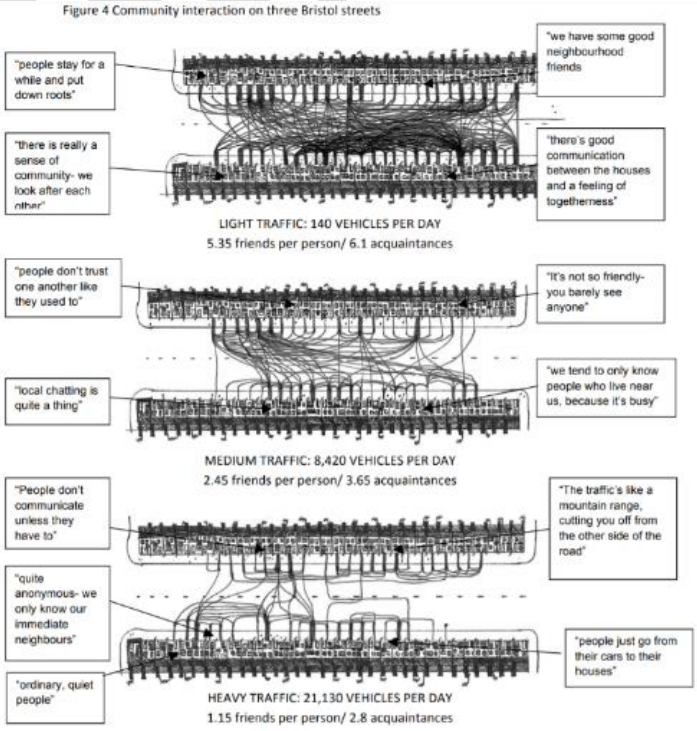

Figure 2-10: Illustration of community cohesion and effects of traffic levels on three Bristol streets (2011)[18]

[17] Hart and Parkhurst (2011) Driven To Excess: Impacts of Motor Vehicles on the Quality of Life of Residents of Three Streets in Bristol UK

[18] Image taken from http://www.eco-logica.co.uk/pdf/wtpp17.2.pdf

Reduction in traffic and vehicle speeds

Best practice example: Ghent Circulation Plan

Whilst on a larger scale than low traffic neighbourhoods, Ghent implemented a city circulation plan in 2017, following a two-year process to strengthen its sustainable mobility policy and give the streets back to the residents.

The proposals involved the enlargement of the city's pedestrian area and creating six distinct areas with no vehicle accessibility between them without using the ring-road.

Before implementation, City of Ghent reported 40% of traffic was through-traffic, not originating or ending in Ghent. Within a year of implementation, the impacts of the plan have seen a 25% increase in bicycle users, 8% increase in public transport use, 12% decrease in car traffic during the rush hour, even 29% fewer cars on the most important routes within the ring road and 58% on residential streets.

In addition, Ghent's police found the number of traffic collisions have decreased by 25% in the city-centre since the plan implementation.

Further information on this example is located in **Appendix C**.

One of the main aims of a low traffic neighbourhood is to reduce, if not remove, through-traffic within a residential area. Making it more convenient to walk and cycle throughout a neighbourhood, than drive within it. Whether it is traffic circulating to find available parking or unsuitable residential streets being used as cut-through routes between main roads and to avoid congestion, these issues can all contribute to traffic volumes and speeds within a neighbourhood.

By making roads more suitable for cycling, walking and public transport services rather than for the private car, not only has the potential to reduce traffic, but can also prompt modal shift particularly for shorter journeys[19]. However, it is acknowledged that not all journeys can be undertaken by active modes or public transport. Therefore careful planning is required to ensure that traffic is reduced, rather that diverted to other inappropriate routes.

Speeding traffic, whilst an issue on its own, also impacts people's perception of dangers on their streets. It can be a determining factor in people choosing not to walk or cycle. It is widely understood that 20mph is the most appropriate speed limit for built-up, residential areas where people live, work and play[20]. As such, any scheme being developed should commence with the understanding that a 20mph speed limit will be implemented throughout the zone as standard, if not already in place, with good reasons needed to vary from this standard.

Benefits of reducing traffic volumes and speeds, through interventions and/or enforcement, not only reduces the number and severity of collisions, it can improve peoples' perception of personal safety.

Economic considerations

Low traffic neighbourhoods aim to improve to public health, local air quality, social cohesion and take up of active travel modes within residential areas, which can all bring economic benefits to an area. Whilst dependent on many different factors, reductions in through-traffic and improvements to the public realm also have the potential to benefit neighbourhoods, in terms of land value uplift.

There are potential disbenefits to those who still choose to travel by car, as there is the possibility of needing to travel slightly further which may increase journey times. There may also be slight increases in traffic along main roads bordering the low traffic neighbourhoods, which could impact on existing congestion, air quality and noise concerns. The benefits of schemes and any resulting impacts need to be considered throughout the development of proposals.

The interventions delivered as part of a low traffic neighbourhood could be considered at a lower cost than other transport schemes. However it is important to ensure that costs are identified for ongoing maintenance of infrastructure and additional resource requirements to enforce certain measures (i.e. residents' parking zones and bus gates). Although additional revenue could be gained through enforcement, it may not be sufficient to guarantee cost neutrality of certain schemes.

Depending on the schemes proposed and the nature of the businesses within the neighbourhood, there could be concerns regarding impacts to business turnover by reducing through-traffic. However there is also potential for increased footfall

[19] https://nacto.org/docs/usdg/disappearing_traffic_cairns.pdf
[20] http://www.brake.org.uk/rsw/15-facts-a-resources/facts/1256-speed-communities

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in the vicinity of shops or businesses, as public realm improvements and reduced traffic makes for a more pleasant environment, where people can linger and enjoy their neighbourhood.

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3. Low traffic neighbourhoods in B&NES

3.1 Introduction

As outlined in sections 1 and 2, low traffic neighbourhoods can be effective in reducing vehicles on residential streets, therefore enabling people to walk, cycle and use public transport within their neighbourhood. This can contribute to increased safety, reduced traffic flows and speed and improved air quality.

Linking with the policy objectives the Getting Around Bath Transport Strategy and existing local, regional and national strategies, low traffic neighbourhoods have the potential to reduce the impact of vehicles and promote more sustainable modes of travel.

- UNESCO added The City of Bath as a "cultural site" to its World Heritage List in 1987 due to its Roman Remains, 18th Century Architecture, 18th Century Town Planning, Hot Springs, and Landscape Setting
- While 35% of car trips within B&NES are less than 5km whilst these contribute to congestion and poor air quality, they account for just 7% of total distance travelled. There is huge potential to encourage mode shift for these shorter trips.
- 21% of travelling time in the Bath, Bristol, North Somerset and South Gloucestershire region is spent at a standstill.
- The average car occupancy rate within Bath is 1.1 persons per car.

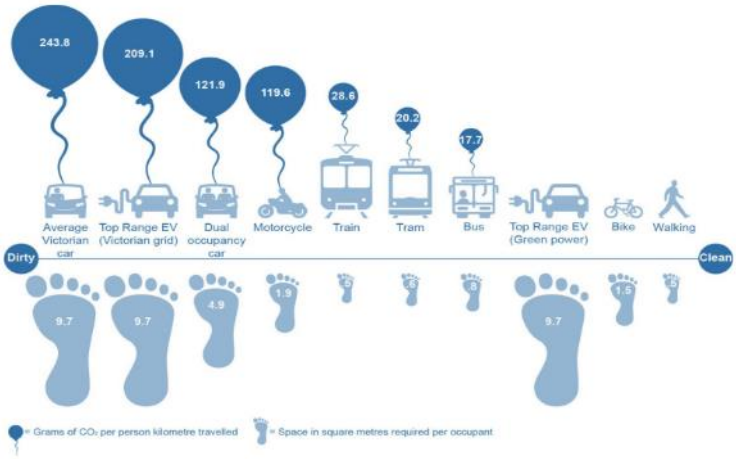

Figure 2.71: Carbon footprint and space required (Source: Institute for Sensible Transport)

The B&NES Public Realm and Movement Strategy outlines the vision for a bold and innovative approach, where old hierarchies of car and pedestrian are reversed, giving people, cyclists and public transport priority access. This is further supported within the B&NES Parking Strategy where parking, particularly long-stay, is placed at the bottom of the road space hierarchy.

This, in line with the Climate Emergency declared within B&NES, has the potential to encourage mode shift, reduce carbon emissions, improve air quality and benefit the heritage city.

Figure 3-1: Carbon footprint and road space required per mode

Figure 3-1, produced by the Institute for Sensible Transport[21], highlights how overall walking and cycling are most efficient in terms of the road space required and CO_2 emitted per kilometre.

In order to support policy objectives and address local issues across B&NES, opportunities to introduce low traffic neighbourhoods in suitable areas should be considered. Existing and emerging policies should be considered alongside low traffic neighbourhoods such as existing policies on residents' parking schemes (also known as residents' parking zones) and emerging policies on-street electric vehicle charging, which have been reviewed and developed to compliment this strategy.

3.2 Policy alignment

The implementation of low traffic neighbourhoods within B&NES is closely aligned with wider policy at both the national and local level. Table 3-1 highlights the current main policy linkages, showing how low traffic neighbourhoods would help to support the achievement of aims and ambitions set out in existing adopted policy. Notably the table highlights the importance that national, regional and local policies place on enabling mode shift away from the private car, through solutions which encourage active modes but retain local access. The implementation of low traffic neighbourhoods offers huge potential to deliver against these aims.

Generally, adopted policies outline how moving away from the prioritisation of the private vehicle can improve our health by encouraging active travel and contributing to improvements in air quality. It is also highlighted in recent and emerging policies that encouraging sustainable modes of transport is required due to the Climate Emergency and to enable us to meet national and local targets. **Appendix A** provides a full review of the current policy context.

[21] https://sensibletransport.org.au/

Table 3-1: National, regional and local policies supported by low traffic neighbourhoods

Existing policy	How low traffic neighbourhoods will help achieve these policy aims
National Policies	
National Planning Policy Framework	The low traffic neighbourhood strategy aligns with key objectives of the NPPF, by acknowledging greater priority for pedestrians, cyclists and access to public transport, thus promoting sustainable transport and healthy communities. It highlights the importance of policies lowering car usage and pedestrian / cyclist / vehicle conflicts to maintain the character, activities and healthiness of places.
Clean Air Strategy 2019	A Class C CAZ is being implemented to improve air quality within Bath, in line with the national Clean Air Strategy. At consultation, concerns were raised about the diversionary impacts as vehicles look to avoid the charging zone. As such the introduction of low traffic neighbourhoods could help to reduce concerns and impacts of this.
The Clean Growth Strategy	Low traffic neighbourhoods would help to support a reduction in overall vehicle trips and encourage a shift to more sustainable modes such as walking and cycling.
Road to Zero	The Road to Zero supports a reduction in greenhouse gases, specifically through reducing vehicle emissions and prompting cleaner vehicles on UK roads. The low traffic neighbourhood strategy similarly supports a reduction in vehicle emissions.
Decarbonising Transport, Setting the Challenge	The Decarbonising Transport strategy sets out aims to deliver a net zero transport system which include accelerating a modal shift from cars to public and active modes. Through prioritising walking, cycling and public transport, low traffic neighbourhoods can help support the delivery of the Decarbonising Transport report.
Public Health England Strategy	The Public Health England strategy outline the aims for improvements to health, particularly through enhancements to air quality and reduced obesity. It acknowledges the significance inequalities in health. The low traffic neighbourhood strategy supports the aims and should be considered in line with health inequalities.
Regional / Local Policies	
West of England Joint Local Transport Plan 4 2020	Sustainable forms of travel are central to this low traffic neighbourhood strategy. This strategy supports the five objectives in the JTLP4 through encouraging walking and cycling, decreasing car usage for shorter trips therefore improving air quality, health and places. The delivery of low traffic neighbourhoods in B&NES will directly deliver against the JLTP policy on local connectivity which aims to take opportunities "*to create 'road cells' in residential areas, where groups of streets are closed with limited access points/one way (with contraflow for cyclists), or bus gates, residential traffic restrictions to manage rat-running and provide a quieter space for residents, pedestrians and cyclists*.".
West of England Local Cycling and Walking Infrastructure Plan 2020	The Local Cycling and Walking Infrastructure Plan seeks to identifying the walking and cycling routes to be prioritised for future investment, therefore developing long-term plans for improvements. It supports modal shift to walking and cycling through infrastructure improvements which will also be supported through low traffic neighbourhoods.
West of England Bus Strategy 2020	The West of England Bus Strategy identifies how bus services could help to reduce congestion and carbon emissions regionally. It seeks to improve connectivity and reliability of the bus network whilst decreasing journey times with the aim of doubling passengers by 2036. The delivery of low traffic neighbourhoods could support this through encouraging modal shift.
Bath and North East Somerset Corporate Strategy 2020 -2024	The low traffic neighbourhood strategy links directly to the key commitments and the three principles within the draft Corporate Strategy: "*We want to prepare for the future, deliver for local residents and focus on prevention*". The delivery of low traffic neighbourhoods will also help to support a modal shift and promote good health.
The Getting Around Bath Transport Strategy	The low traffic neighbourhood strategy aligns with objectives in the Getting around Bath Transport Strategy by prioritising sustainable transport modes and safeguarding the historic environment. It will enable shifts in travel behaviour to walking from motorised modes, through creating environments in which the walking and cycling is prioritised over cars.
Existing B&NES local plan (Core Strategy and Placemaking Plan)	The low traffic neighbourhood strategy aligns with aims to reduce the need to travel by car and encourage walking and cycling through increasing attractiveness. It will support the objective to deliver well connected places though increasing local active permeability.
Emerging B&NES local plan	The Emerging Local Plan is supportive of improving and providing walking, cycling and public transport infrastructure. Policy KSM5 states how identified walking and cycling links could be considered to create healthy neighbourhoods and a shift to active travel modes. Low traffic neighbourhoods align with this policy.

Existing policy	How low traffic neighbourhoods will help achieve these policy aims
The Medium-Term Financial Strategy 2019	Low traffic neighbourhoods would support a key theme for the Council - "*Delivering for Residents*". This theme includes a focus on reducing congestion and the impact of cars on residential streets through better traffic management and reductions in rat-running.
B&NES Health and Wellbeing Strategy	The Health and Wellbeing Strategy and low traffic neighbourhood strategy both aim to increase travel by active modes which will help to contribute to improvements in public health and creating healthier and sustainable places.
Shaping Up! Healthy Weight Strategy	The Shaping Up! Healthy Weight Strategy aims to increase opportunities for increasing physical activity which could be directly supported through increased provision of active modes infrastructure. Through considering the objectives and aims in the strategy, the low traffic neighbourhood strategy supports it.
Public realm and movement strategy	The low traffic neighbourhood strategy aligns with the aim to restructure the vehicle hierarchy placing higher importance on people and pedestrians than on cars as well as aims to improve the public realm.
World Heritage Site Management Plan	The World Heritage Site Management Plan identifies congestion as a major issue and aims to promote less car use and to close key streets to vehicles whilst encouraging walking to improve air quality and quality of life for residents and businesses, this directly aligns with the broad aims of low traffic neighbourhoods.
Bath City-wide Character Appraisal	The document outlines the 22 character areas recognising the World Heritage Site, Hot Springs, Conservation Areas, Green Belt, Areas of Outstanding Natural Beauty, Listed Buildings, Ancient Monuments and historic landscapes. Consideration of these areas is required in the development of a low traffic neighbourhood to establish suitable interventions.
WaterSpace Project	A low traffic neighbourhood should consider the WaterSpace project which highlights water corridors around Bath as potential routes for improved connectivity, especially for active model travel.
Balancing Your Needs: A parking strategy for Bath and North East Somerset	The Parking Strategy could support the implementation of a low traffic neighbourhood through the encouragement of a reduction in car dependency. It supports, where appropriate, the implementation of residents parking zones which could be alongside, instead of or replaced by a low traffic neighbourhood.
B&NES Climate Emergency Progress Report	The low traffic neighbourhood strategy would support a reduction in car use and modal shift.
Bath Clean Air Plan	Changes to traffic movements across wider Bath may feed into the demand for low traffic neighbourhoods from communities across the city. Any potential travel changes as a result of the CAZ have been considered as part of the development of the strategy and associated policies.
Air Quality Action Plans for Keynsham and Saltford	The low traffic neighbourhood strategy considers the changes to traffic management and improvements to active modes infrastructure as a result of the Air Quality Action Plan.

3.3 Opportunities for low traffic neighbourhoods to address issues in B&NES

This section draws attention to the transport-related problems and issues identified across B&NES which low traffic neighbourhoods, alongside wider packages of transport measures, could address. These issues include air quality and public health concerns, car dominance (particularly in the city of Bath) and inappropriate routeing and speeds of vehicles in residential areas. In residential areas, low traffic neighbourhoods may combat and address these issues for local residents by reducing through-traffic and encouraging walking and cycling.

As the majority of these transport-related problems and issues are more prevalent within urban areas, the predominant focus of this section is the city of Bath. Proportionate consideration of these issues in Keynsham/Saltford and other areas within B&NES has been undertaken, as there may be potential for some measures or themes of low traffic neighbourhoods to be delivered within streets or smaller geographical areas.

Many of the transport issues are multi-layered and interlinked, therefore they could be improved by low traffic neighbourhoods but are unlikely to be directly tackled through these schemes alone. However, improvements to tackle these wider issues may also benefit, support or shape schemes proposed through low traffic neighbourhoods.

The problems discussed below have been identified and collated through a range of means including policy research (such as the emerging B&NES Local Plan which outlines the key transport challenges across B&NES), communication with local

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B&NES officers and using local knowledge. Any additional local issues and the significance of these should also be considered before and during the development of a low traffic neighbourhood, as well as after their implementation to ensure that existing problems are not exacerbated or new issues created.

3.3.1 General mode shift improvements

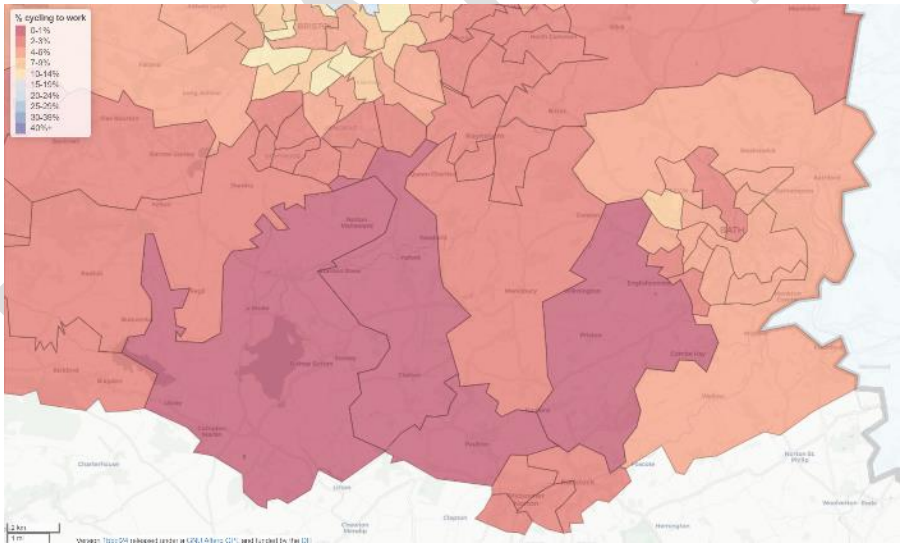
Generally, low traffic neighbourhoods seek to increase modal shift to public transport, cycling and walking. As such, improvements should identify opportunities to encourage uptake of the existing services and infrastructure as well as provide new complimentary measures.

When considering public transport, the existing network and access to services should be reviewed within the area to identify any opportunities for enhancements. This could include bus gates on local roads (carrying bus routes) within a low traffic neighbourhood, active mode link improvements to railway stations or bus stop enhancements. Modal filters could also be considered, which could reduce conflicting movements between general traffic and buses, to improve bus journey times.

The geography and topography of B&NES should be noted when considering opportunities to encourage modal shift. The difference between urban areas, such as Bath and Keynsham and the more rural areas of B&NES, in terms of average journey distances, mode choice for commuting and availability of public transport services, all impact on ability and opportunity to travel more sustainably.

The DfT have funded a Propensity to Cycle Tool (PCT)[22], which can be used as a high-level assessment of current cycling levels and the latent potential to cycle within B&NES. The PCT is an open-source, freely available tool which provides estimates of cycling potential under a range of scenarios. The PCT estimates the cycling potential for commuting and travel to school, which can be used to inform the potential for modal shift within an area. The tool uses origin-destination data to identify trip potential to switch to cycling, based on trip distance and hilliness (local topography).

Figure 3-2 and Figure 3-3 respectively show the current level of cycling to work in B&NES (using Census 2011 data) and to school (using school Census 2011 data, not including private schools). The figures illustrate the current cycling levels in Bath are greatest to the west of the city for commuting and south of the city of school travel. Whereas cycling to school attributes to up to 14% of journeys to school in Saltford and Keynsham, the highest in B&NES, with cycling trips to work lower in these areas.



[22] https://www.pct.bike/

Figure 3-2: Current levels of cycling to work in B&NES (middle super output area, Census 2011)

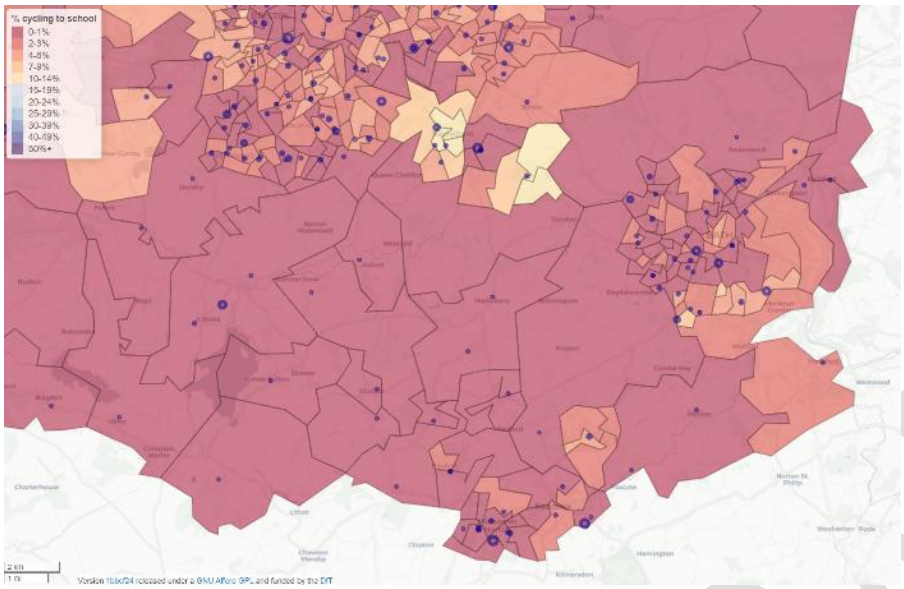


Figure 3-3: Current levels of cycling to school in B&NES (lower super output area, Census 2011)

Some of the PCT scenarios[23] include: UK government targets (to double cycle uptake); 'Go Dutch' (represents what would happen if people in B&NES were as likely as Dutch people to cycle a trip of a given distance and level of hilliness) and ebikes (additional increase on 'Go Dutch' scenario that would be achieved through the widespread uptake of electric cycles). The scenarios do not estimate the impact of specific schemes or interventions.

In developing a low traffic neighbourhood, the PTC tool could be used to inform the likeliness to cycle within the area taking into account the local attractors (such as work places and schools) and topography (hilliness).

3.3.2 Bath

Traffic-dominated public realm

As highlighted in the Public Realm and Movement Strategy, "*over the past century, the increasing dominance of the motor car has done much to damage the character and quality of public space and public life across the world*". This has had particular impact within Bath as a World Heritage Site as the dominance of the car in the city has resulted in the decline of the public realm and the erosion of "*its sense of order, coherence, clarity of design and quality*".

The traffic dominance within Bath, intertwined with other constraints, have resulted in the city centre and central neighbourhoods being designed around the prioritisation of the motor vehicle. Pedestrian, cycling and public transport provisions have been constrained, with movements using these modes often constricted. As such, the attractiveness of travelling via these modes has not been acknowledged or enhanced, which reinforces habits for travelling via private car. The Public Realm and Movement Strategy highlights that this contributes to high levels of air pollution, stress for pedestrians, cyclists and drivers, as well as pedestrians using a limited number of overly crowded routes.

Low traffic neighbourhoods can help to reduce the traffic-dominated public realm in local neighbourhood areas through discouraging through-traffic and designing and prioritising the streetscape around walking and cycling measures predominately.

Walking and cycling uptake

In 2001, approximately 35% of Bath residents working within Bath travelled to work on foot. By 2011, this figure had increased to approximately 44%, with walking to work identified as the primary mode of transport for those living within Bath. In 2011 approximately 31% of Bath residents working within Bath drove to work. As such, the transport strategy

[23] More information on scenarios is available: https://npct.github.io/pct-shiny/regions_www/www/static/03a_manual/pct-bike-eng-user-manual-c1.pdf

highlights the potential to expand and improve walking opportunities to further encourage walking for short trips rather than driving. Encouraging people to walk and cycle more can also contribute to their recommended levels of weekly exercise.

Low traffic neighbourhoods could help to encourage a modal shift to walking and cycling through increasing the attractiveness by creating an environment in residential areas which is more conducive to walking and cycling, and specifically supporting the development of walking and cycling infrastructure. This could include additional crossings and cycle storage (on-street, secure), along with prioritised safer routes of pedestrians and cyclists (including electric bikes and people using adapted cycles), which may prompt a shift to traveling by active modes for shorter trips. There may also be potential to consider additional micro-mobility modes, i.e. electric scooters (e-scooters), following the outcomes of future consultation and possible trials by West of England Combined Authority (WECA) and the Department for Transport.

During previous consultations, the promotion of active travel and its uptake have often resulted in responses regarding the topography of Bath and how the steep street gradients can discourage people from walking and cycling more. These steep gradients, along with the severance resulting from the limited locations to cross the railway line, river and canal, have all been identified as deterrents or barriers to walking and cycling within the city of Bath. It should be noted that one of the main walking and cycling routes through the city is along the valley floor from which walking and cycling routes up to the plateaus of Bath and other destinations along the way can be accessed.

However, whilst it is recognised that this is a concern for some residents of Bath, active travel for short trips to key local services and public transport can still be promoted by safer walking and cycling routes through the implementation of low traffic neighbourhoods. The promotion and take-up of electric bikes (e-bikes) also has the potential to overcome some of these barriers to active travel by making it easier to navigate steeper inclines.

The PCT enables a high-level assessment of set scenarios within Bath to understand different levels of potential mode shift to cycling, whilst accounting for journey distance and topography. Figure 3-4 shows the potential for cycling to work in Bath that could be achieved if government targets (to double cycling uptake) are met. Figure 3-5 shows the potential for cycling to work in Bath under the 'Go Dutch' scenario, whilst Figure 3-6 shows the potential for cycling in Bath if there is a greater uptake in ebikes.

The figures highlight how there is a potential for cycling to make up 30-40% of journeys to work in some areas in Bath. It also demonstrates that hillier areas such are Lansdown and Claverton Down are less likely to have large numbers of cyclists, and therefore mode shift to cycling in these areas may be less attainable without the assistance of ebikes.

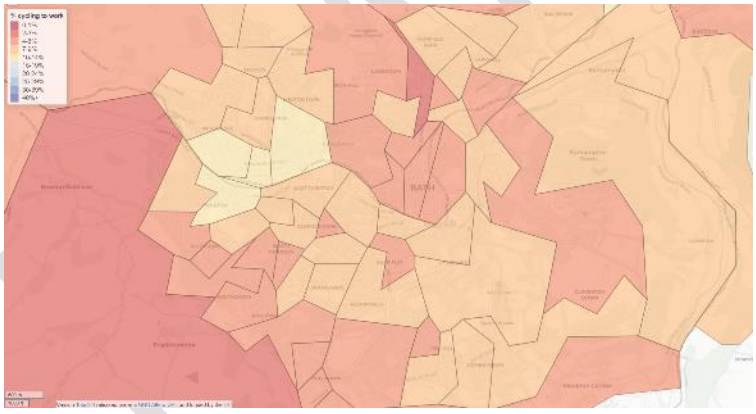


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Figure 3-4: Levels of cycling to school in Bath under Government target (near market) scenario

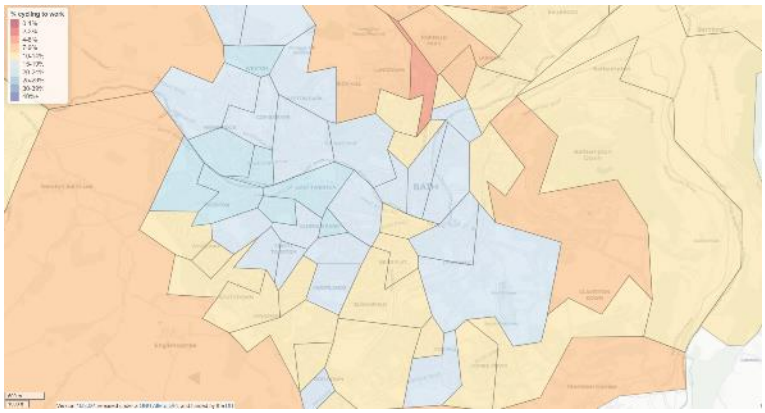

Figure 3-5: Levels of cycling to work in Bath under 'Go Dutch' scenario

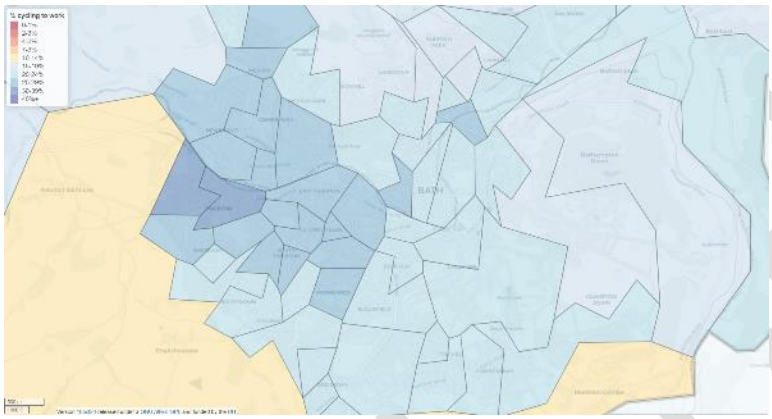

Figure 3-6: Levels of cycling to work in Bath under 'ebikes' scenario

Rat-running traffic and inappropriate routeing by heavy goods vehicles

The B&NES Corporate Strategy approved in February 2020 identified that a key theme for the Council was "*Delivering for local residents*" which included a focus on reducing congestion and the impact of cars on residential streets through better traffic management and reductions in rat-running.

Rat-running traffic is one of the main issues reported to the Council by local residents, particularly within Bath city centre. In some areas of the city, non-local traffic uses residential streets and inappropriate routes to bypass congestion and queues on main roads.

The prevalence of queuing traffic on main roads, particularly in the morning and evening peaks, can prompt drivers to travel via residential side streets potentially taking a longer route to avoid slow moving or standstill traffic. Extra traffic from rat-running can contribute to high traffic in residential streets which discourages active travel and worsens air quality.

Through recent CAZ consultations, rat-running and through-traffic has been identified as problematic on residential streets within the Oldfield Park and Twerton areas of Bath, as traffic cuts between A367 Wells Road/Wellsway and A36 Lower Bristol Road. Similarly, residents within Larkhall and Camden areas have also raised the issue of rat-running traffic between the A46 and A4 London Road. As well as people living within Pulteney Estates describing issues with traffic trying to queue jump between A36 and Bathwick Street particularly at peak times.

The consultation undertaken as part of the proposed CAZ scheme also showed that residents have concerns that the introduction of a charge for non-compliant vehicles may exacerbate this issue (albeit that under a Class C CAZ, the impact may be limited due to cars not being charged). Particular concerns about rat-running were mentioned in proximity to schools, parks and residential areas.

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The Transport Delivery Action Plan for Bath highlights that 35% of car trips within B&NES are less than 5km, whilst contributing to congestion and poor air quality, they only account for 7% of the total distance travelled in B&NES. The Action Plan also stated that there are lower levels of through-traffic in Bath than previously thought, with around 75% of people driving to work within Bath living outside the city boundary.

However, a recent ANPR survey in Bath identified the origins and destinations of vehicle movements across Bath, which showed that 30-50% of total car trips were made entirely within Bath. This indicates that while there are low levels of commuting by car within Bath by residents, there are much higher levels of short distance car use for other trip purposes – such as leisure, accessing healthcare and shopping.

The Transport Delivery Action Plan also outlines that Bath is a key freight origin and destination, resulting in relatively high volumes of freight traffic on key corridors (including on the A36 and A4 London Road); with LGVs/HGVs representing 15% of the total traffic volume on the A36 and 20% of total traffic volume on the A4 London Road. However only 12% of LGV and 9% of HGV traffic is through-traffic, with the majority of freight traffic on Bath's roads stopping somewhere within Bath.

Through the CAZ consultation, residents also raised concerns about HGVs within Bath suggesting that many used Bath as a cut through between the strategic road network. Residents were particularly concerned about the implications that the Bath CAZ could have for HGVs on residential roads, as they perceived that HGVs could be encouraged to avoid paying charges for travelling through the zone by using inappropriate residential routes. A number of locations in Bath currently have HGV or weight restrictions.

Low traffic neighbourhoods can contribute to tackling high volumes of non-residential traffic in residential neighbourhoods through measures to discourage traffic. It should be noted that measures to discourage traffic through residential areas must be proportionate and not unduly prevent essential traffic from accessing key attractors.

Inappropriate traffic speeds on residential streets

The dominance of traffic on residential streets is increasingly seen as detrimental to opportunities for better use of public space and safer environments for pedestrians and cyclists. In particular, drivers who travel at higher speeds are known to have less time to identify and react to what is happening around them, therefore taking longer to stop. Consequently, if a collision occurs, it is likely to be more severe particularly to non-motorised users.

Between 2011 and 2016 B&NES designated nearly 1,500 residential streets (through signage) as 20mph. Following a review of the changes in speed limits in 2016, the changes resulted in a small overall reduction in vehicle speeds of 1.3 mph[24].

Low traffic neighbourhoods could assist in reducing speeds within residential areas through area-wide traffic calming measures. Whilst any speed reduction is beneficial to making an environment more attractive for walking and cycling, 20mph limits may need to be supported by a range of measures to create conditions in which drivers choose to drive at no more than 20mph. As stated in section 2.2.5, any low traffic neighbourhood scheme being developed should commence with the understanding that a 20mph speed limit will be implemented throughout the zone as standard, if not already in place, with good reasons needed to vary from this standard.

Pressure for non-residential parking

In some areas of Bath, traffic which is not through-traffic but also does not have a direct local destination, is drawn into residential areas in search of on-street parking spaces (sometimes known as park and stride). Whilst some residential areas currently benefit from residents' parking restrictions, there is not full coverage across the city. In addition, some residents' parking spaces in the central area remain as pay and display parking for the general public, which can lead to drivers circulating to find available on-street parking spaces.

It is possible that pressure for non-residential parking could increase after the implementation of the CAZ (as vehicles seek to avoid the charge). Although it should be noted, the location of the various residential parking zones and other existing TROs, such as double yellow lines, already limit the areas available to park immediately outside the CAZ boundary.

[24] https://democracy.bathnes.gov.uk/documents/s46582/20mph%20Zones%20Review%20Report.pdf

It is possible that to combat pressures associated with non-residential parking, there could be an increase in requests for residential parking schemes. Residents' parking zones are one solution to managing non-residential parking issues, however low traffic neighbourhoods may also further limit demand for non-residential parking by making it more inconvenient to access areas to park. Careful consideration should be undertaken in relation to residents' parking zones and the interaction between any proposed zone and low traffic neighbourhoods, whether one option or a combination of both provide the solution to non-residential parking concerns in a particular area. Residents' parking schemes can also be a useful tool in the delivery of mode shift targets, through the restriction of on-street parking availability and potentially car ownership.

Public health and physical activity

The B&NES 'Shaping up! Healthy Weight Strategy' (2015-2020)[25] states that over half (58.7%) of adults in B&NES are estimated to be overweight or obese, with these rates rising. Obesity can lead to reduced life expectancy and higher risks for chronic diseases. Activity limitations due to obesity or related chronic illnesses may also increase the risk of depression by reducing involvement in physically rewarding activities.

Only 27% of the B&NES population undertake 30 minutes of moderate intensity exercise on three or more days a week. Health costs in B&NES due to inactivity comes to £2.9 million per year, with a wider cost of inactivity in B&NES estimated at £15 million.

Low traffic neighbourhoods aim to tackle inappropriate traffic volumes and speeds, as well as provide opportunities to implement improved walking and cycling infrastructure to create a more attractive environment for active travel within residential areas. These elements encourage an increase in daily walking and cycling, which can contribute to peoples' weekly levels of exercise and support improvements in the physical and mental health of residents.

Air quality issues

The Bath Air Quality Management Area (AQMA) was declared in 2002 and updated in 2013. The AQMA highlights that levels of nitrogen dioxide (NO_2) within the city exceed the national annual average objectives of 40 micrograms per cubic metre. The majority of nitrogen dioxide is generated via road transport, particularly diesel and older petrol vehicles. Air quality presents an issue to human health as the latest research indicates that in the UK, between 1 in 4 and 1 in 12 new cases of asthma in children each year are attributable to NO_2.

Figure 3-7 illustrates the mean annual modelled concentrations in Bath for 2017. The figure shows a number of exceedance of the 40 µg/m3 annual mean NO2 levels particularly on London Road, Bathwick Street, A3039, A367, Upper Bristol Road and Lower Bristol Road. To tackle these exceedances, B&NES submitted the final business case for a Class C CAZ to central government in December 2019. This will charge most higher-emission vehicles to drive in the city centre from November 2020. Cars (excluding taxis/PHVs) and motorbikes will not be charged in the zone.

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[25] https://www.bathnes.gov.uk/sites/default/files/shaping_up_healthy_weight_strategy_2015-20.pdf

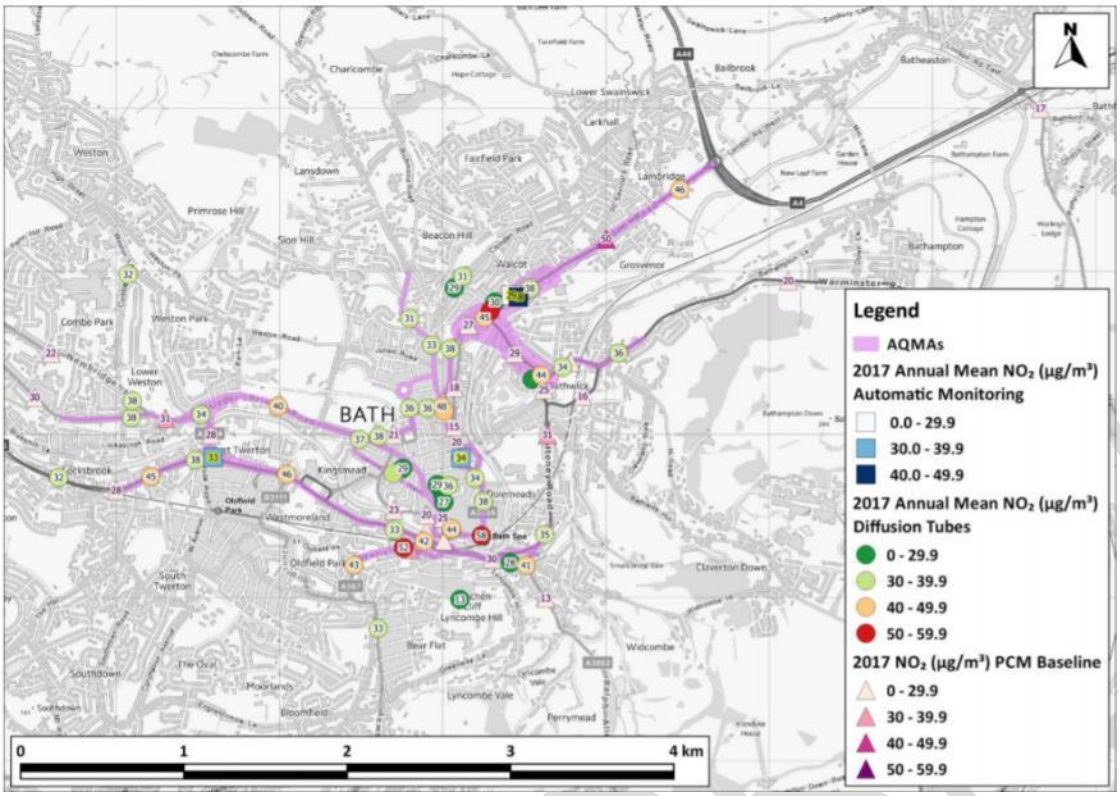

Figure 3-7: Mean annual modelled NO_2 concentrations in Bath (2017)

When designing low traffic neighbourhoods, it is important to recognise these air quality hotspots and consider the implications of any potential traffic displacement as a result of changes to residential streets. Any significant impacts on hotspots could lead to issues of non-compliance with the CAZ. However as main roads are designed to take larger amount of traffic a small increase in traffic on a main road is overall less noticeable or problematic than the transformation brought about by a dramatic reduction on a residential street.

Although traffic displacement is to be expected, some best practice examples in Waltham Forest have reported that the maximum peak flows were found to be lower on the surrounding main roads (through peak spreading, re-routeing and mode shift), following the introduction of low traffic neighbourhoods. Even though those boundary roads experienced a slight increase in traffic levels over the day (between 4% and 28%), the increase was not directly proportionate to the decrease in levels of traffic on the residential roads, with a degree of traffic disappearance or evaporation occurring.

Importantly, the Walthamstow Village Review[26] also showed that the number of vehicle movements had significantly decreased on the majority roads within the area (11 out of 14 roads), with the average road in the village seeing a 44.1% reduction in vehicle numbers. This included over 90% reductions in traffic on Copeland Road, Eden Road and West Avenue.

Physical features and heritage

A key consideration in the delivery of transport schemes within Bath is the width of the highway boundary. The narrow streets in the heritage city continue to influence the development and delivery of transport schemes. As such, traffic is often at odds with Conservation Areas and the World Heritage Site.

Bath has over 5,000 listed buildings and a number of Scheduled Monuments. The City of Bath World Heritage Site Management Plan identified transport as a major issue for the World Heritage Site due to the impact on air quality, people and businesses. This highlights that car use should be reduced and public realm enhancements continued. As such any

[26] https://londonlivingstreets.files.wordpress.com/2019/07/2017-08-23-wv-report-final.pdf

schemes implemented require consideration in line with Planning (Listed Buildings and Conservation Areas) Act 1990 and Streetscape Manual[27] guidance to ensure appropriate design.

In addition, the Georgian city has a number of underground cellars and vaults which require consideration in the development of schemes which may require earthworks.

Street gradients are another potential constraint which should be considered in relation to encouraging walking and cycling. Whilst in relation to low traffic neighbourhoods this may not act as a deterrent for active travel within the neighbourhood; the feasibility of linking into other neighbourhoods and the city centre should be appropriately considered. Figure 3-8 illustrates the topography surrounding and within Bath city centre in relation to the cycle network.

Low traffic neighbourhoods offer an opportunity to enhance streetscape and public realm in keeping with World Heritage Site status.

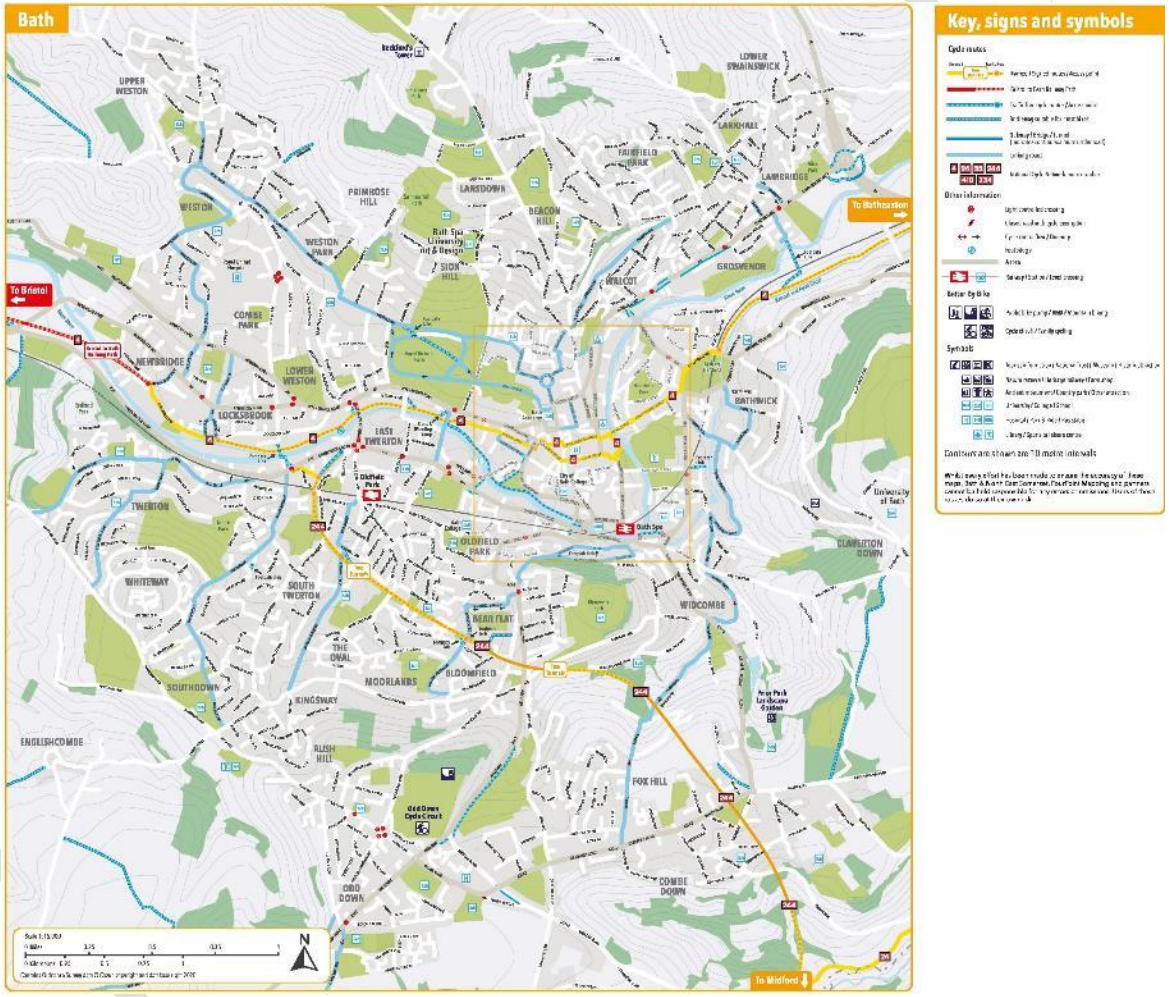

Figure 3-8: Bath cycle network[28], including topography

3.3.3 Keynsham, Whitchurch and Saltford

Travel in Keynsham, as detailed in the Getting Around Keynsham Transport Strategy, is predominately by car. The Strategy sets out that future travel will likely remain as mainly by car, but that any reductions will deliver benefits for congestion,

[27] https://www.bathnes.gov.uk/sites/default/files/sitedocuments/Planning-and-Building-Control/Planning-Policy/SPDs/streetscape_manual_adopted.pdf
[28] https://betterbybike.info/wp/wp-content/uploads/2016/04/Bath.pdf

the environment and the local economy. Similarly travel in Saltford and Whitchurch is predominately car-based, particularly as the settlements are located directly along A-roads.

Impact of vehicles

The highway network in Keynsham is highly constrained and large volumes of trips take place by car. In 2011, two thirds of work trips by Keynsham residents were made by car. Due to the high volume of local trips by car, the presence of through-traffic and the constrained network, congestion on the main east-west and north-south routes is high and predicted to worsen with increased housing provision.

The majority of through-traffic in Saltford and Whitchurch remains on the A4 and A37 respectively, with limited opportunities for rat-running on less suitable residential roads.

Low traffic neighbourhoods can help to reduce the impact of a highly traffic-dominated environment in local neighbourhoods by promoting active travel modes and discouraging through-traffic.

Air quality issues

The Keynsham AQMA was declared in 2010 and in Saltford in 2013. As a result, the Keynsham and Saltford Air Quality Action Plan developed in 2016. As with the Bath AQMA, the Keynsham AQMA highlights the areas of NO_2 exceedances which mainly cover the high street. In Saltford the AQMA covers the A4, through the centre of the settlement.

The Air Quality Action Plan sets out a number of measures to reduce air pollution. These encourage a transition to electric vehicles and a shift to walking, cycling and public transport through infrastructure provision, these would be supported through the implementation of low traffic neighbourhoods. It has considered that recently air quality has improved in both Keynsham and Saltford.

Residential on-street parking

A Keynsham parking study (2016[29]) highlighted that residential parking was reaching capacity and that residents' parking zones may be required. A residents' parking zone has been implemented within Keynsham, which covers Mayfields, Rock Road and The Labbott. Consideration of the existing residents' parking zone should be included in any proposals for low traffic neighbourhoods in Keynsham.

Walking and cycling

The Getting Around Keynsham Transport Study established that there are opportunities for improving linkages between neighbourhood areas and Keynsham town centre. Similarly, the Placemaking Plan identified the importance of walking and cycling in Whitchurch stating some of Whitchurch's key transport issues as:

- *"The importance of avoiding severance between the existing Whitchurch Village and the new community as there is the need to ensure easy pedestrian and cyclist movement across the new link road without adversely affecting its function as part of the strategic network";* and
- *"How to best provide or enhanced walking and cycle routes proposed throughout the wider area to encourage a greater shift to active travel and more sustainable travel modes."*

Low traffic neighbourhoods could support the shift to higher uptake of walking and cycling through increasing the attractiveness of active modes, particularly for shorter trips, and decreasing the attractiveness of car trips through residential areas.

3.3.4 Chew Valley

Given the rural nature of Chew Valley, there is high car ownership. The Chew Valley Transport Strategy identifies that Norton Malreward has the highest proportion of households with three or more cars (over 30%) while Ubley has the highest proportions of households with two cars (over 50%). Cameley has the highest proportion of one car households.

[29] Keynsham Parking Survey Review - https://www.bathnes.gov.uk/sites/default/files/siteimages/Parking-and-Travel/20170511_task_5_technical_note_v8-final_issue_revised-djl_080917.pdf

The high car usage and a constrained network in Chew Magna impacts on traffic flow and on pedestrian activity. The Chew Valley Transport Strategy notes that much of the traffic management is self-enforcing with informal alternate working of infrastructure and slow speeds. As such it highlights that further speed reduction measures and signing would conflict with the nature of the village and should be resisted.

Additional transport issues detailed in the Chew Valley Transport Strategy highlights the impact that the relatively few large vehicles travelling through villages have due to the narrow roads. Concerns of rat-running on the B3130 through Chew Magna to get to Bristol Airport have been raised. Through-traffic survey results showed that a temporary closure of the airport for a number of days had little impact on traffic flows on the network and as such the rat-running traffic issues reported in the area are due to general traffic levels, rather than as a result of access to the airport.

Air quality is also an issue in Temple Cloud with an AQMA declared in 2018.

Whilst low traffic neighbourhoods may not be suitable for implementation given the smaller geographical scale of the area, some measures or themes of low traffic neighbourhoods could be implemented within streets or smaller areas within Chew Valley.

3.3.5 Somer Valley

The Somer Valley Core Strategy & Placemaking Plan and Transport Strategy highlights some of the local transport issues which include: high traffic volumes through built-up areas; high levels of out-commuting (by car) resulting in peak congestion; and limited pedestrian, public transport and parking provision. There has been significant housing growth across Somer Valley, contributing to a growth in traffic, particularly commuting traffic on main roads. Air quality is also an issue in Farrington Gurney with an AQMA declared in 2018.

Midsomer Norton is a key market town in Somer Valley, serving the surrounding towns and villages. The town centre has a range of attractors including shops and leisure facilities, with the historic core designated as a Conservation Area. The Placemaking Plan identifies that the high street presents an opportunity to encourage new and enhanced walking links within the centre and between residential areas. Consideration of improved walking and cycle links should be considered in this area.

Radstock, located to the south of Somer Valley, is also a key town centre. It is located along National Cycle Route 24 which the placemaking plan notes is an asset to the area, with new and enhanced linkages to be encouraged. Enhancements to the public realm through links to green spaces and sustainable transport routes, landscape enhancements and greater provision for pedestrians and cyclists in the town centre are also included within Policy SV3. There are several site allocations under the existing local plan within Radstock which sets out proposed developments.

Surrounding areas including Westfield, Paulton and Peasedown St John have separate identities but are closely linked with Radstock and Midsomer Norton. Paulton, over the last few years has experienced housing growth on the edge of the village. Old Mills Industrial Estate was set out in the existing local plan as an employment site. It is accepted there has been substantial growth in traffic, especially commuter traffic. However, this growth is prevalent on the main roads as opposed to along local neighbourhood roads experiencing rat-running.

Whilst low traffic neighbourhoods may not be suitable for implementation given neighbourhood traffic is relatively low and through-traffic is already travelling along main roads; some measures or themes of low traffic neighbourhoods could be implemented within streets or smaller geographical areas within Somer Valley.

3.4 Vision and objectives for low traffic neighbourhoods in B&NES

The existing and emerging policies for B&NES set out the aims to prompt a major shift from private vehicles to walking, cycling and public transport to reduce emissions, protect the World Heritage Site and improve the health of its residents. An increase in travelling by active and sustainable modes within low traffic neighbourhoods will support a reduction in congestion and unlock additional street space.

Approximately 192,000 people were estimated to live in B&NES in 2018 and it is important to ensure that they are able to interact with high quality streets particularly within residential areas. The design and use of residential streets have the

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ability to positively and negatively impact on the lives of those interacting with them. As such, it is vital that communities are involved in the design and use of their neighbourhoods in the shift from designing for cars to designing for people.

Based on existing policies, discussions with B&NES officers and Councillors, along with best practice research, the following vision has been developed for low traffic neighbourhoods across B&NES.

Our vision is to create better places across B&NES that promote active travel and public transport use, improve community health and reduce the need for short car journeys.

The problems and issues within B&NES, as outlined in section 3.3, have been considered in the formation of strategy objectives, along with linkages to existing local and national policies. In particular, three policy principles from the B&NES Corporate Strategy have also influenced the development of the following strategy objectives in Table 3-2. "*We want to prepare for the future, deliver for local residents and focus on prevention*".

Table 3-2: Strategy objectives

Objectives	Existing policies supported	Potential issues addressed through low traffic neighbourhoods
Reduce carbon emissions, improve air quality and respond to the climate emergency	▪ Clean Air Strategy 2019 ▪ The Clean Growth Strategy ▪ DfT Decarbonising Transport, ▪ JLTP4 ▪ Bath and North East Somerset Corporate Strategy ▪ Emerging B&NES local plan ▪ B&NES Climate Emergency Progress Report ▪ Clean Air Plans (Bath, Keynsham, Saltford)	▪ **Air quality:** Five AQMAs have been declared across B&NES due to high NO_2 emissions from high emission vehicles. Encouraging walking and cycling will help tackle this. ▪ **High carbon emissions:** High number of vehicle trips and long distances travelled in private cars contribute to carbon emissions and local air pollution. ▪ **Climate emergency:** B&NES has declared a climate emergency to reduce carbon emissions to net zero by 2030
Improve public realm and quality of life - creating better places for residents, businesses and visitors, as well as sympathetically accommodating emerging EV infrastructure requirements	▪ NPPF ▪ JLTP4 ▪ Existing B&NES local plan ▪ Emerging B&NES local plan ▪ B&NES Health and Wellbeing Strategy ▪ Public realm and movement strategy ▪ World Heritage Site Management Plan ▪ WECA Draft Ultra Low Emission Vehicle Strategy	▪ **Vehicle dominance and high traffic** volumes in the city centre and residential areas has decreased the public realm, particularly within the World Heritage Site. ▪ **Insufficient walking and cycling space** due to streets designed to prioritise vehicle movement contributes high volumes of short trips in cars. ▪ **Insufficient space to accommodate on-street EV infrastructure**
Encourage more local trips by active modes of travel, through providing easy, safe and comfortable routes within neighbourhood	▪ NPPF ▪ The Clean Growth Strategy ▪ DfT Decarbonising Transport ▪ JLTP4 ▪ B&NES Corporate Strategy ▪ Existing B&NES local plan ▪ Emerging B&NES local plan ▪ Getting Around Bath Transport Strategy ▪ B&NES Climate Emergency Progress Report ▪ B&NES Health and Wellbeing Strategy ▪ Public realm and movement strategy	▪ **High vehicle volumes** in the city centre and residential areas. ▪ **Insufficient walking and cycling space** due to streets designed to prioritise vehicle movement contributes high volumes of short trips in cars. ▪ **Unattractiveness of travelling by active modes** and barriers to walking and cycling due to high vehicle volumes.

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Objectives	Existing policies supported	Potential issues addressed through low traffic neighbourhoods
	▪ World Heritage Site Management Plan ▪ WECA Draft Ultra Low Emission Vehicle Strategy	
Reduce the impact of "rat-running" vehicles along unsuitable residential roads, to support prosperity and improve community connectivity, whilst safeguarding access for residents (and the needs of mobility impaired people)	▪ Existing B&NES local plan ▪ Emerging B&NES local plan ▪ Getting Around Bath Transport Strategy ▪ B&NES Health and Wellbeing Strategy	• **Decline of public realm and communities** as congestion on the constrained network has resulted in the inappropriate routeing of vehicles via residential areas. • **Safety issues** associated with high volumes of traffic in residential areas.

3.5 Role of low traffic neighbourhoods in B&NES

Low traffic neighbourhoods consider how streets are managed to enable inclusive and safer environments, to promote active travel and mode shift away from private cars. The principles of a low traffic neighbourhood focus on delivering attractive, healthy, accessible and safe neighbourhoods for people.

As such, the implementation of low traffic neighbourhoods in B&NES could support the policies and assist in tackling some of the issues across the district outlined in section 3.3.

The key principles of low traffic neighbourhoods have been discussed in section 2 and are summarised below. The location and development of low traffic neighbourhoods within B&NES should broadly follow these principles.

Key principles in the development of low traffic neighbourhoods

Size: low traffic neighbourhoods should ideally include a group of residential streets, bordered by a main road (those used by LGVs, HGVs, buses and through-traffic), which is walkable within 15 mins (approximately 1km^2).

Location: low traffic neighbourhoods should be in close proximity to key amenities and services, especially key transport interchanges.

Infrastructure: a range of infrastructure can be used to support the implementation of low traffic neighbourhoods which could include modal filters, active mode development and public realm improvements.

Community involvement / engagement: active community engagement should be embedded from the start of the process, through to co-designing elements and continue through the active feedback and monitoring stages.

Schemes within B&NES should look to tackle local issues through tailoring local aims and objectives whilst fitting to the objectives set in the strategy. Based on the issues identified in section 3.3, local objectives could include reducing through-traffic on residential streets, calming traffic in neighbourhood areas and/or increasing travel by active modes, as well as utilising opportunities that arise to enhance the public realm and utilise space for provision of EV charging. Other improvements alongside the low traffic neighbourhoods could be integrated into low traffic neighbourhood design.

Specific measures which could be included in low traffic neighbourhoods are outlined in Table B-1 in **Appendix B**. In B&NES, those which are likely to be most suitable include:

- modal filtering of residential streets through bollards, width gates, bus gates or planters;
- public realm enhancements, such as shared space, parklets and green infrastructure;
- alignment or consideration with residents' parking schemes;
- time-limited access restrictions through school streets; and
- blended / "Copenhagen" crossings to reinforce pedestrian and cyclist priority in an area.

It should be acknowledged that many streets, particularly in Bath, are narrow and as part of the implementation of some of these measures, there could be implications for on-street parking capacity. For example, as part of the installation of a

modal filter, to ensure sufficient space for turning vehicles, it may be necessary to remove additional parking spaces from residential streets.

It should be noted that the residents' parking scheme policy has been revised to sit alongside this strategy. A review of existing residents' parking zone boundaries may be necessary as part of the development of low traffic neighbourhoods, along with the consideration of whether a residents' parking scheme is required in the absence of one.

Measures within B&NES must also be carefully considered in terms of their impact on air quality and heritage. Given that a CAZ will be implemented in the city centre and AQMAs have been declared across B&NES, it must be ensured that measures will not have a negative impact of the clean air plans and air quality compliance in the long term. Additionally, the heritage city and conservation areas require close consideration to ensure that measures implemented are consistent with the environment through following relevant design guidance and material pattern books.

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4. Approach for the implementation of low traffic neighbourhoods in B&NES

4.1 Introduction

Low traffic neighbourhoods should be considered, designed and implemented specifically for the local area and respond to local problems, issues and opportunities. As such, a flexible approach to scheme development and implementation is outlined in this section which can be used as a guide. However further local knowledge of the issues and place will be required throughout the process and should be used to tailor the requirements of the process to the specific local circumstances. That said, it is important that there is a clear overall approach for identifying and taking forward low traffic neighbourhood proposals.

This section has been informed through the review and evaluation of existing low traffic neighbourhood or liveable neighbourhood policies and schemes from the UK. The approach outlines the way in which appropriateness will be determined and engagement, development, design and delivery of low traffic neighbourhoods is carried out in B&NES.

This approach to low traffic neighbourhoods has been informed and developed in line with the following principles:

- **Collaborative**: Work with local communities to determine the suitability of low traffic neighbourhoods and co-design them. Ideas may be trialled and adjusted as appropriate and informed by community responses. Communities will inform the current and future user requirements when designing proposals, particularly engagement with:
  - those groups within communities who are historically deemed "harder to reach", such as people with disabilities, people who do not belong to organised groups, the unemployed and people for who English is not their first language; and
  - those who are understood to be the end users of community space, such as families with young children, older people and those who, through choice or otherwise, live without access to a car.

  Engagement with additional stakeholder groups will be undertaken as appropriate, such as the emergency services. Inputs from a range of service teams within the Council will be sought in the development of low traffic neighbourhoods, including but not limited to transport policy, traffic management and parking, air quality, public health, planning and conservation.
- **Responsive**: Work with those requesting low traffic neighbourhoods to assess the eligibility and feasibility of implementation. Prioritisation of the schemes will be based on a number of factors and will take into consideration other schemes which could impact on traffic flows in areas. The iterative process of scheme development, engagement and prioritisation enables the evolution of proposals to respond to changes in local context.
- **Holistic**: Low traffic neighbourhoods will be considered within the larger context of B&NES transport vision and therefore the flexible approach enables future policies and objectives to be incorporated within low traffic neighbourhood design. Wider existing or emerging schemes (such as residential parking or on-street EV charging) in a local area will be taken into account. Solutions will be considered based on their local and wider impacts to ensure limited displacement effects. Complimentary or alterative solutions may also be considered.

Low traffic neighbourhood projects within B&NES should be developed or integrated with other local and regional programmes, including:

- a safer pedestrian and cycling experience (under the Bath Transport Delivery Plan and the emerging West of England Local Cycling and Walking Infrastructure Plan);
- improving air quality (under the Bath Clean Air Zone);
- encouraging shift towards low emission vehicle use (under emerging EV on-street charging strategy and West of England ULEV strategy);
- review of parking considerations (residents' parking schemes and B&NES parking strategy);
- expand existing Park and Ride capacity (under the Bath Transport Delivery Plan and WECA Park and Ride fund);
- better bus routes (under the Bath Transport Delivery Plan and WECA Bus Infrastructure Fund); and

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- improved public health (emerging public health programmes)

More about these programmes can be found on the B&NES and travelwest websites.

4.2 Process and considerations for the delivery of low traffic neighbourhoods

The summary process flow in Figure 4-1 below highlights the broad stages for low traffic neighbourhood consideration and implementation. More details are provided in this section, along with the expanded process flow in Figure 4-5, which outlines a high-level guide of information to be considered at each stage. It also provides guidance on consideration of a how a proportional approach should be taken based on the issues experienced, severity and geographical scale. The timeframe for this process will vary on a location-by-location basis.

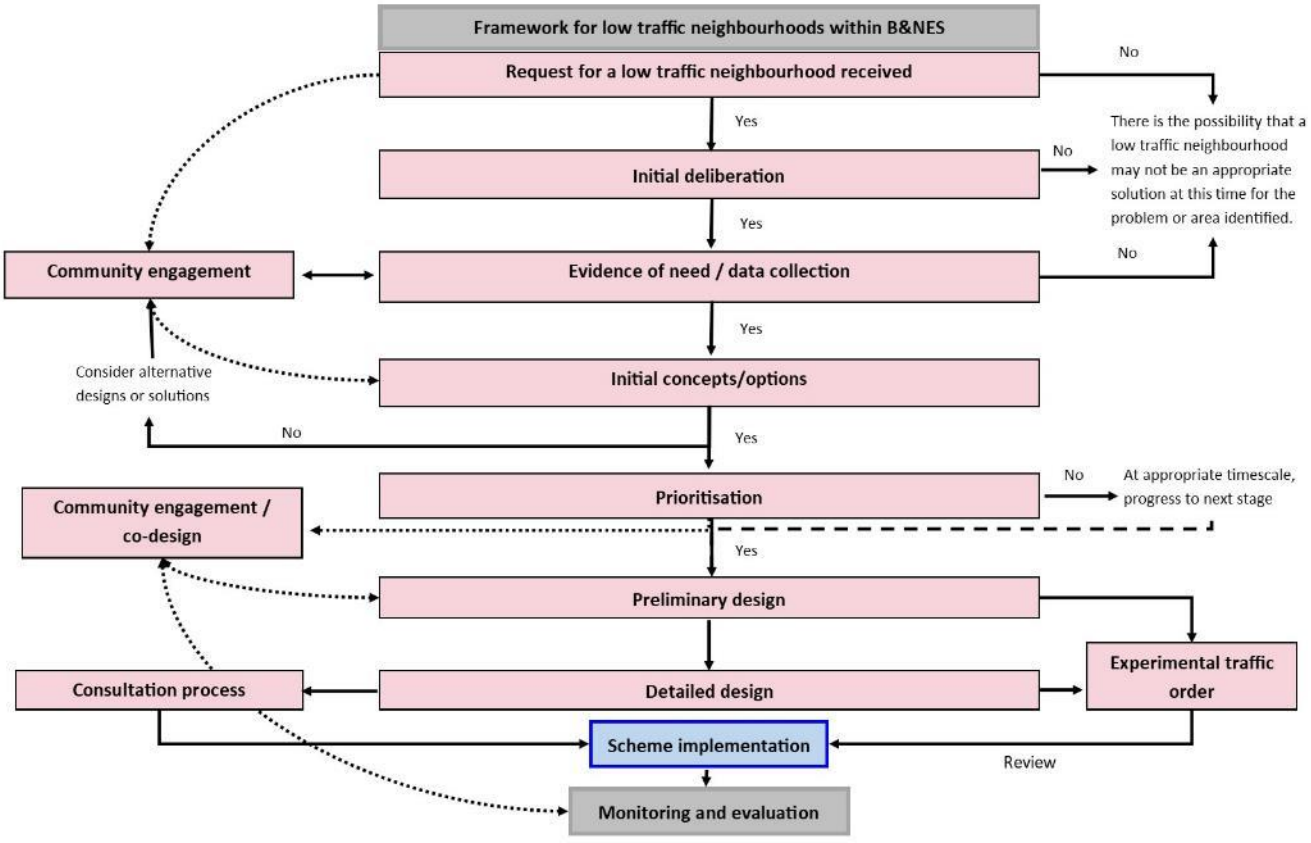

Figure 4-1: Summary process for delivery of low traffic neighbourhoods in B&NES

This flow process identifies the stages undertaken to ascertain the eligibility, feasibility and prioritisation of low traffic neighbourhood requests, as an appropriate solution to local issues. Throughout the iterative process, critical analysis should be used to determine the appropriateness of a low traffic neighbourhood and whether alternative solutions could be more suitable (i.e. residents' parking scheme).

4.2.1 B&NES framework for low traffic neighbourhoods within Bath & Keynsham

In order to ensure a holistic, joined-up approach to the implementation of low traffic neighbourhoods, B&NES will develop a framework to identify potential areas which may be suitable for a low traffic neighbourhood, following the principles outlined in section 2.

A key principle includes the identification of main roads and local roads within the urban areas of B&NES. The initial mapping of road by classifications provides a first step to understanding the suitability of potential areas. Examples maps for Bath, Keynsham / Saltford and Somer Valley are shown in Figure 4-2, Figure 4-3 and Figure 4-4 respectively. The maps highlight the all-purpose roads (A Roads), B roads and classified unnumbered roads, which could be used to bound low traffic neighbourhoods. When identifying main boundary roads for low traffic neighbourhoods, it is important to ensure that they are suitable for accommodating through-traffic.

The framework should consider the existing and emerging local policies and schemes, current connectivity between areas, gradients, historical street patterns, Conservation Areas, public transport routes, bus stops and existing walking and cycling routes.

When considering the framework for low traffic neighbourhoods, this also provides an opportunity for the review and optimisation of bus routes within the area (in line with Transport Delivery Plan), as well as the improvement of walking and cycling routes to bus stops or railway stations.

Action Point: B&NES to develop a framework to identify potential areas which may be suitable for a low traffic neighbourhood, including establishing the main and local road networks, as well as key public transport and active travel routes.

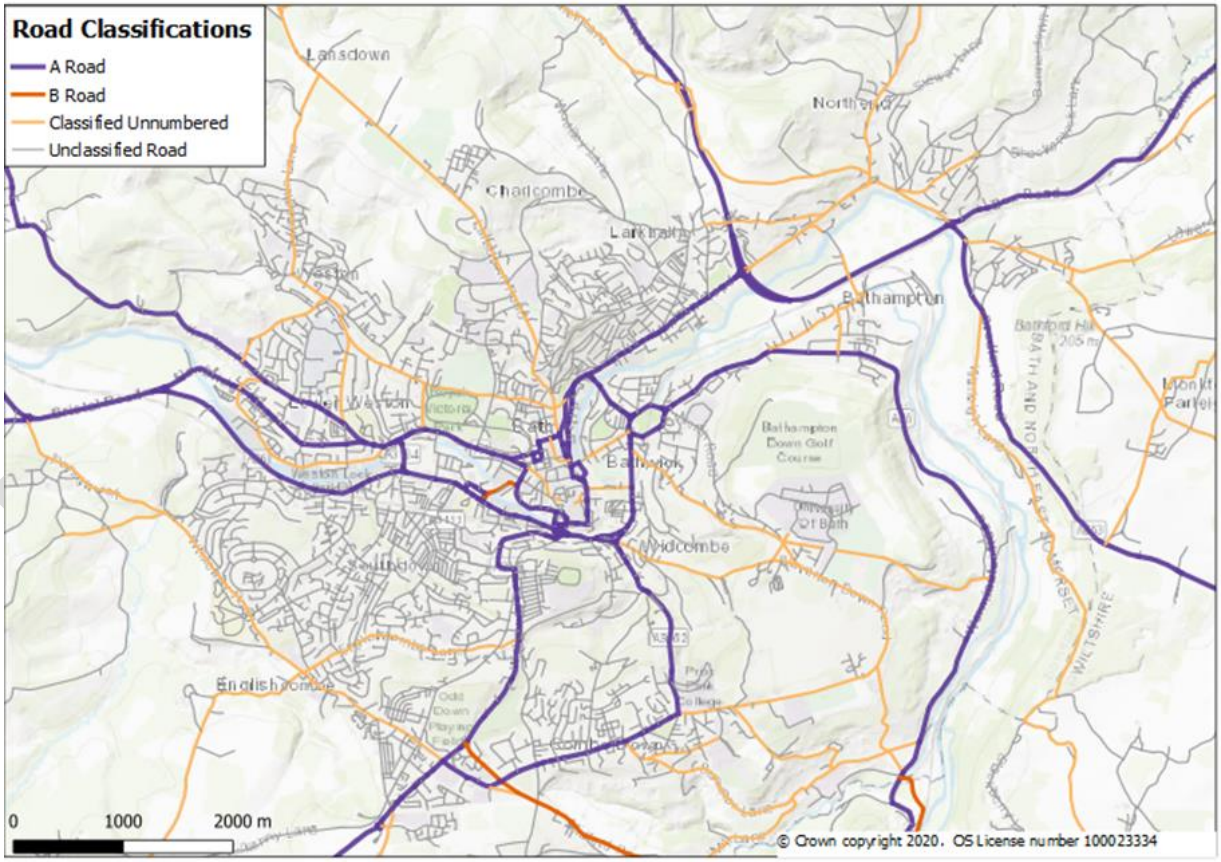

Figure 4-2: Identification of main and local roads in Bath

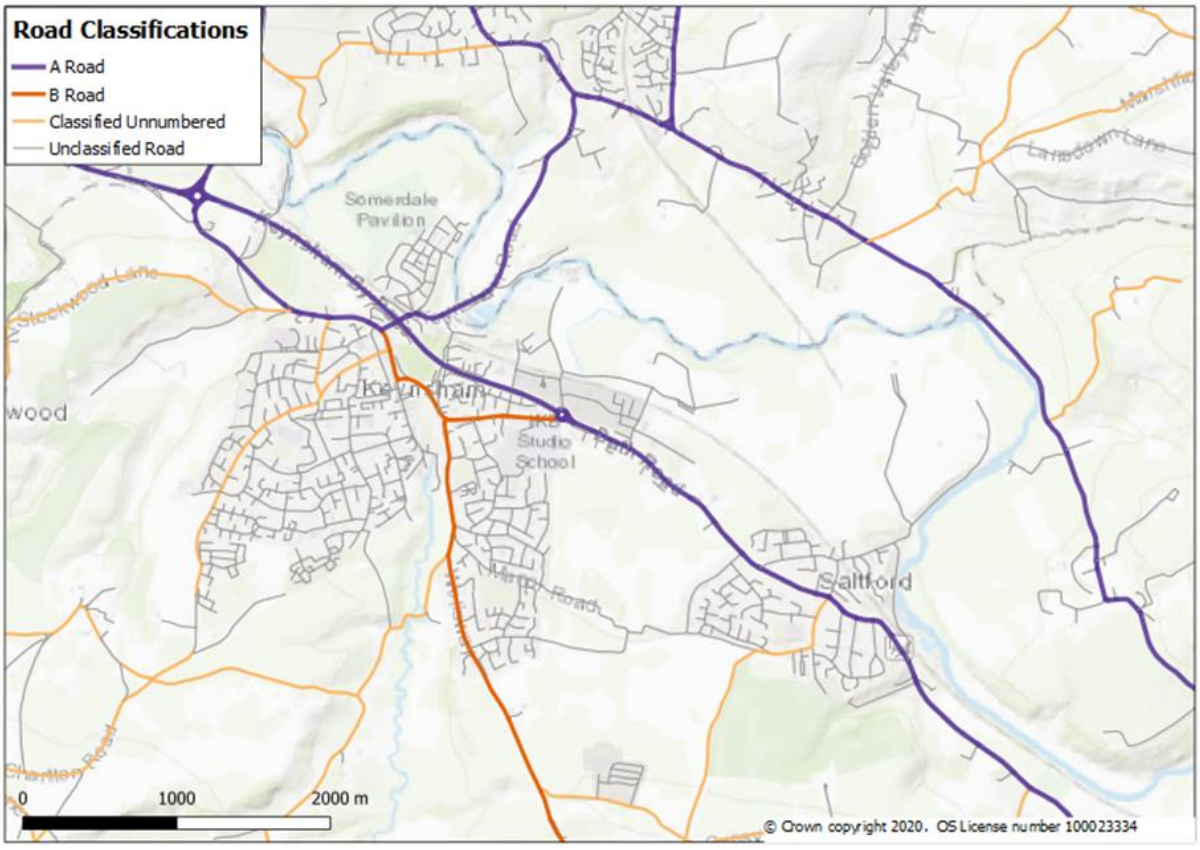

Figure 4-3: Identification of main and local roads in Keynsham/Saltford

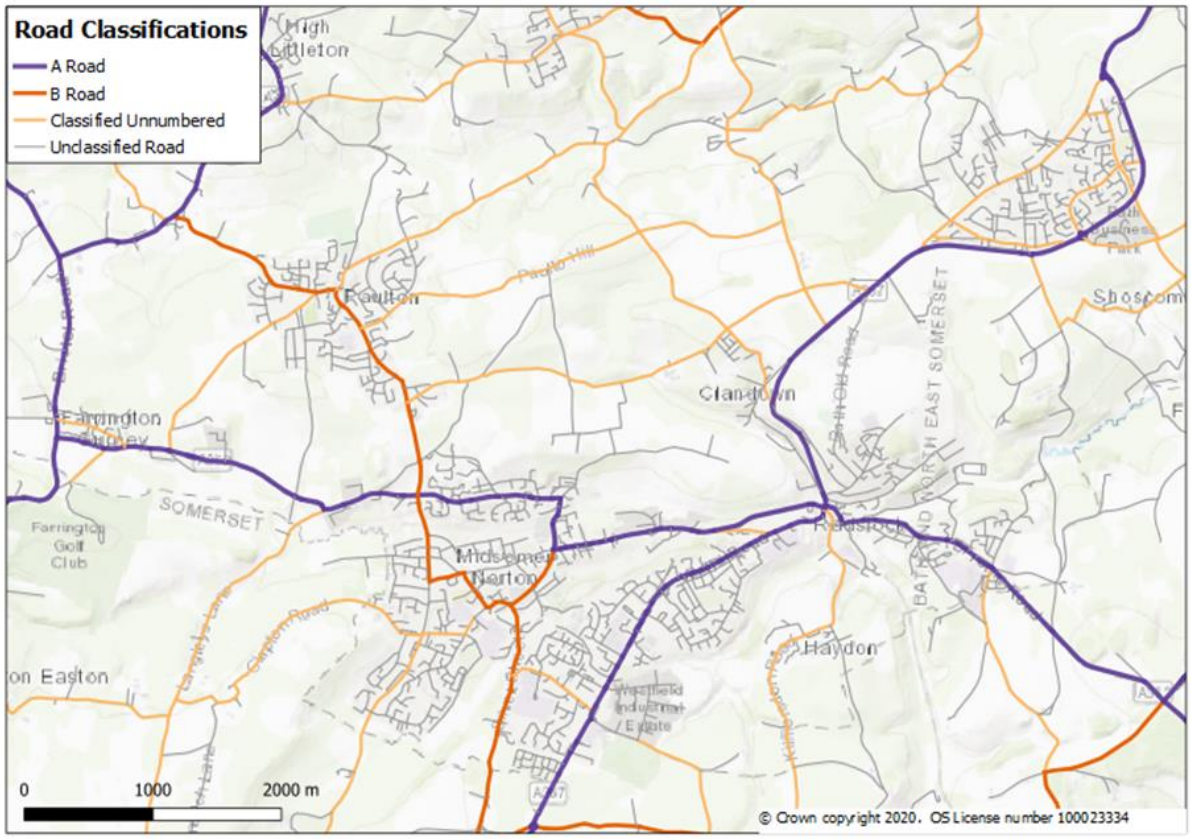

Figure 4-4: Identification of main and local roads in Somer Valley

4.2.2 Request for low traffic neighbourhood received

Requests for a low traffic neighbourhood will generally be received from local members supported by their community wishing to specifically implement a low traffic neighbourhood or more generally looking to solve a local issue within their area. Identification of potential low traffic neighbourhoods may also arise via work undertaken by the Council, for example in relation to wider implementation of transport strategy and projects.

Requests should be accompanied by a justification for why a low traffic neighbourhood is considered suitable for further investigation. A proforma has been developed to capture this information, to be completed by the request originator (see **Appendix D** for the proforma template) and submitted to B&NES. It should provide enough detail to allow the Council to assess whether a low traffic neighbourhood is potentially suitable. It should set out:

- scale of community engagement;
- the problem perceived / causes of issues;
- the geographic area affected by the problem;
- the scale / severity of the problem; and
- strength of local feeling/potential support for a low traffic neighbourhood including who the key stakeholders are to engage with at future stages.

Action Point: B&NES will actively identify areas as candidates for low traffic neighbourhoods. In tandem, the Council will invite communities, via their Councillor, to put forward their own proposals for local traffic neighbourhoods in their area. The Council will work with local Councillors and their communities to share information on the potential role that local traffic neighbourhoods can play and explain the potential suitability benefits and potential trade-offs to enable well though through proposals to come forward.

Output: Justification for request undertaken by the request originator, via proforma

4.2.3 Initial deliberation

Once the initial request has been received, B&NES will undertake a desktop review using information provided in the proforma as well as existing available data. The purpose of this initial deliberation is to consider if the proposal aligns with the main principles and objectives of low traffic neighbourhood. This will determine the eligibility and high-level feasibility of a low traffic neighbourhood in response to the problems identified and area affected. Understanding the issues, opportunities and feasibility is important at this stage to ensure the correct solution for the location and issues can be considered.

Eligibility review

A scheme is likely to be deemed eligible if there are issues or opportunities that a low traffic neighbourhood could potentially provide a solution. The existing information which may be considered could include:

- fit with B&NES low traffic neighbourhood framework;
- fit with existing policy and strategies;
- traffic data (volume, composition and speed);
- public transport journey time data;
- parking availability and permit demand (if an existing residents parking scheme is in place);
- personal injury collision data (within the last 36 months);
- air quality data; and
- review of previous engagement and consultations in the area(s).

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The desktop review may include a site walk over and initial fact-finding engagement with the request originator or, if appropriate, the local community, through suitable means such as residents' and business associations, community groups or parish councils.

At this stage, it may be determined that a low traffic neighbourhood is not required. Instead it could be established that an alternative solution such as a new or revised residents' parking zone, speed limit reductions, weight limit enforcement or a discrete low-cost intervention (rather than area-wide intervention) is more suitable. It is expected that this will be considered through separate relevant channels within B&NES to ensure that any alternative solutions are not inhibited or delayed by the approach and prioritisation of low traffic neighbourhoods.

Feasibility review

If a request is deemed to be eligible for low traffic neighbourhood consideration, the feasibility of implementing a low traffic neighbourhood in an area should be considered. Additional high-level consideration of the following may be included at this stage:

- existing key active travel infrastructure in the vicinity of the area;
- public transport provision in the vicinity of the area;
- location of the area relative to any main roads;
- likelihood and potential impact of any displacement of issues;
- fit with heritage, conservation and historical street patterns;
- local attractors / land use in the vicinity of the area (community facilities, leisure centres, schools, local shopping and green spaces should be included);
- freight operations / deliveries in the vicinity of the area;
- parking availability and existing residents' parking zone in the vicinity of the area;
- infrastructure in the area which may be impacted (such as signals);
- site conditions, constraints or items needing further investigation at the feasibility design stage. Examples might be land ownership, Conservation Areas or utilities diversions; and
- initial local community and political support of the principle.

Any gaps in the available data should be identified at this stage for collection in the next stage.

In the determination of high-level feasibility, engagement with other B&NES officers could be required. This could include input from officers in the following areas: traffic, highways and parking; environment, air quality and public health; and planning, conservation and heritage.

Action Point: B&NES will use existing data to assess the eligibility and high-level feasibility of a low traffic neighbourhood approach. Low traffic neighbourhoods will be considered as potential solutions alongside other approaches.

Output: Eligibility & feasibility review to inform the initial consideration of requests

4.2.4 Evidence of need / data collection

Based on the data identified during the request and initial deliberation stages, additional data may be required. This need should be based on the local issues and take account of any data gaps. One of the main tenets of low traffic neighbourhoods is to encourage changes in travel behaviour, through the promotion of active travel and reducing private car use (particularly for local short trips). Therefore, if a low traffic neighbourhood is identified as part of a wider transport strategy, it may not be necessary to obtain additional data. Alternatively, existing information, anecdotal evidence and professional judgement of B&NES officers may also be used to identify need.

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However, if additional data is required, it will depend on the nature of the problem identified in the specific area. It may include:

- the commissioning of Automatic Number Plate Recognition (ANPR) surveys (in areas where through-traffic or rat-running are concerns);
- parking surveys (in areas where parking problems identified);
- traffic speed surveys (where speed is an issue);
- air quality surveys (where concerns for local air quality are known or where necessary); and
- public transport journey time data.

This stage of data collection should also be planned such that it can form the baseline for future monitoring and evaluation.

At this stage, an initial high-level prioritisation should take place, which considers the low traffic neighbourhood request alongside other low traffic neighbourhood proposals under consideration. It is acknowledged that there could be a large volume of requests for low traffic neighbourhoods and therefore the prioritisation of schemes will be required in order to ensure targeted use of resources. Schemes will also be assessed against other schemes and available budgets.

Factors which are likely to be included within the initial high-level prioritisation assessment are:

- **fit with wider strategies and visions** - this will be informed based on the information gathered in the previous stages.
- **likelihood of delivery-based on public and political support** - this will be informed based on the information gathered in this stage and previous stages.
- **assessment against the low traffic neighbourhood strategy objectives** - this will be informed based on the information gathered in the previous sections and based on the severity / likelihood of the following:
  - air quality (NO_2) issues (linking with the objective to reduce carbon emissions, improve air quality and respond to the climate emergency);
  - collision issues and proportions of vulnerable populations (linking with the objective to improve public realm and quality of life - creating better places for residents, businesses and visitors, as well as sympathetically accommodating emerging EV infrastructure requirements);
  - ability to link with existing active travel and public transport routes and expedite them (linking with the objective to encourage more local trips by active modes of travel, through providing easy, safe and comfortable routes within neighbourhoods); and
  - evidence of rat-running as an issue (linking with the objective to reduce the impact of "rat-running" vehicles along unsuitable residential roads, to support prosperity and improve community connectivity, whilst safeguarding access for residents (and the needs of mobility impaired people)).

The outcomes of the initial prioritisation will inform timescales before progression to the next stage in the process.

Action Point: B&NES will initially prioritise low traffic neighbourhood schemes following further data collection and initial consideration of requests against strategic fit, local support and available budgets. This will determine whether schemes could/should progress to the concept design stage.

Output: Additional evidence of need, if required, and initial prioritisation of a low traffic neighbourhood requests

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4.2.5 Community engagement

Community engagement could be included at multiple stages throughout the process, but particularly alongside the evidence of need/data collection stage. This engagement builds on information gathered at previous stages of the process. If a low traffic neighbourhood proposal is given the go ahead to proceed following initial prioritisation and evidence of need, the first step should be to engage the community. Effective community and stakeholder engagement is a key part to delivering low traffic neighbourhoods successfully. Consideration to the level / intensity of engagement and key stakeholders at this stage should be considered. This should be informed by the initial indication of local support, the potential scale of the project, any impacts or opportunities it may deliver for businesses and community.

The purpose of this early engagement would likely be to:

- understand the problems and issues;
- identify opportunities for enhancement;
- identify potential solutions; and
- understand acceptability of likely trade-offs.

This stage of engagement should also seek ideas for design from the local community to be incorporated in the next stage of the process.

Action Point: B&NES will engage with local communities throughout the process of developing low traffic neighbourhoods, at appropriate stages, to ensure collaboration in the development and design process.

Output: Community ideas for inclusion within the design of a low traffic neighbourhood.

4.2.6 Initial concepts / options

For those areas/requests which have been identified through the initial high-level prioritisation, the next step will be the development of initial options/concepts. This stage should scope out the potential measures that could be used to deliver a low traffic neighbourhood and the extent to which these would be in line with the principles outlined in section 2. This process may result in the development of a 'long list' of potential approaches to be considered and the opportunities and constraints of each. This should be informed by the community engagement undertaken and in collaboration with relevant residents' associations, businesses and organisations in the area.

Any scheme should be designed to ensure:

- contribution to the B&NES corporate strategies, such as transport strategies, public realm strategies;
- appropriate local access is retained, in particular for refuse and emergency service vehicles;
- consideration of displacement of issues, especially any traffic and associated air pollution on other routes;
- ensuring schemes consider safety for both non-motorised users and highway users within any proposal, maintaining visibility and safe access around neighbourhoods;
- accordance with existing B&NES street design guidance, promoting the requirements of those with disabilities and additional needs;
- consideration of the wider setting such as residents' parking zone (boundaries or potential for implementation), Conservation Areas and streetscapes, etc.;
- inclusion of additional wider opportunities such as the feasibility of electric vehicle charging, tree planting/soft landscaping/green spaces, parklets, shared space, high street public realm improvements;
- sustainability, addressing opportunities to minimise impacts and energy use;
- green infrastructure should be protected and schemes, if possible, should seek opportunities to increase the provision; and

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- the schemes proposed should seek to encourage travel by active modes and therefore look to create attractive, safe and accessible walking and cycling routes linking with public transport and local destinations should as schools, shops and green spaces.

Consideration of the long-list could include modelling to identify any re-routing, consideration of design issues/trade-offs, timescales for intervention and high-level costing.

If the designs are not considered to be suitable, then further community engagement should be sought to identify alternative or additional options.

Action Point: B&NES aims to establish potential options for a low traffic neighbourhood solution.

Output: Long list of initial design options

4.2.7 Prioritisation

Following further data collection, evidence of need and the development of initial options for low traffic neighbourhood proposals, schemes will be assessed, using criteria and scored on a scale of 1 -3 (max. score to be established based on number of categories) against other proposed low traffic neighbourhood schemes. The prioritised list will then be considered against the wider delivery programme and available budgets.

Factors which are likely to be included within the prioritisation assessment are:

- **fit with wider strategies and visions -** this will be informed based on the information gathered in the previous stages.
- **assessment of options against the low traffic neighbourhood strategy objectives** - this will be informed based on the information gathered in the previous sections and based on the severity / likelihood of the following:
  - air quality (NO_2) issues;
  - collision issues and proportions of vulnerable populations (including indices of deprivation);
  - ability to link with existing active travel routes and expedite public transport options for wider benefits; and
  - evidence of rat-running or significant volumes/speeds of traffic as an issue.
- **likelihood of delivery based on public support -** this will be informed based on the information gathered in the previous stage and community engagement.
- **technical feasibility of solutions -** this will be based on an assessment of the deliverability of initial options and concept designs. The consideration within the framework as to whether there are opportunities for grouping and delivering neighbouring proposals as area-wide package of measures.
- **high level costs -** an initial cost estimate should be undertaken. Whilst only an initial estimate with little detail on potential scheme designs, this should include high-level costs for any potential scheme based on comparable areas and problems tackled. Cost could include consideration of the feasibility, concept and detailed design stages, costs associated with consultation, the likely type of materials, post implementation monitoring requirements, traffic and air quality modelling, potential costs for utilities and third party works (traffic signals), third party consents for works and risk considerations.
- **potential timeframes for implementation -** this will be informed by consideration of potential schemes design, likely extent of community support/opposition and length of time required to implement them, as well as funding opportunities.

The short list for low traffic neighbourhood proposals will then be put forward to B&NES cabinet for prioritisation, informed by public support. B&NES cannot guarantee that the available budget in one financial year will be able to support all the possible applications. To ensure budgets are appropriate, B&NES may re-prioritise projects and requests, with consideration on a six-monthly rolling review.

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Action Point: When initial concept low traffic neighbourhood schemes have been developed, B&NES will continue to review, prioritise and re-prioritise schemes against criteria and available budgets ensuring when high priority schemes are developed and budget is available, schemes are progressed.

Output: Process for review, prioritisation and re-prioritisation of potential schemes.

4.2.8 Community engagement / co-design

Effective community and stakeholder engagement is a key part to delivering low traffic neighbourhoods successfully.

Community feedback on the initial long list of design options/concepts should be sought. Ideally, where resources allow, the design process should be undertaken collaboratively so that the community are engaged in the process of moving from a long list of design options to a short list or preferred option. Engagement with groups within communities who are historically deemed "harder to reach" and those who are understood to be the end users of community space, is particularly important when developing options and concepts.

Action Point: B&NES will engage with local communities throughout the process of developing low traffic neighbourhoods, at appropriate stages, to ensure collaboration in the development and design process.

Output: Short list of options

4.2.9 Preliminary design

The preferred short-listed option should be worked up to preliminary stage design. At this stage the full implications of the low traffic neighbourhood should be identified to include:

- extent and nature of any traffic re-routeing required – including impact on journey length and access for local residents, as well as ability of main roads to absorb any displacement;
- extent of construction work required noting that some solutions may require lining and signing, whilst others may require physical changes to junctions, kerb lines etc;
- details of all opportunities, for example creation of secure cycle parking with rentable spaces, parklets, enhanced footways, provision of EV charging;
- details of any trade-offs, to include specific details for example relating to loss of or changes to parking provision, road space or access;
- details of ongoing requirements, for example maintenance or enforcement;
- consideration of ETO process, if scheme suitable for trial, preliminary design is to include any temporary measures required;
- consideration of existing TROs and residents' parking schemes, as appropriate;
- project risk;
- equality implications; and
- requirement for a Road Safety Audit (RSA) depending on designs and process for the scheme implementation.

The work undertaken at this stage should be sufficient to accurately estimate an initial scheme cost and enable meaningful consultation on the full details of the scheme, including any trade-offs.

The ETO process could commence at this stage if the scheme is established as suitable to trial. Consideration of existing TROs (such as residents' parking zones) should be included at this stage as appropriate.

Community engagement regarding the preliminary design should be undertaken throughout this stage. The purpose of this engagement will be to identify final enhancements to the overall design.

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Action Point: B&NES will develop the preferred option to preliminary design stage. B&NES will also consider whether an ETO will be used to trial the proposed scheme during consultation.

Output: Preliminary design

4.2.10 Detailed design

The preferred option should be developed into initial detailed design stage. This should include:

- further development of preliminary design to detailed design, including, as required:
  - road safety audits,
  - consideration of materials and compliance with any city pattern books relevant to a specific area;
  - to sufficient level as to support procurement of a contractor to deliver the scheme;
- development of ETO (if one is not already in place) or TRO, if required; and
- continued engagement with community.

The experimental traffic order (ETO) process can also commence at this stage if the more detailed scheme is established as suitable to trial. Consideration of existing TROs (such as residents' parking schemes) again should be included at this stage as appropriate. Section 4.2.11 outlines the process via ETO whilst section 4.2.12 highlights the process for implementation via consultation and TRO. The final step of 'after' monitoring applies regardless of the implementation route.

Action Point: If not already in place, B&NES will consider ETOs in the development of low traffic neighbourhoods acknowledging the advantages that this could deliver for a scheme.

Output: Detailed design

4.2.11 Implementing an Experimental Traffic Order

ETOs may result in advantages for the scheme. ETOs can be implemented seven days after the notice is published and therefore enable faster application and delivery of potential benefits. Implementation through ETO also enables ongoing engagement and monitoring, along with the ability to alter/tweak the scheme during consultation. ETOs may result in advantages for the scheme. ETOs can be implemented seven days after the notice is published and therefore enable faster application and delivery of potential benefits. Implementation through ETO also enables ongoing engagement and monitoring, along with the ability to alter/tweak the scheme during consultation. The use of ETOs is not proposed in order to circumvent the consultation process and implement unpopular schemes, with communities having already provided feedback through engagement on problem identification and option development prior to any use of ETOs. The process allows consultation to be undertaken during the trial of the scheme, allowing further feedback and objections to be collected whilst the measures are in place.

ETO consultation

If an ETO has been implemented, this triggers a six-month statutory consultation period, which should commence when the ETO commences. During this period objections must be considered and ETOs can be amended within the six-months which also restarts the consultation timeframe. A report detailing any changes should be kept available, as a record of engagement and responses to consultation.

Transition from ETO to TRO

The decision to remove the ETO or make the changes permanent should be made within 18-months of initial implementation. If the ETO is to be made permanent, the TRO notice should be made, however it does not include the consultation requirement and timescales as part of this process, as consultation has been undertaken as part of the ETO. A Stage 3 Road Safety Audit should be considered following implementation if appropriate

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4.2.12 Implementation of scheme and TRO

Depending on the final scheme design and if not considering the use of an ETO, the relevant statutory processes should be followed for implementation. If appropriate this could include implementation through a TRO.

This will include statutory consultation as appropriate and include a minimum of 21 days for objections prior to the any TRO being made. Ongoing communication with the community should be sought during the construction phase via newsletters, website, information boards etc. as appropriate.

Action Point: B&NES will consider the delivery route for implementation of the scheme.

Output: Implementation of scheme

4.2.13 Monitoring and evaluation

Appropriate 'after' monitoring of low traffic neighbourhoods should be undertaken to properly evaluate the impact of the scheme. This could include, as appropriate:

- traffic surveys;
- parking beat surveys, uptake of permits etc;
- accident data analysis;
- public transport journey time data;
- air quality data analysis; and
- qualitative surveys of community and business opinion.

An agile approach may be required to ensure schemes are reviewed quickly after implementation and lessons learned are circulated, so improvements can be incorporated in future design and implementation of other schemes within B&NES. This also applies to existing B&NES experience, particularly in delivering a number of projects with a range of similar objectives to those set out in low traffic neighbourhoods. A review of local best practice and lessons learned from schemes such as Widcombe Parade[30] would be invaluable to the development of low traffic neighbourhood engagement and delivery processes in a local context.

Monitoring of the low traffic neighbourhood will be managed and led by communities with technical support from B&NES with exact requirements defined and promoted at the discretion of B&NES.

Action Point: B&NES will consider the level of monitoring of impacts of the low traffic neighbourhoods which are considered relevant to the local area, linking to the ongoing evaluation of the wider framework.

Output: Development of a monitoring and evaluation plan within low traffic neighbourhood framework

[30] https://www.bathnes.gov.uk/sites/default/files/siteimages/widcombe_a1_boardsf3.pdf

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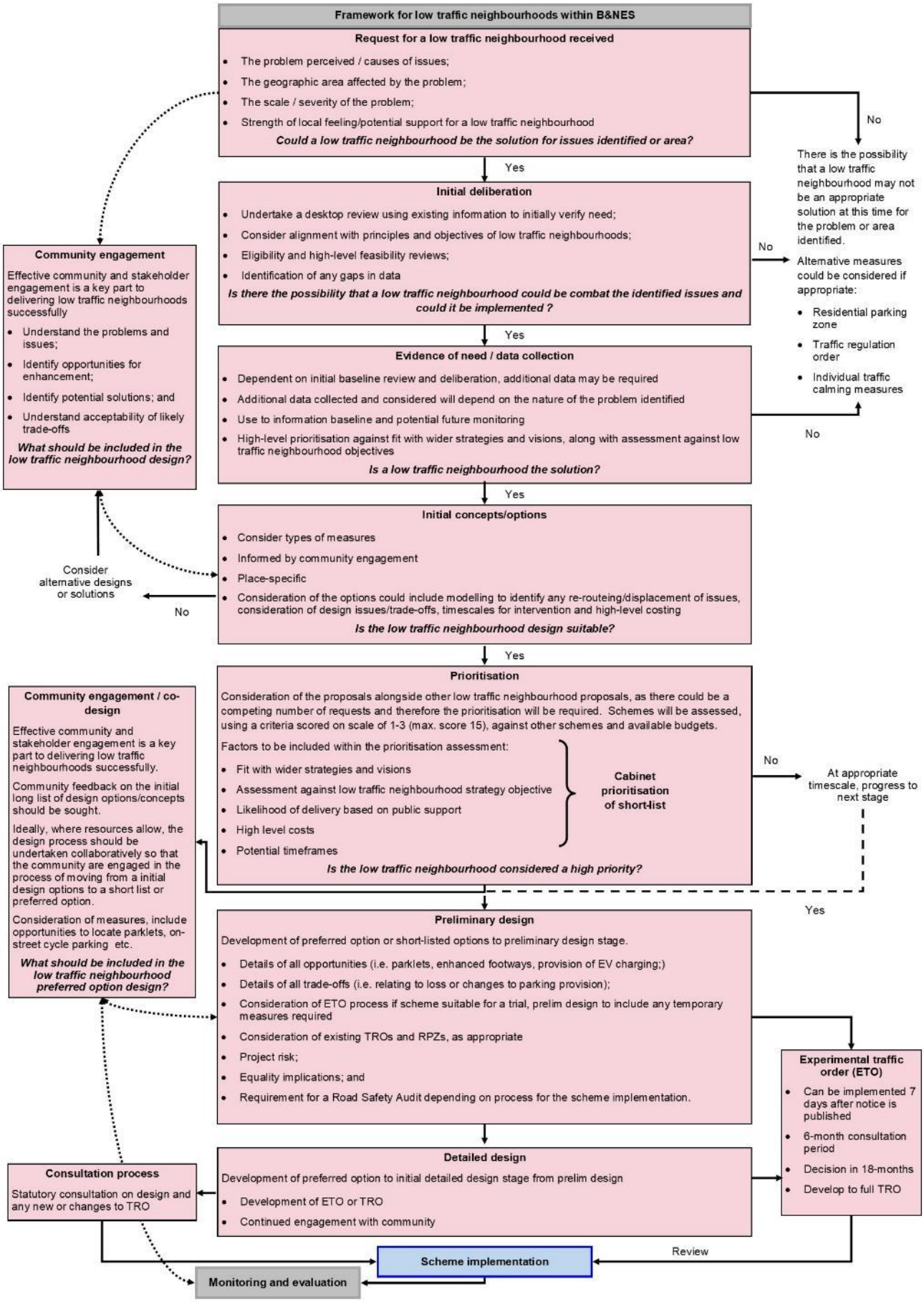

Figure 4-5: Expanded process flow for delivery of low traffic neighbourhoods in B&NES

5. Summary

B&NES Council recognise the importance of responding to the Climate Emergency, which demands a fundamental step-change in methods of travel by residents, visitors and people who work in B&NES. Along with a wide range of initiatives, low traffic neighbourhoods are an important step in delivering the required shift to public transport, walking and cycling in order to reduce transport emissions.

Low-traffic neighbourhoods are not about rewarding one group of people while punishing another, but about making long-term decisions about how people travel. By delivering safer environments for people to travel by a range of sustainable modes. It is important that during the development of low traffic neighbourhoods, cognisance of the location and heritage of the neighbourhood is considered, particularly in the selection of interventions and materials.

This strategy sets out the approach to how B&NES will consider low traffic neighbourhood projects, reinforcing their development and implementation through an iterative, collaborative and holistic process. As proposals come forward and are developed and implemented, the associated ongoing monitoring and evaluation will inform the evolution of the strategy, framework, processes and prioritisation of schemes.

The initial development of the low traffic neighbourhood framework will further expand this strategy, to provide a basis for communities and B&NES Council to implement low traffic neighbourhoods. Prioritisation against other low traffic neighbourhood proposals, along with wider delivery programme and available budgets will be considered on a six-monthly rolling review.

Following adoption of this strategy, an interim review of the framework and policy approach should be undertaken within two years. This is to take account of schemes as they have been implemented and monitoring has commenced. As this document is dynamic in nature, minor changes to the strategy are proposed to be delegated for sign off by the relevant Director, in agreement with the Cabinet Member. A full review should be undertaken at a time when sufficient schemes have been implemented and monitoring evidence is available, prior to a revised strategy and framework being produced.

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Appendix A. Policy context (detailed policy review)

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Appendix B. Types of interventions and measures

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Table B-1: Types of interventions and measures that could be used to create low traffic neighbourhoods

Type of measure		Could be considered when…	Pros	Cons	Considerations	Other considerations specific to B&NES
Road closures/ modal filter	General closure to vehicles	Area is being used as a cut through or a rat-run.	Offers opportunity to maintain and improve cycling and walking routes. Offers opportunity to improve public realm, provide additional parking for local use (including EV) Potential to maintain two-way access on the street either side of the closure.	Can only be considered where there are other appropriate routes and where there is sufficient and safe provision for vehicles to turn (including for emergency service and refuse vehicles). Installation of the modal filter and provision of space to turn may lead to a reduction of parking spaces. May be seen to hinder local access.	Location of road closure should be considered. Closures at one end enable junction heads to be used for bus stop / loading / parking. Closures half way can enable turning circles.	
	Bollards	As above.	Lockable bollards or gates can help to ensure that access for emergency service vehicles is retained. Low cost and does not require kerb construction.	Issues over maintenance and ongoing cost of lockable solution. Can potentially slow emergency access.	Bollards should be placed 1.5m apart to allow for pedestrians and cyclists.	
	Bus gates	As above.	Can promote public transport priority and support commercial services. Can be enforced by bollards or ANPR cameras and therefore still allow for emergency services	Rising bollards can incur maintenance costs, as above. With ANPR only, the lack of a physical barrier means they can be ignored by some drivers. Ongoing operating costs also incurred and risk that they may not be fully covered by penalty fee income.	Suitability of overall scheme to the Traffic Penalty Tribunal needs to be considered.	Few bus routes through residential areas therefore unlikely to be necessary in some low traffic neighbourhood locations.
	Planters	As above. Potentially for temporary use or trial due to low cost.	Can be temporary and low cost, therefore good for trialling an idea. Opportunities for sustainable drainage.	When used only as a width restriction to a street, as in Enfield (Fox Lane), it was found that temporary planters did not reduce the traffic levels. Ongoing maintenance requirement, to which resources would need to be allocated (whether Council or community).	Signage/ reflective material may also be required to ensure clarity. Consideration of whether use is for width restrictions only, or modal filters (accompanied by TRO). Maintenance required – but should be adopted by community as part of the agreement.	Potentially additional street clutter changing historic street patterns of World Heritage Site, within Bath.

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Type of measure		Could be considered when…	Pros	Cons	Considerations	Other considerations specific to B&NES
	No-entry signs	As above.	Still enables access for emergency services / bus routes. Can be time specific	Possibility of being ignored by drivers.	Enforcement powers for traffic and moving offences are currently not available to B&NES, therefore the intervention may not be as successful. The Council only have powers to enforce no-entry restrictions when signed as a bus gate.	Potentially additional street clutter in the World Heritage Site, within Bath.
One-way streets		Area is being used as a cut through or a rat-run.	Reduce rat-running through residential areas. Can provide increased street space for public realm improvements or parking (including EV). Potentially less impact on local trips (compared to road closures).	Can increase traffic speed, with potential enforcement issues. Dependent on the existing street pattern, it may not provide substantial opportunities for public realm improvements. Likely seen as less cycle friendly than road closures.		Consider in conjunction with traffic calming / speed reduction features and contraflow cycling options.
Time-limited access restrictions	Time-limited signage enforcement	There is a need to restrict movements at specific times, e.g. in peak periods	Reduce traffic at busy pedestrian periods. Potentially less hindrance to local trips than full closures	This does not offer all day / area wide advantages and therefore may not offer public realm improvements or social enhancements. May be ignored. Potential confusion for drivers. Potentially confusing for residents.	Enforcement powers for traffic and moving offences are currently not available to B&NES, therefore the intervention may not be as successful. Current legislation only enables the Council to enforce access restrictions that provide an exemption for buses.	Potentially additional street clutter in the World Heritage Site, within Bath.
	School streets	There is a need to restrict movements at specific times, in relation to the school run.	Could be implemented through bollards which, for school streets, schools could raise themselves. This may be easier to gather support for. Can be done with under TRO with no physical barrier, just signage and vehicle ban enforcement (by police) within restricted zone.	If bollards are proposed, there may be issues over maintenance and ongoing costs. Can potentially slow emergency access. TRO and vehicle ban requires enforcement by police, with resources potentially not available.	Birmingham have recently implemented signage and a vehicle ban reinforced with a £50 fine for driving in the restricted zone. It is currently being trialled via an ETO with proposals for enforcement by the police.	Would add to the continued efforts of B&NES reducing traffic and air pollution around schools.

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Type of measure		Could be considered when…	Pros	Cons	Considerations	Other considerations specific to B&NES
Width restrictions		For residential areas used by large volumes of HGVs	Potentially easier to gain public support for intervention (compared to closures or one-way). Street narrowing can provide opportunities for public realm improvements.	Often don't deliver a broader range of benefits, in terms of traffic reduction. Traffic may remain too high for children to play out and traffic speeds may not decrease significantly on such roads.	Width must retain access for emergency service and refuse vehicles etc. Can only be enforced by police.	Have been implemented in residential areas of B&NES although initial feedback indicate enforcement is required for success.
Traffic calming / Speed limit reduction	Speed humps / tables / cushions	In residential areas where traffic regularly exceeds 20 mph.	Sinusoidal speed humps are cycle friendly. Speed tables are beneficial for bus routes as reduces the impact on passengers. Speed cushions can be straddled by vehicles with wider wheelbases, such as emergency vehicles so there is little deflection.	Sinusoidal speed humps may create delays for emergency services, if not installed correctly. Speed tables does not always have the desired impact for vehicle and can create noise and vibration issues. Can be costly to install and maintain. Speed cushions could encourage vehicles to swerve to avoid them which puts other road uses, such as cyclists, at risk.	Generally not favoured by bus operators if provided on bus routes. Speed humps should be no less than 100m intervals, more ideally at 150m intervals. Could be appropriate to introduce waiting restrictions alongside as parked cars could result in issues on narrow streets.	
	Wide car parking spaces	In areas where speed humps / tables / cushion creates access issues such as near to cross roads.	Will visually narrow the road reducing speeds along the road.	Provide risk for cyclists if narrow road widths result in over taking closely to cyclists.	These were implemented successfully in Enfield (Fernleigh Road).	This may require revisions to any TROs for existing residents' parking schemes. This could also provide opportunities for the provision of on-street electric vehicle charging infrastructure.
	Traffic islands	In residential areas were traffic regularly exceeds 20 mph.	Provide informal crossing points for pedestrians or protects space for right turning vehicles.	Provide risk for cyclists if narrow road widths result in overtaking closely to cyclists.	Traffic islands can be seen to be reinforcing the message of car dominance within modal hierarchy	
	Junction build-out	Crossings across minor roads at their junction with through roads around periphery of scheme.	Can slow vehicle speed thought tighter geometry. Advantageous for pedestrians as reduce the space that pedestrians have to cross.		Impact of the junction build out on speed, flows and accidents varies based on design.	

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Type of measure		Could be considered when…	Pros	Cons	Considerations	Other considerations specific to B&NES
			Creates additional space for planting or cycle parking.			
Parking reductions / restrictions	Remove non-residential parking (paid or unpaid)	Shopper or commuter parking is drawing traffic to/through an area	Reduction in on-street parking by non-residents therefore reduction in circulating traffic seeking spaces.	Potential to increase parking on the outskirts of the residential parking zones. Requires enforcement.	Impact on Council budget of removal of pay & display parking.	Impact of parking on the edge of the clean air zone due to be implemented in Bath by the end of 2020. As a tourist city, parking provision is heavily sought after.
	Double yellow lines	Around junctions (for 5m) to improve sight lights	Improving pedestrian crossing by improving visibility	Reduces car parking spaces and requires enforcement.		
	Residents' Parking Zone	Within the low traffic neighbourhood area where no parking restrictions are in place. Existing residents' parking zones could be altered in terms of area, hours of operation, regulations (number of cars / household).	Reduction in non-residential parking therefore reduction in the circulating traffic. Encourages the consideration of alternative modes for short trips to an attractor in the location. A reduction in the number of parking spaces / number of cars per household could also contribute towards aims in the climate emergency.	Potential to increase parking pressures elsewhere. Potential for objections from local stakeholders and residents.	Should consider the local area in terms of attractors such as health centres, businesses and employment.	B&NES residents' parking scheme guidance should be followed in developing any new residents' parking zone.
Junction and crossings	Pedestrian/ cycling junctions	Joining cells with other cells across a main road.	Zebra style crossings prioritise pedestrians. Generally, for use in low speed areas.	Signalised crossings require consideration of the pedestrian and traffic volumes to ensure delay for users is reduced.	Where feasible this should include pedestrian and cyclist crossing, possibly in the form of include tiger crossings, parallel signalised crossings rather than shared crossings. Signalised crossings are more expensive to maintain than zebra crossings.	These could be used to link low traffic cells with B&NES' wider movement strategy highlighting walking routes across the city. Crossings should ensure that they are not obstructive with the streetscape.

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Type of measure		Could be considered when…	Pros	Cons	Considerations	Other considerations specific to B&NES
	Blended / "Copenhagen" crossings	At side streets on the edge of a low traffic neighbourhood.	Reinforce pedestrian / cyclist priorities and the boundary to a low traffic neighbourhood.	Consideration for the visually impaired or those with children as the pavement is emphasised over the road.	Should be considered were vehicle speeds are low.	Blended crossings, in accordance with the B&NES Streetscape Manual, are preferable as are less obstructive to the streetscape.
Public realm improvements	Reimagining the road space	In low traffic and low speed environments around key attractors (shops) or as a gateway to residential areas	Environmental and public realm improvements	Less successful in areas of high traffic volumes. Consideration for those with visual impairments, particularly the installation of guides such as delineations.	Should be implemented alongside other measures such as speed reductions and possibly traffic reducing schemes as traffic volume should not exceed 3-4000 vehicles per 24 hours[31].	Consideration of materials within Conservation Areas
	Pocket parklets	In low traffic and low speed environments In conjunction with modal filters and road space reallocation (on-street parking space)	Small green spaces to improvement public realm and community cohesion Provide free spaces for communities, somewhere to sit, chat and relax	Potential only to be used in conjunction with other traffic and speed measures, as traffic may still be too high for people to sit out or children to play	Both temporary or permanent applications. Implemented in Hackney, Stockport and Dalston[32] Likely to require a TRO amendment if provided in a road with an existing residents' parking scheme.	Consideration of materials within Conservation Areas
	Tree-planting, soft landscaping	When additional space is unlocked for example, through modal filters.	Improve drainage, biodiversity and green infrastructure in the scheme area. Additional benefits for carbon off-setting.	Little impact on reducing traffic as a single option. Ongoing maintenance requirement, to which resources would need to be allocated (whether Council or community).	Popular for use in low traffic neighbourhood schemes as a complementary measure. Community Charter to outline responsibilities of ongoing maintenance.	Consideration of materials within Conservation Areas

[31] https://cyclingsolutions.info/shared-space/
[32] https://www.livingstreets.org.uk/media/4590/parklets_tool_kit.pdf

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Type of measure		Could be considered when…	Pros	Cons	Considerations	Other considerations specific to B&NES
Electric vehicle charging points		Additional space is enabled to facilitate appropriate locations for on-street electric vehicle charging implementation.	Environmental benefits from encouraging and facilitating the uptake of electric vehicles,	May not reduce overall traffic with a neighbourhood.		Increasing uptake of electric vehicles and reducing vehicle miles in combustion engines is part of the aspirations for B&NES. Implementation of on-street charging should be in line with B&NES policy.
Cycle infrastructure	Cycle parking	On-street, within pocket parklets, on shopping streets	Encourages cycling to local amenities which contributes to a reduction in vehicles.	Cycle parking requires space which could be gained through a reduction of road space (i.e. on-street parking spaces) or where sufficient footway is available as to not impact pedestrians, i.e. locations such as build-outs or modal filters.	Cycle parking should be in secure, well-lit areas. Consideration of e-bike specific requirements is required. Management process for allocation of spaces in secure parking including costs and ongoing maintenance of the parking facility e.g. cycle hangar Ensure parking is designed so that it does not affect ability to sweep the street or attract litter.	In accordance with the Streetscape Manual, cycle racks should be the Sheffield design. It is noted that where appropriate, bespoke designs are encouraged. Cycle parking should be considered in B&NES as it is possible that due to the high number of flats, there is limited personal cycle storage.
	Cycle lanes	Segregated cycle lanes should be considered on main road with higher volumes of traffic and on routes to schools. The appropriateness of non-segregated cycle lanes on quieter roads should be considered.	Segregated, continuous cycle lanes encourages uptake of cycling across a range of users and increases safety.	Segregated cycle lane requires additional space. This should not compromise pedestrian space.	Successful when reducing vehicle turning movements which cross the cycle lanes. Therefore, continuity of cycle infrastructure can be improved by modal filters. Likely to require reallocation of parking spaces or traffic lane to accommodate a cycle way. Maintenance options need to be defined, in terms of resources, scheduling and equipment requirements.	
Play Streets		Using temporary road closures	A low-cost way of reducing traffic temporarily to enable community benefits.	Little long-term benefits in reducing neighbourhood traffic.	A community-led initiative. Adults on the street, such as local parents, allow street residents to drive	

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Type of measure	Could be considered when…	Pros	Cons	Considerations	Other considerations specific to B&NES
				to and from their homes at walking pace, while re-directing through-traffic.	

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Appendix C. Low traffic neighbourhood case studies and best practice

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Appendix D. Low traffic neighbourhood request proforma template

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