BIRMINGHAM CONNECTED

MOVING OUR CITY FORWARD

BIRMINGHAM MOBILITY ACTION PLAN

TECHNICAL WORK PACKAGE 1
ROAD SPACE ALLOCATION
NOVEMBER 2014

Birmingham City Council

Quality Management

Issue/revision	Issue 1	Revision 1	Revision 2	Revision 3
Remarks	Draft Final Report	Final Report		
Date	9th September 2014	6th November 2014		
Prepared by (Company)	Matt Croucher (Parsons Brinckerhoff)	Matt Croucher (Parsons Brinckerhoff)		
Signature				
Checked by (Company)	Himanshu Budhiraja (Parsons Brinckerhoff)	Himanshu Budhiraja (Parsons Brinckerhoff)		
Signature				
Authorised by (Company)	Himanshu Budhiraja (Parsons Brinckerhoff)	Himanshu Budhiraja (Parsons Brinckerhoff)		
Signature				

BIRMINGHAM MOBILITY ACTION PLAN – TECHNICAL STUDY GROUP REPORT

Birmingham Connected Package One – Road Space Allocation

06/11/2014

Client

Birmingham City Council
1 Lancaster Circus
Queensway
Birmingham
B4 7DQ

Lead Consultant Authors

Himanshu Budhiraja
Parsons Brinckerhoff
Tel: 0121 452 7496
Email: himanshu.budhiraja@pbworld.com

Matt Croucher,
Parsons Brinckerhoff
Tel: 0148 352 8918
Email: matt.croucher@pbworld.com,

Technical Advisor

Professor Peter Jones
Centre for Transport Studies, University College London
Email: peter.jones@ucl.ac.uk

Table of Contents

Executive Summary

Background

This report summarises the development of a framework to guide how road space should be allocated in Birmingham. This framework will guide the delivery of the vision set out in the Birmingham Mobility Action Plan (Birmingham Connected).

The BMAP Green Paper made the case for a radical re-think of transport provision, and puts forward the case to fundamentally re-imagine how the road space is used across the City.

This study goes on to inform the final White Paper on the Birmingham Mobility Action Plan (Birmingham Connected), which identifies priorities for investment in transport in Birmingham for the next 20 years.

Approach

Our approach has been to develop a bespoke link and place framework for Birmingham. The principle behind Link and Place is to account for the competing needs of street users, recognising a streets function as both a link – a road or path where users pass through – and as a place – a destination in its own right. This approach offers a proven technique for reassigning road space between competing uses, with a greater emphasis on the functions of place and people.

A data gathering and review exercise was undertaken to establish the availability of datasets to inform a Link and Place classification of the network.

Using mapping software the dataset was mapped as layers, and filters applied to assemble each of the Link and Place types.

A process was developed for applying the link and place framework, and a number of case studies at sites across the City were considered to test the process. Through this process some core principles were developed as to how the framework might be applied in practical terms, so that each street may best achieve the requirements of the people using it, and the wider aspirations of Birmingham Connected.

Street Classification

Following the review of the transport network a **five-by-five Link and Place matrix** was developed. The matrix comprises of the following:

- 5 Link statuses: 1 – Core Network, 2 – Primary Multi-modal Link, 3 – District Multi-modal Link, 4 – Local Multi-modal Link, 5 – Local Access; and
- 5 Place statuses: A –National/ city region level, B – Sub-regional level, C - District level, D - Neighbourhood level, E - Local Level.

As well as the core Link and Place classifications, it is also necessary to define some parameters for areas that do not fall within these place categories, including Off-Network Sites, such as out of town shopping centres and industrial estates, and Interchange sites such as rail stations.

The anticipated future network– incorporating proposals for the public transport network, freight network, cycling revolution routes and new interchanges was also classified.

User Group Requirements

The requirements of different street user groups (bus users, cyclists, freight operators etc.); their street activities (driving, parking, boarding-alighting, window shopping etc.); and their associated street design needs (i.e. width of a bus lane, area of a cycle stand) were identified by practitioners. Design requirements, both minimum and desirable, were recorded to identify road space needed.

Roadspace Allocation Methodology

The bespoke Link and Place framework developed for Birmingham Connected requires planners and highway designers to follow three broad steps when considering how roadspace should be allocated:

- **Step 1 – Consider Street Classification**: identify the link and place functions of the street section;

- **Step 2 – Consider User Groups' Requirements within Local Conditions/Context**: determine existing and planned future requirements of the local street section; and
- **Step 3 – Meeting the User Requirements**: allocate roadspace in accordance to the notional user hierarchy and the priority link and place user requirements.

The final step is to set out all of the user requirements for the selected street section, and take, as a starting point, the idealised or desirable design requirement for each.

If there is sufficient roadspace for all the desirable lane designations and street furniture - no further guidance is required.

However in reality the way street patterns and road networks have evolved in Birmingham, and much of the UK, is seldom conducive to the multi-faceted demands of contemporary society. So in all other cases **the Link and Place guidance serves to adjudicate between competing user requirements** – to best achieve the wider objectives of Birmingham Connected.

If the minimum design requirements for each competing user requirement cannot be accommodated, the broad options open to the design team are:

- **Share the space –** deploy schemes or measures to enable scarce street space to fulfil multiple user requirements;
- **Allocate the space by time** – utilise measures to enable roadspace to fulfil multiple user requirements by time of day;
- **Direction based allocation** – use innovative measures to reallocate capacity to tidal flows of traffic, public transport or active travel; or
- **Prioritising Key Users where all-inclusive solutions cannot be found –** where no design solution can be found to accommodate all user requirements, a strategic decision might be taken to review and revisit the Link or Place classification, perhaps as part of a wider initiative such as a regeneration scheme or a by-pass.

If the design options for a particular site cannot accommodate the minimum standards, one or more of the user requirements (e.g. a cycle route, Sprint route, parking) will have to be reassigned/relocated.

The process to determine which modes have priority on that particular street section should take into account several factors, including the Notional Link and Place User hierarchies, and the feasibility of shifting provision.

At this stage it is critical that user requirements are prioritised consistently with the wider aspirations of Birmingham Connected. At the heart of the Birmingham Connected vision is an integrated mass transit network of Tram, Metro and BRT routes, underpinned by a complementary bus network. For this vision to become a reality and bring about real change, it is fundamental that the integrated mass transit network is delivered completely and coherently - as such public transport has been prioritised wherever a route has been proposed.

Case Studies

Case studies were undertaken to road-test the Link and Place framework within different street environments across Birmingham.

Roadspace Allocation Guidance

Through applying this Link and Place framework in the case studies, a set of guiding principles for reallocating roadspace for each street type have been established. The outcome of this process is to guide the prioritisation of user requirements, which are translated into physical roadspace allocations through the re-design of street layouts, and the application of suitable transport schemes, initiatives and urban design elements.

Assessing Street Performance

This study also provides some initial thoughts around a balanced approach to assessing street performance, based on some typical link and place themes and indicative performance indicators.

In summary the study sets out the overall guidance that will underpin issues identification, options development and scheme design across Birmingham. When prioritising schemes, it is vital to account for a scheme's ability to contribute to the wider Birmingham Connected vision and objectives. This study provides a logical approach to successfully achieve this.

1 Background

1.1 Introduction

Birmingham City Council (BCC) has commissioned Parsons Brinkerhoff (PB) to undertake the technical work related to Road Space Allocation Workstream (Package 1) of (Birmingham Connected). This work along with outputs from other technical workstreams will inform the final White Paper BMAP, an action plan for urban mobility, which identifies priorities for public and private investment in transport infrastructure in Birmingham for the next 20 years.

This report summarises the findings and approach of the technical work undertaken to develop an overarching framework to guide how road space should be optimally allocated in Birmingham; accounting for the competing needs of most, if not all, road users to achieve maximum benefits.

This work provides a logical basis for understanding the trade-offs in allocating road space between different user groups across Birmingham. It is envisaged that this work will provide a strategic framework for any future transport scheme development, and enable Birmingham City Council to prioritise these trade-offs, linking them back to the wider vision and objectives set out in Birmingham Connected.

1.2 Roadspace Allocation and Birmingham Connected

In June 2012, Council leaders set out a commitment to produce and publish an Action Plan for Urban Mobility (Birmingham Connected), which identified priorities for public and private investment in transport infrastructure in Birmingham, reflecting anticipated demand for travel in and around the city.

Birmingham Connected is a key element in laying the foundations for a prosperous city built on an inclusive economy (BCC Business Plan 2013+), based upon the Sustainable Urban Mobility Plan model promoted by the EU.

A Birmingham Mobility Action Plan Green Paper was produced following work which developed a baseline understanding of the city's transport system in terms of its strengths, weaknesses and pressures on current infrastructure. In addition, consideration was given to future land use planning and changes (particularly those relating to the city's housing requirements and need for employment sites), demographics, accessibility, the need for a socially inclusive city and public health.

The purpose of the Green Paper and the subsequent consultation exercise was to initiate discussion and debate on the future of Birmingham's transport system, and shape the concepts and ideas that will form the basis of the Council's transport vision and priorities for the next 20 years.

The Birmingham Mobility Action Plan (BMAP) Green Paper made the case for a radical re-think of transport provision, and puts forward the case to fundamentally re-imagine how the road space is used across the City. This has been widely endorsed and supported by extensive consultation.

The Link and Place approach offers a proven technique for reassigning road space relative to the primary function of the network as a conduit to travel or as a place to live, shop, visit or work.

This package of work will be central to the delivery of Birmingham Connected is ambitions and all other work packages, so it is essential that this strategic framework is robust and credible, and has the support of key stakeholders.

It has been essential that this package of work was developed in close collaboration with the supporting workstreams and with due consideration to other key policies, spatial plans and committed or proposed major transport schemes.

The Birmingham Development Plan, including the Big City Plan and the City Centre Vision for Movement have established a broad sense of direction that is largely consistent with planning for a sustainable future transport network, with a sizeable quantum of development focused in the city centre. The six Economic Zones are envisaged as being exemplars of sustainable transport – and should serve as an incarnation of the full set of principles outlined in the Link and Place concepts.

The initial £24.3 million of Government and local funding being invested into enhancing and delivering cycling infrastructure provides an excellent opportunity to deliver on some elements of the road-space reallocation agenda. The Link and Place framework will also serve as an effective method for establishing the parameters of the city-wide 20mph strategy. The Smart City initiative offers enormous scope for the future, particularly in terms of dynamic traffic management, integrating modes and information provision. The arrival of HS2, a redeveloped Birmingham New Street Gateway and the Midland Metro extension to New Street were also considered closely within the development of Link and Place framework, given their longer term bearing on movement within the city.

2 Our Approach

Our approach has been to develop a bespoke link and place framework for Birmingham, including a classification system which utilises available datasets for the City, user requirements and their associated design requirements.

A process was developed for applying the link and place framework, and a number of case studies at sites across the City were considered to test the process. Through this process some core principles were developed as to how the framework might be applied in practical terms, so that each street may best achieve the requirements of the people using it, and the wider aspirations of Birmingham Connected.

In addition to this, an attempt has been made towards defining some key indicators to assess how well a street is performing its relative link and place function. This and a number of additional steps were identified to further develop and refine this process going forwards.

The flow chart below (Figure 2.1) summarises our approach to applying the Link and Place Framework.

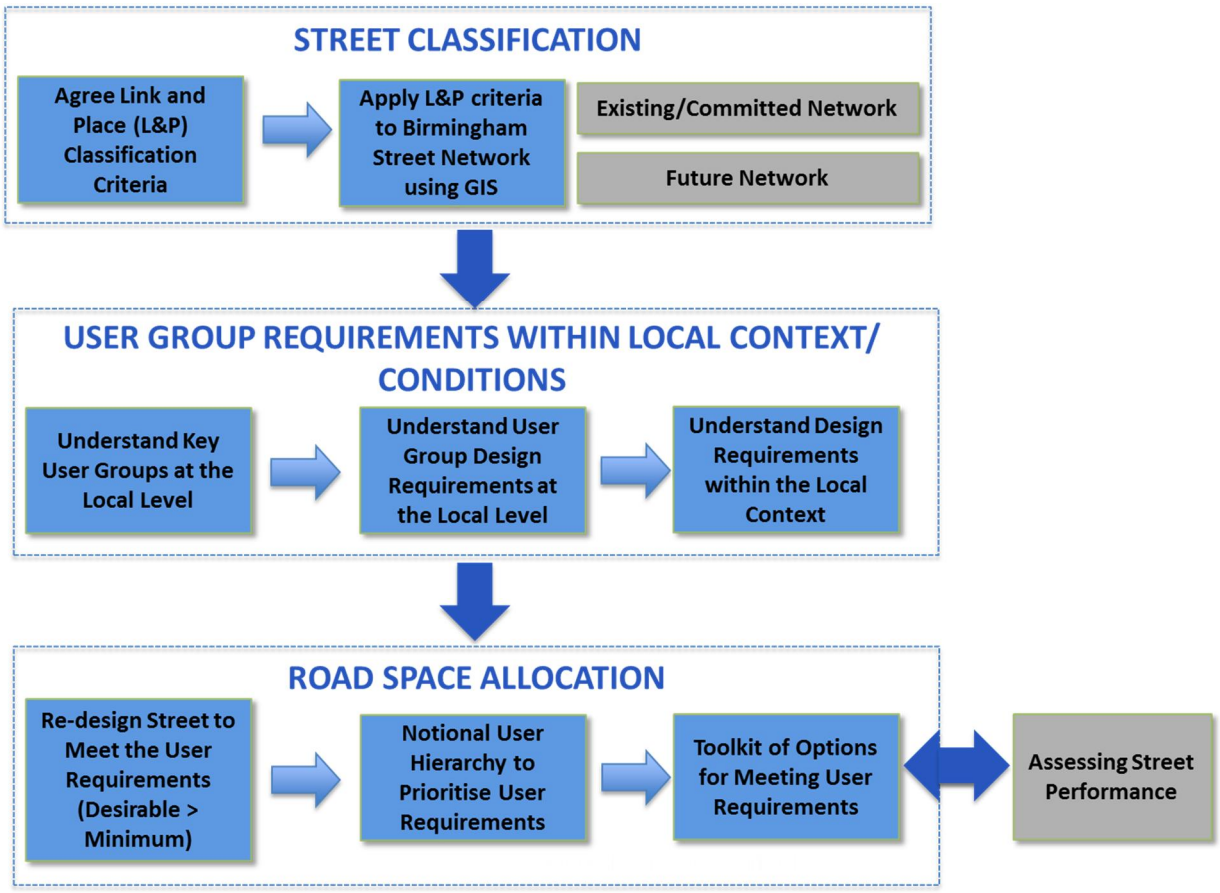


Figure 2.1 – Road Space Allocation Approach

In order to develop the Link & Place framework we took the following steps:

1.) Street Classification

We took the Route Management Strategies (RMS) previously developed by BCC and incorporated the principles of Link & Place as a starting point, reviewing and refining the existing Link & Place classification work, with particular focus given to strengthening the Place classifications.

We applied the classification and criteria to the key street network within Birmingham using GIS. This was undertaken for both the existing/committed network of links and places and the future network, in discussion with BCC and the other Birmingham Connected work packages.

2.) User Groups & Requirements

We worked with project partners to develop 'link and place' based user groups, their street activities and associated street design needs, in terms of desirable and minimum requirements for roadspace for each user requirement.

After a more generic understating of these, they were applied at the local level to inform the subsequent stages of this study in informing the Road Space Allocation principles, guidance and examples.

3.) Roadspace Allocation Process

A process was developed to enable practitioners to be able to apply the principles of the Link and Place framework in allocating roadspace. A step by step process was developed, with a notional user hierarchy for prioritising roadspace, and a toolkit of measures was developed. This involved the following key steps:

i. Road Space Allocation Case Studies

We developed a series of road space allocation typologies to deal with different combinations of the link and place at 10 sites across the City which were agreed through discussions with BCC and project partners. Design proposal were developed for each of the street sections to demonstrate the process and principles for achieving optimal road space allocation, including cross sections and longitudinal designs (over a length of street section) to showcase more complex principles or schemes.

ii. Roadspace Allocation Guidance

We drew out a number of guiding principles from our experience in applying the link and place framework in the case study examples, and reported these for each of the link and place types.

4.) Performance Assessment Criteria

As a part of our work, we have also developed indicative criteria to assess network performance based on a balanced view of link and place functions. This focused on deciding how to best measure street performance.

3 Street Classification

The approach to roadspace allocation promoted within this study is underpinned by an improved understanding of the competing needs of street users based on the principles of "Link" and "Place". *Link and Place: A Guide to Street Planning Design*[1] was published to provide a new tool for planning and designing streets, recognising both its function as a link – where users pass through – and as a place – somewhere that is a destination in its own right. Streets within the network have a differing balance between Link and Place status, which in turn shapes the priorities for individual parts of the network, reflecting the differing requirements of users.

The Link and Place concept was first devised by the University of Westminster's 'Arterial Streets Towards Sustainability' (ARTISTS) project and was further developed in the document "Link and Place: A Guide to Street Planning and Design" (Jones et al., 2007). Subsequently it was adopted by Transport for London (TfL) as well as some London Boroughs such as Hounslow.

Different parts of the network have a different balance between Link and Place status. For any given city or road network, the Link and Place concept can be expressed as a matrix relating the through movement importance with the destination importance. The size of the link place matrix depends on the size of the city/town and the diversity of the road network.

It was therefore considered vital to establish street classification criteria applicable for Birmingham and then apply it to both the existing/committed and future street network for Birmingham City.

A data gathering and review exercise was undertaken with the assistance of Birmingham City Council and other partners, to establish the availability of datasets to inform a Link and Place classification of the network. Using the overall principles of link and place and experience of its application elsewhere in UK, including TfL's Road Task Force and Boroughs of London such as Hounslow, street classification in Birmingham was undertaken as summarised in the following section.

3.1 Matrices

Following the review of the transport network and relative scale of Birmingham a **five-by-five Link and Place matrix** was developed for considering Link and Place statuses.

3.2 Link Classification

The link classification criteria that were considered appropriate for Birmingham's network is based on the following:

- The Levels of General Traffic (reflected through **Strategic Road Network Classification**) formed the default classification criteria. The additional criteria are layered onto these as applicable.
- **Bus Routes/Frequency** – the presence of a bus route or frequent bus services on a link served to boost the link status or in other words upgrade a link hierarchy by a level. For instance if a Local Access Road (based on lower levels of General Traffic) has one bus route operating on it has been boosted up by one level of link hierarchy.
- **Cycle Routes** – the minimum designation for a link with a cycle route is a level 4-Local Multi-modal Link as opposed to a Level 5 - Local Access Link.

In addition to the Link classifications outlined above as being essential to informing the assessment of the network, a number of additional quantitative measures have been identified that would further refine these classifications, but where no readily available datasets are currently available. These are:

[1] Jones, P.; Boujenko, N.; and Marshall, S. (2009)

- **Freight Network** – There are currently no designated freight routes, but to ensure that the future proposals for strategic freight routes are duly considered this provision has been built into the categorisation rules.
- **Proposed/committed major transport schemes.**

Table 3.1 below outlines our proposed Link classifications for Birmingham, with illustrative examples of local roads/areas against each of the five Link statuses.

Table 3.1 - Link Classifications for Birmingham Street Network

Link Status	Defining Characteristics	Measurable Qualities and Boost Criteria	Illustrative Examples
1 – Core Network	Major national or regional route linking major urban centres	- HA's Core Network, A38(M) section	M6, M42, M5, A38(M)
2 – Primary Multi-modal Link	Major route within Birmingham, key strategic routes	- Strategic Route (2) - Some of Main Distributor (3a); - Bus Frequency (over 35 BpH)	Major radials and the Ring Road and the Outer Circle, Bristol Road (A38), Coventry Road (A45)
3 – District Multi-modal Link	Important cross city routes, key suburban routes	- Main Distributor (3a); - Bus Frequency (16-35 BpH)	Yardley Wood Road, Wheeleys Road
4 – Local Multi-modal Link	Local distributor roads linking district routes to local roads	- Secondary Distributor (3b) - Link Road Network (4a) - Bus Frequency (1-15 BpH) - Cycle Route	A453 College Road, Witton Road, Davey Road, Westminster Road,
5 – Local Access	Local access, routes with limited through function	- Local Access Road (4b)	Majority of the network

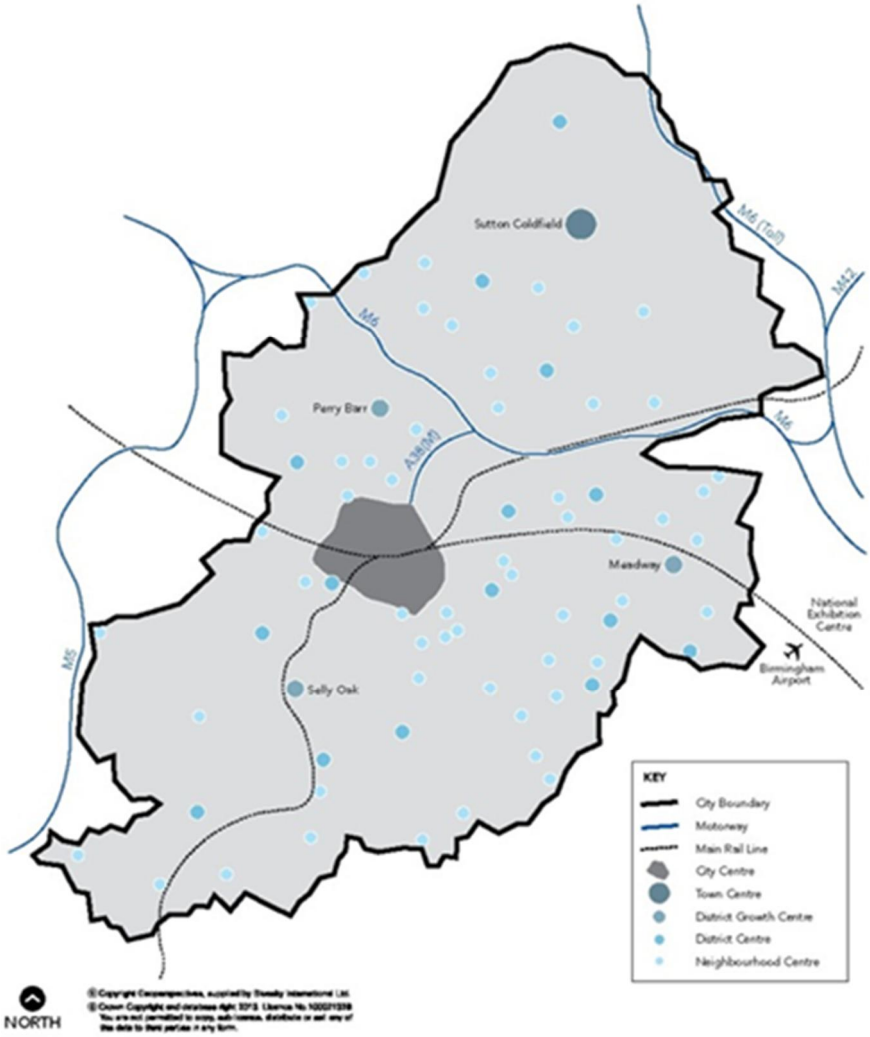
Note: Bus frequency figures refer to 2-way bus movements

3.3 Place Classification

Place data has been retrieved using the Birmingham Development Plan Proposal Map and other public sources which comprise of the following:

- The centre hierarchy established in the emerging Birmingham Development plan and the Shopping and Local Centres SPD – including city centre, sub-regional centre, district centre growth points, district centres and neighbourhood centres (Figure 3.1);
- The city centre is defined by the ring road and has been divided into two place categories, the inner core and the outer core, in order to align with the City Centre Transport Master Plan (CCTMP);
- Regional investment sites and employment areas;
- Education - universities, colleges, secondary and primary schools;
- Health – hospitals, GP surgeries;
- Major stadia;
- Parks/public spaces;
- Conservation Areas;
- Listed buildings;
- Scheduled Ancient Monuments; and
- Housing/Residential land uses.

Figure 3.1 - Hierarchy of Urban Centres in Birmingham



In addition to the Place classifications outlined above as being essential to informing the assessment of the city, a number of additional culturally significant uses have been identified that would further refine these classifications, but where no readily available datasets are currently available. These are:

- Religious buildings;
- Community centres;
- Museums, Galleries, Major Listed Buildings;
- Theatres; and
- Conference Centres.

The identified classification criteria are applied as follows:

- The **Planning Hierarchy for Local Centres** (i.e. City Centre, Regional Centre, District Centre). The City Centre area has been split into an Inner Core and Outer Core to be consistent with the CCTMP:
- The presence of **Key Public Buildings or Spaces** serve as boosts to the place classification for a buffer area around the site – i.e. a University, Stadium or Hospital in an otherwise anonymous suburb would boost the area around the site to Place level B from an E.
- A **Conservation Area, Listed Building** or **Scheduled Ancient Monument** is also treated as a boost to a minimum of Place level D. For instance if one end of a residential street was conservation area containing several listed buildings they would be boosted to Place D from E.

A more detailed literature review that was undertaken to inform place classification is presented in Appendix A of this report.

Table 3.2 outlines our proposed Place classifications for Birmingham, with illustrative examples of local roads/areas against each of the five Place statuses.

Table 3.2 - Place Classification for Birmingham Network

Place Status	Defining Characteristics	Measurable Qualities and Boost Criteria	Illustrative Examples
A –National/ city region level	Places with a catchment that spans the whole city or beyond, which generate high volumes of activity	City Centre Inner Core;	Birmingham City Centre Inner Core
B – Sub-regional level	Places with a catchment that extends over a sector or city quarter of Birmingham, that consist of predominantly town centre uses, or are designated growth areas	City Centre Outer Core; District Growth Areas; Regional centres; Regional investment sites (high quality employment sites); Sub-regional centre; District Growth Areas; Other district centres; Growth areas; Universities/large colleges (15m buffer); Hospitals (50m buffer); and Stadiums (15m buffer).	City Centre Outer Core, Sub-regional centre (Sutton Coldfield) and District Growth Points (Perry/ Bar/ Birchfield; Meadway; and Selly Oak);
C - District level	Streets/places that serve a role as a shopping area or commercial centre at a district level, neighbourhood areas with associated social and community infrastructure,	Shopping Parades, including small shopping high street centres less than 5,000 sq.; District Centres; GPs (50m buffer); Secondary schools (50m buffer); Large parks (10m buffer); Leisure Centres (50m buffer);	Acocks Green; King's Heath; and Stirchley
D - Neighbourhood level	Areas of local significance. A significant group of shops usually including one or more smaller food	Neighbourhood Centres; Primary schools (50m buffer);	Moseley; Wylde Green; Boldmere, Cotteridge; and Walmley

Place Status	Defining Characteristics	Measurable Qualities and Boost Criteria	Illustrative Examples
	stores	Conservation Areas; Listed buildings (10m buffer); Schedule Ancient Monuments (10m buffer); Small Parks /Amenity spaces (10m buffer);	
E - Local Level	Predominantly residential areas.	Existing residential; Housing development; Housing regeneration	Majority of the streets will fall in this category

3.4 Network Overlays

As well as the core Link and Place classifications, it is also necessary to define some parameters for additional network overlays to provide a holistic network wide classification. These overlays are to capture:

- Off-Network Sites; and
- Interchanges.

Off- network sites are referred to those sites which are important key trip attractors/generators but are located off the public highway network and so do not put any place-related demands on that network (e.g. they provide their own parking, and may be directly served by bus). Classification of these sites is important more in terms of their link-related impacts on nearby junction and network capacity. Table 3.3 below outlines the proposed Off-Network classifications for Birmingham.

Table 3.3 - Off Network Site Overlays

Overlay	Defining Characteristics	Measurable Qualities and Boost Criteria	Illustrative Examples
i. - Out of town retail/ industrial areas and business parks	Out of town centre retail and industrial estates	Core employment sites (industrial sites); Employment developments; Out of town shopping centres; Superstores; and Warehouse retail sites.	Fort Shopping Centre; Tyseley environmental enterprise district
ii. - Other Spaces	Unused, undeveloped, vacant spaces, wide verges, derelict land etc. Places that do not generate or attract activity or are affected by noise, pollution, etc.	Green belts; Unused/undeveloped land; and Vacant land, embankments alongside sections of motorways.	Blank frontages along sections of the A45 Small Heath Highway, or parts of the A38 south of Selly Oak

Interchanges are important to be classified to ensure that their user requirements are duly accounted for whilst developing Road space allocation options in an area. Table 3.4 below outlines the proposed interchange classification in Birmingham.

Table 3.4 - Interchange Overlays

Overlay	Defining Characteristics	Measurable Qualities and Boost Criteria	Illustrative Examples
i.- National/ City wide	Major city transport interchanges for international, national and regional connections	Major city interchanges, with annual passenger throughput in excess of 4m	New Street, Moor Street, Snow Hill
ii. - District level	Major bus/bus and bus/rail interchanges for travel within Birmingham and the local sub-region	Rail stations with over 500k passenger entries/exits per year, up to 4m; Rail stations with over 45,000 interchanges a year; Bus stops served by over 10 routes; and Metro stops with P+R.	Erdington, Five Ways, Longbridge, Kings Heath High Street Bus Interchanges
iii. - Neighbourhood level	Locally significant bus/bus and bus/rail interchange at local stations	Rail stations with less than 500k passenger entries/exits per annum; Metro stations; and Bus stops with between [5-9] routes.	Acocks Green, Tyseley, Jewellery Quarter

Note: Birmingham Airport would have identified as an Interchange level i (National/City wide), but has been excluded as it is outside the BCC boundary in Solihull District.

3.5 Link and Place Matrix for Birmingham

Following the process described in this chapter, the matrix presented in Figure 3.2 was developed for Birmingham.

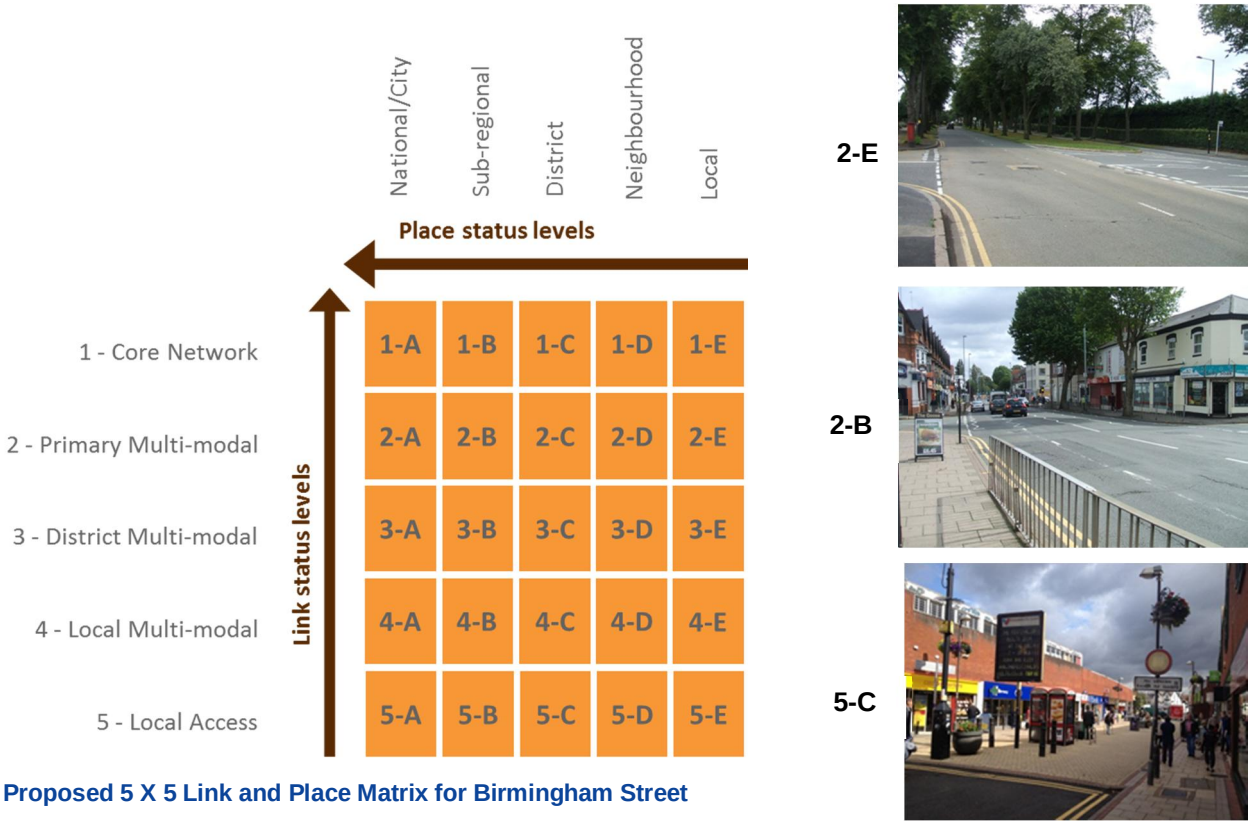


Figure 3.2 – Proposed 5 X 5 Link and Place Matrix for Birmingham Street Network

3.6 Applying Link and Place to the Network

Using GIS *(ESRI ArcGIS 10.1)* we collated the datasets described in the previous section as mapping layers, and applied filters to in-act the rules to assemble each of the Link and Place types.

See Appendix B for a city wide map of the Existing Link and Place network classification.

As well as mapping the link and place classifications for the existing conditions, in terms of the current transport network and place uses, an equivalent classification was undertaken for the future conditions – incorporating the future proposals for the public transport network, freight network, cycling revolution routes and new inter-changes.

The following additional rules were applied to future Link and Place classifications to reflect the proposed changes to the network:

Future PT network

- Proposed SPRINT, City-Link and Metro Extension routes (where on-street) are boosted to Link level 2 as a minimum.
- Proposed Park+Ride sites are Interchange level 3.
- Proposed new stations (from the Transport schemes proposals in the BDP) are to be added as Interchanges (also level 3).

Future Cycle network

- Proposed Cycle Revolution routes are to be boosted Link level 4 at a minimum, as per the existing boost for cycle routes.

Future Freight Network

- Proposed strategic freight routes to be boosted to Link level 2 at minimum.

Green Travel Districts (GTDs)

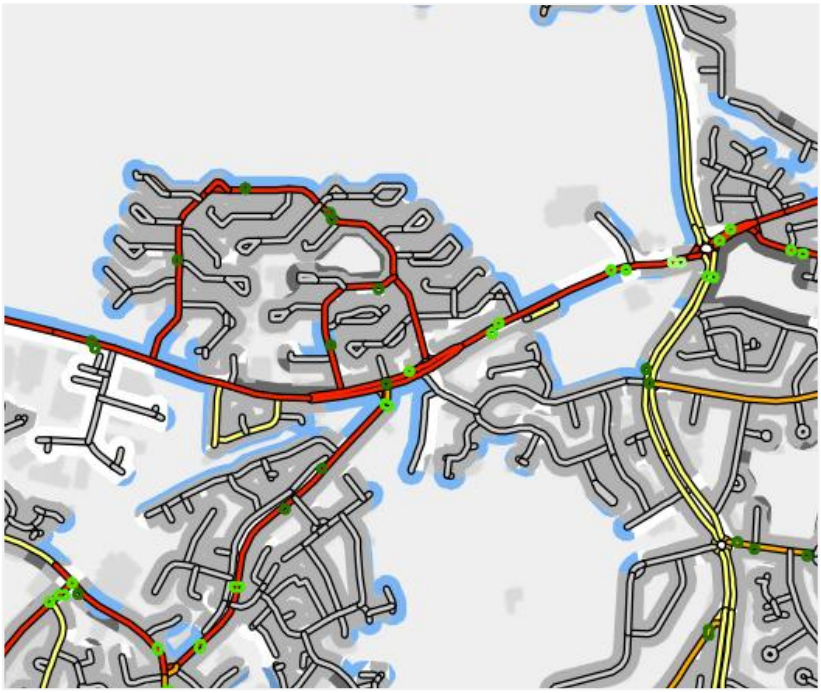
- Apply a boost to a minimum of Link level 4, as per the existing boost for cycle routes.

As an example Figure 3.3 shows sections of both the Existing and Future Link and Place mapping for a reference street network to demonstrate how the imposition of different link functions alters the mapping. In the example reported, the addition of a SPRINT route boosts the function link Level 3 (Orange section) to link Level 2 (Red sections).

The link and place mapping layers are provided to BCC as a part of the output from this task. For a complete view of the city, Appendix B also presents the city wide map of the future Link and Place network classification.

The Link and Place framework and associated mapping provide a lasting planning tool for Birmingham, which can be readily updated as new planning policies and transport proposals come forward. The public transport information can also be readily updated in the GIS software, to ensure the latest route alignments and frequencies are accounted for when classifying the network.

Existing Network



Future Network

Figure 3.3 – Examples of Street Classification Mapping

4 User Group Requirements

We have worked with project partners to understand 'link and place' based user groups; their street activities; and associated street design needs. Design requirements, both minimum and desirable, have enabled the development of the Road Space Allocation principles (refer to section 5.2 for details on Road Space Allocation).This has been complemented with our professional experience to fill in any gaps in the user groups' profile.

This information is then used to identify the requirements for road space allocation, to plan and design for different street users and their street activities, in the form of establishing an indicative level of priority for each user group, from priority to prohibition.

4.1 Link - Street User Groups

All Link Street user groups partake in similar activity, namely moving along the street, albeit on different modes of transport. The link street user groups therefore share many similar street provision requirements, with the difference, if any, being in the design requirements. An example illustrating this is can be that whilst both "car drivers" and "cyclists" as user groups need to travel along the street, their minimum and recommended design requirements vary. Car users need traffic running lane with design width requirement from 3.00-3.65m, which is different from the cycle lane width requirements of 1.2-1.8m.

The link street user groups and their street activities are summarised in no particular order, in Table 4.1 with further details provided in Appendix C.

Table 4.1 - Summary of Link Street User Group and Street Activities

Link Street User Group	Street Activities
Bus/City Link Users Car Users Taxi Users Powered T/W HGV/MGV/Van Drivers	Travelling along the Street (as a driver or a passenger)
*SPRINT users and operators	Travelling along the Street (as a driver or a passenger).
Cyclists	Cycling along the street
Pedestrians (Striders)	Walking along the Street
Wheelchairs, walking frame, walking stick users	Walking or wheeling along the street
Visually impaired people	Walking or wheeling along the street
Car Users with a disability	Travelling to parking

**Note: The SPRINT users are reported separately from other motorised vehicles in recognition of their unique link requirements, including a minimum proportion of the route being fully segregated, and some priority measures at most, if not all junctions.*

4.2 Place - Street User Groups

Place street user groups are more diverse in their composition and their user requirements than link street user groups. The broadest distinction can be made between vehicle based and foot-based user groups. For example, car user groups' requirement from a place is to park at the point of origin/destination, which is significantly different from the requirements of the pedestrian (strider) along a busy high street. The user requirement in the latter instance is around window shopping, waiting for/chatting to friends, comfort break and resting.

The place street user groups and their street activities are summarised in no particular order in Table 4.2, with further details provided in Appendix C.

Table 4.2 - Summary of Place Street User Group and Street Activities

Place Street User Group	Street Activities
Car Users Motorcyclists Cyclists	Parking
Bus/City Link/SPRINT Passengers	Waiting
Bus/City Link/SPRINT passengers	Access to Stops/stations
Bus/City Link/SPRINT passengers and Operators	Boarding/alighting
Park & Ride Passengers	Waiting (at P&R site)
Taxi Operator	Boarding/ alighting; waiting for passengers; resting
Taxi Passenger	Boarding/ alighting; waiting for taxi
Van Drivers	Loading/Unloading in retail/business centres
Van Drivers	Servicing/emergency repairs
Wheelchairs, walking frame, walking stick users	Window shopping; Queuing for services; Chatting to friends; Waiting for friends; Resting; and Comfort break/s
Visually impaired people	Queuing for services; Chatting to friends; Waiting for friends; Resting; and Comfort break/s
Car Users with a disability	Parking
Pedestrians (Striders/Strollers)	Window shopping; Queuing for services; Chatting to friends; Waiting for friends; Resting; and Comfort break/s

Appendix C presents the user groups by link and place as well as their street activities and design requirements to allow for these street activities in more detail. It also gives indicative measures of performance, wherever appropriate, to assess how effectively the link and place user requirements are met. More details on performance assessment can be referred to in Chapter 8 of this report.

5 Roadspace Allocation Methodology

The preceding chapters have set out the basis for determining a streets link and place classification; identifying the link and place based user groups and their requirements and how these requirements translate into a requirement for roadspace.

This chapter sets out the process to be followed when considering how roadspace should be allocated to best enable the street to fulfil the requirements of the link and place users – i.e. people, rather than cars, and places, as well as links.

The bespoke Link and Place framework developed for Birmingham Connected requires planners and highway designers to follow three broad steps when considering how roadspace should be allocated:

- **Step 1 – Consider Street Classification (Link and Place)**: identify the link and place functions of the street section;
- **Step 2 – Consider User Groups' Requirements within Local Conditions/Context**: determine existing and planned future requirements of the local street section; and
- **Step 3 – Meeting the User Requirements**: allocate roadspace in accordance to the notional user hierarchy and the priority link and place user requirements. If the minimum design requirements for competing user requirements cannot be accommodated, the options to the design team are to:
  - **Share the space –** deploy schemes or measures to enable scarce street space to fulfil multiple user requirements;
  - **Allocate the space by time** – utilise measures to enable roadspace to fulfil multiple user requirements by time of day;
  - **Direction based allocation** – use innovative measures to reallocate capacity to tidal flows of traffic, public transport or active travel; or
  - **Prioritising Key Users where all-inclusive solutions cannot be found –** where no design solution can be found to accommodate all user requirements, prioritise scarce roadspace according to the notional road user hierarchy, and apply a toolkit of schemes.

By following the process set out by the remainder of this chapter, the resultant designs for a particular street should be imbued with core principles of the link and place methodology, thus best enabling the wider delivery of the Birmingham Connected vision.

5.1 Step 1 – Street Classification (Link and Place Classification)

Using the latest Link and Place mapping for Birmingham, **identify the section of street** being considered, and **note its Link and Place classifications**.

A convenient means of undertaking this process is to use the Google Earth enabled Link and Place layers also developed as a part of this technical work package. Through this software it is possible to:

- identify the link and place classification (Figure 5.1);
- select the link and bring up a table of underlying information (Figure 5.3); and/or
- filter sections of the network based on user defined link and place classification (Figure 5.2).

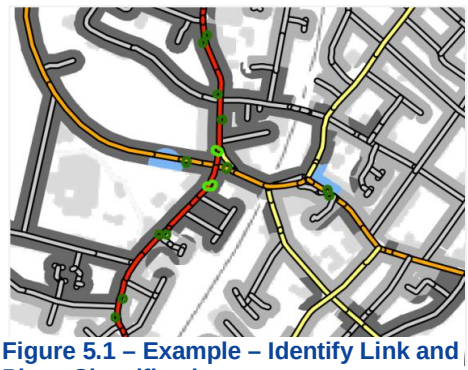


Figure 5.1 – Example – Identify Link and Place Classification

Figure 5.2 – Example –network sections as per user defined Link and Place Classification

Figure 5.3 – Example - understand underlying attribute data

Whilst the first two bullet points guide in understanding the user requirements and subsequent planning and design process, the latter can inform site selection or to assess what proportions of the street network falls within particular link or place categories. This information can provide useful contextual information for network planning and strategy development.

5.2 Step 2 – Consider User Group Requirements within Local Conditions/ Context

The next step is to record the specific attributes and requirements of the localised street section being taken through the process, with reference to the User Group Requirements and their associated Design Requirements set out in Chapter 4.

Whilst the Link and Place classifications undertaken in Step 1 provide a strategic level assessment of the street, the particular section of street being considered will be composed of a multitude of particular local conditions.

It is possible for there to be marked differences between two street sections which would both rightly be classified as having the same link and place level functions. For instance one may be a thriving and congested high street, served by lots of bus routes (e.g. Kings Heath, 2C). The other may be a lower density district centre with few alternatives to on-street parking in places, on a busy urban dual carriageway that also serves as a key freight corridor (e.g. Sheldon, 2C).

Table 5.1 – Example of a Checklist for Link and Place User Requirements within Local context

Place Requirements			Link Requirements		
	Pedestrain/ Cyclist Crossing Facilites			Sprint Route	
	Private Accesses - residential, commercial			CityLink Route	
	On-street Parking - Residents			Other Bus Route	
	On-street Parking - Retail			Strategic Freight Route	
	On-street Parking - Services			Weight restrictions	
	Disabled Bay				
	Car Club Bay			Height restrictions	
	EVCP Bay				
	On-street delivery/servicing			HGV restrictions	
	PT Interchange site (Bus Stop, Metro Stop)			Green Travel District	
	Taxi Rank				
	Mature Trees. Valuable Green Spaces			On-street Cycle route	
	Street Furniture - seating, signals boxes etc			Shared use cycle path	
	Schools/ Colleges/ Universities			Strategic Traffic Route	
	Hospitals/ Surgeries/ GPs			20 mph zone/restrictions	
	Street Markets / Event Spaces			Mature Trees, valuable green spaces	

In some cases it may be that a current user requirement can be, or must be, reallocated. For instance it might be possible to relocate some on-street parking onto nearby side-roads, or in an off-street car park.

However in other circumstances, the requirement is fixed and cannot be realistically removed e.g. private access to residential properties.

Table 5.1 provides an example of a simple checklist, in no particular order, of the more common localised requirements of the link or place function to be captured as part of step 2 to inform the subsequent roadspace allocation. Not all of these elements will be required on a particular street; and whilst this covers most instances, planners and designers may need to include additional requirements in this checklist depending on the local conditions and context.

This checklist serves as an important reference document at design stage, highlighting the

specific roles of the Link and Place. For instance, if it has been classified as a Link Level 2 because of high bus frequencies, and would otherwise have been a lower link level, the link user requirements and resultant design considerations would be geared towards bus reliability, rather than more generalised traffic improvements.

5.3 Step 3 – Meeting the User Requirements

The final and most challenging step is to set out all of the user requirements for the selected street section, and take, as a starting point, the idealised or desirable design requirement for each.

If there is sufficient roadspace to accommodate all the desirable lane designations and street furniture - and the layout of the roadspace is conducive to the particular design requirements – then no further guidance is required and the link and place qualities can be fully satisfied.

In reality the way street patterns and road networks have evolved in Birmingham, and much of the UK, over hundreds of years, it is seldom likely that they will be entirely conducive to the multi-faceted demands of contemporary society. So in all other cases the Link and Place guidance ultimately serves to guide and adjudicate between competing user requirements – so as to best achieve the Link and Place functions of the street, and ultimately the wider objectives of Birmingham Connected.

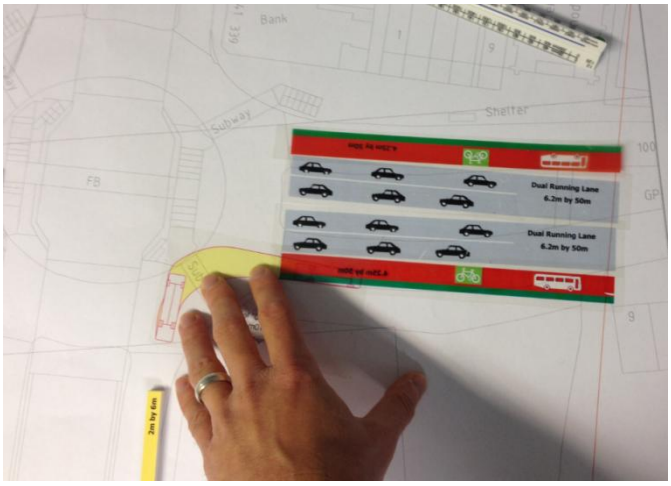


Figure 5.4 – Example of meeting user requirements in allocating road space

If there is insufficient space to accommodate the desirable widths, the minimum design requirements should be tested (Figure 5.4).

Table 5.2 provides a rationale for allocating roadspace between link and place, in circumstances where there is only sufficient width to accommodate some user requirements to desirable design levels, but others to only a minimum design level. This demonstrates an indicative approach for how space might be apportioned between link and place functions in an objective way to best fit the role of the street. In practice what is achievable in design terms within the available roadspace would need to be determined using professional judgement, mindful of the local conditions.

Table 5.2 – Guidance on Allocating Roadspace between Link and Place Users

		A	B	C	D	E
		National/City	Sub-regional	District	Neighbourhood	Local
1	HA Core Network	50% / 50%	66% / 33%	75% / 25%	85% / 15%	95% / 5%
2	Primary Multi-modal	33% / 66%	50% / 50%	66% / 33%	75% / 25%	85% / 15%
3	District Multi-modal	25% / 75%	33% / 66%	50% / 50%	66% / 33%	75% / 25%
4	Local Multi-modal	15% / 85%	25% / 75%	33% / 66%	50% / 50%	66% / 33%
5	Local Access	5% / 95%	15% / 85%	25% / 75%	33% / 66%	50% / 50%

If the minimum design requirements for each of the competing user requirements cannot be accommodated, the four broad options open to the design team are:

- **Share the space –** deploy schemes or measures to enable scarce street space to fulfil multiple user requirements (see Case Study E in Chapter 6);
- **Allocate the space by time** – utilise measures to enable roadspace to fulfil multiple user requirements by time of day (see references to sharing Bus Lanes with HGVs off-peak in Case Studies B, D & J in Chapter 6);

- **Direction based allocation** – use innovative measures to reallocate capacity to tidal flows of traffic, public transport or active travel; or
- **Prioritising Key Users where all-inclusive solutions cannot be found** – where no design solution can be found to accommodate all user requirements, prioritise scarce roadspace according to the notional road user hierarchy, and apply a toolkit of schemes.

Of these options, ideally the design team would devise a solution that enables competing users to freely share the space, therefore fulfilling all requirements .

If owing to design constraints that option does not prove possible, solutions which either seek to allocate the scarce roadspace by time of direction would enable the competing user requirements to be partially fulfilled, and should be prioritised according to the particular demands and constraints of the space.

The final resort is to then prioritise user requirements according to the notional road user hierarchy, accepting that lower order user requirements will need to be re-provided on an alternative street or location.

5.3.1 Share the space

In many circumstances with the appropriate design approach, a space can be shared effectively to fulfil multiple user requirements. Whilst shared space schemes can often make the headlines, many more low key but equally effective space sharing schemes can be deployed to good effect, such as on-footway loading bays, shared use cycle-paths, the shared use of dedicated traffic lanes between buses and taxis, buses and cyclists and buses and freight vehicles, though each requires careful consideration based on the specific design characteristics of a site. For instance shared use cycle path can pose issues to pedestrians in more confined spaces.

As an example of shared space, an on-footway loading bay is an effective means of catering for occasional delivery and servicing provision for shops, but can otherwise serve as an expanded area of the footway. On- footway loading bays are highly space efficient and also serve to improve the urban realm as compared to a conventional inset loading bay.

A shared use cycle path, where suitable, can provide a safer environment for cyclists where traffic flows; vehicle speeds and the available carriage widths make an on-street route unappealing.

5.3.2 Allocate the space by time

The application of time restrictions on link and place users is another means of optimising the use of scarce street space to best fulfil the requirements of competing users.

As an example in a busy high street or district centre environment, there is a fine balance to be achieved in enabling prospective place users to arrive by car, whilst not jeopardising the quality of the place to the extent that it discourages a correspondingly larger share of place users from visiting. Short stay parking is an effective means of sustaining convenient access and attracting passing trade, without necessitating large banks of on-street parking, with longer stay parking pushed to the edges.

Off-peak loading and unloading permits the necessary access for servicing local businesses, whilst encouraging loading outside of peak periods, when the demand for roadspace it at its most critical, thus better enabling public transport to operate more reliably. Whilst in some circumstances sections of bus lane can be operated flexibly to permit inter-peak or overnight parking, without detriment to the reliable operation of the wider bus network. It will be particularly critical that the SPRINT routes and their associated bus lanes enable services to fulfil their service requirements, and so the scope to enable parking or non-SPRINT bus bays within the bus lanes is likely to be more limited.

5.3.3 Direction based allocation

Dynamic traffic management measures, such as managed motorways schemes and other more advanced applications, provide a glimpse of how increasingly sophisticated IT solutions can be utilised in the context of a street to more effectively share roadspace. The most obvious application of directionally based roadspace allocation would be to shift the available capacity in line with the tidal nature of many travel patterns, for instance inbound to a City Centre in the AM peak and outbound in the PM peak.

Reversible lanes are commonly deployed on tolled bridges or tunnels, where the access to lanes can be tightly regulated. In an urban environment such as Birmingham, perhaps the most tangible application for a reversible lane scheme would be a on a three lane high street, where a single dedicated bus lane can be accommodated, and so could be switched to serve the dominant tidal flow, though this would require stops on either side of the central lane and adequate crossing facilities, which places quite particular demands on the availability of periodic wider sections along the route. Another such example of a three lane street section which could benefit from potential direction based allocation could be the section of A5127 between Salford Circus and Six Ways Roundabout in Erdington, though further detailed consideration of how cycling could be accommodated would be required.

5.3.4 Prioritising Key Users where all-inclusive solutions cannot be found

If having tested the design options to accommodate the minimum standards, and approaches to sharing space by users, time or direction of travel, it has not been possible to satisfactorily accommodate all user requirements, clearly one or more of the user requirements will have to be reassigned onto an alternative street or an adjacent place in the proximity of the street section.

The process to determine which modes have priority on that particular street section, and whether others could be shifted elsewhere, should take into account several factors, including:

- Position in the notional 'Link and Place User hierarchies'; and
- Feasibility of shifting provision to a parallel route in the corridor, or an alternative place.

At this stage it is critical to ensure that the means by which user requirements are prioritised is consistent with delivering the wider aspirations of Birmingham Connected.

The Birmingham Connected vision for an integrated transport system is shown in Figure 5.5. At the heart of the vision is an integrated mass transit network of Tram, Metro and BRT routes, underpinned by a complementary bus network. For this vision to become a reality and bring about real change, it is fundamental that the network is delivered completely and coherently - as such public transport has been prioritised wherever a route has been proposed. For instance if a street has been identified as a SPRINT or City-Link corridor, public transport requirements are

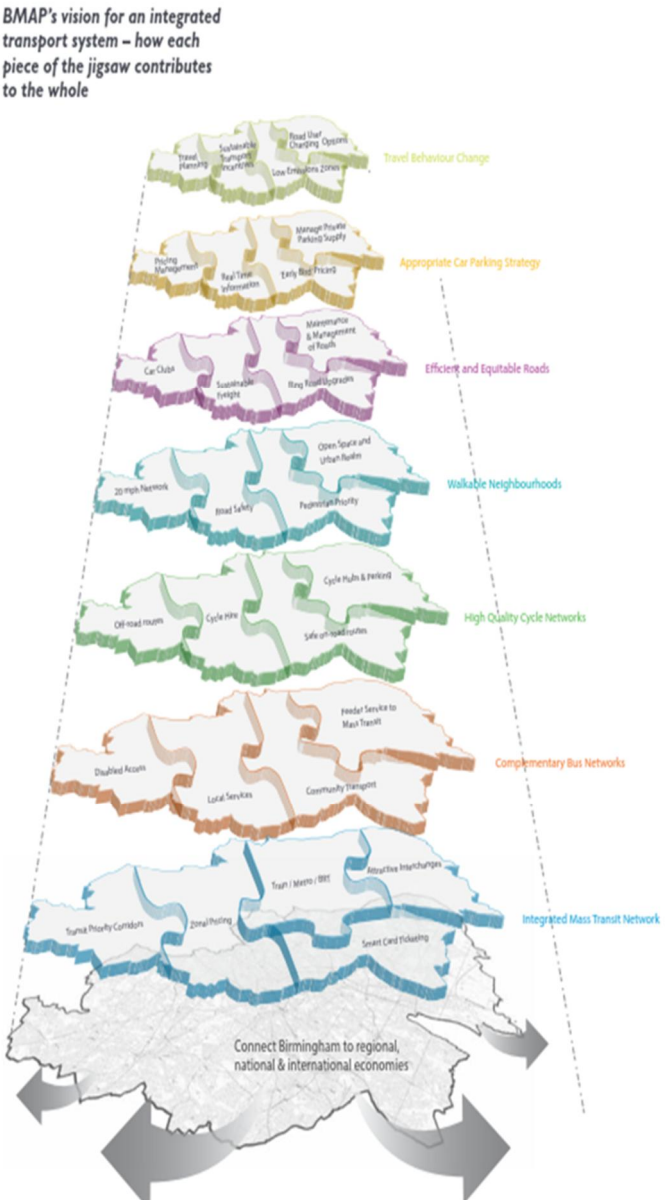


Figure 5.5 – Birmingham Connected Vision

prioritised to fulfil at least the minimum requirements to make the network viable.

See Appendix D for a further assessment of how the wider strategic objectives of Birmingham Connected align with different roadspace allocation themes.

Based on the vision set out in Birmingham Connected a **Notional User Hierarchy** was determined for each Link and Place type as presented in Table 5.3. Please be aware that there are no specific street design implications for Off- Network places as they do not impose any place-related demands on the network (e.g. they provide their own parking, and may be directly served by buses).

Whilst these specific hierarchies have been derived from Birmingham Connected, which was consulted on extensively, further consultation would be desirable now their implications can be considered in practical terms, as explored by the case studies in Chapter 6.

Table 5.3 - Notional User Hierarchies by Link and Place Classification

Notional Link User Hierarchy	
Link Level	**Notional User Hierarchy (from highest to lowest) by Link Level**
1	Car drivers, HGVs, MGVs, LGVs, buses/coaches
2	Metro, BRT, Buses, Taxis, Car drivers, LGVs, HGVs/MGVs, Cyclists, Pedestrians
3	Metro, BRT, Buses, Pedestrians, Cyclists, Car drivers/Taxis, LGVs, HGVs/MGVs
4	Pedestrians, Cyclists, Buses[1], HGVs /MGVs, Car drivers/Taxis, LGVs (*No Metros or BRT on Link level 4-5)*
5	Pedestrians, Cyclists, Car drivers/Taxis, LGVs, MGVs, HGVs[1] (*No PT on Link level 5)*

Notional Interchange User Hierarchy	
Interchange Level	**Notional User Hierarchy (from highest to lowest) by Interchange Level**
i	Metro, BRT, Buses, Pedestrians, Cyclists, Taxis, Car drivers
ii	Metro, BRT, Buses, Pedestrians, Cyclists, Taxis, Car drivers
iii	BRT, Buses, Pedestrians, Cyclists, Taxis, Car drivers

Notional Place User Requirements Hierarchy	
Place Level	**Notional User Hierarchy (from highest to lowest) by Place Level**
A	Pedestrians using the place, not travelling (i.e. window shopping, talking with friends), PT Waiting, Boarding and Alighting, Freight Loading/Unloading, Blue badge parking, Cycle Parking, PT Layover, Car Parking
B	Pedestrians using the place, not travelling (i.e. window shopping, talking with friends), Pedestrians Resting, PT Waiting, Boarding and Alighting, Blue badge parking, Freight Loading/Unloading, Cycle Parking, PT Layover, Car Parking
C	Pedestrians using the place, not travelling (i.e. window shopping, talking with friends), PT Waiting, Boarding and Alighting, Pedestrians Resting, Blue badge parking, Freight Loading/Unloading, Cycle Parking, PT Layover, Car Parking
D	PT Waiting, Boarding and Alighting, Car Parking, Cycle Parking, Pedestrians Resting, Pedestrians using the place, not travelling (i.e. window shopping, talking with friends), Freight Loading/Unloading, PT Layover
E	Car Parking, Pedestrians Resting, Freight Loading/Unloading, Pedestrians using the place, not travelling (i.e. talking with friends)

Note: BRT = Bus Rapid Transit; PT= Public Transport;LGV = Light Goods Vehicles; MGV = Medium Goods Vehicles; HGV = Heavy Goods Vehicles

The notional user hierarchies provide a framework to guide which user requirements and their associated design requirements (see Chapter 4, and Appendix D) are prioritised in a given environment.

As with Table 5.2 (allocating Roadspace between user requirements), the intention is not that these hierarchies are applied rigidly but rather serve as a guide to inform the nature of designs.

In practice what is achievable in design terms within the available roadspace would need to be determined using professional judgement, mindful of the local conditions, such as:

- **Feasibility of shifting provision to a parallel route** in the corridor (e.g. operational constraints, downstream obstacles or barriers, the need for public transport to directly link major trip attractors along a route);
- **Place types** and the extent to which user functions are fixed within a place, movable or in any way changeable, and whether there are key growth plans or aspiration; and
- Requirements to maintain **'access'** to local properties by delivery vehicles, taxis, etc. – without them necessarily being able to use the full street section as a Link.

The means by which the notional user hierarchies are translated into physical roadspace allocations is through the re-design of street layout and the application of suitable transport schemes, initiatives and urban design elements. This is delivered through a tool kit of measures as summarised in the following section.

Tool-kit of Options

A wide ranging toolkit of measures can be called upon to deliver the principles for roadspace reallocation, many of which contribute to accommodating multiple user groups' requirements, some examples of which are listed below, though these are by no means intending to be definitive:

Traffic Management

- Lane removal
- One-way operation
- Road closures
- Junction rationalisation
- Banned right turns
- Congestion charging zones
- Additional traffic lanes
- Dynamic lane assignment – ITS
- Re-routing traffic/ freight/ cyclists/ PT

Traffic calming

- Speed humps, speed cushions
- Raised tables
- Gateway treatment
- Chicanes
- 20mph zones/ speed limits
- Banding of setts to slow vehicles

Pedestrian Environment

- New crossings
- Raised crossings
- At-grade crossings
- Count-down timers
- Build-outs - reduce crossing distances, slow vehicles, frame parking
- Footway expansion
- Median crossing strips
- DDA Compliance - dropped kerbs, tactile paving

Parking Management

- Discourage undesirable parking – bollards, street furniture
- Parking bay relocation – side roads
- Parking regime changes - short stay parking etc.
- Priority parking/dedicated bays - EVs, Car Sharing Bays, Car Clubs
- Removal of unrestricted parking

Urban Realm

- Footway widening
- Surfacing improvements, quality materials
- De-cluttering and guard rail rationalisation
- Improved street furniture: seating, direction signing, etc.
- Introduction of street trees, planters, street art
- Creation of public spaces, squares, parks
- Streetscene re-design to frame character buildings

Freight Management

- On-footway loading bays
- Freight friends schemes
- Traffic Management measures/ restrictions to prevent HGVs through routing
- Freight Priority measures at lights
- Relocation of loading bays onto side roads

Public Transport Management and Priority Measures

- Bus lanes
- Bus gates
- Bus-Only sections
- Bus priority
- Sprint – 3m lanes, large super stops (15x3m)

Emissions Reduction Measures

- Low emission Zones
- Zero emission zones
- Low noise surfaces

Cycle Infrastructure

- Dedicated cycle lanes
- Removal of cycle pinch points, minimising deflections
- Cycle hubs
- Cycle lanes with floating bus stops
- Island protected junctions
- Cycle contra-flow lanes
- Advance Stop Lines

If the options listed in sections 5.3.1 to 5.3.4 prove in-effective, a strategic decision might be taken to **downgrade either the Link or Place classification**, perhaps as part of a wider initiative such as a regeneration proposal or through the introduction of a by-pass.

Using Link and Place to inform Costs

The Link and Place framework can also be used to inform high level indicative costs for scheme packages, such as those set out in the above toolkit. This can be easily done by using the GIS mapping layers to classify the length or area of a given scheme within each Link and Place type, and applying different factors to each to reflect cost uplifts towards additional place making or link enhancement measures.

Under most circumstances these uplifts will best be applied to Public Transport Schemes. This approach has been used for estimating the broad costs impacts of road space allocation on the overall Birmingham Connected PT network by Public Transport Workpackage. For example estimated cost uplift per km of SPRINT route was applied based on the Place classification of the street it was routing along. Whilst relatively simplistic, this approach does enable high level costs to reflect what are likely to be, on average, higher costs with each successive tier of place classification. This uplift is underpinned by the additional costs for materials (street furnishings, footway widths, quality surfacing and finishing) and construction (more complex street environments, higher density of utilities etc.) increasing with each place level. See Package 2 report for further information.

There is a growing body of tools and empirical/academic evidence supporting the wider economic benefits attributable to schemes and initiatives associated with Placemaking, such as Valuing Urban Realm (VURs) assessments. VURs assessments account for the wider economic benefits derived through schemes such as urban realm improvements by assessing the impact on a wide range of variables, including property price uplifts and health related benefits.

It is important that schemes under development which have significant place related components utilise the available assessment techniques, to capture the wider benefits, both monetised and non-monetised.

6 Case Studies

This chapter reports the case studies undertaken as part of the study. The intention of the case studies was to enable the Link and Place framework process as summarised in Chapter 5 to be road-tested within the context of the many different street environments in Birmingham.

This application of the Road Space Allocation Methodology along with the case studies has then been used to outline a set of guiding principles for applying the link and place framework as reported in Chapter 7.

These case studies are not intended to reach definitive solutions or schemes for any of the sites considered, but simply serve as illustrative concepts to demonstrate how the link and place principles might be applied in practical terms.

6.1 Site Selection

The Case study sites were selected based on:

- Engagement with representatives of other Birmingham Connected technical packages and BCC officers at a workshop in July 2014;
- Link and Place mapping, to ensure a number of sites were selected where sites with the greatest conflicts between link and place requirements were highlighted. The majority of these sites, as would be expected, were therefore retail centres along key corridors within Birmingham; and
- A reasonable spread of locations, both spatially, and in terms of link and place combinations, to ensure the principles have a Birmingham wide application.

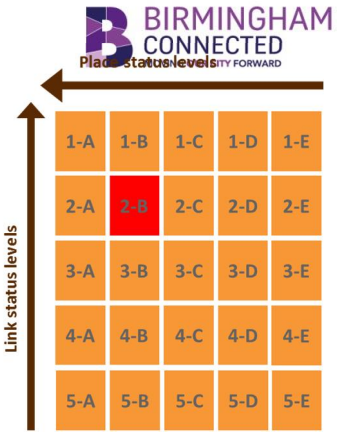
The following case study sites were selected:

- Case Study A: 2B - District Centre (Highway Dominated);
- Case Study B: 2E - Dual Carriageway (SPRINT Corridor near a GTD);
- Case Study C: 2C - District Centre (SPRINT / CityLink Interchange);
- Case Study D: 2C - District Centre (Urban Dual Carriageway);
- Case Study E: 2C/3C - District Centre (Highly Constrained, Competing Demands);
- Case Study F: 2B - District Centre (PT interchange, Highway Dominated);
- Case Study G: 5C - District Centre (Low Traffic, Poor Urban Realm);
- Case Study H: 3B - Sub-Regional Centre (Highway Dominated);
- Case Study I: 2C - District Centre (Key SPRINT Corridor); and
- Case Study J: 2E - Dual Carriageway (SPRINT Corridor)

Site visits were undertaken on Tuesday 12th and Wednesday 13th August 2014, and were attended by the roadspace allocation team, which included: specialists in sustainable transport and placemaking; Professor Peter Jones of UCL (the author of Link and Place); a representative from the public transport team; and BCC officers, providing a wide range of perspectives when considering each of the sites.

6.2 Case Studies

These sections summarise the ten case studies.



CASE STUDY A - *District Centre (highway dominated)*

Current Link/Place Status – 2B(Primary Multimodal Link and Sub-Regional Place); Example – Selly Oak Local Centre

This case study uses Selly Oak as an example of an important district centre which currently has a highway dominated environment impacting negatively on its quality as a place. The centre is in close proximity to a University and the area presents significant redevelopment and regeneration opportunities. The future link network proposals have a significant bearing on the area, with a SPRINT route and Cycling Revolution corridor planned. The wider area is also part of a Green Travel District.

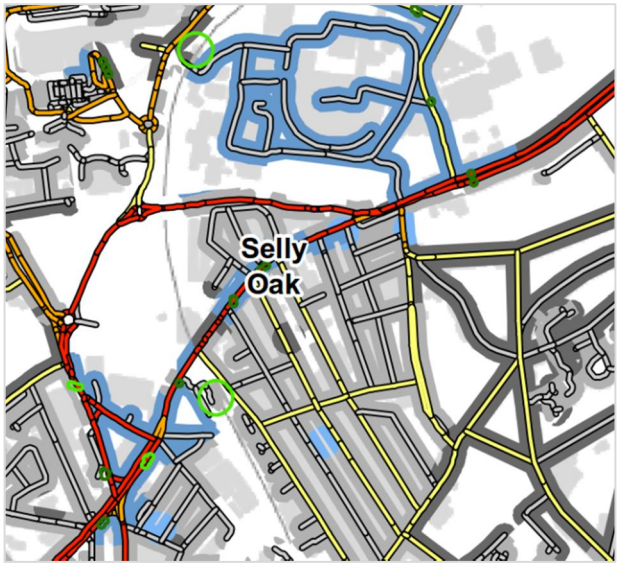
The relatively high Place classification (B) is not reflected in the quality of the environment. The Link classification is also significant (2), as it is a public transport corridor, with over 35 buses per hour (two-way), rather than just a strategic route for traffic. Nonetheless significant through traffic currently travels via the centre, rather than around the by-pass.

Highway dominated environment, wide carriageway with 4-traffic lanes. Barriers to pedestrian movement.

Poor urban realm for place classification Under-utilised footway potential for greater place emphasis.

Character building at the heart of the centre – a natural place focus, adjacent to a key desire

Step 1 - Street Classification



The street classification for the case study area selected are Link level 2, and Place classification B.

The Link level is derived through the high bus frequencies. Its future link status is as Link level 2, with a SPRINT route and key cycle corridor. To the north of the site is a University, another large Place B centre, and a considerable focus of activity. To the South is a predominantly residential area.

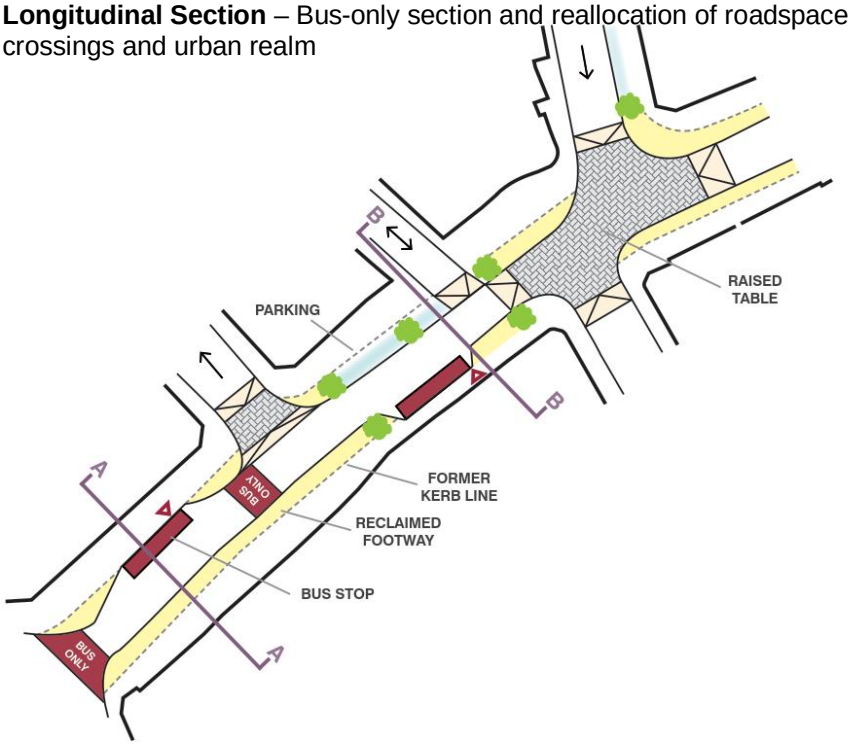
Step 2 – Local Conditions/Context

Place Requirements			Link Requirements		
	Pedestrain/ Cyclist Crossing Facilites	√		Sprint Route	√
	Private Accesses - residential, commercial	√		CityLink Route	
	On-street Parking - Residents			Other Bus Route	√
	On-street Parking - Retail			Strategic Freight Route	
	On-street Parking - Services			Weight restrictions	
	Disabled Bay				
	EVCP Bay			Height restrictions	
	On-street delivery/servicing	√		HGV restrictions	
	PT Interchange site	√		Green Travel District	√
	Mature Trees. Valuable Green Spaces			On-street Cycle route	√
	Critical Street Furniture - signals boxes etc			Shared use cycle path	
	Schools/ Colleges/ Universities	√		Strategic Traffic Route	
	Hospitals/ Surgeries/ GPs			20 mph zone/restrictions	
	Street Markets / Event Spaces	√		Mature Trees, valuable green spaces	

The particular section selected includes on-street parking, a need to provide for residential access, and some delivery and servicing provision. Critically the site must accommodate a SPRINT route in accordance with at least the minimum standards to enable it to operate effectively, including Super-stops, and high quality cycle route.

Step 3 – Meeting the User Requirements

Longitudinal Section – Bus-only section and reallocation of roadspace to footway with improved crossings and urban realm

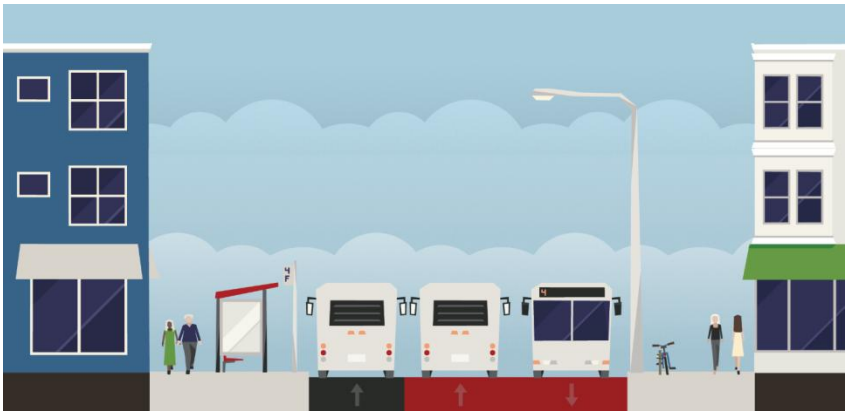


The introduction of a short **bus-only section** would serve to **break the link** as a continuous route for through traffic, and encourage traffic to reroute around the centre via the bypass, whilst still enabling local access via suitable side roads without necessitating an unduly circuitous route.

By significantly **reducing the volume of through traffic** there is greater scope to safely reallocate roadspace to the priority user groups – which in this instance are SPRINT users, place users and cyclists.

The bus-only section can accommodate a **northbound super-stop, in close proximity to the southbound stop**. It can also serve as a defined gateway to the heart of the district centre, and demark an area of low traffic activity.

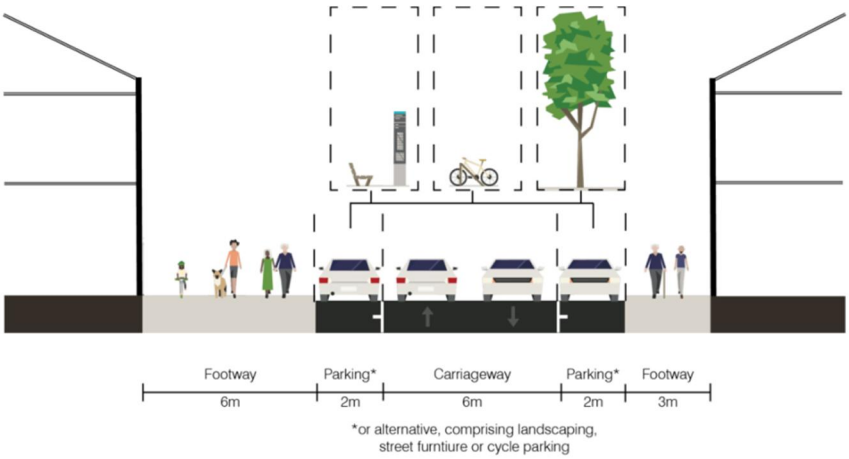
Cross Section A – Bus-only Section with SPRINT super-stop



The carriageway can be reduced to a single lane in both directions, enabling provision of **widened footways**, significantly improving the pedestrian environment.

The introduction of raised crossings and a generous raised table at the heart of the centre, on a **key desire line to the University**, finished with textured or coloured surfacing, street trees, planters, street art and quality footway materials throughout – centred around an existing character building will enhance public realm in the area.

Cross Section B – Traffic lanes replaced with short-stay parking, cycle parking or urban realm improvements

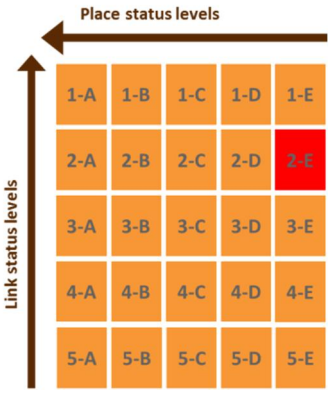


The **low traffic environment** would enable the SPRINT services to operate reliably, and foster a welcoming environment for cyclists – complemented by ample provision of cycle parking with natural surveillance. Cyclist access would also be permitted through the bus-only section.

Some **additional short-stay parking** for accessing local shops could be accommodated, which could serve as an off-peak Loading Bay, or alternatively an on-footway loading bay could be provided, which would in effect be shared with pedestrians.

CASE STUDY B – *Dual Carriageway (SPRINT Corridor near a GTD)*

Current Link/Place Status – 2E(Primary Multi-modal Link and Local Level Place);
Example – Bristol Road South (Section between Eastern Road and Edgbaston Road)



This case study uses a section of A38 (S) Bristol Road between Eastern Road and Edgbaston Road as an example of a wide strategic corridor that carries a significant volume of traffic and public transport through a residential area. This section is on the edge of a Green Travel District, and approaching a University. The future link network proposals include a SPRINT route and Cycling Revolution corridor on into the City Centre. This section has been recently benefited by enhancements in cycling infrastructure as a part of LSTF Smart Network Smarter Choices programme.

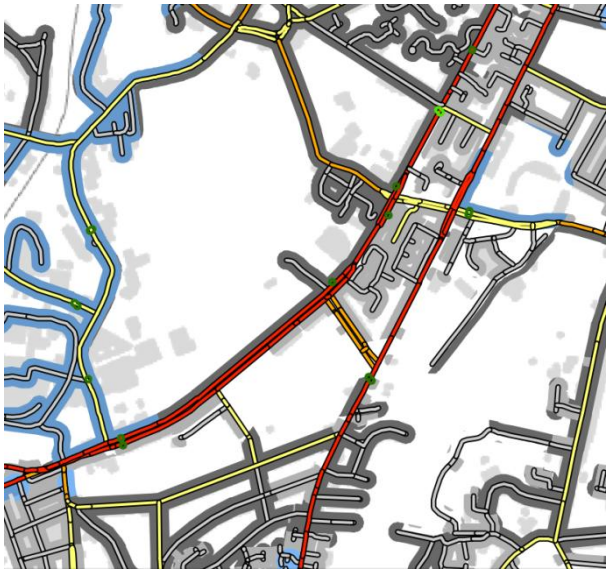
This Link Level 2 is a strategic corridor with over 35 buses per hour in each direction. The Place classification E reflects the predominantly residential surrounds, which are set back from the main road.

Wide tree lined avenue. A highway dominated environment with four traffic lanes and wide grassed central reservation.

Occasional breaks in the central reservation to facilitate access to side roads. Few crossing points for cyclists and pedestrians along the links.

Bus stops lack crossing points. Shared-use cycle paths run along both sides of the road.

Step 1 - Street Classification



The street classification is Link level 2, and Place classification E. The Link has high traffic volume and bus frequencies. The area is largely residential, with large green spaces composed of playing fields and private grounds. To the southwest of the site is a District Centre and University, both Place B areas.

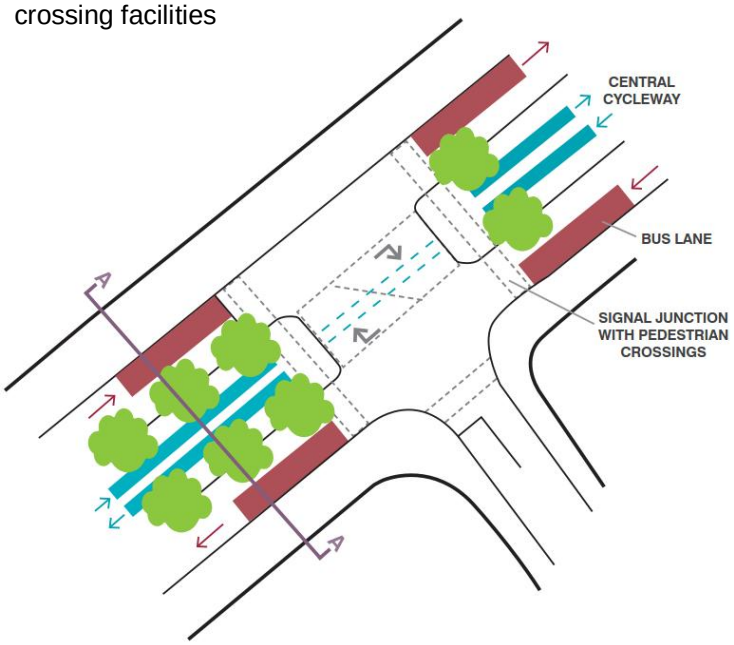
Step 2 – Local Conditions/Context

Place Requirements			Link Requirements		
	Pedestrain/ Cyclist Crossing Facilites	√		Sprint Route	√
	Private Accesses - residential, commercial	√		CityLink Route	
	On-street Parking - Residents			Other Bus Route	√
	On-street Parking - Retail			Strategic Freight Route	√
	On-street Parking - Services			Weight restrictions	
	Disabled Bay				
	EVCP Bay			Height restrictions	
	On-street delivery/servicing			HGV restrictions	
	PT Interchange site			Green Travel District	
	Mature Trees. Valuable Green Spaces			On-street Cycle route	
	Critical Street Furniture - signals boxes etc			Shared use cycle path	√
	Schools/ Colleges/ Universities			Strategic Traffic Route	√
	Hospitals/ Surgeries/ GPs			20 mph zone/restrictions	
	Street Markets / Event Spaces			Mature Trees, valuable green spaces	√

This particular site's local place requirements were comparatively limited, with desirable requirements being access to private properties and pedestrian/cyclist crossing provisions. The link must accommodate a SPRINT route including Super-stops, and high quality cycle route. The link needs to serve strategic freight route and has mature trees.

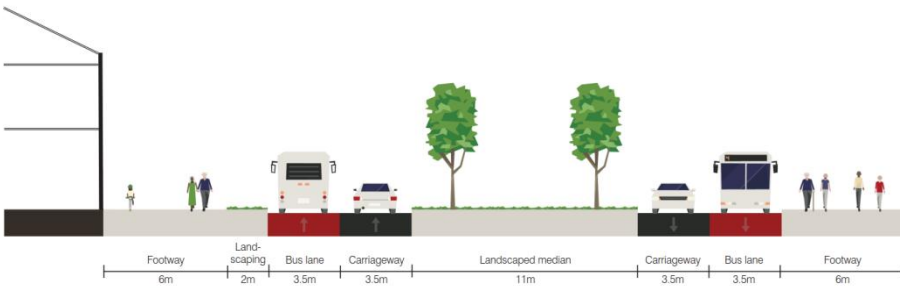
Step 3 – Meeting the User Requirements

Longitudinal Section Option – Bus lanes and cycle routes on the wide median strip, with improved pedestrian/cyclist crossing facilities



Cross Section A – Bus Lanes and Cycle Route on the Central Median

Cross Section B – Bus lanes with Cycle Routes confined to the Shared-use paths



The introduction of **dedicated bus lanes in both directions** would serve to support the identified priority user groups – which in this instance are BRT users. Whilst there is scope to accommodate the lanes on the central reservation, we were advised that in this instance it is probable nearside lanes would be preferred, as the stretch of central reservation is not sufficiently long to offset the delays incurred through re-joining the traffic lanes from the central reservation.

In other similar locations, provision of bus lanes in central reservation could be a potential option subject to design considerations with regards to buses being able to re-join the traffic lanes from the central reservation, and provision of safe crossings for pedestrians.

HGVs could be provided with off-peak access to the bus lanes, in keeping with the links function as a strategic freight route.

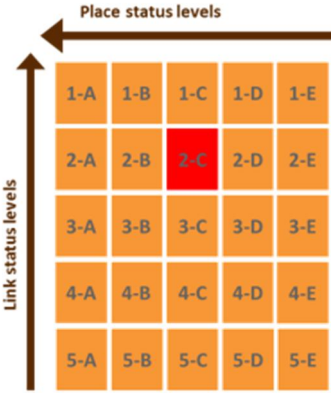
At this location, shared-use cycle provision along footway currently exists. Cross Section A shows the road space allocation under this option.

However, in similar locations elsewhere provision of **cycle lanes on the central reservation** is an option that can be considered, as a means of providing a fast and segregated alternative for cyclists (Longitudinal scheme shows the concept).This may necessitate signalising the breaks in the central reservation and introducing an all-red phase, which would impact on traffic flow and the SPRINT corridors. In such circumstances, the deciding factor should as ever be the relative priorities different user groups.

Longitudinal section and Cross section A schematically presents this alternative.

Pedestrian and cyclist crossings should be introduced to reduce the barriers presented by the current arrangement.

BIRMINGHAM CONNECTED MOVING OUR CITY FORWARD



CASE STUDY C – *District Centre (SPRINT / CityLink Interchange)*

Current Link/Place Status – 2C (Primary Multi-modal Link and District Level Place); Example – Kings Heath High Street

This case study uses Kings Heath High Street as an example of a district centre with high public transport frequencies, and high traffic volume of general traffic in a constrained High Street environment, which impacts negatively its quality of place. The future link network proposals include a SPRINT route and an Orbital BRT route intersecting within this Local Centre. This would provide a greatly enhanced accessibility to the local centre and provide the impetus for further development; however it does also pose some challenges in terms of allocating roadspace. The wider area is also part of a Green Travel District, and sits at the end of a cycling revolution corridor onto the City Centre.

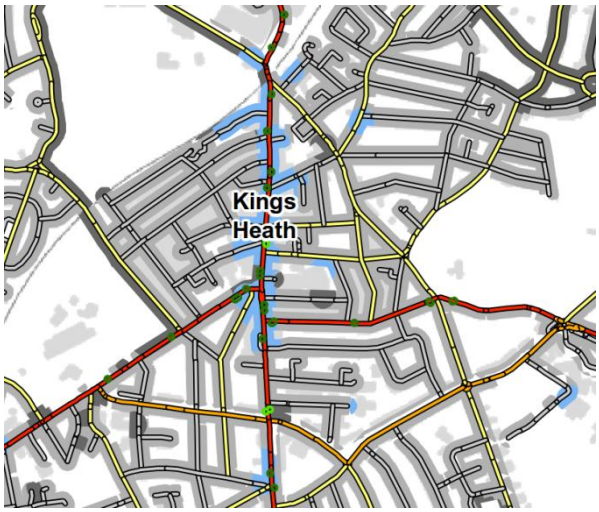
Whilst the Place classification (Level C) is evident in terms of the level of footfall and retail activity, in places footways are narrow and congested, with street clutter and barriers to movement posed by the busy traffic. The Link is also significant (Level 2), with over 35 buses per hour (two-way). Significant through traffic currently passes through the centre and freight vehicle activity is also high.

3 narrow lanes including a northbound bus lane. Traffic queues back through the High Street – noise and emissions.

Street clutter and poor urban realm, for the place classification. Narrow footways creates pinch-points at some locations.

Excessive crossing distances diminishes the continuity of the place and introduce more points of delay for buses and traffic.

Step 1 - Link and Place Classification



The street classification is Link level 2, and Place classification C. It is a proposed SPRINT route intersecting with an orbital CityLink route necessitating a high quality interchange, with super-stops and good pedestrian crossings.

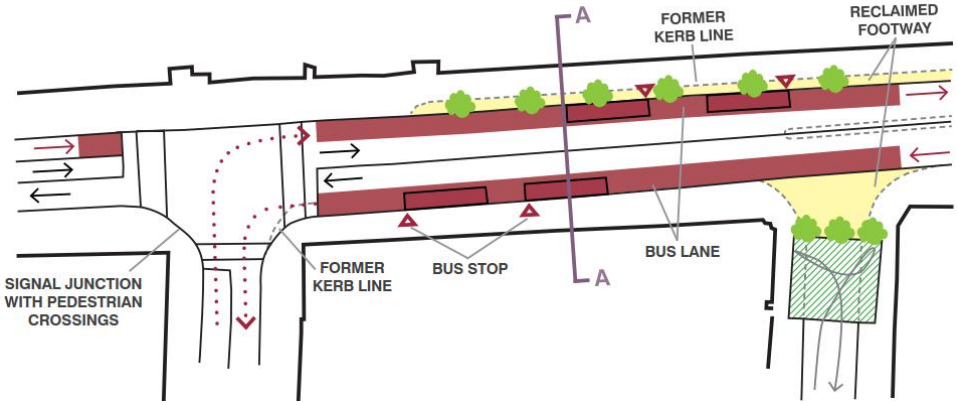
Step 2 – Local Conditions/Context

Place Requirements			Link Requirements		
	Pedestrain/ Cyclist Crossing Facilites	√		Sprint Route	√
	Private Accesses - residential, commercial			CityLink Route	√
	On-street Parking - Residents			Other Bus Route	√
	On-street Parking - Retail			Strategic Freight Route	
	On-street Parking - Services			Weight restrictions	
	Disabled Bay				
	EVCP Bay			Height restrictions	
	On-street delivery/servicing	√		HGV restrictions	
	PT Interchange site	√		Green Travel District	√
	Mature Trees. Valuable Green Spaces	√		On-street Cycle route	√
	Critical Street Furniture - signals boxes etc	√		Shared use cycle path	
	Schools/ Colleges/ Universities			Strategic Traffic Route	
	Hospitals/ Surgeries/ GPs			20 mph zone/restrictions	
	Street Markets / Event Spaces			Mature Trees, valuable green spaces	

The particular focus of this section is the need to accommodate BRT routes with super-stops within reasonable proximity. The site with retail outlets on both sides requires access for deliveries. The site is also a GTD, and is at the end of Cycling revolution route.

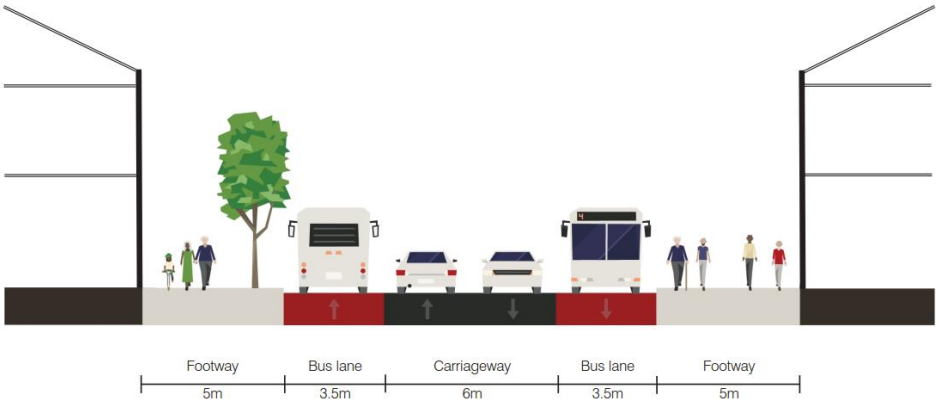
Step 3 – Meeting the User Requirements

Longitudinal Section – SPRINT lanes and Super Stops, a road closure, improved crossing facilities and footway widening



DIY Streets – reclaiming the roadspace

Cross Section A – Dedicated Bus Lanes and SPRINT Super-stops



The **closure of a side road** within the short section of High Street where the SPRINT arterial BRT and the CityLink orbital service intersect enables the full length of a **double SPRINT stop** to be accommodated on the southbound side. It also serves to rationalise the space in terms of traffic movements, and **reallocate a large area of the carriageway to pedestrians**, therefore enhancing the place function. This approach is consistent with addressing the identified priority users for the roadspace (public transport users) and place users – strollers.

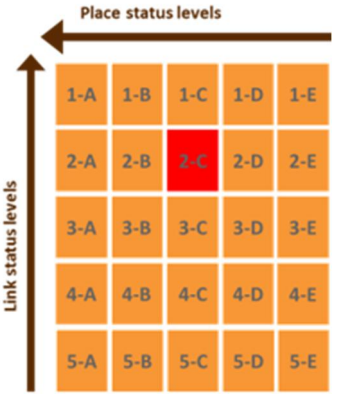
To accommodate the bus lanes and super-stops, it is necessary at this case study location, to remove the pedestrian crossing island and flare from the centre of the carriageway, and realign the roadspace by taking back some footway from the wider eastern side of the High Street. Some of this can be reallocated on the narrow footway on the western side. A widened western footway could accommodate **street trees as part of an improved street scene**, paired **with improved footways and de-cluttering**. A new signalised junction could be introduced at the second junction, providing **improved crossing facilities for interchanging passengers** and local place users. It also affords further opportunities for **priority measures for BRT** services.

There is **limited scope to accommodate quality cycle route** along the alignment of the High Street given the requirements of the BRT network, in such instances alternative **parallel routes should be investigated**.

Given the route is not due to function as a strategic freight route, and in places there is little scope to widen footways or significantly reroute traffic, it may be desirable to **restrict or prevent HGV access**, to lessen their negative impact on the place quality of the centre.

BIRMINGHAM CONNECTED MOVING OUR CITY FORWARD

CASE STUDY D – *District Centre (Urban Dual Carriageway)*



Current Link/Place Status – 2C(Primary Multi-modal Link and District Level Place); Example - Sheldon

This case study uses Sheldon as an example of a district centre along an urban dual carriageway, which serves as a strategic route. This particular strategic route connects Birmingham City Centre to the Airport and the motorway network. The link status is of greater priority at this location, though the place status is still significant and performs an important local function. The area is a highway dominated environment, which impacts negatively its quality of place. The future link network proposals include a SPRINT route.

The Place classification (Level C) is not reflected in the quality of the environment. The Link classification is significant (Level 2), as a major A-road in the route hierarchy, and as a strategic freight route. Public transport activity on the corridor is moderate, though it provides a strategically important link to the Airport for services from the City Centre.

Wide footways with inset parking bays providing access to retail outlets and cafes. Poor urban realm with limited screening from the presence of passing traffic.

A Highway dominated environment with four traffic lanes and wide central reservation. Wide side roads and wide crossing distances

Significant barriers to pedestrian movement presented by the dual carriageway. Limited parking serving the local shops relative to adjacent supermarket.

Step 1 - Link and Place Classification

The street classification is Link level 2, and Place classification C. The Link is a strategic route and is proposed to have a SPRINT route. North of the site is a predominantly residential area. The area has a mix of local shops, mainly north of the dual carriageway, and out-of-town type outlets, largely to the south, and predominantly accessed by cars.

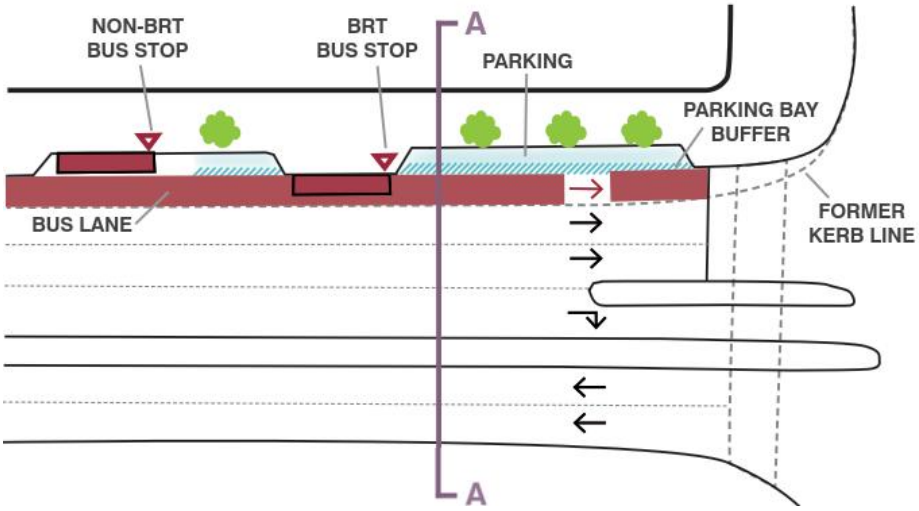
Step 2 – Local Conditions/Context

Place Requirements			Link Requirements		
	Pedestrain/ Cyclist Crossing Facilites	√		Sprint Route	√
	Private Accesses - residential, commercial			CityLink Route	
	On-street Parking - Residents			Other Bus Route	√
	On-street Parking - Retail	√		Strategic Freight Route	√
	On-street Parking - Services			Weight restrictions	
	Disabled Bay				
	EVCP Bay			Height restrictions	
	On-street delivery/servicing	√		HGV restrictions	
	PT Interchange site			Green Travel District	
	Mature Trees. Valuable Green Spaces			On-street Cycle route	
	Critical Street Furniture - signals boxes etc			Shared use cycle path	
	Schools/ Colleges/ Universities			Strategic Traffic Route	
	Hospitals/ Surgeries/ GPs			20 mph zone/restrictions	
	Street Markets / Event Spaces			Mature Trees, valuable green spaces	

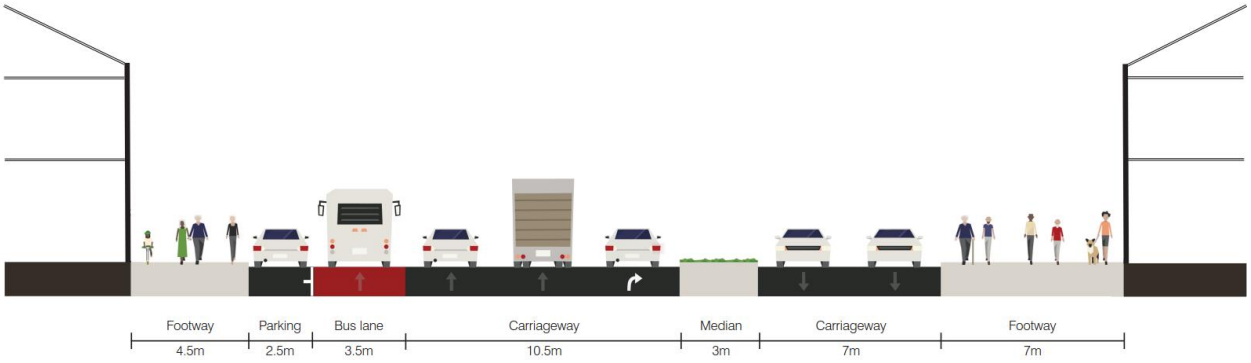
The main competing demands for roadspace are on-street parking bays, the bus lanes and superstops (SPRINT) required as well as some delivery and servicing provision. A rear service road caters for freight access with limited parking availability. The link function includes an important role as a traffic route and freight route for HGVs.

Step 3 – Meeting the User Requirements

Longitudinal Section – Introduction of a Bus Lane and Super-Stop



Cross Section A – Bus-only Section with SPRINT Super-stop



The footway is sufficiently wide (7m), relative to the place classification and its local function, to enable some space to be reallocated as an additional lane for Buses. At the approach to junction the existing kerb alignment could be reviewed to accommodate the additional lane, and provides opportunities for the services to be given priority.

The remaining footway is still wide enough (4.5m) to accommodate for pedestrian activity at the levels commensurate to the place level. The footway would benefit from the introduction of street trees, planters and shrubs to **enhance the urban environment**, and provide some **screening from traffic movements**.

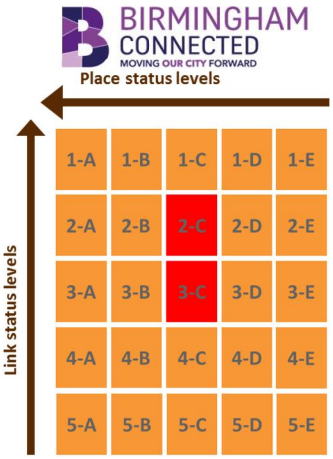
The **reallocation of footway space to accommodate the SPRINT lane** in effect requires the on-street parking bays to be inset into the footway, with the space previously occupied by parked vehicles given over to the SPRINT services. The inset parking bays may need to be punctuated by a build-out to house the superstop and access the SPRINT vehicle. Existing bus services would be required to continue to use an inset bus stop, to avoid delaying the SPRINT service by obstructing the bus lane.

The introduction of an **additional lane** enables the existing highway capacity to be preserved, in recognition of the routes strategic important in the highway network.

Pedestrian and cyclist crossings should be introduced to reduce the barriers presented by the current arrangement.

HGVs would be provided with off-peak access to the bus lanes, in keeping with the link's function as a strategic freight route.

Some additional **on-street loading bays** could be provided, which would, in effect, be shared with pedestrians.



CASE STUDY E – *District Centre (highly constrained, competing demands)*

Current Link/Place Status –Partly 2C and partly 3C (Primary and District Multi-Modal Link and District Level Place); Example – Small Heath

This case study uses Small Heath High Street as an example of a bustling district centre with retail shops and restaurants serving the ethnic communities in the area. Birmingham has many such district centres and the road space allocation principles from this case study may guide similar district centres.

The link carries a relatively high number of bus services and traffic volumes, in a constrained High Street environment, which impacts negatively on its quality of place. The future link network proposals include a SPRINT route through the High Street, and an intersecting City-Link Orbital service. This would enhance accessibility to the local centre and provide the impetus for further development; however it does also pose some challenges in terms of allocating roadspace. The wider area is also part of a Green Travel District.

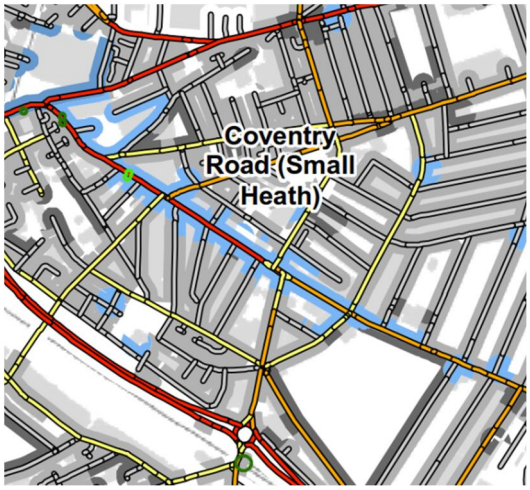
Whilst the Place classification (Level C) is evident in terms of the level of footfall and retail activity, in places footways are narrow and congested, with street clutter and barriers to movement posed by the busy traffic. The Link is also significant (Level 2), but as a public transport corridor, with over 35 buses per hour (two-way) in places, rather an as strategic route for traffic.

Busy footways with high footfall and shop utilising the private frontages. Poor urban realm. Traffic queues back through the High.

Demands for short-stay parking along the High Street. Limited off-street parking and resident parking on side roads.

Narrow footway widths does not cater to the pedestrian requirements adequately.

Step 1 - Link and Place Classification



The street classification fluctuates between Link levels 2 and 3, depending on bus frequencies, and the place classification is C. The heart of the District Centre is to the north and residential area to the South.

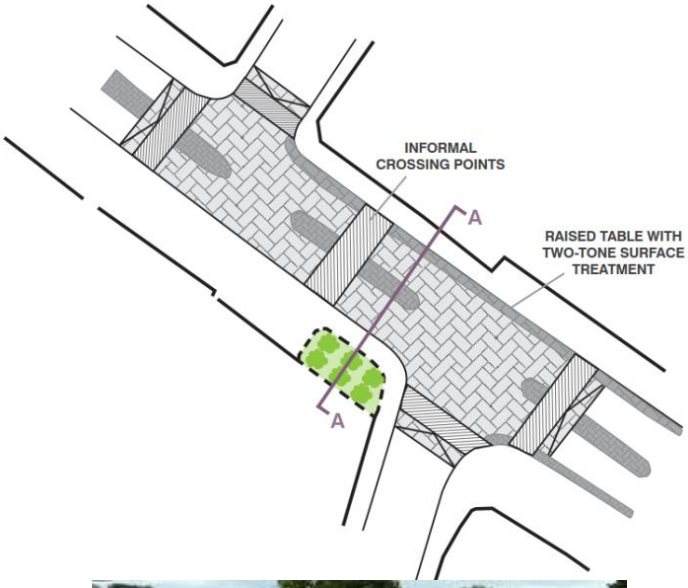
Step 2 – Local Conditions/Context

Place Requirements			Link Requirements		
	Pedestrain/ Cyclist Crossing Facilites	√		Sprint Route	√
	Private Accesses - residential, commercial	√		CityLink Route	√
	On-street Parking - Residents			Other Bus Route	√
	On-street Parking - Retail	√		Strategic Freight Route	
	On-street Parking - Services			Weight restrictions	
	Disabled Bay				
	EVCP Bay			Height restrictions	
	On-street delivery/servicing	√		HGV restrictions	
	PT Interchange site	√		Green Travel District	√
	Mature Trees. Valuable Green Spaces			On-street Cycle route	
	Critical Street Furniture - signals boxes etc			Shared use cycle path	
	Schools/ Colleges/ Universities			Strategic Traffic Route	
	Hospitals/ Surgeries/ GPs			20 mph zone/restrictions	
	Street Markets / Event Spaces			Mature Trees, valuable green spaces	

The focus is a staggered signal junction arrangement where the High Street intersects with an orbital route. The proposals include an interchange (SPRINT and CityLink) including large super-stops. The site needs vehicular access for access and deliveries. The site is also a GTD

Step 3 – Meeting the User Requirements

Longitudinal Section – A shared space



The Poynton 'shared-space' junction scheme successfully introduced many of the principles of shared space to a junction with high traffic volumes.

The competing demands for roadspace may in such instances call for a more creative design solution than would be prescribed by more traditional traffic engineering. The introduction of a **shared space area spanning to staggered junctions**, in which the existing traffic signals are replaced by raised table, with contrasting paving materials and low kerbs to define areas for traffic circulation as a subtle guide for users, discreetly fostering a **low speed environment, conducive to the free movement of pedestrians** as part of the shared space.

The raised table and its approaches feature a sequence of informal crossings highlighting pedestrian desire lines. Sections of central reservation and narrowed traffic lanes assist crossing movements.

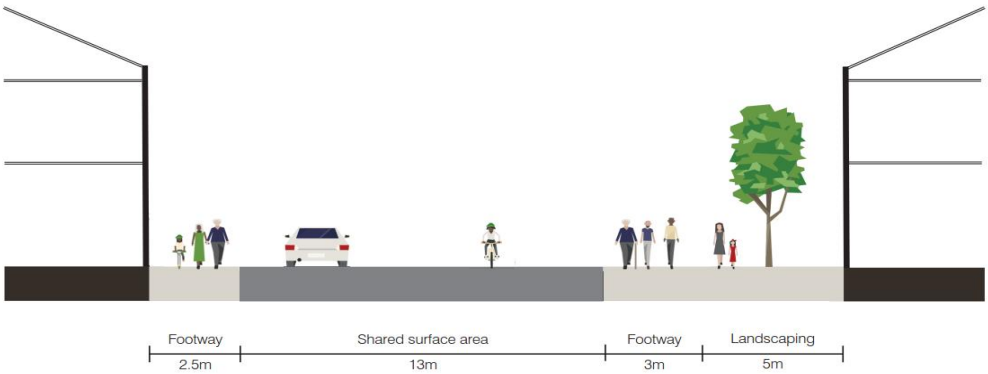
The approaches to the shared space table from each direction would be delineated with a gateway feature to highlight the transition from highway to District Centre.

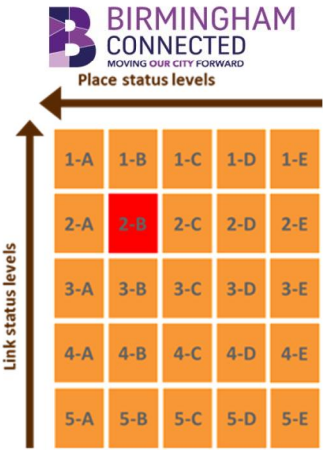
The introduction of the shared space area enables greatly improved pedestrian movements and would serve as a significant **boost to the areas sense of place**, and provide far greater continuity to the centre, with **improved urban realm**. A similar scheme was completed successfully in Poynton, East Cheshire and has been found to be effective in both regulating traffic speeds and maintaining the traffic flows, whilst delivering a tangible uplift it local retail activity.

The limited space within the road section would still necessitate the superstops being situated downstream, in a slightly sub-optimal arrangement. As well as the constraints posed by the staggered junction, the on-street parking, vital to sustaining access to the local shops in the absence of any substantial alternative parking provision, limits the scope to sufficiently prioritise a BRT route in accordance with the minimum design requirements. As such parallel routes were considered for the SPRINT services.

Given the route is not due to function as a strategic freight route, and in places there is little scope to widen footways or significantly reroute traffic, it may be desirable to **restrict or prevent HGV access**, to lessen their negative impact on the place quality of the centre.

Cross Section A – Shared Space Area with improved pedestrian connectivity





CASE STUDY F – *District Centre (PT interchange, highway dominated)*

Current Link/Place Status – 2B(Primary Multi-Modal Link and Sub-Regional Level Place); Example - Perry Barr

This case study uses Perry Barr as an example of a district centre dominated by a major highway junction, which impacts negatively its ability to function as a place. The centre is in close proximity to One-Stop, a major out-of-town shopping centre. The future link network proposals includes SPRINT and City-Link routes intersecting at the major junction at the heart of the centre, strategic freight route and a Cycling Revolution corridor. The wider area is also part of a Green Travel District and the centre has been designated as district growth centre.

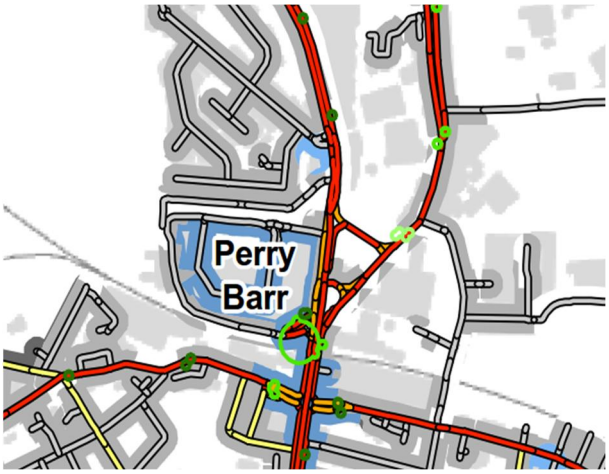
The relatively high Place classification (Level B) is not reflected in the quality of the urban environment. The Link classification is also significant (Level 2), as both a public transport corridor, with over 35 buses per hour (two-way), and a strategic traffic route.

A major A-road (A34) passes through the centre, creating a significant barrier to movement, and carrying large volumes of traffic. Despite being carried via a steep cutting, below street level, traffic noise and emissions are prevalent.

Poor quality urban realm and a high proportion of vacant or derelict properties. Limited at-grade crossing locations in places, with un-appealing subways and indirect pedestrian bridg spanning the gyratory.

Narrow pedestrian walkways and limited space around many shop fronts. An un-appealing environment to place users, with highway dominated features, including excessive guard railing.

Step 1 - Link and Place Classification



The street classification is Link level 2 and Place classification B. The Link has high bus frequencies, is a strategic traffic route, has proposals for SPRINT and City-Link routes, is a strategic freight route and is a key cycle corridor. To the north of the site is One-Stop, a large out-of-town shopping centre, a rail station is also situated near the junction.

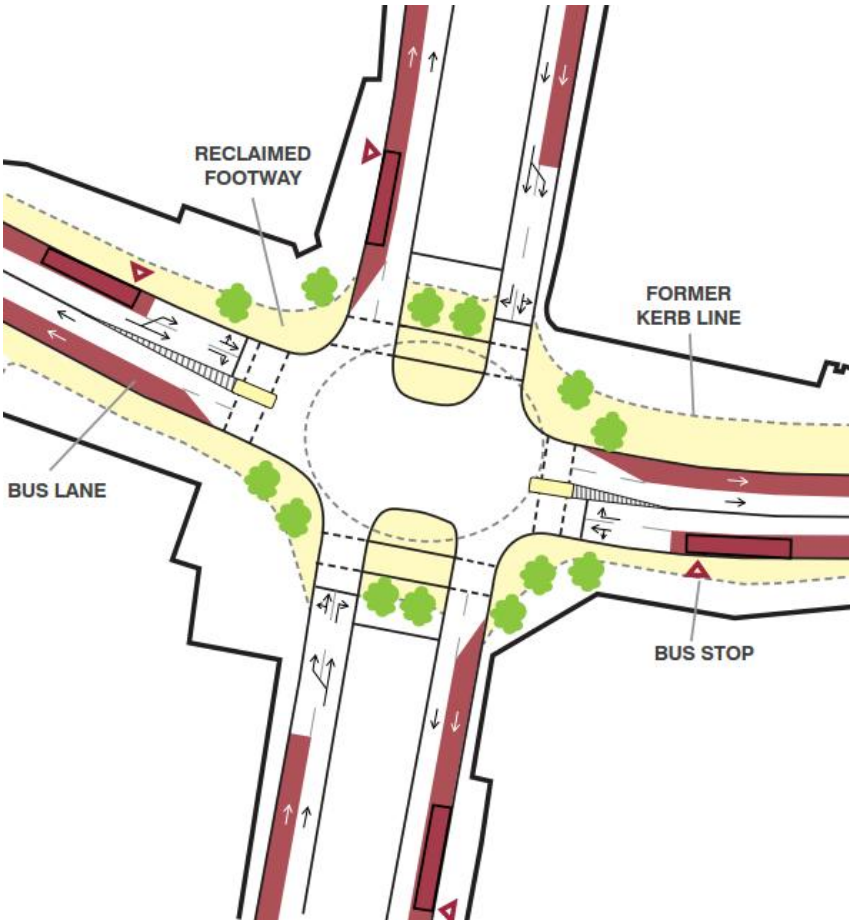
Step 2 – Local Conditions/Context

Place Requirements			Link Requirements		
	Pedestrain/ Cyclist Crossing Facilites	√		Sprint Route	√
	Private Accesses - residential, commercial			CityLink Route	√
	On-street Parking - Residents			Other Bus Route	√
	On-street Parking - Retail	√		Strategic Freight Route	√
	On-street Parking - Services			Weight restrictions	
	Disabled Bay				
	EVCP Bay			Height restrictions	
	On-street delivery/servicing	√		HGV restrictions	
	PT Interchange site	√		Green Travel District	√
	Mature Trees. Valuable Green Spaces			On-street Cycle route	
	Critical Street Furniture - signals boxes etc			Shared use cycle path	
	Schools/ Colleges/ Universities			Strategic Traffic Route	
	Hospitals/ Surgeries/ GPs			20 mph zone/restrictions	
	Street Markets / Event Spaces			Mature Trees, valuable green spaces	

The localised street section includes crossing facilities, some on-street parking/delivery and servicing provision. The site must accommodate SPRINT and City-Link routes, with convenient interchange provision where they intersect, including Super-stops.

Step 3 – Meeting the User Requirements

Longitudinal Section – Junction re-modelling, converting gyratory to a signal junction with at-grade pedestrian crossings, with urban realm



Comprehensively re-engineering the junction from a gyratory to a signal controlled junction, decking over the existing space at the heart of the gyratory, enables a **vast amount of space to be reclaimed and re-provided as footway and urban realm,** bolstering the place function of the centre, whilst still fulfilling role as a key link.

By decking the gyratory **the Place environment is screened from the busy A-road below.** There may be some scope to extend the decking back further from the gyratory, providing additional screening from the through traffic, such an approach is being adopted or at least considered in a number of cities across Europe, including Madrid and Hamburg, where it is described as a 'Green Roof'.

Hamburg is planning to cap a 2 mile section of the A7 highway with a green roof, complete with parklands, allotment gardens and pathways for pedestrians and cyclists.

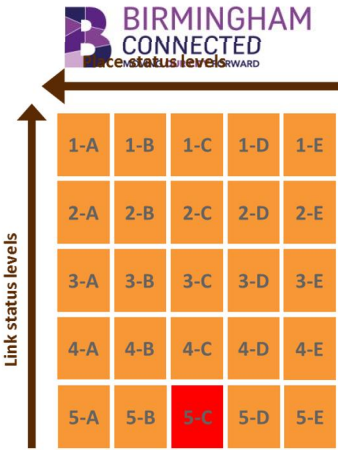
The expanse of re-claimed footway space would **support the aspirations to regenerate the area**, and could be complemented with improved surfacing, street trees, planters and street art.

The introduction of at-grade pedestrian and cyclist crossings on all arms significantly reduces barriers to movement on key desire lines, and provides **improved facilities for interchanging passengers** and local place users. The signals also afford further opportunities for **priority measures for BRT services**.

The introduction of **bus lanes on each of the approaches** supports the proposed BRT routes, whilst the expanded and re-modelled footways afford opportunities to accommodate their respective superstops in close proximity for **convenient interchange**.

There is **limited scope to accommodate quality cycle route** through the junction given the requirements of the BRT network and the constrained approach slip roads. In such instances alternative **parallel route should be investigated**; however, as a minimum provision, advanced stop lines and ample cycle parking should also be provided.

The busy dual carriage way passing beneath the junction can operate as strategic freight route as proposed, whilst being segregated to some degree from the core place centre**, lessening the impact of heavy freight** traffic on the district centre.



CASE STUDY G – District Centre *(low traffic, poor urban realm)*

Current Link/Place Status – 5C (Local Access Link and District Level Place); Example – Erdington High Street

This case study uses Erdington High Street as an example of a district centre where through traffic has been successfully removed with a by-passable route. In this example, the high street still retains many of the former highway centric characteristics, which impacts negatively on its quality of place. The future link network proposals have no direct impact on the area, though a CityLink route and Cycling Revolution corridor are planned on a nearby parallel route (A5127 Birmingham Road). The area is also part of proposed future Green Travel District.

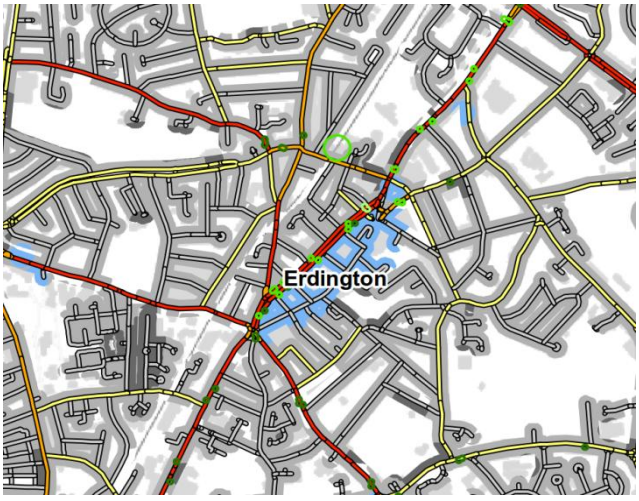
The relatively high Place classification (Level C) is not reflected in the quality of the urban environment. The Link classification is very low (Level 5), with through traffic actively discouraged and only local access permitted, with A5127 acting as a bypass carrying through traffic and providing wider connectivity.

Sections of one-way operation, with extensive parking provision. A highway dominated environment for Link Level (5). Poor urban realm w.r.t Place Level (C) and levels of pedestrian activity.

Large expanses of highway space detracts from the pedestrian environment and urban realm. Character buildings at the heart of the centre are lost amongst the highway focus of the street scene.

Limited safe crossing points and excessively wide crossing distances present barriers to movement and unnecessarily constrain the available footway widths, impacting on mobility impaired place users in particular.

Step 1 - Link and Place Classification



The street classification is Link level 5, and Place classification C. It does not have a PT route and only carries local traffic. To the West of the site, parallel to the High Street is A5127, a major A road which serves as a bypass for the local centre. The wider area beyond the High Street is a largely residential area.

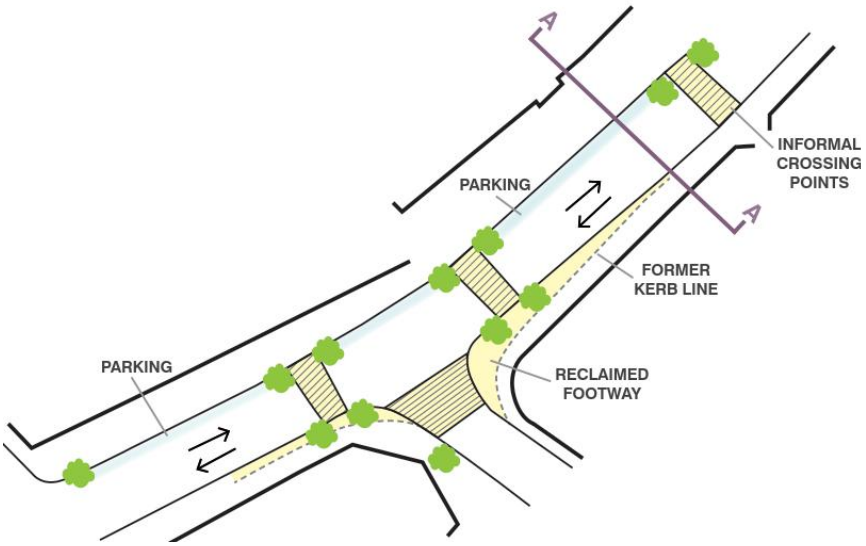
Step 2 – Local Conditions/Context

Place Requirements			Link Requirements		
	Pedestrain/ Cyclist Crossing Facilites	√		Sprint Route	
	Private Accesses - residential, commercial			CityLink Route	
	On-street Parking - Residents			Other Bus Route	
	On-street Parking - Retail	√		Strategic Freight Route	
	On-street Parking - Services			Weight restrictions	
	Disabled Bay				
	EVCP Bay			Height restrictions	
	On-street delivery/servicing	√		HGV restrictions	
	PT Interchange site			Green Travel District	√
	Mature Trees. Valuable Green Spaces			On-street Cycle route	
	Critical Street Furniture - signals boxes etc			Shared use cycle path	
	Schools/ Colleges/ Universities			Strategic Traffic Route	
	Hospitals/ Surgeries/ GPs			20 mph zone/restrictions	
	Street Markets / Event Spaces			Mature Trees, valuable green spaces	

The particular section selected includes on-street parking on each approach, and needs to facilitate pedestrian crossing movements, some delivery and servicing provision, though rear service access are available. Beyond these requirements, the focus should be the place function.

Step 3 – Meeting the User Requirements

Longitudinal Section – Urban realm improvements and junction reconfiguration to place users



There is **significant scope to reallocate carriage way space for use by place users**, widened footways and improving the quality of the urban realm to support the identified priority user groups – which in this instance are the place users.

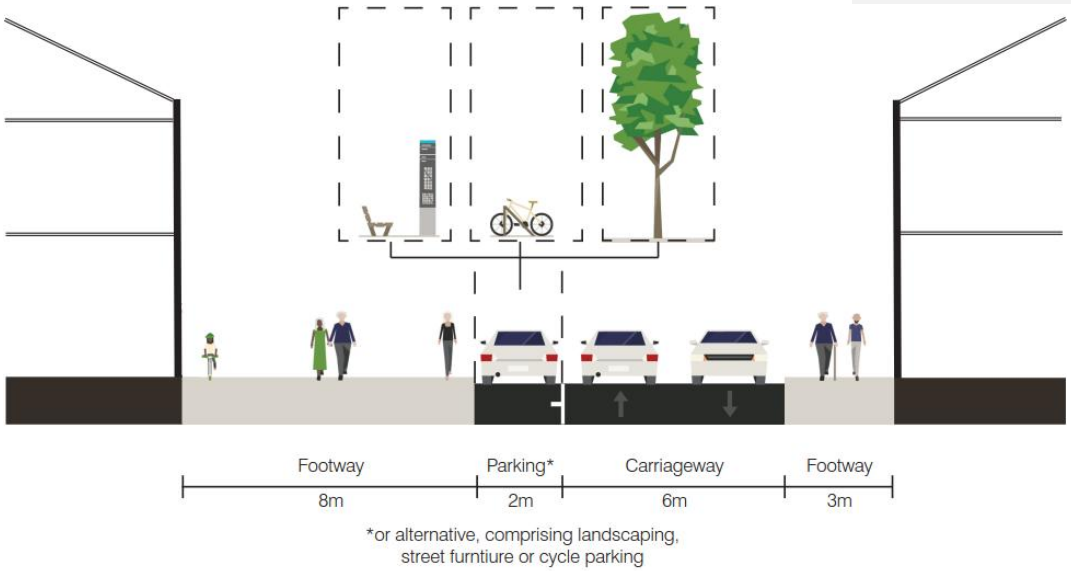
By **downsizing the excessively large junction turning space** it would be possible to rebalance the focus of the area to its proper role as a place. A redesigned junction could include informal crossings, demarked using differential surfacing, complemented by **improvements to the surrounding streetscene**, such as renewed surfacing, street trees and other street furnishings. With these additions the former junction space could become **a focal point at the heart of the local centre**, and serve to frame and **reintegrate the adjacent character building into the street scene**.

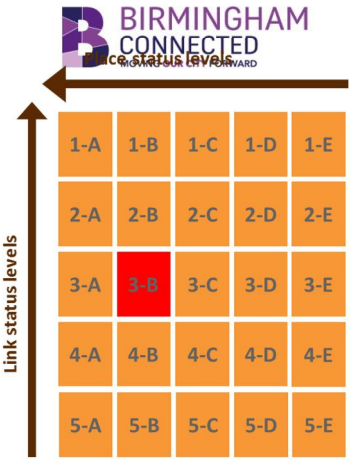
The **low traffic environment fosters a safe environment for cyclists** – complemented by ample provision of cycle parking with natural surveillance.

Some on-street parking could be reallocated to serve as Loading Bays or additional disabled bays given the ample provision of additional parking (on-street and off-street) on the periphery. Alternatively an on-street loading bay could be provided, which would in effect be additional footway for pedestrians when not in use.

Informal crossings with differential surfacing can improve the pedestrian environment and the urban realm, as demonstrated in the scheme in Poynton.

Cross Section A – Widened footways and alternative options to on-street parking





CASE STUDY H – Sub-Regional Centre (highway dominated)

Current Link/Place Status – 3B (District Multi-Modal Link and Sub-Regional Level Place); Example – Sutton Coldfield

This case study considers the north of Sutton Coldfield Centre as an example of a site on the edge of a busy sub-regional centre, with busy peak period traffic flows and bus activity. The rail station is situated at the periphery of the centre. The wide highway dominates the area and severs the pedestrian connections, which impacts negatively its quality of place. The wider area is also part of a Green Travel District. The future link proposals do not have a significant bearing on the area, though an indicative Masterplan for the area was developed, which included plans for rerouting traffic away for the site via a new link road. The area north of gyratory is a part of the conservation area.

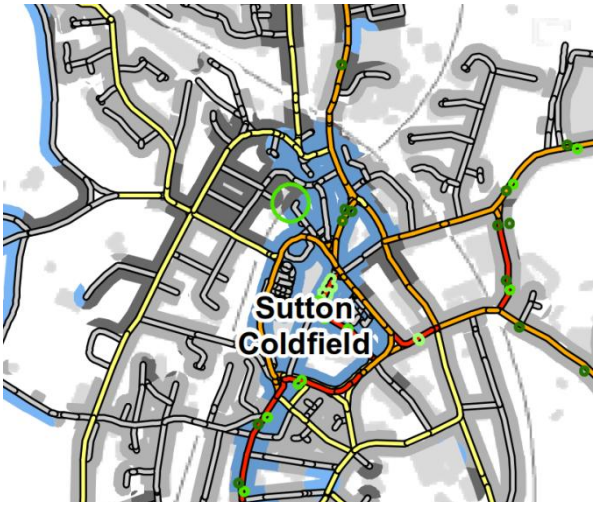
Sutton Coldfield Centre, which is to the south of the case study location, has a Place classification (B), with a defined shopping area and high footfall. However the case study sites more of a link, though it is lined by a number of character buildings, with some pedestrian through movements. The Links function is as a main distributor road, effectively operating as large gyratory system around the town centre core, with 3 traffic lanes. It also carries around 30 buses per hour (two-way).

Large junction space and wide carriageway through an area where place should be prioritised, with several key desire lines severed by the wide highway space, leaving the place centre as an island and fragmenting the place.

Limited crossing provision throughout with an underperforming place environment. The area feels disconnected from the core centre and predominantly functions as a link, contrary to its classification as a place street.

The area feels disconnected from the nearby rail station with unappealing pedestrian links and poor visibility. Character buildings throughout the area are underutilised.

Step 1 - Link and Place Classification



The street classification is Link level 3, and Place classification B. The Link level is derived through its role as a main distributor. To the south of the site is the heart of the District Centre.

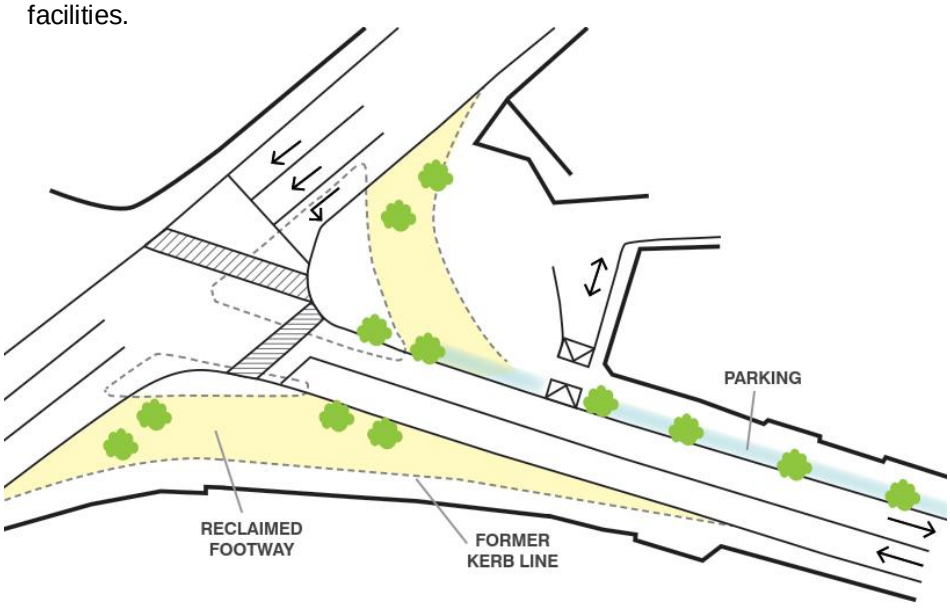
Step 2 – Local Conditions/Context

Place Requirements			Link Requirements		
	Pedestrain/ Cyclist Crossing Facilites	√		Sprint Route	
	Private Accesses - residential, commercial	√		CityLink Route	
	On-street Parking - Residents			Other Bus Route	√
	On-street Parking - Retail			Strategic Freight Route	
	On-street Parking - Services			Weight restrictions	
	Disabled Bay				
	EVCP Bay			Height restrictions	
	On-street delivery/servicing			HGV restrictions	
	PT Interchange site			Green Travel District	√
	Mature Trees. Valuable Green Spaces	√		On-street Cycle route	
	Critical Street Furniture - signals boxes etc			Shared use cycle path	
	Schools/ Colleges/ Universities			Strategic Traffic Route	
	Hospitals/ Surgeries/ GPs			20 mph zone/restrictions	
	Street Markets / Event Spaces			Mature Trees, valuable green spaces	

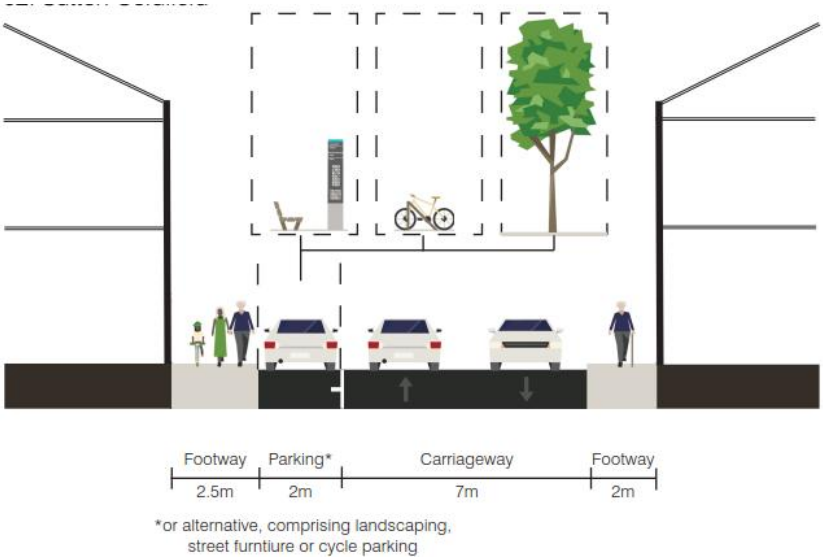
The particular focus is the need to connect the core shopping area with the remainder of the centre, whilst also providing roadspace for conventional bus routes and through traffic. A public off-street car park requires a vehicular access, as do some local businesses.

Step 3 – Meeting the User Requirements

Longitudinal Section – Downsized junction with extended pedestrian environment and improved crossing facilities.



Cross Section A – Reallocating roadspace to place use



Downsizing the large junction at the centre of the site affords significant opportunities to reallocate roadspace to better fulfil the local priority for place functions (Level B) over link functions (Level 3).

By removing the left turn filter lanes from both arms of the junction it is possible to **greatly enhance the pedestrian environment**, and in doing so accommodate direct pedestrian crossings along the key desire line into the town centre.

The widened footways, coupled with areas of disused land around the site offer **scope to entirely reimagine the space** and regenerate its function, to be more in line with its place classification.

The reclaimed footways could be utilised to foster a **stronger link with the nearby rail station**, using way-finding techniques, street art and tree planting to draw the eye of pedestrians exiting the station towards the space, making a more legible connection between the space and the core shopping centre, which is otherwise screened from the station approach.

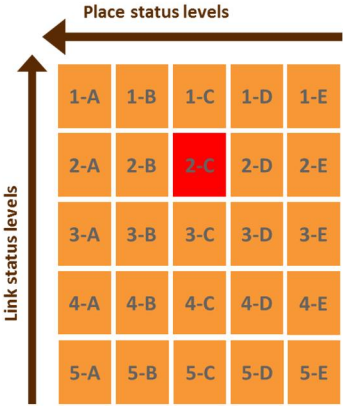
It may be desirable to provide for **some short stay on-street parking** bays, loading bays and disabled bays where the carriageway is sufficiently wide to accommodate them. This will serve the dual purpose of bolstering the place function of the street, whilst narrowing the traffic lane widths and slowing through traffic. The bays could be punctuated by street trees or alike to further **enhance the street scene,** particularly around a number of character buildings around the site.

Quality surfacing could be provided in places, alongside **de-cluttering** guard railing and signage.

Given the route is not due to function as a strategic freight route, and in places there is little scope to widen footways or significantly reroute traffic, it may be desirable to **restrict or prevent HGV access**, to lessen their negative impact on the place quality of the centre.

An alternative approach for this site might be to **downgrade the place classification**, to distinguish its function and status from that of the town centre core.

BIRMINGHAM CONNECTED MOVING OUR CITY FORWARD



CASE STUDY I – District Centre (Key SPRINT Corridor)

Current Link/Place Status – 2C(Primary Multi-Modal Link and District Level Place); Example – Harborne High Street

This case study uses the example of Harborne High Street as an example of a busy district centre with especially high public transport frequencies, and in places a poor urban environment with constrained footways, which impacts negatively its quality of place. The future link network proposals include 3 SPRINT routes passing through the Local Centre, and therefore requiring a large amount of space to accommodate multiple super-stops. The street also makes up the end of a cycling revolution corridor onto the City Centre.

Whilst the Place classification (Level C) is evident in terms of the level of footfall and retail activity, in places footways are narrow and congested, with street clutter and barriers to movement posed by the comparatively wide and relatively busy carriageway The Link is also significant (Level 2), but as a public transport corridor, with over 35 buses per hour (two-way), rather than as a strategic route for traffic. Nonetheless significant through traffic currently passes through the centre.

Parked vehicles and through traffic create delays to buses, and results in queuing back through the High Street – noise and emissions, impacts the place quality.

In places the environment is unduly highway dominated Wide crossing distances and excessive guard railing over-state the link function to the detriment of the place.

Some wide areas of footway and pedestrian space, which host farmers markets and other events.

Step 1 - Link and Place Classification

The street classification is Link level 2, and Place classification C. The Link has high bus frequencies and has proposals for 3 SPRINT services, a high quality interchange, with super-stops including good pedestrian connection. Off-street parking is available off the main high street.

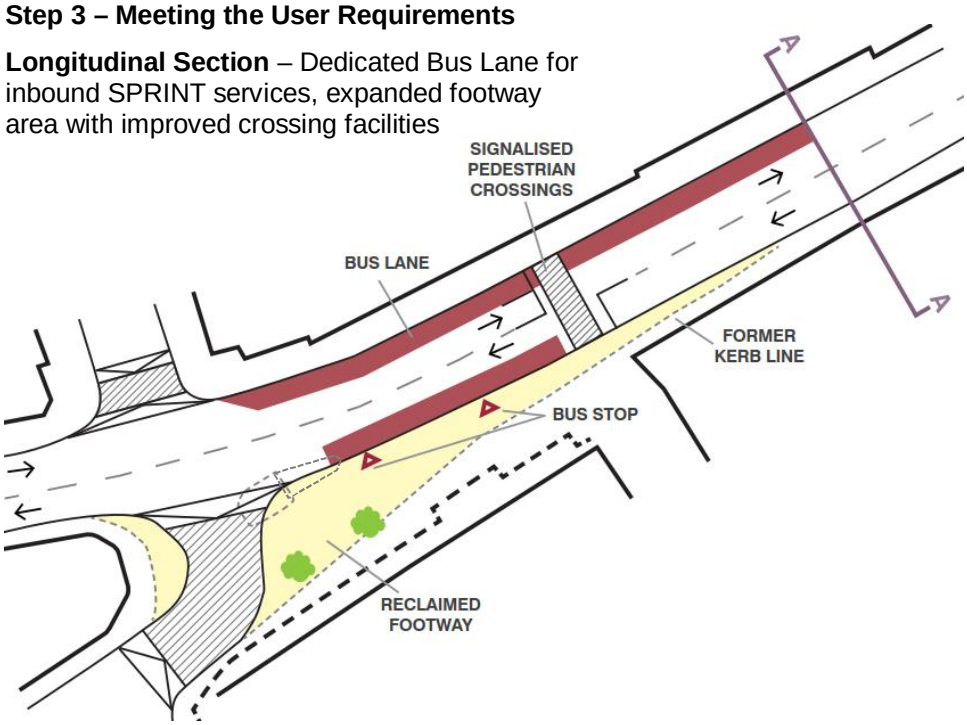
Step 2 – Local Conditions/Context

Place Requirements			Link Requirements		
	Pedestrain/ Cyclist Crossing Facilites	√		Sprint Route	√
	Private Accesses - residential, commercial	√		CityLink Route	
	On-street Parking - Residents			Other Bus Route	√
	On-street Parking - Retail	√		Strategic Freight Route	
	On-street Parking - Services			Weight restrictions	
	Disabled Bay				
	EVCP Bay	√		Height restrictions	
	On-street delivery/servicing	√		HGV restrictions	
	PT Interchange site	√		Green Travel District	
	Mature Trees. Valuable Green Spaces			On-street Cycle route	√
	Critical Street Furniture - signals boxes etc			Shared use cycle path	
	Schools/ Colleges/ Universities			Strategic Traffic Route	
	Hospitals/ Surgeries/ GPs			20 mph zone/restrictions	
	Street Markets / Event Spaces			Mature Trees, valuable green spaces	

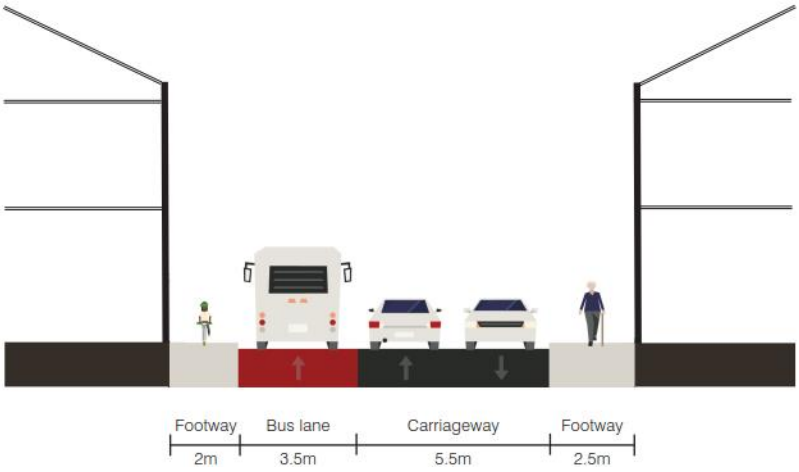
The particular focus of this section is the need to accommodate BRT routes. The site is lined with retail outlets on both sides, many of which require on-street delivery and servicing provision. The site also includes 2 recently installed electric vehicle charge point (EVCP) bays.

Step 3 – Meeting the User Requirements

Longitudinal Section – Dedicated Bus Lane for inbound SPRINT services, expanded footway area with improved crossing facilities



Cross Section A – Dedicated Bus Lane for inbound SPRINT services



A **dedicated eastbound bus lane** can also be accommodated to provide improved journey reliability to services travelling inbound towards the City centre; although this would necessitate removing around 25-30 on-street parking bays, including EVCPs and disabled bays, which would need to be re-provided nearby. It would also require some footway reductions from wider sections north of this site to enable the bus lanes to be continuous. There is ample off-street parking provision within the local centre to duly compensate for the loss of some on-street parking, though one school of thought is that some short-stay on street parking can contribute to the dynamism of a successful street scene.

An alternative approach might be to adopt a similar approach to that set out in case study A, whereby through traffic was reduced to enable the BRT routes without taking from place functions, though in that scenario the place function was greater (B), and by-pass was readily available to link users.

A widened western footway could accommodate **street trees as part of an improved street scene**, paired **with improved footways and de-cluttering**.

Given the route is not due to function as a strategic freight route, and in places there is little scope to widen footways or significantly reroute traffic, it may be desirable to **restrict or prevent HGV access**, to lessen their negative impact on the place quality of the centre.

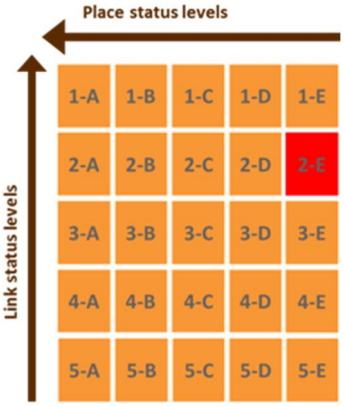
A revised junction layout at the southern gateway to the high street enables a **large area of highway dominated roadspace to be brought back into use as part of the place**, whilst also providing the additional footway space needed to **accommodate a double-super stop** to serve the SPRINT route. This approach is consistent with the area's link and place classification (2-C), whereby the link function is given greater priority over place, but recognising that the prioritised link user is the BRT route.

In conjunction with re-designing the junction space, raised crossings could be implemented to provide an improved continuity to the high street environment, slowing through traffic and placing a **greater emphasis on pedestrian movements** over traffic movements. These improvements can be delivered using quality surfacing and include street trees to **improve the wider urban realm**, and re-integrate a character building currently severed from the wider high street by the road layout.

Raise tables and raised crossing used to re-integrate a character building within the street scene

CASE STUDY J – Dual carriageway (SPRINT Corridor)

Current Link/Place Status – 2E (Primary Multi-Modal Link and Local Level Place); Example – Hagley Road West



This example uses Hagley Road West as an example of a wide strategic corridor that carries a significant volume of traffic and public transport through a residential area. The future link network proposals include a SPRINT route on to the City Centre.

The Link classification reflects its role as strategic road in the route hierarchy, and also as an important public transport corridor, with over 35 buses per hour either side. The low Place classification (Level E) reflects the predominantly residential surrounds, which are set back from the main road.

Some private residential accesses front onto the route. Few crossing points for cyclists and pedestrians, though demand is limited.

Wide tree lined avenue with three eastbound lanes, including a bus lane (in Borough of Sandwell), and two westbound lanes. Wide grassed central reservation with mature trees throughout.

Site is downstream from a major signal junction with pedestrian crossings.

Step 1 - Link and Place Classification

The street classification is Link level 2, and Place classification E. The Link level is derived through both its traffic function and its high bus frequencies. The area is largely residential, with a large park to the north.

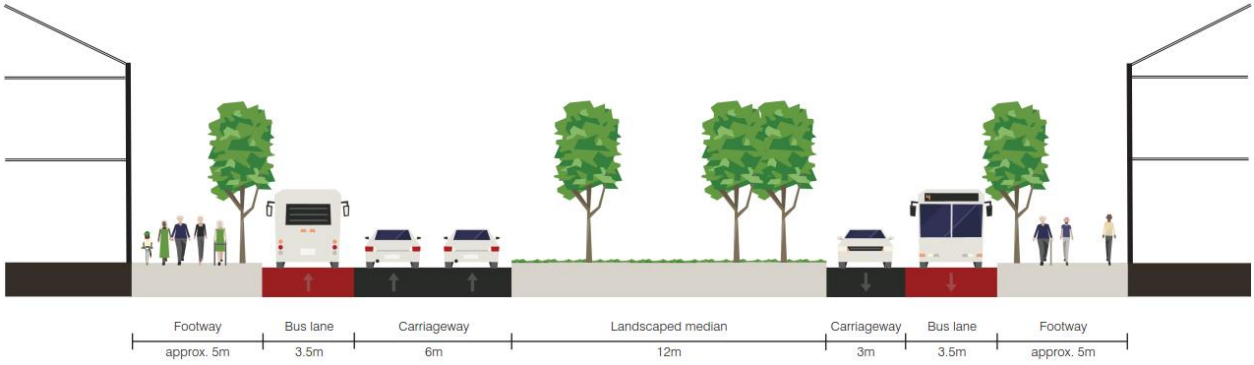
Step 2 – Local Conditions/Context

Place Requirements			Link Requirements		
	Pedestrain/ Cyclist Crossing Facilites	√		Sprint Route	√
	Private Accesses - residential, commercial	√		CityLink Route	
	On-street Parking - Residents			Other Bus Route	√
	On-street Parking - Retail			Strategic Freight Route	√
	On-street Parking - Services			Weight restrictions	
	Disabled Bay				
	EVCP Bay			Height restrictions	
	On-street delivery/servicing			HGV restrictions	
	PT Interchange site			Green Travel District	
	Mature Trees. Valuable Green Spaces	√		On-street Cycle route	
	Critical Street Furniture - signals boxes etc			Shared use cycle path	
	Schools/ Colleges/ Universities			Strategic Traffic Route	√
	Hospitals/ Surgeries/ GPs			20 mph zone/restrictions	
	Street Markets / Event Spaces			Mature Trees, valuable green spaces	√

The particular site's local place requirements were comparatively limited, as would be expected for a Place E area, with only a requirement to preserve access to private properties and provide pedestrian and cyclist crossing facilities. Critically the link must accommodate a SPRINT route, including Super-stops, and high quality cycle route. It must also serve as a strategic freight route and preserve as far as possible the mature trees lining the route.

Step 3 – Meeting the User Requirements

Cross Section A – Dedicated Bus lanes in both directions



The introduction of **dedicated bus lanes in both directions** would serve to support the identified priority user groups – which in this instance are BRT users. Whilst there is scope to accommodate the lanes on the central reservation, nearside lanes would be preferred, as the stretch of central reservation is not sufficiently long to offset the delays incurred through re-joining the traffic lanes from the central reservation.

Pedestrian and cyclist crossings should be introduced to reduce the barriers presented by the current arrangement.

HGVs would be provided with off-peak access to the bus lanes, in keeping with the links function as a strategic freight route.

7 Roadspace Allocation Guidance

This chapter summarises how through the process of applying this bespoke Link and Place framework for Birmingham Connected, an overarching set of guiding principles for reallocating roadspace have been established.

Whilst it is important to recognise that no two streets are the same, and that each will necessitate very particular design considerations - the link and place framework seeks to provide a common overarching rationale, so that wider aims of Birmingham Connected can be realised.

The ten case studies undertaken (Chapter 6) each sought to test the application of the link and place design principles (set out in Chapter 5) within a distinct environment, each with differing place characteristics and very particular links functions and access requirements.

By working through a practical process of testing and applying the framework in this way, our multi-disciplinary team has developed a number of core principles for addressing the design requirements of competing demands for roadspace. The process we followed was set out in Chapter 5, and is summarised in Figure 7.1.

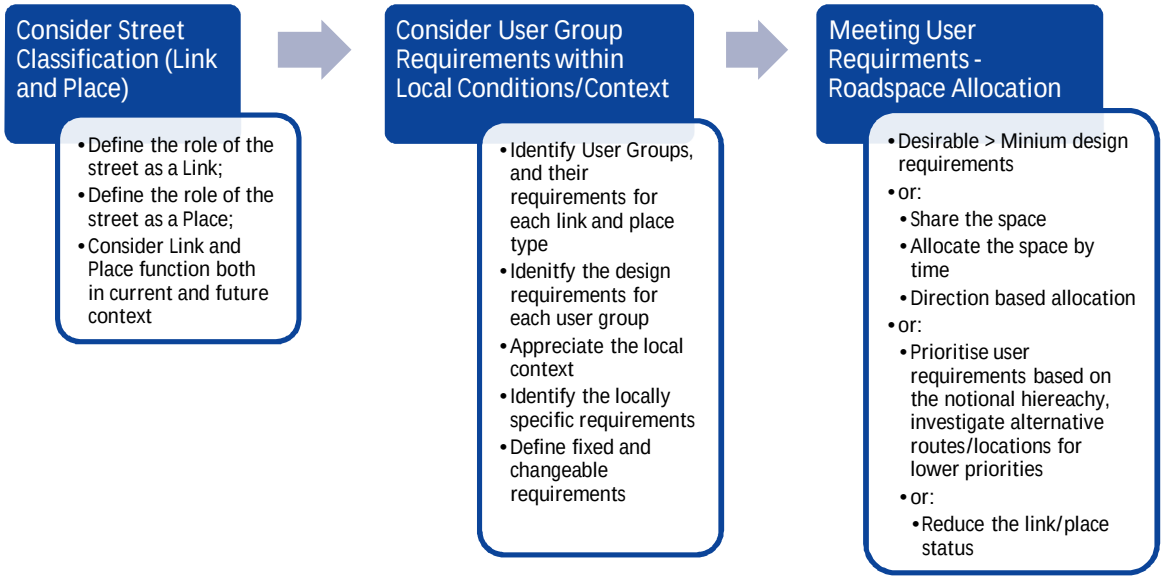


Figure 7.1 – Road Space Allocation Overview

This process equates to the following set of questions, which planners and designers should ask themselves, when considering roadspace allocation:

1. What is the link and place classification?
2. Are the current link and place classifications desirable?
3. How should space be used at this location to fulfil its Link and Place role/ characteristics?
4. Consider the competing user requirements:
    i. What are the competing link functions – is it a PT route, BRT route, freight route, GTD, cycle route?
    ii. What is its place function?
5. Is roadspace appropriately allocated?
6. What needs are the greater priority?
7. What could be done better?

8. Could different users share the space, are the design requirements for different user groups particularly time sensitive – do they merit multiple options?

7.1 Roadspace Allocation – Place Based Principles

This section reports the roadspace allocation principles for each of the Place types that have emerged through developing the case studies in Chapter 6.

These are by no means intended to serve as a definitive set of rules, but are intended to convey the practical outcomes of applying the Link and Place framework – to be developed and refined through further applications of the framework, and through the next steps set out at the end of this chapter.

Place A areas are limited to the City Centre Inner Core, which is covered separately by the City Centre Transport Masterplan (CCTMP), and so were not included within the case studies, but would reflect many of the principles reflected in Place B – but with a further emphasis on place user functions.

PLACE B

Relevant Case Studies: A, F, H

Place B environments constitute a significant focus of activity, either on the edge of the City Centre Inner Core, Sub-Regional Centres in their own right, or the area immediately around major attractors (Hospitals, Stadia, and Universities). Their catchment areas extend over a wide area of the city, and perhaps beyond. Whilst the specific land uses in play in any given Place B street will imbue distinct characteristics of their own, the commonalities amongst Place B environments is that they are significant attractors and destinations, with high levels of pedestrian footfall and activity.

Place Aspirations

A successful Place B street is an environment where:

- Retail, business and/or leisure are flourishing;
- People predominantly travel by foot, either from shop to shop, or on route to a restaurant from an arrival point;
- There is a pedestrian friendly environment, with few barriers to movement and generous footway widths; and
- Attractive urban realm should encourage people to use the space and be a natural place to gravitate to, with public squares, place features – conducive to use for street markets and events.

Guiding Principles

A Place B area is an arrival point, and should be well served by public transport. As the place function necessitates a significant area of footway to function effectively, the optimal means of moving people on mass to and from these spaces with the fewest negative externalities will be by public transport.

Place B areas are also natural environments for key interchanges, which should be at the heart of centre, visible and legible.

In Case Study A, a bus-only section was introduced, severing the link as a through route, enabling improved PT access, a better pedestrian environment and urban realm improvements.

A Place B environment should be conducive to cycling, and as a destination should be well catered for in terms of secure cycle parking, cycle crossings over barriers to movement, and suitable routes on the approaches.

In Case Study H a junction was redesigned to accommodate widened footways and provide more direct crossing along key desire lines, with an improved urban realm.

Within a Place B environment the presence of traffic and the associated emissions and noise should be discouraged. Access by car remains important in many cases, but parking should be located on the edge of the area rather than in the centre – dissuading traffic from the heart of the place, but retaining access. The exceptions being to provide for disabled parking bays, and in some circumstances short-stay parking bays, car club bays and electric vehicle charge point bays as part of other initiatives.

Delivery and servicing access should be managed to minimise the number of vehicle movements – using initiatives such as 'Freight Friends'.

Notional User Hierarchy

Based on these principles, the notional place user hierarchy for Place B is as follows:

- Pedestrians using the place, not travelling (i.e. window shopping, talking with friends)
- Pedestrians Resting
- PT Waiting, Boarding and Alighting
- Freight Loading/Unloading
- Cycle Parking
- PT Layover
- Car Parking

Applying the Principles

- Prioritise the Place as far as possible – wide footways, quality urban realm, street trees;
- Depending on the relative priority of the link over the place, dissuade through traffic as far as possible (traffic management, re-routing, restrictions, traffic calming);
- Where possible push parking to the edges, and where parking is retained on-street it should be short-stay parking;
- Place the emphasis on the pedestrian environment and urban realm, traffic calming;
- Integrate quality PT and cycle access into the otherwise low traffic environment, accommodate cycle parking within the street scene; and
- Freight loading and unloading should be pushed to side-streets or rear service yards. Alternatively they could share footway space with pedestrians using on-footway loading bays, or utilise freight friend's schemes or consolidation centres where possible.

PLACE C

Relevant Case Studies: C, D, E, G, I

Place C environments constitute important centres of activity, either District Centres, or the area immediately around attractors with a district-wide catchment area (Secondary Schools, GP Surgeries, Leisure Centres). The commonalities amongst Place C environments are that they are important district-wide destinations, with high levels of pedestrian activity within core areas.

Place Aspirations

Much like a Place B environment, a successful Place C street is an environment where:

- Retail, business and/or leisure are flourishing;
- People predominantly travel by foot, either from shop to shop, or on route to a restaurant from an arrival point;
- There is a pedestrian friendly environment, with few barriers to movement and generous footway widths; and
- Attractive urban realm should encourage people to use the space and be a natural place to gravitate to, with public squares, place features – conducive to use for street markets and events.

Guiding Principles

Whilst many of the guiding principles for a Place B environment apply to Place C, as the relative priority of the place function is lesser, the degree to which the place function would be prioritised over the link function is reduced. Therefore whilst the idealised aspirations for each would be similar, a 3B environment would allocate a greater proportion of roadspace to the Place user requirements than a 3C environment, where the link user's requirements are as important and the roadspace must be shared.

In Case Study D urban realm improvements and street trees were proposed to improve the place quality and screen the shops from the high volumes of traffic on the busy Link level 2 strategic road, as well as proposing improved crossing facilities to reduce barriers to movement.

The area is an arrival point, and should be well served by public transport. The place function merits wide footways to function effectively. The optimal means of moving people to and from these spaces with the fewest negative externalities will be by public transport.

Place C areas are also natural environments for District and Local level interchanges, which should be at the heart of centre, visible and legible.

A Place C environment should be conducive to cycling, and as a destination should be well catered for in terms of secure cycle parking, cycle crossings over barriers to movement, and suitable routes on the approaches.

In Case Study E a junction was redesigned using shared space principles to provide an improved pedestrian environment and improved place function whilst maintaining traffic flows and bus movements.

Within a Place C environment the presence of traffic and the associated emissions and noise should be discouraged where possible. Access by car will be important, particularly in sustaining some lower order district centres, but parking should be located on the edge of the area rather than in the centre – dissuading traffic from the heart of the place, but retaining access. The exceptions being to provide for disabled parking bays, and in some circumstances short-stay parking bays, car club bays and electric vehicle charge point bays as part of other initiatives.

Delivery and servicing access should be managed to minimise the number of vehicle movements – using initiatives such as 'Freight Friends'.

Notional User Hierarchy

Based on these principles, the notional place user hierarchy for Place C is as follows:

- Pedestrians using the place, not travelling (i.e. window shopping, talking with friends)
- PT Waiting
- Boarding and Alighting
- Pedestrians Resting
- Freight Loading/Unloading
- Cycle Parking
- PT Layover
- Car Parking

Applying the Principles

- Prioritise the Place as far as possible – wide footways, quality urban realm, street trees;
- Depending on the relative priority of the link over the place, dissuade through traffic as far as possible (traffic management, re-routing, restrictions, traffic calming);
- Where possible push parking to the edges, and where parking is retained on-street, it should be short-stay parking;
- Place the emphasis on the pedestrian environment and urban realm, traffic calming;
- Integrate quality PT and cycle access into the otherwise low traffic environment, accommodate cycle parking within the street scene; and
- Freight loading and unloading should be pushed to side-streets or rear service yards. Alternatively they could share footway space with pedestrians using on-footway loading bays, or utilise freight friends' schemes or consolidation centres where possible.

PLACE D

Place D environments include local centres and other local area features such as Primary Schools and Small Parks. They also include conservation areas, listed buildings and scheduled ancient monuments. They may constitute the community centre of a wider residential area, or a character area. Place D environments have relatively modest place requirements as compared to levels A-C. They generate sporadic periods of pedestrian activity, and merit greater emphasis on place function than residential areas.

Place Aspirations

A successful Place D street is an environment where:

- There is a pedestrian friendly environment, with few barriers to movement and wide footways at busier intersections;
- Low traffic speeds; and
- Urban realm complements or serves the land uses.

Guiding Principles

The place function merits urban realm features that are appropriate for a character area, i.e. footway treatment and street furnishings sensitive to the existing urban fabric, avoiding street clutter and making a feature of a building or place where suitable.

If the Place D area constitutes a primary school, community centre or alike – the focus will be more on providing accessibility, by public transport, walking, cycling and by car. Traffic flows should be managed where possible to minimise negative impacts on the place settings. In some circumstances it would be desirable to restrict or limit HGVs, and manage the number of vehicle movements – using initiatives such as 'Freight Friends'.

Notional User Hierarchy

Based on these principles, the notional place user hierarchy for Place D is as follows:

- PT Waiting
- Boarding and Alighting
- Car Parking
- Cycle Parking
- Pedestrians Resting
- Pedestrians using the place, not travelling (i.e. window shopping, talking with friends)
- Freight Loading/Unloading
- PT Layover

Applying the Principles

- Sensitivity to Place user requirements, providing complimentary urban realm environments and supporting pedestrian and cyclist access to suit the setting;
- Manage traffic flows as far as possible (traffic calming); and
- Integrate PT access within the street scene at key intervals.

PLACE E

Relevant Case Studies: B, J

Place E environments are residential areas; sprawling suburbs, cul-de-sacs, or homes fronting onto busier street environments. Place E areas have few significant attractors.

Place Aspirations

A successful Place E street is an environment where:

- There is a pedestrian friendly environment, with few barriers to movement; and
- Low traffic speeds.

Notional User Hierarchy

Based on these principles, the notional place user hierarchy for Place D is as follows:

- Car Parking
- Pedestrians Resting
- Freight Loading/Unloading
- Pedestrians using the place, not travelling (i.e. window shopping, talking with friends)

Guiding Principles

The place function in Place E areas is relatively limited, it must provide convenient access to parking, particularly where off-street parking is limited, and access to public transport. The place environment should be sensitive to the residential nature of the area, and where possible promote low traffic speeds and an environment where the street can be an area for socialising, play and interacting. If the place has an important link function, measures should be sought to mitigate or lessen the impact of traffic noise and emissions. In some circumstances it would be desirable to restrict or limit HGVs.

Applying the Principles

- Support pedestrian movements and cyclist access;
- Convenient access to PT at regular intervals;
- Manage traffic flows as far as possible, traffic calming and rerouting through traffic where possible; and
- Foster home zone environments and 20mph zones/areas – promote use of the street for wider community functions where possible.

7.2 Roadspace Allocation – Link Based Principles

This section reports the roadspace allocation principles for each of the Link types.

As many Place related characteristics are relatively fixed, particularly in terms the location of local and district centres, the requirement for local accesses etc., in many instances Link user requirements offer the greatest scope either to share roadspace or be re-routed onto a parallel link.

In some circumstances it may be that if a Link level out-ranks a Place to the extent that the place objectives have no prospect of being delivered, the Place level might be downgraded to a more suitable role given the dominance of the Link function.

Elsewhere, a place function might be upgraded, as part of a regeneration initiative for instance, in which case the greater requirements for quality urban realm and pedestrian friendly environments may lead to the corresponding link function being downgraded.

Link Level 1 is the core network, i.e. motorways, A38 (M), the majority of which sit outside the jurisdiction of Birmingham City Council. The guiding principles for this network have therefore not been developed, as they would need to be driven by Highways Agency.

LINK 2

Relevant Case Studies: A, B, C, D, E, F, I, J

Link 2 streets are the primary multi-modal corridors in Birmingham. They are strategically important links for public transport users, car users and freight. They may also carry part of the cycle network, and will almost certainly need to provide for pedestrians.

A Link 2 street can take many different forms. If it has been categorised due to its strategic road network classification, it is likely to constitute a wide carriageway, often with at least four traffic lanes.

If it has been classified due to the high number of buses running along the route, or because it is a proposed SPRINT route, in places it may be a relatively constrained road passing through a local or district centre.

Link Aspirations

An effective Link 2:

- Efficiently transports people and goods –with reliable journey times;
- Caters for pedestrian and cyclist crossing points on key desire lines;
- Is DDA compliant, with dropped kerbs and tactile paving;
- Operates safely with minimal accidents;
- Minimises emissions;
- Manages traffic noise and vibration when passing through residential areas or urban centres; and
- Provides inclusive accessibility.

Guiding Principles

An improved public transport network is at the heart of Birmingham Connected, and for it to be effective and bring about real change it needs to be delivered coherently - as such public transport has been prioritised wherever a route has been proposed.

If identified as Link 2 due to its public transport function alone, clear priority is given to public transport user requirements, allocating at least the necessary minimum road widths, priority measures and shelters to enable adequate service provision.

If identified as a significant link principally due to traffic, ideally at least 2 lanes should be provided in each direction to provide sufficient capacity.

In both cases bottlenecks and pinch points created by parking should be minimised and prevented as far as possible. Similarly bus stops for existing services (i.e. non BRT) should be accommodated within inset bays, so as not to obstruct SPRINT and City-Link services.

If the area is identified as being significant for both general traffic and public transport, and the corridor is a SPRINT or City-Link corridor, public transport requirements are prioritised to fulfil at least the minimum requirements to make the network viable.

Applying the Principles

- Prioritise public transport as far as possible – introduce bus lanes, priority measure at signals, minimise or re-route through traffic;
- Reduce delays on key corridors - review and rationalise access to side roads / turning movements, rationalise junctions;
- Remove bottlenecks, including parked vehicles, inset bus stops for non-BRT bus services, and restrict kerbside loading/unloading;
- Re-align or reduce footway widths where there is scope to do so, if it is necessary either to enable SPRINT/ City-Link networks to operate, or where a Link priority exceeds the Place function;
- Seek to provide cycle lanes with delineators where road speeds are high, or provide off-street / shared use routes for cycling – consider cycle lanes on central reservations. Where these design requirements cannot be fulfilled alternative routes on parallel links should be investigated;
- Permit HGVs to use bus lanes outside peak periods, and provide priority at signal junctions;
- Provide on-footway loading bays, loading bays on side streets and promote initiatives like Freight Friends and consolidation centres;
- If the Link status is dictated by its role as a bus route, with no wider role in carrying through traffic, traffic management measures, restrictions and rerouting should be applied; and
- Ensure pedestrian crossing facilities are provided on key desire lines, with increasingly frequent crossing provision as the Place function increases.

Where this amounts to insufficient space for general traffic and freight, bespoke design solutions should be tested, such as whether sections without dedicated lanes but mitigated to an extent by rationalised side road access etc. would enable the route to fulfil average speed requirements (20kmph); or by introducing 'bus gates' upstream and downstream of the pinch point.

Where dedicated cycle lanes, off-street cycle lanes or shared use cycle paths cannot be accommodated within a Link 2 street, more appropriate routes on parallel links should be investigated given the traffic volumes and

potential vehicle speeds, though the public transport corridors where cars are discouraged may provide suitable low traffic environments.

If the Link 2 is a strategic freight route, and therefore a key corridor for HGV movements, priority measures should be provided at signal junctions to enable HGVs to move more efficiently through the network, reducing delays to other vehicles in the process. HGVs would also be permitted to use bus lanes outside peak periods.

Notional User Hierarchy

Based on these principles, the notional link user hierarchy for Link 2 is as follows:

- Metro
- BRT
- Buses
- Taxis
- Car drivers
- LGVs
- HGVs/MGVs
- Cyclists
- Pedestrians

In Case Study C an excessively wide section of footway was reclaimed to enable critical on-street parking bays to be preserved whilst making way for a bus lane for SPRINT service.

In Case Study I a bank of on-street parking was removed to accommodate an inbound bus lane at a site with 3 SPRINT routes passing through an otherwise constrained High Street environment.

LINK 3

Relevant Case Studies: E, H

Link 3 streets are important multi-modal cross city routes. They are important links for a combination of public transport users, car users and freight (LGVs and MGVs). They may also carry part of the cycle network, and will almost certainly need to cater for pedestrians.

A Link 3 street can take many different forms, if it has been categorised due to its strategic road network classification, it is likely to be a busy distributor route with high volumes of traffic activity in peak periods.

If it has been classified due to the high number of buses running along the route, in places it may be a constrained road passing through a local or district centre.

Link Aspirations

Much like an effective Link 2, a Link 3:

- Efficiently transports people and goods –with reliable journey times;
- Caters for pedestrian and cyclist crossing points on key desire lines;
- Is DDA compliant, with dropped kerbs and tactile paving;
- Operates safely with minimal accidents;
- Minimises emissions;
- Manages traffic noise and vibration when passing through residential areas or urban centres; and
- Provides inclusive accessibility.

Guiding Principles

Whilst many of the guiding principles for Link 2 streets apply to Link 3, the relative priority of the link function is lessened, and so the degree to which the link function would be prioritised is reduced in sections of the route. Therefore whilst the idealised aspirations for each would be similar, a 2C environment would allocate a greater proportion of roadspace to the Link user requirements than a 3C environment, where the Place user requirements are as important and the roadspace must be shared.

In Case Study E a conventional signal junction was replaced with a shared space junction, enabling a steady traffic flow to be maintained without impeding on pedestrian activity.

As the core future public transport network is comprised of BRT routes, which are classified as Link 2, the demands for public transport user design requirements on Link level 3 streets are less onerous than the SPRINT corridors. Nonetheless buses operating as part of the existing (non BRT) network should be given priority where bus frequencies are high, to underpin the effectiveness of the wider public transport offering.

If identified as a significant link principally due to traffic, ideally at least 2 lanes should be provided in each direction to provide sufficient capacity.

In both cases bottlenecks and pinch points created by parking should be minimised and prevented as far as possible.

In Case Study H a large junction space with poor pedestrian crossing provision was re-designed to offer greater priority to pedestrian movements, whilst still maintaining the streets function as an important traffic link.

If a Link 3 street constitutes part of the Cities cycling revolution network, cycle users should be prioritised to ensure a coherent wider network is delivered. If the route is not part of the core cycle network, and has a critical function in carrying large volumes of traffic, cycle lanes, off-street cycle lanes or shared use cycle paths should be provided. If there is insufficient space to accommodate suitable provision for cyclists, parallel links should be investigated given the traffic volumes and potential vehicle speeds.

Notional User Hierarchy

Based on these principles, the notional link user hierarchy for Link 3 is as follows:

- Metro
- BRT
- Buses
- Pedestrians
- Cyclists
- Car drivers/Taxis
- LGVs
- HGVs/MGVs

Applying the Principles

- Provide priority measures for public transport where possible at key pinch points; at signals, sections of bus lane;
- Reduce delays on key corridors - close side roads or limit turning movements, rationalise junctions;
- Remove bottlenecks, including parked vehicles and restrict kerbside loading/unloading;
- Re-align or reduce footway widths where necessary if there is scope to do so and the Link priority exceeds the Place function;
- Seek to provide cycle lanes with delineators where part of the Cities strategic cycle network, or where traffic volume is high, or provide off-street / shared use routes for cycling. Where these design requirements cannot be fulfilled alternative routes on parallel links should be investigated;
- Provide on-footway loading bays, loading bays on side streets and promote initiatives like Freight Friends and consolidation centres;
- If the Link status is dictated by its role as a bus route, with no wider role in carrying through traffic, traffic management measures should be applied; and
- Ensure pedestrian crossing facilities are provided on key desire lines to prevent barriers to movement, with increasingly frequent crossing provision as the Place function increases.

LINK 4

Link 4 streets are locally significant multi-modal links, providing connections between residential areas and feeding into higher order links.

They may carry lower frequency bus routes, perhaps at the periphery of the network.

An otherwise residential road may be elevated to the status of Link 4 if it serves as part of the cities strategic cycle network, or lies within a GTD.

The streets are likely to have a strong pedestrian dimension, and be of a human scale.

Freight (LGVs and MGVs) would generally only use Link 4 streets for delivery and servicing purposes.

Link Aspirations

An effective Link 4:

- Caters for pedestrian and cyclists throughout, with crossings provided on desire lines;
- Provides local access for pedestrians, cyclists, car users and deliveries and servicing vehicles;
- Is DDA compliant, with dropped kerbs and tactile paving;
- Operates safely with minimal accidents;
- Minimises emissions;
- Manages traffic noise and vibration when passing through residential areas or urban centres; and
- Provides inclusive accessibility.

Guiding Principles

A Link 4 street would typically place less emphasis on providing roadspace for car users and other motorised vehicles, particularly through routing traffic.

These streets should have a clear human dimension, with lower traffic environments where pedestrian activity is more concentrated, and crossing points on desire lines.

If a Link 4 street constitutes part of the Cities cycling revolution network, cycle users should be prioritised to ensure a coherent wider network is delivered, and where required Cycle lanes, off-street cycle lanes or shared use cycle paths should be provided to further promote the streets as cycling environments.

Buses operating as part of the existing (non BRT) network should be given priority where required to underpin the effectiveness of the wider public transport offer.

Notional User Hierarchy

Based on these principles, the notional link user hierarchy for Link 4 is as follows:

- Pedestrians
- Cyclists
- Buses
- HGVs /MGVs
- Car drivers/Taxis
- LGVs

** No Metros or BRT on Link level 4*

Applying the Principles

- Foster low traffic or low speed environments to promote cycling, and where part of the City's strategic cycle network, seek to provide cycle lanes with delineators, off-street or shared use routes as required;
- Prioritise pedestrian crossing movements on desire lines;
- Provide priority measures for PT where possible at key pinch points – signal priority, sections of bus lane;
- Discourage through traffic with suitable traffic management, investigate re-routing traffic onto alternative routes;
- Ensure pedestrian crossing facilities are provided on desire lines, with increasingly frequent crossing provision as the Place function increases; and
- Restrict larger freight vehicles.

LINK 5

Relevant Case Studies: G

Link 5 streets are local access roads with very limited functions as links in the wider transport network, other than to provide local access or serve pedestrian through movements.

They may be low profile cul-de-sacs in residential areas, or alternatively pedestrianised streets or low traffic environments within bustling central shopping areas. By definition they carry no public transport or cycle routes.

Freight (LGVs and MGVs) would only use Link 5 streets for delivery and servicing purposes.

Link Aspirations

An effective Link 5:

- Provides local access for pedestrians, cyclists , car users and deliveries and servicing vehicles;
- Caters for pedestrian and cyclist crossing points on key desire lines;
- Is DDA compliant, with dropped kerbs and tactile paving;
- Operates safely with minimal accidents;
- Minimises emissions;
- Manages traffic noise and vibration when passing through residential areas or urban centres; and
- Provides inclusive accessibility.

Guiding Principles

The Link function on Link 5 streets is relatively limited, it must provide local access, particularly for pedestrians and cyclists, but also for car users, who may either be visiting shops within a city centre street, or accessing their home.

In Case Study G a highway dominated street was redesigned to slow traffic movements and foster a pedestrian and cyclist friendly environment.

A Link 5 street would typically place less emphasis on providing roadspace for vehicle users, particularly through routing traffic.

These streets should have a clear human dimension, with low traffic environments where pedestrians can move about freely, and largely unimpeded by traffic movements.

Notional User Hierarchy

Based on these principles, the notional link user hierarchy for Link 5 is as follows:

- Pedestrians
- Cyclists
- Car drivers/Taxis
- LGVs
- MGVs

** No PT on Link level 5*

Applying the Principles

- Low speed environments - 20 mph limits, traffic calming;
- Short crossing distances, narrow traffic lanes and tightened kerb radii;
- Shared space or pedestrianized street sections; and
- Ensure pedestrian crossing facilities are provided regularly at desire lines to prevent barriers to movement.

8 Assessing Street Performance

This Chapter provides some initial thoughts around a balanced approach to assess street performance based on a combined view of link and place functions. Given the current timescales for the study and remit of the current commission, we have made an attempt to provide some initial thinking on how to measure the street performance based on some common link and place themes and indicative performance indicators.

The indicative link and place themes considered for assessing the street performance are schematically shown in Figure 8.1 below and given in further detail, including the performance indicators, in Appendix E.

Figure 8.1 - Street Performance Assessment Themes

It is duly acknowledged that further engagement with wider stakeholders and professionals needs to be undertaken to develop this into a more detailed Performance Assessment Framework. It also needs to be validated against the level of data available or collated by BCC on a routine basis, as well as the resources available to undertake some on-site assessments.

The indicative performance criteria has the potential to be further developed including, but not limited to, conversion of the indicative performance indicators to a common scale; establishing thresholds of performance; and deciding on scoring based on street type/matrix cell. This can then be applied to the Birmingham network.

This has been shared with the Package 7, Monitoring and Evaluation Technical work package team, with the objective that it will be integrated with the overall monitoring and evaluation strategy proposed for Birmingham Connected delivery.

9 Next Steps

This study has developed a bespoke link and place framework for Birmingham, including a classification system utilising available datasets for the City, user requirements and their associated design requirements.

Key performance indicators were developed for assessing how well a street is performing against its relative link and place functions.

A process was developed for applying the link and place framework, and a number of case studies at sites across the City were considered to test the process, through which some core principles were developed as to how the framework might be applied in practical terms, so that each street may best achieve the requirements of the people using it and the wider aspirations of Birmingham Connected.

In addition to which a number of additional steps were identified to further develop and refine this process going forwards, including:

- Introducing additional data to the **Link and Place mapping**, as they become available, would enable further refinement of the link and place types (some additional desirable dataset were recommended in Chapter 3). Additionally further refinements could be made to the existing datasets, such as splitting out the hospitals layer to differentiate between different types of hospitals when classifying their Place status;
- Engage with professional stakeholders to further develop the Performance Assessment framework (Chapter 8);
- Undertake the **Performance Assessment** exercise for a number of specific sites across the City;
- Use the outputs of the Performance Assessment exercise and the Link and Place framework to inform the selection of priority corridors for investment and scheme development;
- Consult with key stakeholders to develop a vision for Place environments, and set **Place Aspirations** with the buy-in of the local community and interest groups – linked to the KPIs introduced in in Chapter 8 and set out in Appendix E;
- Develop detailed **Place Design Guidance** for different levels of Place and land use types, outlining the minimum/desirable widths for footway provision, quality of surfacing etc., working in conjunction with Planning/Urban Planning colleagues; and
- Going forwards, promote the use of the Link and Place framework in developing and informing **Spatial Planning Policy**, so the implication of any changes to the place aspirations of an area can be accounted for with within transport planning strategy, and conversely the impact of any changes to link function can be understood within a place context.

BIBLIOGRAPHY

Birmingham City Council . (2012, July). Aston, Newtown and Lozells Area Action Plan. Retrieved from Birmingham City Council : http://www.birmingham.gov.uk/astonaap

Birmingham City Council . (2012, March). Kings Heath Local Action Plan. Retrieved from Birmingham City Council : http://www.birmingham.gov.uk/cs/Satellite/kingsheathlap?packedargs=website%3D4&rendermode=live

Birmingham City Council . (2014). Moseley - Supplementary Planning Document (SPD). Retrieved from Birmingham City Council : http://www.birmingham.gov.uk/moseleyspd

Birmingham City Council. (2000, June). Northfield Local Action Plan. Retrieved from Birmingham City Council: http://www.birmingham.gov.uk/cs/Satellite/northfieldplan?packedargs=website%3D4&rendermode=live

Birmingham City Council. (2001). Places for All. Retrieved from Birmingham City Council: http://www.birmingham.gov.uk/cs/Satellite/placesforall?packedargs=website%3D4&rendermode=live

Birmingham City Council. (2001, July). Selly Oak Local Action Plan. Retrieved from Birmingham City Council: http://www.birmingham.gov.uk/cs/Satellite?c=Page&childpagename=Development-Planning%2FPageLayout&cid=1223092558783&pagename=BCC%2FCommon%2FWrapper%2FWrapper

Birmingham City Council. (2004, February). Ley Hill Development Framework. Retrieved from Birmingham City Council: http://www.birmingham.gov.uk/cs/Satellite/leyhill?packedargs=website%3D4&rendermode=live

Birmingham City Council. (2005, July). Edgbaston Reservoir and Icknield Port Loop Development Framework - Supplementary Planning Guidance (SPG). Retrieved from Birmingham City Council: http://www.birmingham.gov.uk/cs/Satellite/icknieldportloop?packedargs=website%3D4&rendermode=live

Birmingham City Council. (2005, February). Millpool Hill Marina Development Brief . Retrieved from Birmingham City Council: http://www.birmingham.gov.uk/cs/Satellite?c=Page&childpagename=SystemAdmin%2FCFPageLayout&cid=1223092558759&packedargs=website%3D4&pagename=BCC%2FCommon%2FWrapper%2FCFWrapper&rendermode=live

Birmingham City Council. (2005, October 11). Unitary Development Plan. Retrieved from Birmingham City Council: http://www.birmingham.gov.uk/udp

Birmingham City Council. (2009, April). Longbridge Area Action Plan. Retrieved from Birmingham City Council: http://www.birmingham.gov.uk/cs/Satellite/longbridgeaap?packedargs=website%3D4&rendermode=live

Birmingham City Council. (2010, March). Kings Norton Planning Framework. Retrieved from Birmingham City Council: http://www.birmingham.gov.uk/cs/Satellite/3estates?packedargs=website%3D4&rendermode=live

Birmingham City Council. (2011, November). Big City Plan - City Centre Masterplan. Retrieved from Birmingham City Council: http://www.birmingham.gov.uk/bigcityplan

Birmingham City Council. (2012, March). Shopping & Local Centres Supplementary Planning Document (SPD). Retrieved from Birmingham City Council: http://www.birmingham.gov.uk/spdlocalcentres

Birmingham City Council. (2013, May). Mere Green Development Framework. Retrieved from Birmingham City Council: http://www.birmingham.gov.uk/cs/Satellite?c=Page&childpagename=Planning-and-Regeneration%2FPageLayout&cid=1223423190347&pagename=BCC%2FCommon%2FWrapper%2FWrapper

Birmingham City Council. (2014, July). Birmingham Development Plan. Retrieved from Birmingham City Council: http://www.birmingham.gov.uk/plan2031

Chartered Institution of Highways and Transportation. (2010). Manual for Streets 2: Wider Application of the Principles. London: Chartered Institution of Highways and Transportation.

Department for Transport and Department for Communities and Local Government. (2007). Manual for Streets. London: Thomas Telford Publishing.

Jones, P., Boujenko, N., & Marshall, S. (2007). Link & Place: A Guide to Street Planning and Design. London: Landor Publishing.

APPENDICES

Appendix A

The strategic vision and objectives for Birmingham established in the adopted and emerging Local Plan documents have been considered in developing the place classifications. The saved policies of the Unitary Development Plan (UDP)[2] set out the current guidelines for development and land use in the city. This is set to be largely replaced by the emerging Birmingham Development Plan (BDP), this provides the most up to date spatial strategy for Birmingham, and establishes a vision for the city up to 2031. While it has not yet been formally adopted, the document has been submitted for examination and so in light of its advanced stage, it is appropriate to use this document in identifying the strategic growth areas to inform the classification of places.

The Development Plan establishes a network of centres where growth is prioritised, with the highest tier being the city centre, followed by the sub-regional centre at Sutton Coldfield, the district growth centres at Perry Bar, Selly Oak and Medway and finally the 70 other smaller district and neighbourhood centres (Figure 3.1).

In addition to the emerging BDP, other development plan documents, including Area Action Plans (AAPs), and supplementary planning documents (SPDs), including the Shopping and Local Centres SPD (2012), have been reviewed to inform the place classification. These have also been supplemented by information from other non-statutory guidance documents, such as the Big City Plan (2011) and various planning framework documents (see the Bibliography for a full list).

Following a review of the background material presented above, it was considered that the most appropriate approach for the place classifications is to base them on the significance of the location in terms of catchment or area of influence. This allows a variety of land uses to be captured as part of each Place Level and recognises that while places may have a similar mix of land uses, the role and function of the place may vary significantly.

Literature Review – Inputs to Place Classification

As a starting point for this study, we have reviewed key relevant policy and best practice guidance documents, including:

- Link & Place (2007);
- Warwick Road Smart Route Strategy-BCC;
- Birmingham Route Management Strategy -. BCC;
- Birmingham Draft Proposals Map (2014);
- Birmingham Draft Development Plan (2013); and
- Various SPDs, AAPs and Development Briefs for sites within Birmingham.

Link and Place: A Guide to Street Planning Design[3] was published to provide a new tool for planning and designing streets, recognising both its function as a link – where users pass through – and as a place – somewhere that is a destination in its own right. The document establishes a methodology for preparing link and place levels and demonstrates how the tool can be used for integrated street planning and design.

For link classifications, the document recommends developing categories that take into account the scale and significance of the route along with considering any strategic priorities of modal networks (for example bus rapid transit or tram routes).

With regard to place, it recommends ranking places in terms of their significance rather than simply land use. This allows for a mix of uses to be captured under each level and recognises that two places comprising similar land uses they may have vastly different catchments or strategic roles. The document notes that in classifying a place the highest significance level should take precedence, and that buildings or spaces with a particular cultural value could “boost” an areas place classification.

[2] In 2008 the Secretary of State agreed to save a number of the UDP policies until they are superseded by the emerging Development Plan Documents.

[3] Jones, P.; Boujenko, N.; and Marshall, S. (2009)

Link and Place has been previously used in Birmingham as part of the *Route Management Strategy*. This strategy was generally link focussed, with limited information on place based criteria and no specific performance criteria for this aspect. As a starting point for developing the link and place categories for this study a detailed analysis has been carried out of the Route Management Strategy classifications. This is set out in Section 3.2.

The strategic vision and objectives for Birmingham established in the adopted and emerging Local Plan documents have been considered in developing the link and place classifications and design guidance. The saved policies of the Unitary Development Plan (UDP)[4] set out the current guidelines for development and land use in the city. This is set to be largely replaced by the Birmingham Development Plan, which was submitted for examination in July 2014.

The UDP was originally adopted in 2005 and was intended to provide development guidance up to 2011. In light of the Direction issued by the Secretary of State on 19th September 2008, a number of the policies remain extant. The overall vision continues to be relevant, which seeks to regenerate Birmingham, with a focus on realising the potential of the city centre and reducing deprivation in areas of greatest need.

The emerging Birmingham Development Plan provides the most up to date spatial strategy for Birmingham, and establishes a vision for the city up to 2031.

The Vision established in the UDP is generally carried forward, with the Birmingham Development Plan, which is seeking to create a prosperous, high quality and sustainable city. It seeks to provide well designed, accessible, and safe places that reflect the character and history of the location. The Development Plan establishes a network of centres where growth is prioritised, with the highest tier being the city centre, followed by the sub-regional centre at Sutton Coldfield, the district growth centres at Perry Bar, Selly Oak and Medway and finally the 70 other smaller district and neighbourhood centres.

The Local Plan also includes a number of other development plan documents, including Area Action Plans (AAPs), and supplementary planning documents (SPDs), including the Shopping and Local Centres SPD (2012) as well as other non-statutory guidance documents, such as the Big City Plan (2011) and various planning framework documents (see the Bibliography for a full list). These documents have also been used to feed in to classifying places and identifying strategic place objectives where relevant.

A number of best practice guidance documents have been published in relation to street design standards. Most notably, Manual for Streets 1 and 2 have been referred to in developing place related design requirements.

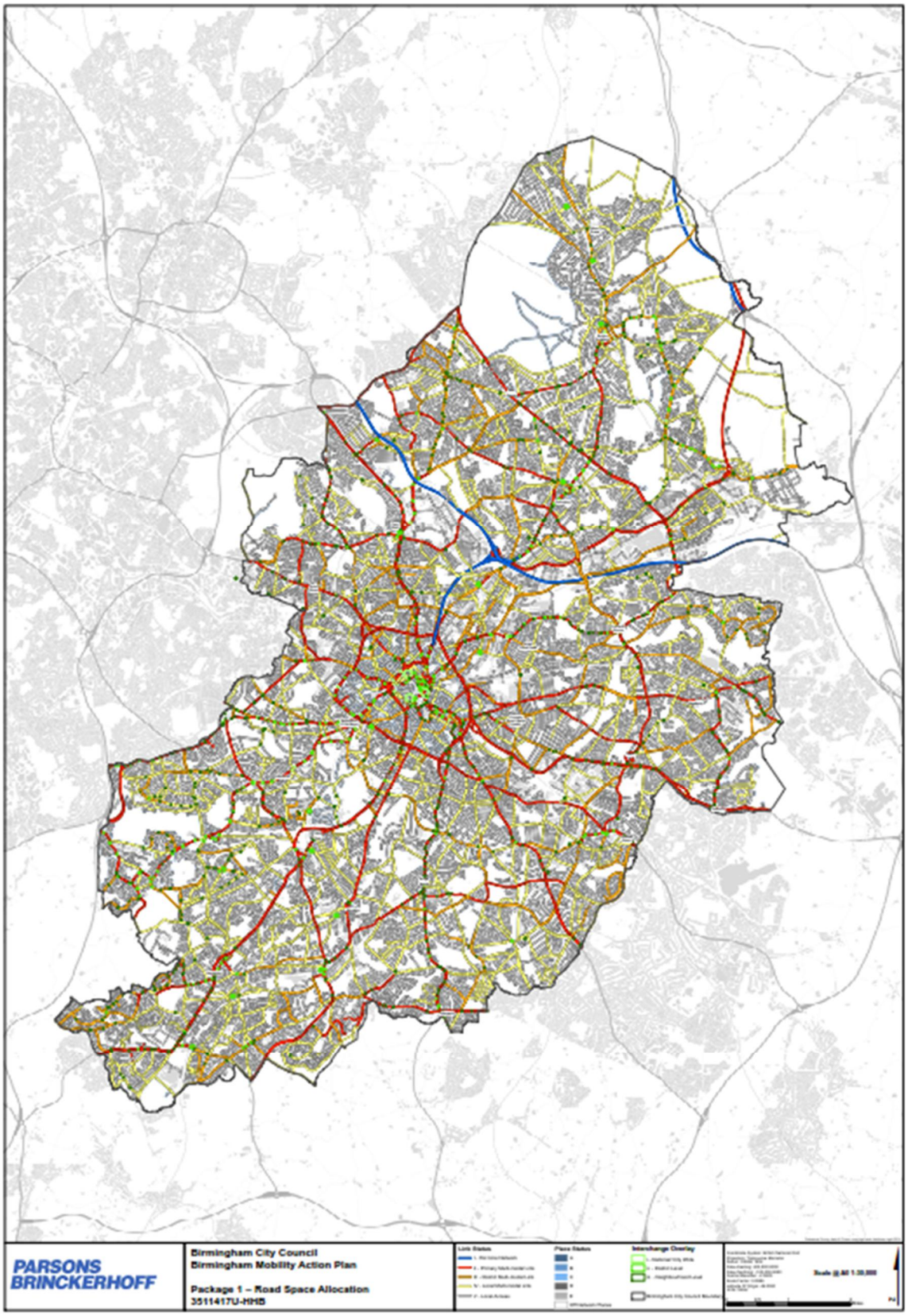
Birmingham Hierarchy of Centres	Level of comparison retail floorspace (sq. gross)	Level of office floorspace (sq.m. gross)
	2012-2026	2013-2031
City Centre	160,000	700,000
Sub-Regional Centre	30,000	20,000
Sutton Coldfield		
District Growth Points	20,000 15,000	10,000 5,000
Perry Barr/ Birchfield Meadway		

[4] In 2008 the Secretary of State agreed to save a number of the UDP policies until they are superseded by the emerging Development Plan Documents.

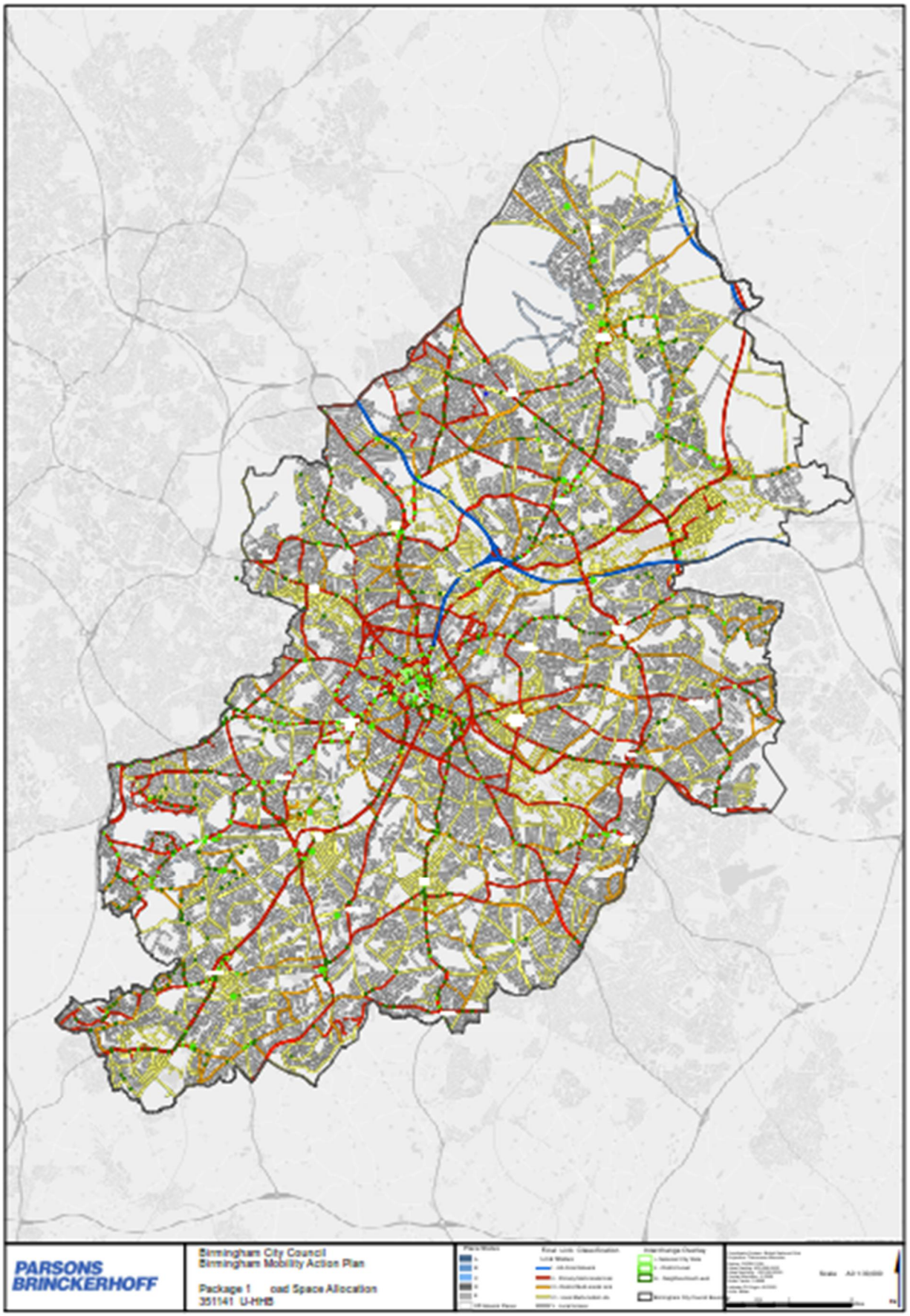
Selly Oak	25,000	10,000
District Centre		
Acocks Green, Alum Rock, Castle Vale, Coventry Road, Small Heath, Edgbaston (Five Ways), Erdington, Fox and Goose, Harborne, Kings Heath, Maypole, Mere Green, New Oscott, Northfield, Sheldon, Soho Road, Stirchley, Swan Shopping Centre	Within District Centres, levels of comparison retail and office floor space growth should be appropriate to the size and function of the centre but should not normally exceed 5,000 sq.m. gross in either case. However, higher levels of office development will be supported in Edgbaston (Five Ways) District centre because of its close links to the City Centre.	
Local Centre		
Balsall Heath, Boldmere, Bordesley Green, College Road, Cotteridge, Dudley Road, Frankley, Glebe Farm, Hall Green, Hawthorn Road, Hay Mills, Highfield Road, Highgate, Ivy Bush, Jewellery Quarter, Kings Norton, Kingsbury Road, Kingstanding Circle, Ladypool Road, Lea Village, Longbridge, Lozells Road, Moseley, Newtown, Olton Boulevard (Fox Hollies), Pelham, Queslett, Quinton Village, Robin Hood, Rookery Road, Scott Arms, Shard End, Short Heath, Slade Road, Sparkbrook, Sparkhill, Springfield, Stechford, The Radleys, Timberley, Tyburn Road, Tyseley, Villa Road, Walmley, Ward End, Weoley Castle, West Heath, Witton, Wylde Green, Yardley Wood, Yew Tree	Within local centres comparison retail and office floorspace will be acceptable in line with the size of the centre and provided that the proposal is aimed at catering for the local catchment population.	

Appendix B

Link and Place Mapping Classification - Existing Network



Link and Place Mapping Classification - Future Network



Appendix C

User requirements, Street Activities and Design Requirements

Link Street User Group	Street Activities	Street Design Elements	Min Design Requirement	Recommended Design Requirement	Measure of Performance
Bus/City Link Users	Travelling along the Street (as a driver or a passenger)	Traffic Running Lane	3.0m	3.65m	Journey Time
Car Users		Minimum interruptions to flow			Journey Time Reliability
Taxi Users		Safe provisions at junctions			Accident Rate/Causalities/KSI
Powered T/W		Adequate lighting			Bus Patronage
HGV/MGV/Van Drivers		Appropriate and adequate signing and marking			Mode Share
Sprint users and operators	Travelling along the Street (as a driver or a passenger).	In addition to the Bus/City Link users it needs:			In addition to the Bus/City Link users:
		sections of dedicated lanes (not necessarily continous);	3km of length		A minimum of 20kph operating speed
		camera enforcement;	over 40% of the route		Reduced Bus Lane Penalty Charge Notice
		cashless smartcard fare collection facilities;	40% of the route	100% of the route	Sprint Patronage i.e. passengers per hour per direction (PPHPD)
		some prohibited turns across the busway;			
		signal priority at most junctions;			
		Control /UTC centre covering most Sprint Services;			
		Both late-night and weekend services, preferably 24 hour operation;			
		stops/stations on corridor set back 26 m (85 ft.) from junctions; and		26 m (85 ft.) from junctions unless the distance between junctions does not permit this.	
		Closely spaced Stops/Stations	average distance between stops being 0.8 km(0.5m)	average distance between stops 0.3Km (0.2m)	
Cyclists	Cycling along the street	Traffic running lane;	3.0m	3.65m	Mode Share
		cycle Lane;	1.2m	1.8m	Casualties/KSI involving cyclists
		minimum interruptions to flow;			
		safe provisions at junctions;			
		protection from fast moving vehicles;			
		adequate lighting;			
		appropriate and adequate signing; and			
		even surface			
Pedestrians (Striders)	Walking along the Street	Clear movement path/footways - Footway Clear Zone;	1.0m	1.5-2.0m	Mode Share
		protection from vehicles;			Casualties/KSI involving pedestrians
		minimum interruptions to flow;			
		safe provision at junctions/side streets and crossings;			
		even footways;			
		adequate lighting;			
		personal security street elements; and			
		Adequate and appropriate signs			
Wheelchairs, walking frame, walking stick users	Walking or wheeling along the street	Wheelchair friendly street surfaces; unobstructed routes; dropped kerbs for crossing; level surfaces; wide footways; adequate lighting; space to carry out activities;	Unrestricted width of 1.5m, with the length of any restricted width sections being no more than 6 meters.	Unrestricted width of 2m, with the length of any restricted width sections being no more than 6 meters. This width allows two wheelchairs to pass one another comfortably.	
Visually impaired people	Walking or wheeling along the street	Unobstructed routes; level surfaces; strong tonal contrast; tactile/ coloured paving; well defined kerbs; wide footways; weather protection; adequate lighting; space to carry out activities; public toilets; litter bins; seating			
Car Users with a disability	Travelling to parking	Signage to disabled parking			

Place Street User Group	Street Activities	Street Design Elements	Min Design Requirement	Recommended Design Requirement	Measure of Performance
Car Users	Parking	Parking Space			
Motorcyclists		Adequate Lighting			
Cyclists					
CityLink Passengers	Waiting	Shelter and seating at stops, internal illumination, litter bin and RTI		Capacity for 30 passengers; 3-sided on kerb-side;	Mode Share
Bus/City Link/Sprint Users	Access to Stops/stations.	Fully accessible stops/stations for users, including sufficient footway width to approaches.	Footway width1.0m	Footway width 1.5-2.0m	
Sprint users and Operators	Boarding/alighting	buses are platform level requiring the pavement height at bus stops/stations to be raised, or for buses to lower their suspension.		100% of the stops	Compliance reflected in increased PPHPD
Sprint users	Waiting	Sufficiently wide, attractive, weather-protected stops. Stops to be well-lit, transparent, and have security (CCTV).	15m x 3m 4-sided shelter on kerb-side		
		Functioning real-time and up-to-date static passenger information		corridor wide	
		Sufficient pavement width between back of shelter and pavement/property boundary		2.0m	
Park & Ride Passengers	Waiting (at P&R site)	Shelter and seating ; terminal building; toilets/baby change; on-site staff; RTI; drinks vending machine; payment transaction terminal		Capacity for 40 passengers	
Taxi Operator	Boarding/ alighting; waiting for passengers; resting	Taxi rank for safe boarding/alighting of passengers from nearside door, preferably closer to a pedestrian crossing, dropped kerb or a raised table			
Taxi Passenger	Boarding/ alighting; waiting for taxis	Taxi rank for safe boarding/alighting from nearside door, preferably closer to a pedestrian crossing, dropped kerb or a raised table			
Van Drivers	Loading/Unloading in retail/business centres	Loading bays	Density would be subject to local site conditions. Options to extend the hours of loading / unloading, use of pay and display bays outside core shopping hours, flexible loading bays that can be used by a variety of goods vehicles etc., will govern the level of loading/unloading provision.		
Van Drivers	Servicing/emergency repairs	Short term waiting provision	Potential for bollarded areas to allow for servicing access - re- discussions with BT. Particularly appropriate where there are few / busy loading bays. Hence the bollarded bays can be used as footway / general space when not in use as a servicing bay.		
Wheelchairs, walking frame, walking stick users	Window shopping Queuing for services Chatting to friends Waiting for friends Resting Comfort break	Wheelchair friendly street surfaces; setting down points; unobstructed routes; dropped kerbs for crossing; level surfaces; wide footways; weather protection; adequate lighting; space to carry out activities; public toilets; litter bins	It is recommended that there should be minimum widths of 3.0m at bus stops and 3.5m to 4.5m by shops to allow for the user needs, though it is recognized that available space will not always be sufficient to achieve these dimensions.		
Visually impaired people	Queuing for services Chatting to friends Waiting for friends Resting Comfort break	Unobstructed routes; level surfaces; strong tonal contrast; tactile/ coloured paving; well defined kerbs; wide footways; weather protection; adequate lighting; space to carry out activities; public toilets; litter bins; seating			
Car Users with a disability	Parking	Disabled Bays close to end land use			
Pedestrians (Striders)	Window shopping Queuing for services Chatting to friends Waiting for friends Resting Comfort break	Adequate Lighting, Space to carry out their activities, Weather Protection, Seating, Public Toilets, Litter Bins. This to be provided wherever possible by allowing for:			
		Kerb zone - Allows vehicles to overhang and avoid the face of furniture	0.45m		
		Furniture and planting zone - where street furniture and any trees, subject to space needs to be located	0.5m	for speeds greater than 30mph, maximum permissible provision up to a maximum of 2.0m	
		Footway Clear zone - for unhindered movement of pedestrians	1.0m	1.5-2.0m	
		Frontage zone - Area between footway clear zone and property line.			

Appendix D

Realising the Birmingham Connected Objectives through improved transport provision

	Enabling improved PT	Enhanced interchange	Providing improved cycle access	Managing car use and impacts	Promoting lower emission vehicles	Promoting improved quality of place	Promoting improved pedestrian networks/ environment	Efficient freight access, managed impacts
1. Equitable Birmingham - BMAP will facilitate a 21st Century transport system; linking communities together and improving access to jobs and services.	√√√	√√√	√√			√	√√√	
2. Efficient Birmingham - BMAP will help to facilitate the city growth agenda by moving people and goods in the most efficient and sustainable way possible; strengthening our economy and boosting jobs.	√√√	√	√	√√√			√√	√√√
3. Sustainable Birmingham - BMAP will reduce the impacts of greenhouse gas emissions and energy consumption from transport, as well as ensuring the most sustainable use of city resources.	√√√	√√	√√√	√√	√√		√√√	√√
4. Healthy Birmingham - BMAP will contribute to a general raising of health standards across the city through the promotion of walking and cycling, the reduction of air pollution, and improved safety for all users.	√	√	√√√	√√	√√	√√	√√√	√√
5. Attractive Birmingham - BMAP will contribute to enhancing the attractiveness and quality of the urban environment: in local centres, key transport corridors and the city centre.		√√		√√	√√	√√√	√√√	√√

Appendix E

Street Performance Indicators

Indicative Link Performance Indicators

Themes	Indicator	Measure	Indicator Description	Potential Data Sources
General Traffic	Congestion	Speed (mph)	This KPI is a measure of the speed of cars and Light Goods Vehicles (LGVs) through the segment.	SPECTRUM congestion module
	Congestion	Peak Period Speed ÷ Higher of Off Peak/Inter Peak Speed	The second KPI is a measure of the peak period speed compared to the speeds recorded during off peak and inter - peak periods.	
	Reliability	Reliability Indicator Std. Dev from Mean Journey Time ÷ Mean Journey Time	The Reliability indicator is the percentage of the standard deviation of the journey times for a segment in relation to the mean journey time through that segment during the study period.	
	Safety	Accident Rate (No of accidents ÷ number of years) x 1,000,000 ÷ (AADT x 365) x link length in km	The accident rate is the number of accidents that occur per million vehicles kilometres through the segment. This is calculated by using accident and flow data.	SPECTRUM ACCIDENTS (Five year most recent data)
	Safety	Severity Ratio (KSI ÷ Total Accidents)	The second safety indicators is the percentage of accidents that resulted in someone being killed or seriously injured, compared to the total number of accidents occurring.	
Buses, including City Link	Congestion	Speed (mph)	This KPI is a measure of the average speed of buses through the segment.	Bus JT data (TBC by Motts); Bus Patronage Data (TBC by Motts)
	Congestion	Peak Period Speed Higher of Off Peak ÷ Inter Peak Speed	The indicator relates the ratio of the peak period speed to the higher of the inter peak and off peak speed	
	Reliability	Std. Dev from Mean Journey Time ÷ Mean Journey Time	The Reliability indicator is measured as the percentage of the standard deviation of the journey times for a segment in relation to the mean journey time through that segment during the study period.	
	Level of Provision	Current demand ÷ No of seats on bus services	This indicator has been included as a measure of how the number of people using the bus services along the corridors compares to the amount of seats that are available on those services.	
BRT (Sprint)	Congestion	Speed (mph)	This KPI is a measure of the average operational speed of buses through the segment.	Sprint JT Data (TBC by Motts)
	Reliability	Std. Dev from Mean Journey Time ÷ Mean Journey Time	The Reliability indicator is measured as the percentage of the standard deviation of the journey times for a segment in relation to the mean journey time through that segment during the study period.	
	Patronage	passengers per hour per direction (PPHPD)	This indicator has been included as the usage of Sprint services along the corridors.	Patronage Data (Boarding/Alighting) (Centro?)
	Enforcement	Bus Lane Penalty Charge Notice (Numbers)	This indicator is a measure of how successfully the bus lane is being enforced.	Penalty Charge Notice Records
Freight	Congestion	Speed (mph)	This KPI is a measure of the average speed of Heavy Goods Vehicles (HGVs) through the segment.	SPECTURM congestion module
	Congestion	Peak Period Speed ÷ [Higher of] Off Peak or Inter Peak Speed	The indicator relates the ratio of the peak period speed to the higher of the inter peak and off peak speed.	
	Reliability	Std. Dev from Mean Journey Time Mean ÷ Journey Time	The Reliability indicator is measured as the percentage of the standard deviation of the journey times for a segment in relation to the mean journey time through that segment during the study period	
Cycle	Safety	Accidents per km per year	Safety has been measured for cyclists through an indicator relating to the number of accidents occurring that involve a cyclist per unit length per year	SPECTRUM ACCIDENTS (Five year most recent data)
	Level of Provision along route	Level of Provision of on-route or off-route facilities	Shows how easy it is for a cyclist to travel along the corridor which follows the radial roads. The indicator highlights where the provisions are/are not in place for cyclists, especially when correlated to areas with high accident rates.	Geocoded Cycling Network
	Level of Provision across route	Level of Provision across the route	The level of provision across the route is used to show where suitable facilities are in place for cyclists to cross the corridors. Cyclist crossing facilities have been selected as including all toucan, zebra and signal controlled junctions along the routes - Toucan's considered the best form of provision.	Geocoded Cycling Network

Indicative Link and Place Performance Indicators

Pedestrian	Safety	Accidents per km per year	In the same way as for cyclists, safety has been measured for pedestrians as the number of accidents occurring that involves a pedestrian per unit length per year.	SPECTRUM ACCIDENTS (Five year most recent data)
	Level of Provision along route	Level of provision of on-route or off-route facilities	Shows the location of pedestrian footways along the corridors - The indicator is a useful component of the framework if there is no footway provision and this is correlated with an area with a high accident rate.	Route Surveys/Street View mapping
	Level of Provision across route	Level of Provision across the route	Shows where suitable facilities are in place for pedestrians to make movements across the corridors. Pedestrian crossing facilities have been selected as including all controlled crossings along the routes.	BCC Geo-coded crossing provisions/Route Surveys/Street View mapping
Environment	Air quality	annual mean concentration of NO2 and PM10 emissions per cubic metre at 20 metres	If monitoring data is not available a desktop analysis based on the methodology given in Design Manual for Road and Bridges (DMRB) Chapter 11, section 3, can be undertaken to estimate the concentrations of NO2 and PM10 emissions. The DMRB methodology is based on estimating the concentration of the emissions based on traffic information including flows (AADT), composition of traffic and average traffic speeds.	Birmingham Air Quality Action Plan monitoring; DEFRA publish air quality monitoring data.
	Green House Gases	carbon emissions in tonnes per year per kilometre	If data on Green House monitoring is not available then a desktop analysis based on the methodology given in Design Manual for Road and Bridges (DMRB) Chapter 11, section 3 can be used to estimate the carbon emissions in tonnes per year per kilometre.	Desktop analysis based on Defra methodology in the absence of Greenhouse monitoring data.
	Noise	Noise exposure in Db (A) - Strategic assessment only.	Strategic assessment of noise exposure in different areas using Defra Noise maps. This provides interactive access to noise maps for the agglomerations by noise source (road, rail and industry), and for airports.	In the absence of any Noise monitoring data, Defra's Noise Mapping for West Midlands can be used.
	Low emissions vehicles	Number of charging points	Low emission vehicles can demonstrate the provision for these vehicles in the area	Number of charging points provided.

Indicative Place Performance Indicators

Accessibility	DDA Compliance at Bus Stop Locations	Disability Access audit	Access for disabled people.	Access audit.
	Accessibility of Crossings	Pedestrian Crossing Audits	Assessment of pedestrian crossings along the route and in all side roads against a series of criteria including visibility, presence of tactile paving, height and width of any dropped kerb etc.	Crossing Audit
	Public Transport Accessibility	Distance between Bus stops; Presence of safe crossing provisions in the vicinity; Width of approach footways	This provides a measure of Public Transport accessibility	Percentage of major developments meeting specified accessibility standards.
Quality of place	Well being	Quality of Life indicators	Quality of place can directly impact on quality of life.	ONS publish a National Well-being Database to monitor national well-being, including: Income and wealth; job satisfaction and economic security; ability to have a say on local and national issues; having good connections with friends and relatives; present and future conditions of the environment; crime; health; education and training; personal and cultural activities, including caring and volunteering.
	Deprivation	Quality of place and access to employment and services measures	Quality of place and access to employment and services can directly impact on deprivation.	Indices of deprivation.
	Crime	Crime rates	Quality of place can impact and be affected by crime.	National crime databases are available.
Urban Realm Assessment	Character	Character assessments	The public realm forms an important part of an areas character.	Site by site assessment of character of place. This would require developing a standard questionnaire for consistency.
	Legibility	Legibility assessments	Public realm works should make it easy to define legibility	Site by site assessment of legibility. This would require developing a standard questionnaire for consistency.
	Community perception of quality of place	Community Street Audit	Understanding why people choose to visit or not to visit particular places.	Community street audit; Place check
	Streets as social spaces	Questionnaire including vehicle speed, all user spaces provisions	Streets should be designed to allow them to function as social spaces.	Site by site assessment of streets for all. This would require developing a standard questionnaire for consistency. Indicators could include vehicle speeds and sufficient space for all user requirements.
Loading	Loading Violations	Penalty Charge Notice (Loading Violations)		BCC Database
Parking	Parking Violations	Penalty Charge Notice (Parking Tickets)		BCC Database
Economic Vitality	Number of jobs	Number of jobs	The increase in the number of jobs could demonstrate success in transport initiatives in releasing land for development and improvements to quality of place encouraging regeneration.	Total number of full-time and part-time jobs.
	Property prices	Property Values (£)	The increase in property prices could demonstrate the success in creating high quality and desirable neighbourhoods.	Property prices.
	Performance of town centres	Retail performance	The retail performance of town centres can be affected by the quality of places and accessibility.	Retail Performance Data
	Reduction in vacancies in existing housing stock	Housing Vacancy Rates	The reduction in housing vacancies could demonstrate the success in creating high quality and desirable neighbourhoods.	Housing vacancy rates.
	Birmingham headline Gross Value Added (GVA) per capita at current basic prices	GVA per capita (£)	The increase in GVA per capita could demonstrate the increase in higher value employment opportunities in Birmingham. This could be as a result of success in transport initiatives in releasing land for development and creating high quality places that promote higher value employment types in Birmingham.	Birmingham headline Gross Value Added (GVA) per capita at current basic prices.

This Report Has Been Prepared by the Birmingham Connected Technical Study Group

BIRMINGHAM CONNECTED

www.birmingham.gov.uk/connected