

A new UK approach to planning and designing urban streets

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Topics Covered

- Background: changing context
- Manual for Streets
- Framework for street planning & design
- Improving London's major public spaces

Research:

1. Street life
2. Stakeholder engagement in street design
3. Street auditing and assessment
4. Barriers to bus/rail access

Historical Context

- UK car ownership started to increase rapidly during the 1960s
- Buchanan Report (1963) predicted that most households would own cars and that traditional city form would not cope
- Need to redesign road networks, to cope with traffic demand and protect living areas ('environmental areas')

Road Functions

Movement

Access



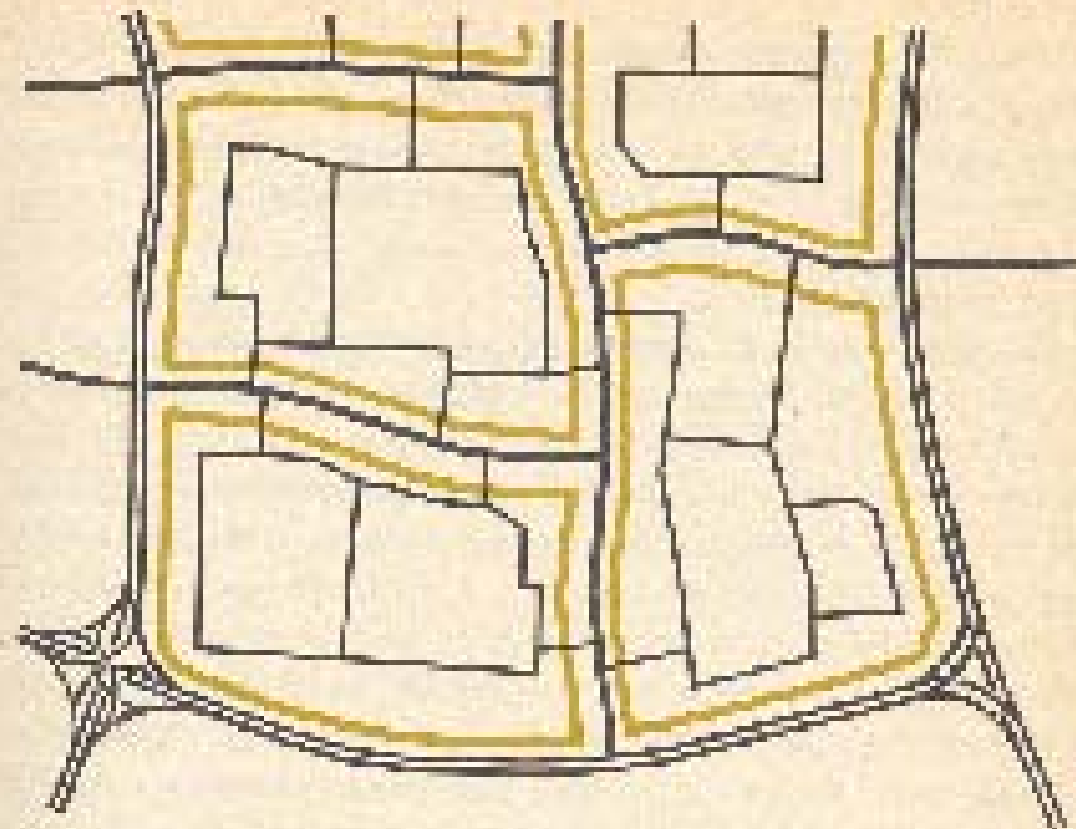
Road Functions

Movement

Access



Cities re-designed as a series of
'Corridors' and 'rooms'.....



- Primary distributors ==
- District distributors —
- Local distributors —
- Environmental area boundaries —

51 The present hierarchy of roads in Accra made a point of view.

Latest Thinking (40 years on)

- Separation designs cities for cars and not for people
- Discourages use of more efficient and sustainable modes of transport
- Disadvantages people without car access
- Traditional street designs better (e.g. Milton Keynes new town)

Manual for Streets

(DfT and others)

- New approach to residential street design, taking a less 'traffic-dominant' approach
- Aims of design guidance:
 - build and strengthen communities
 - effective for movement
 - pleasant and attractive
 - acceptability safe

Manual for Streets (cont)

- Seeks to avoid:
 - design based on motor traffic needs
 - bland and unattractive
 - unsafe and welcoming to walkers and cyclists
 - poorly specified and constructed

Street Design Principles

- Design to be location-specific, taking account of place & movement functions
- Emphasis on 3-D visual quality
- Vehicle needs not the priority
- Lower speed/safety standards to reduce carriageway dominance
- Road safety -> quality audit

Designs to be Avoided





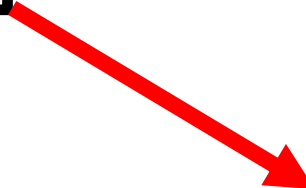


Image: Duany Plater-Zyberg

Shift in Design Philosophy

**'Rooms and
Corridors'**

(Buchanan, 1963)



**'Open-plan'
Office**

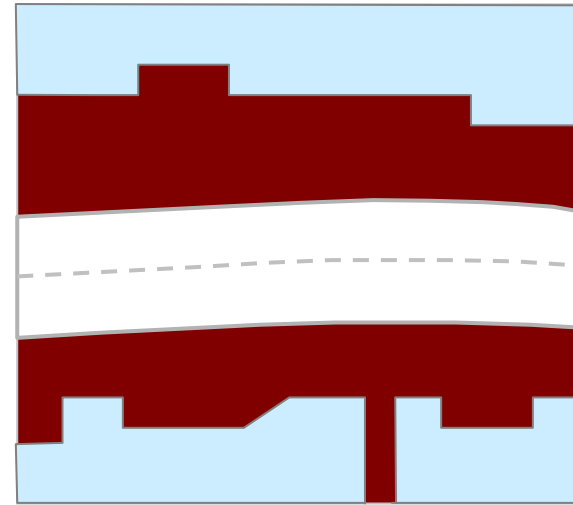
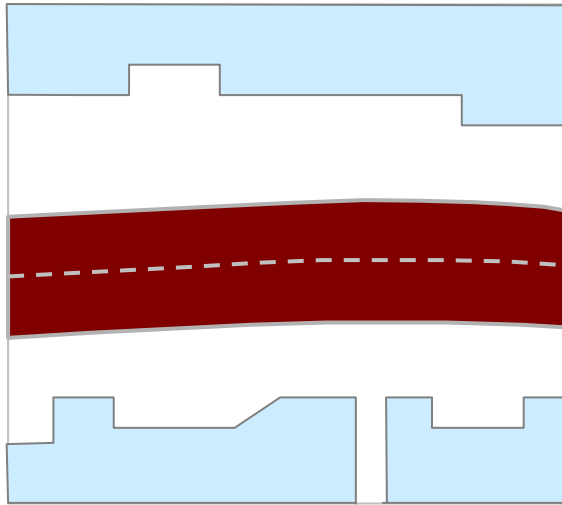
Link and Place:

A Guide to Street Planning and Design

The Study:

- Developed from the EU 'ARTISTS' Project on sustainable arterial streets
- Provides a framework for planning and designing urban streets
- Emphasis on sustainability & liveability

Recognising dual function of streets



Streets fulfil two functions:

LINK function

Conduit for through
movement of people
and goods

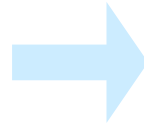
PLACE function

Destination
in its own right

Use of a street as a Link

Through movement:

- **Private cars, vans,
goods vehicles**
- **Public transport**
- **Cycles**
- **Pedestrians**

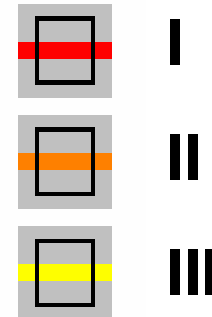
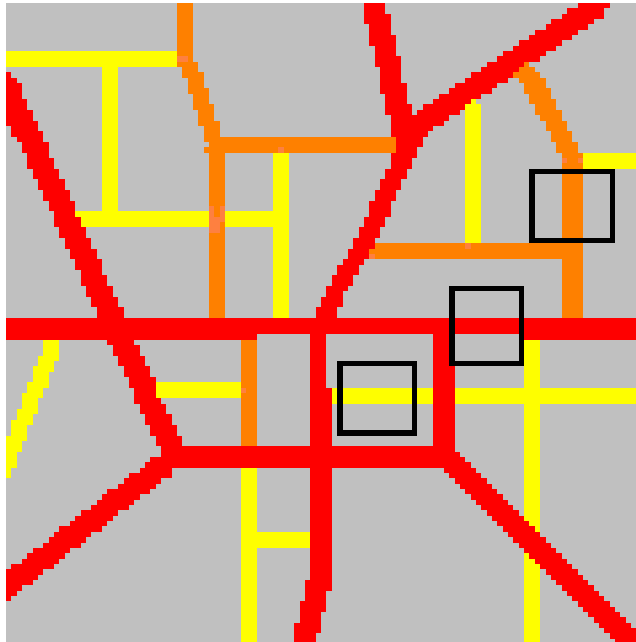


People movement

Use of a street as a Place

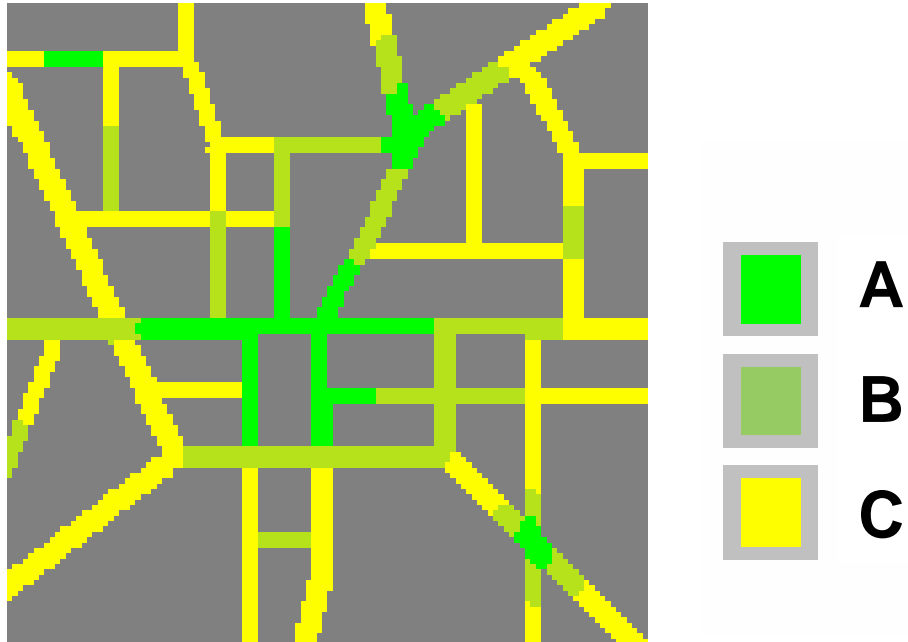
- **People standing, sitting, sightseeing, shopping, trading**
- **Public performances, parades, demonstrations, etc.**
- **Parking (including cycle parking)**
- **Loading / servicing**

LINK status



- Spectrum of types from strategic to local routes
- Strategic routes all connect up to form a single contiguous network

PLACE status



- Places of national status, city status, local status, etc.
- These form a scatter – not contiguous
- Overlain – independent

Streets form part of a complementary system



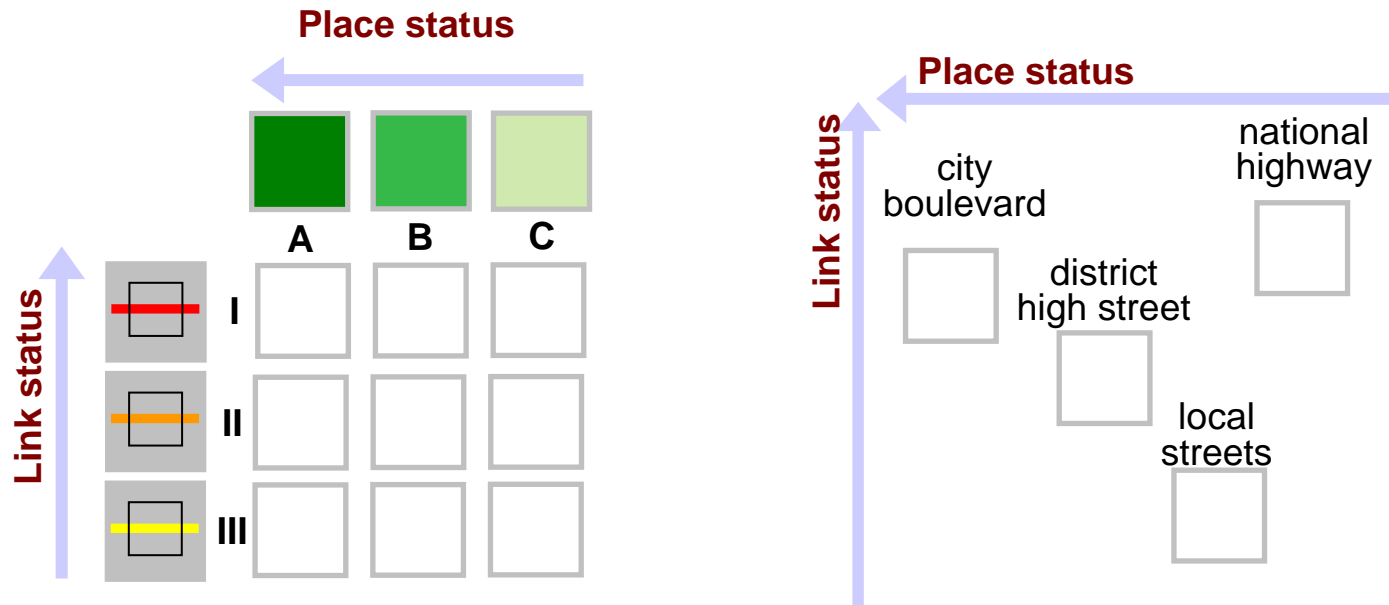
Some streets may prioritise local environmental qualities...



...other streets need to serve strategic movement functions

LINK & PLACE

...are two independent entities



Street Classification

- Basis for recognising dual functionality of LINK and PLACE
- Basis for addressing varying place needs along the corridors

Place status (A, B, C, D and E)

		National	City	District	Neighbourhood	Local
Link status (I, II, III, IV and V)	National	I-A	I-B	I-C	I-D	I-E
	City	II-A	II-B	II-C	II-D	II-E
	District	III-A	III-B	III-C	III-D	III-E
	Neighbourhood	IV-A	IV-B	IV-C	IV-D	IV-E
	Local	V-A	V-B	V-C	V-D	V-E

Link/Place classification matrix

Arterial streets
 Non-arterial streets

Source:
*'Link and Place - A Guide to
 Street Planning and Design'*

Recognising dual function of streets

**Example: Two streets of comparable width
- but with different balance of space allocation**



I-A	I-B	I-C	I-D
II-A	II-B	II-C	II-D
III-A	III-B	III-C	III-D

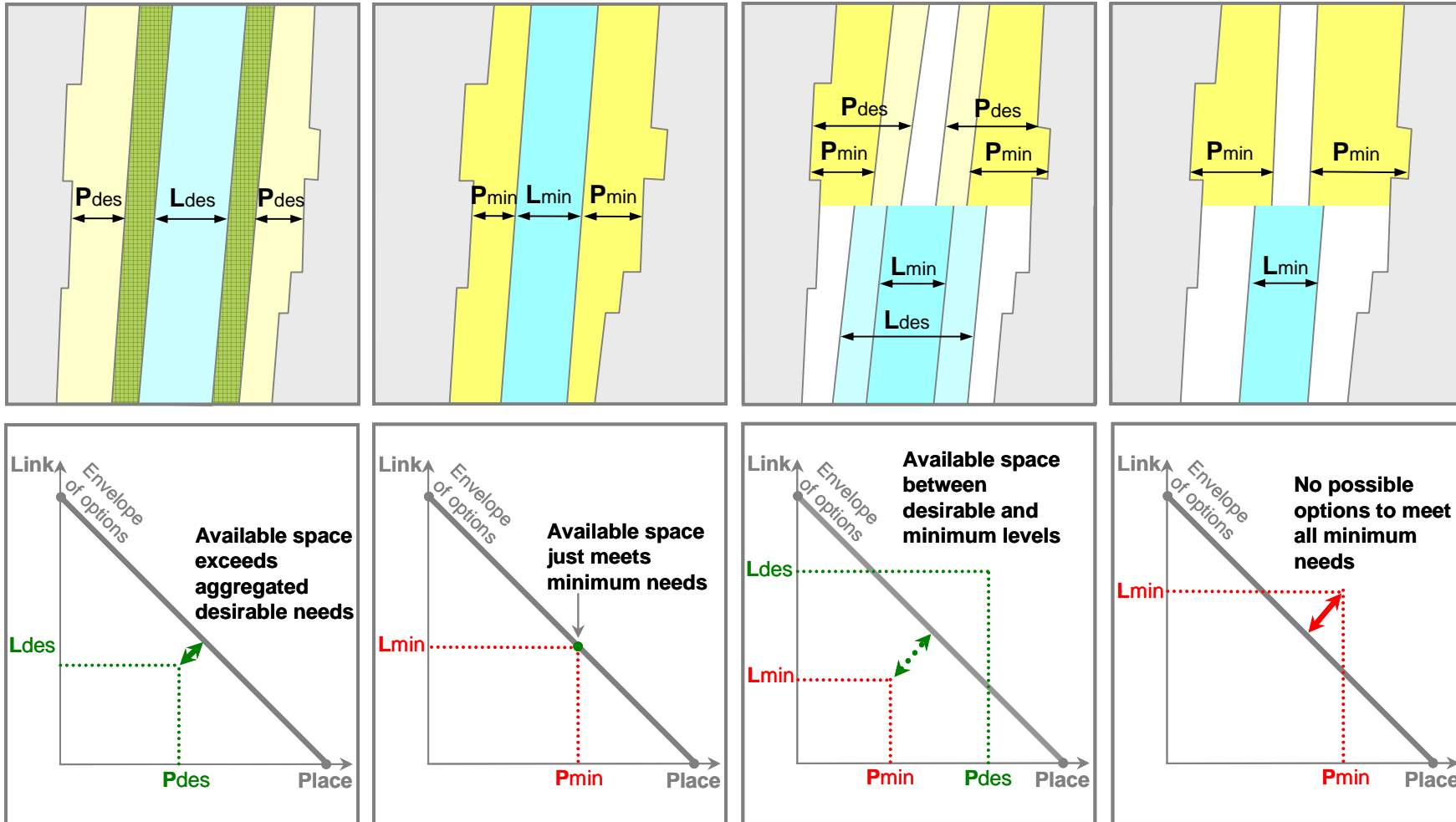
Overall status II-D –
Link status (II) higher
than Place status (D),
so Link receives more
attention



I-A	I-B	I-C	I-D
II-A	II-B	II-C	II-D
III-A	III-B	III-C	III-D

Overall status IIIB –
Place (B) higher than
Link status (III), Place
receives more
attention

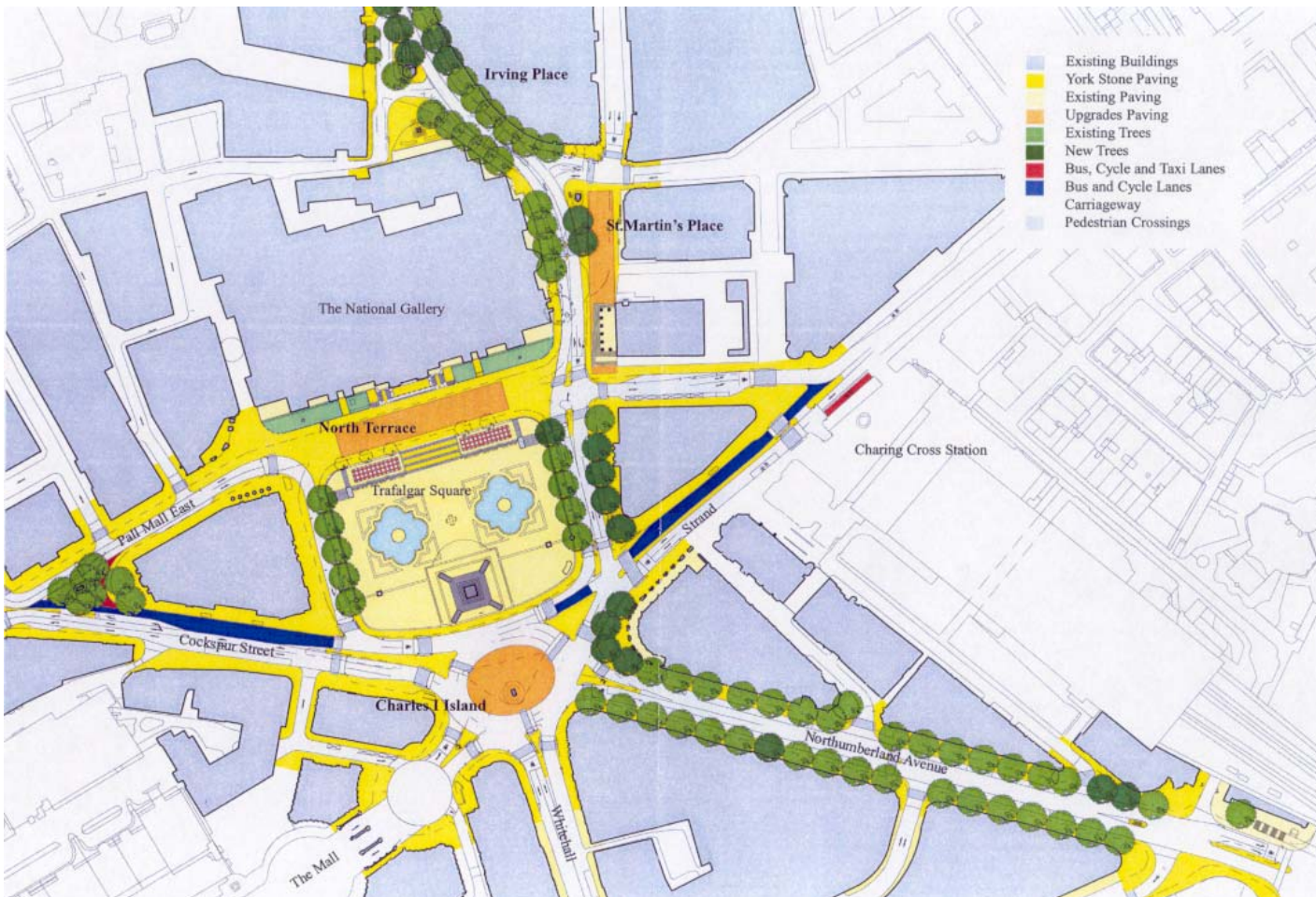
Link/Place Trade-Offs



Improving Major Public Spaces in London

Case Study:
Trafalgar Square

The Final Plan



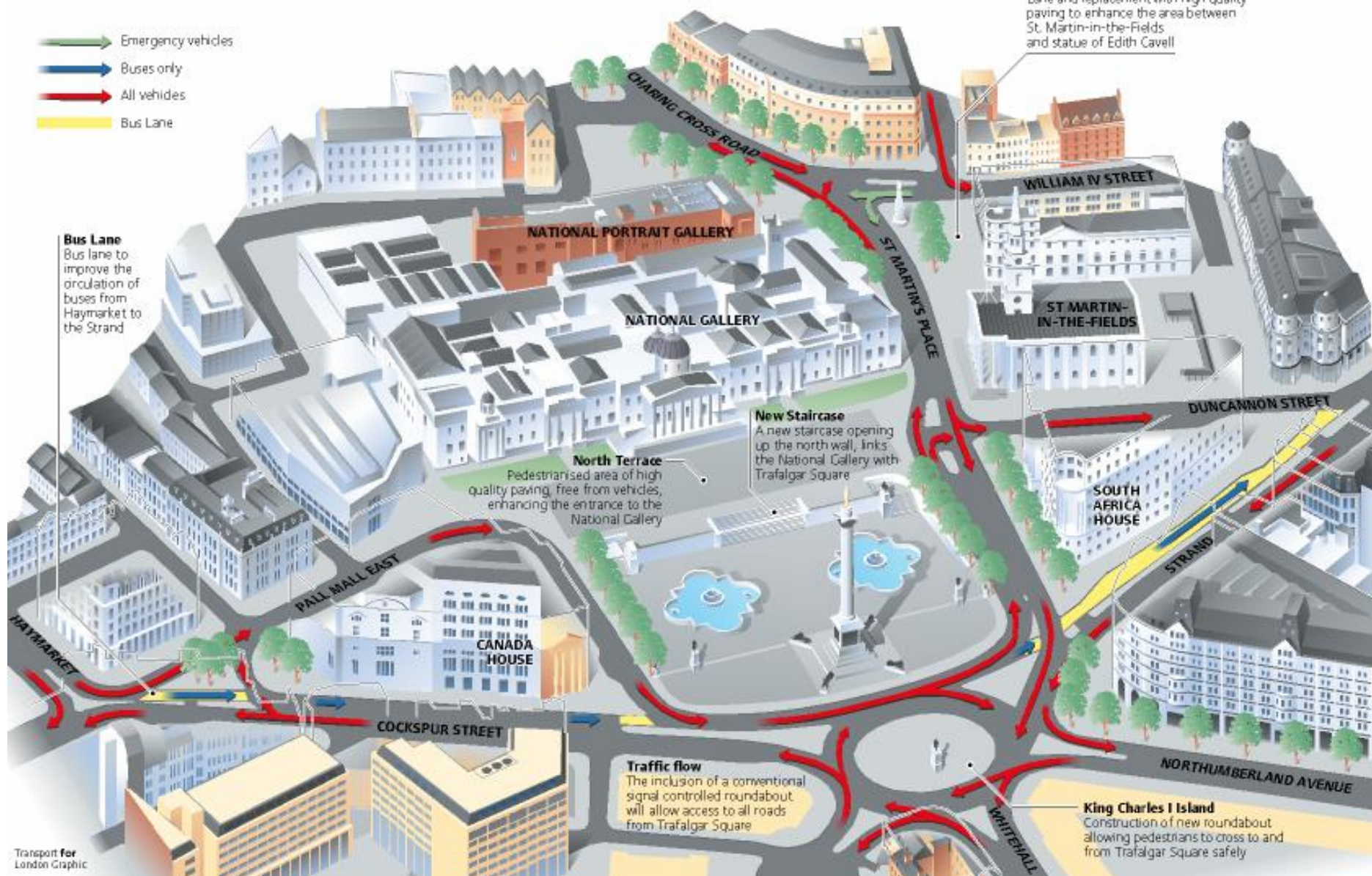
Final traffic flow around Trafalgar Square on completion of the World Squares for All project – Phase I

-  Emergency vehicles
-  Buses only
-  All vehicles
-  Bus Lane

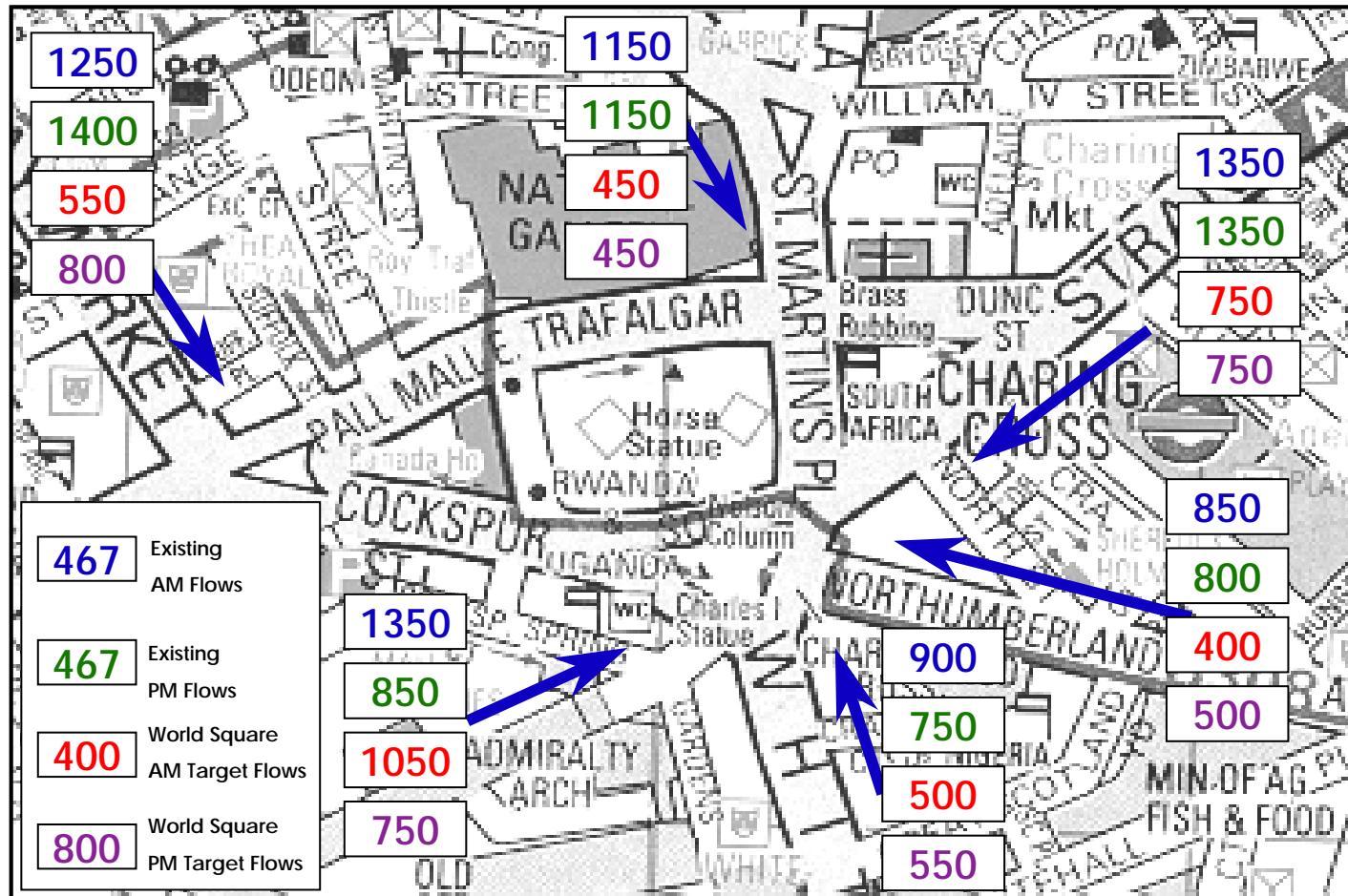
Bus Lane
Bus lane to improve the circulation of buses from Haymarket to the Strand

St. Martin's Place

Removal of a section of St. Martin's Lane and replacement with high quality paving to enhance the area between St. Martin-in-the-Fields and statue of Edith Cavell



Flow Reductions of the Approaches to Trafalgar Square



Impacts of Trafalgar Square Scheme

- Very significant (c. 40%) reductions in traffic capacity in Trafalgar Square:
 - AM peak: 6,850 vph -> 4,000 vph
 - PM peak: 6,300 vph -> 3,800 vph
- Pedestrian journey times across square reduced by two-thirds
- Major high quality public space created

=> Reducing Link status to meet Place needs



Research Studies

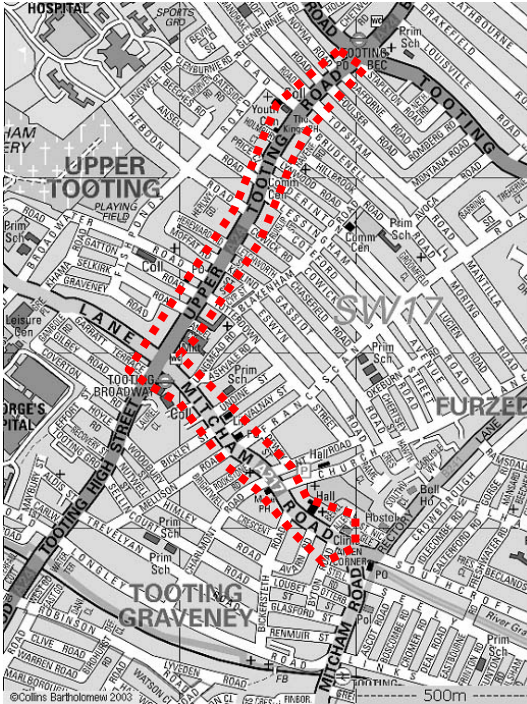
1. Street life
2. Stakeholder engagement in generating street design options
3. Street auditing
4. Local accessibility

Research 1: Street Life

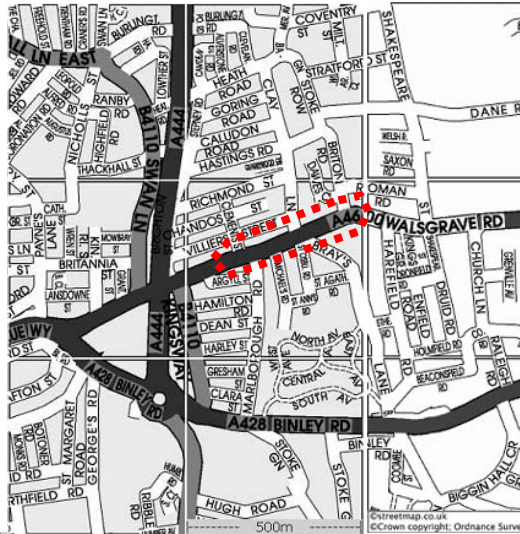
“Mixed use streets” (JRF):

- Study of three local high streets
- Data collation, video analysis, surveys, agency interviews, etc.
- Focus on street uses and conflicts
- Conclude: high streets are a valuable part of future sustainable communities

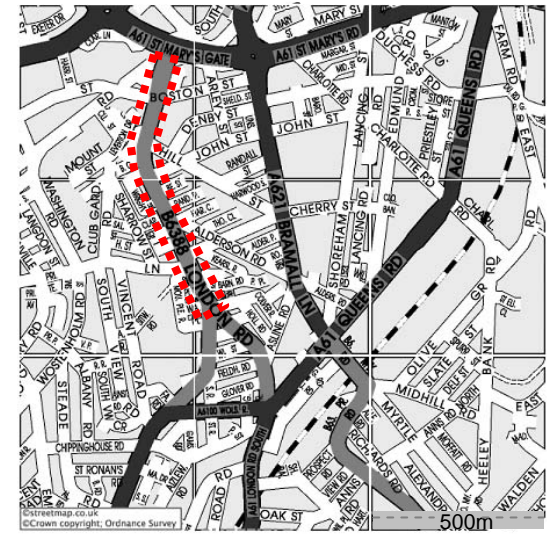
Case Study Sites



**Tooting
London**



**Ball Hill
Coventry**



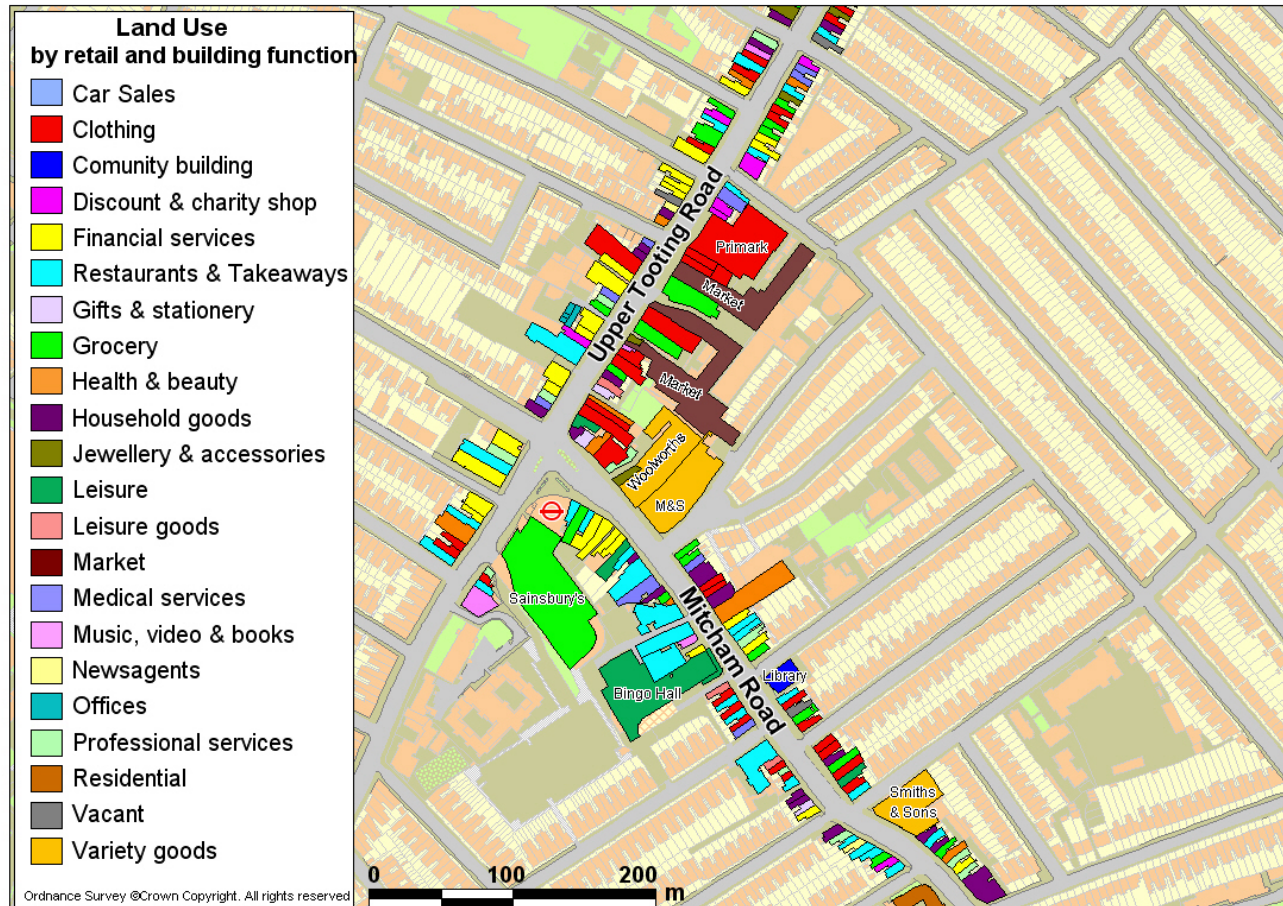
**London Road
Sheffield**

Scale: 1:2500

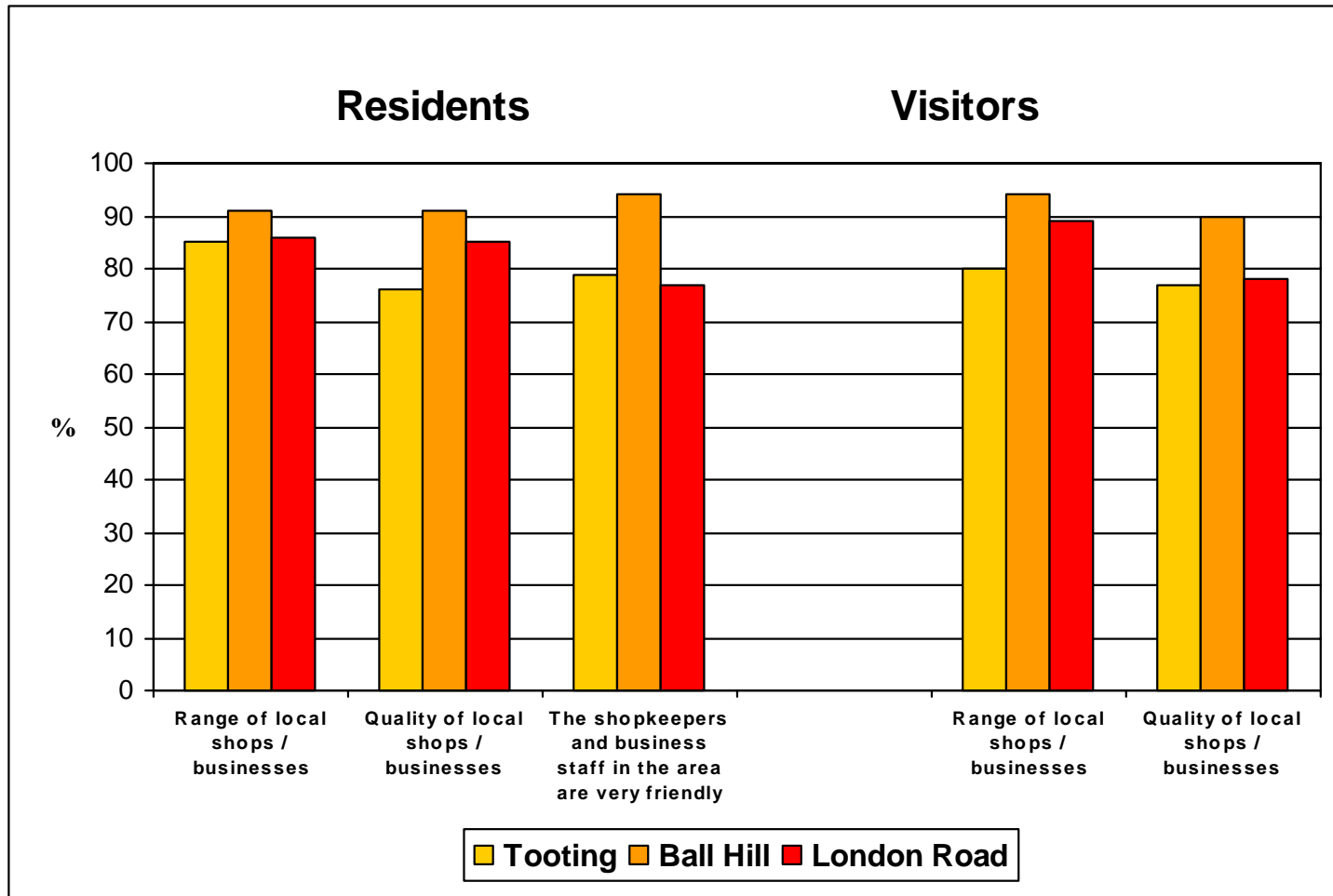
Coventry & Tooting



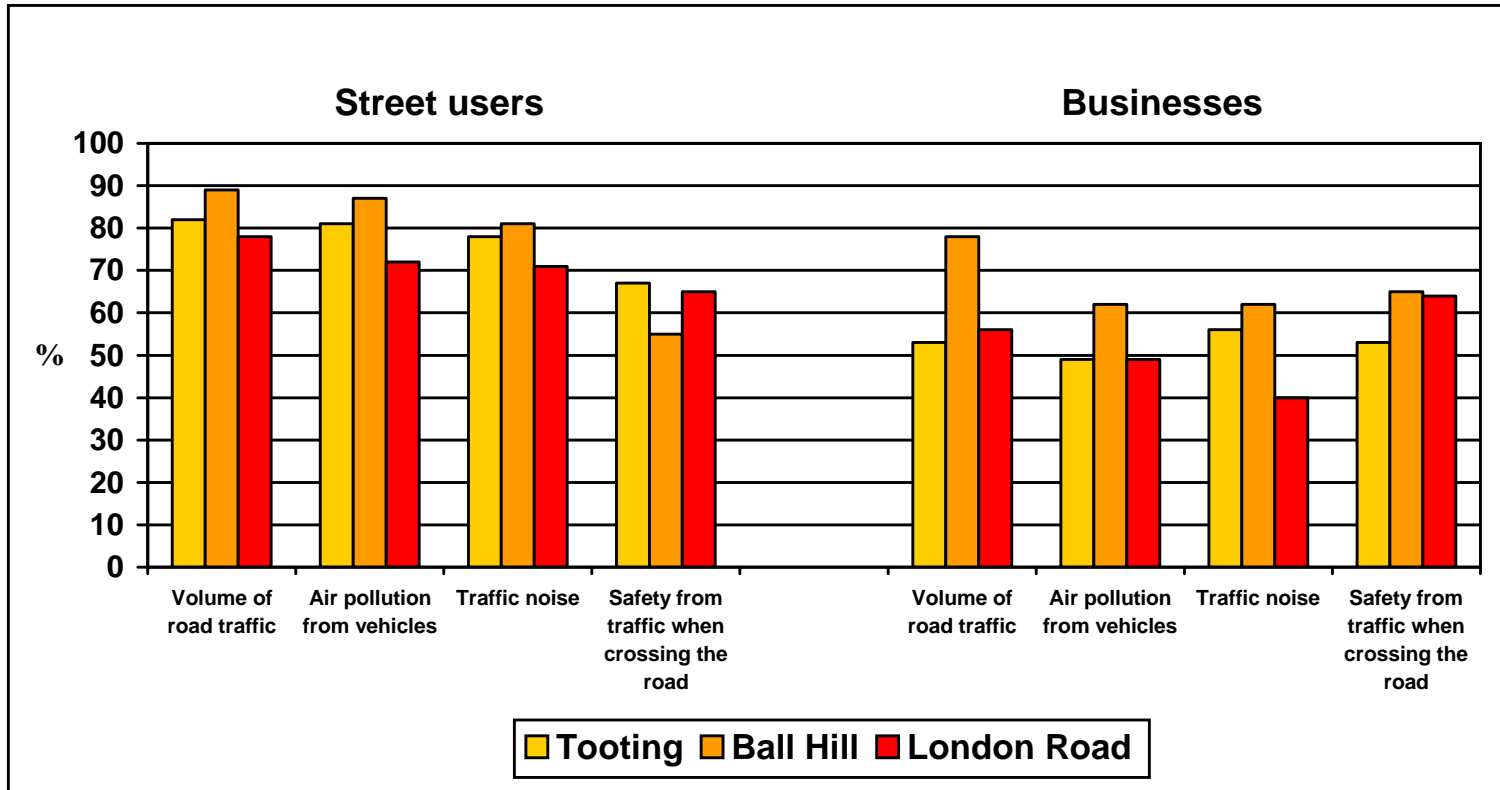
Diversity of Businesses



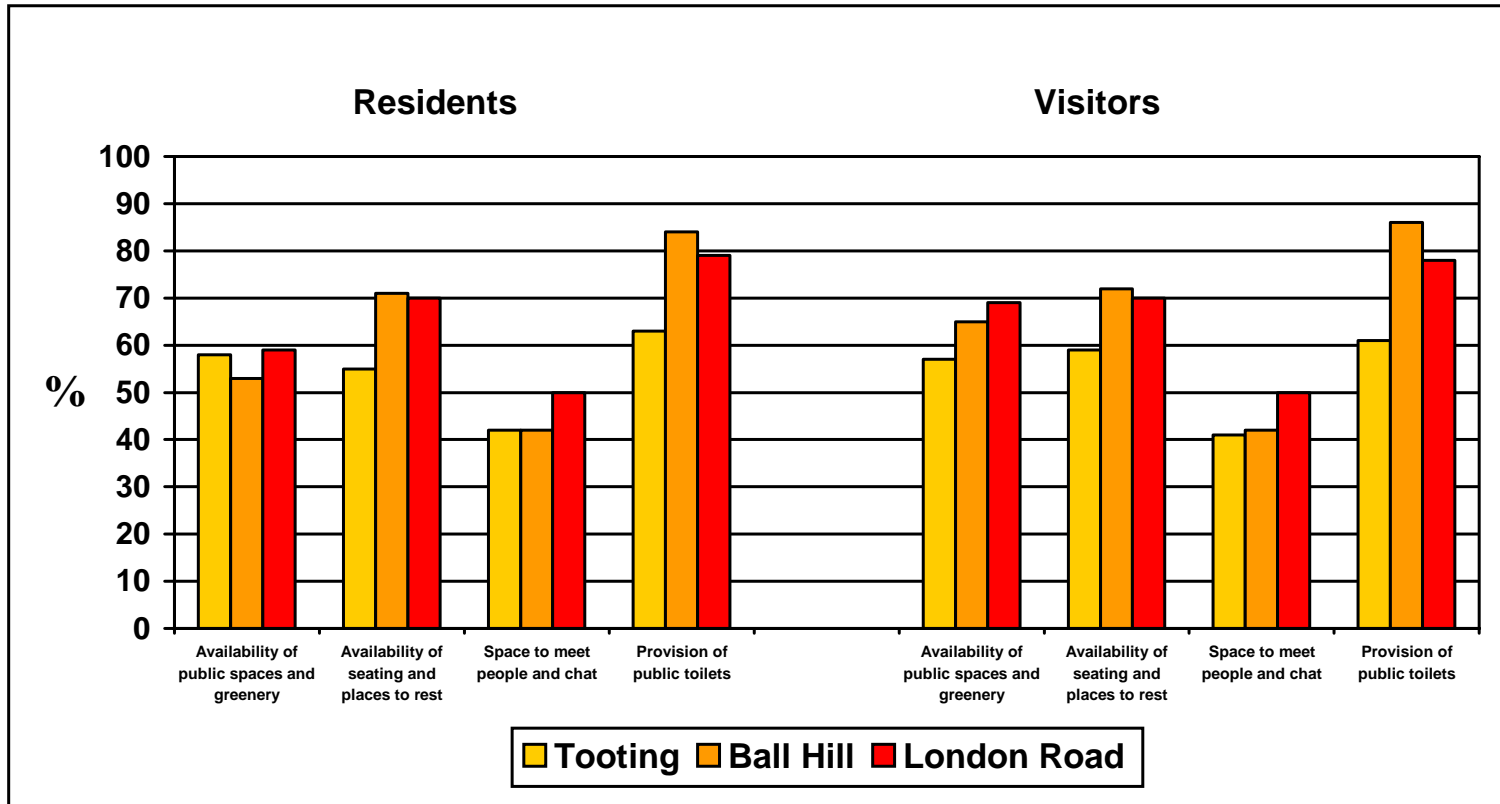
Satisfaction with Shops



Dissatisfaction with Traffic-related Problems



Dissatisfaction with Public Amenities

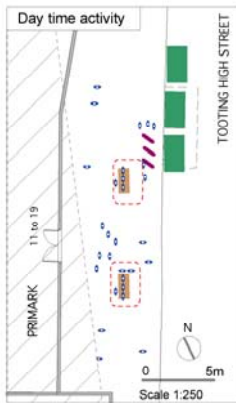


Range of Footway Services

- Retail services (stalls, paper sellers, etc)
- Communications (phone & post boxes)
- Cash point machines
- Public transport services (shelters, info.)
- Public amenity (seating, toilets, bins,...)
- Public art and greenery
- Wayfinding and traffic regulation

A day in the Life of a Bench

A day in the life of the benches outside Primark
Thursday 14/07/05



Legend

- Bench
- Bench footprint area
- Private Car
- Bicycle parking
- A person

Day time



Concentration of people waiting for Primark to open at 09.00.



People sitting on the benches.



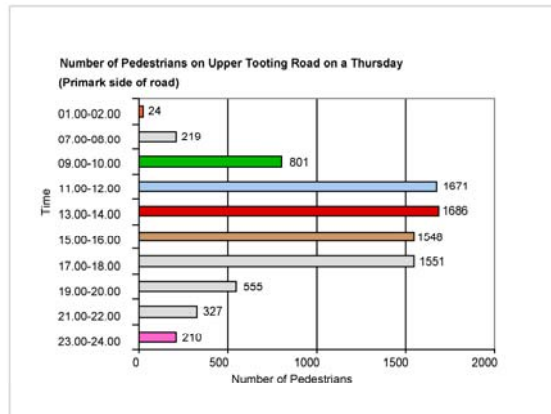
People talking while sitting on the bench.



People sitting on the benches in the afternoon.



People gathering around and checking their bags on the benches.



Night time



People sitting and talking on the bench.



People sitting and talking on the bench and the bicycle stand.

Range of Footway Users

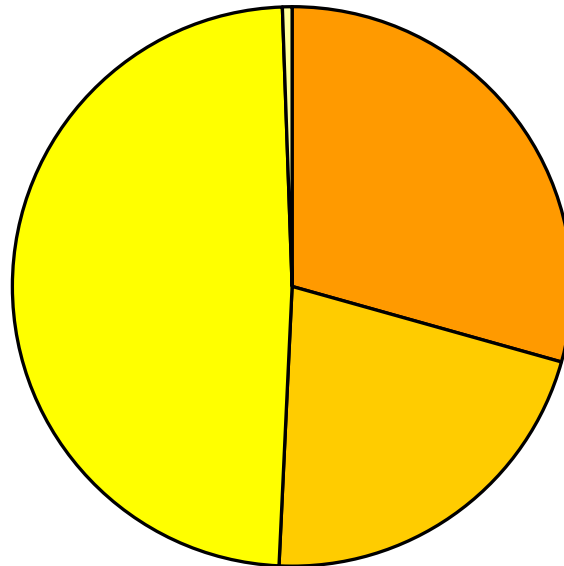
In addition to Link users ('striders'), CCTV show ten distinct Place users:

- Workers
- Entertainers
- Customers
- Browsers
- Queueers
- Socialisers
- Observers
- Waiters
- Resters
- Inhabiters

....most of whose needs not designed for on street

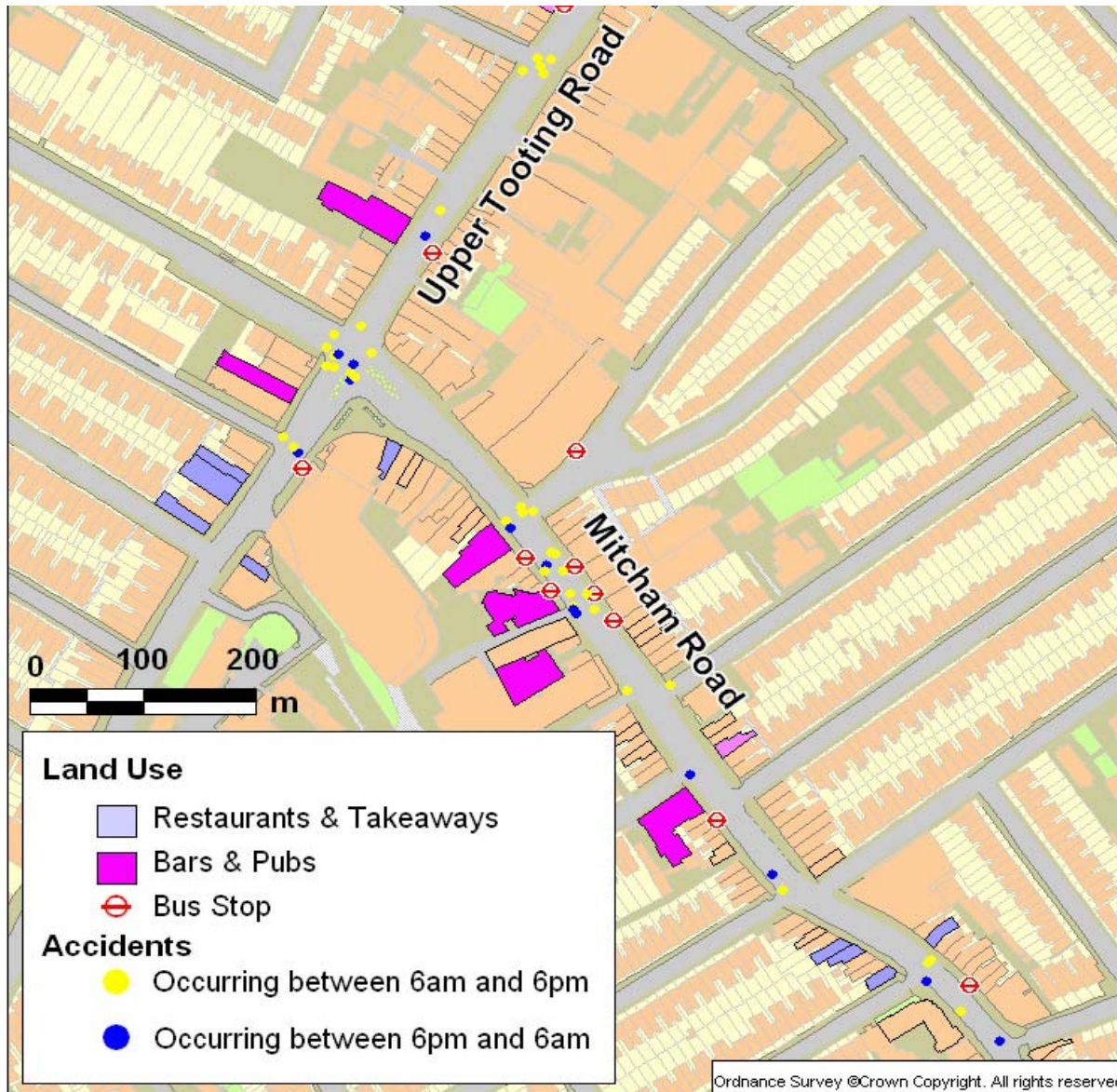
Transport Interchange: Tooting

Public Transport Usage After Alighting a Bus



- Overground Rail
- Bus
- Tube
- Walk
- Other

Pedestrian Accident Locations



Research 2:

Stakeholder Engagement in option generation (EPSRC)

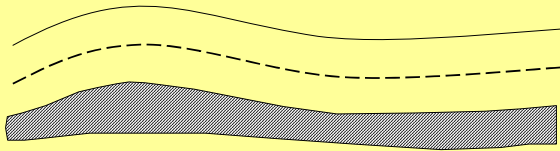
- Involving local groups in decisions about redesigning street space – particularly where conflicting views
- Using a combination of physical and electronic techniques

Place Space Allocation Options

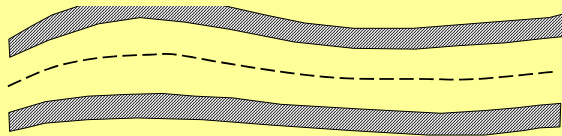
Elaboration: Basic design options for the aggregate allocation of Place space

Options for location of 'Place Space' in the street, once the balance of aggregate Link/Place requirements have been determined:

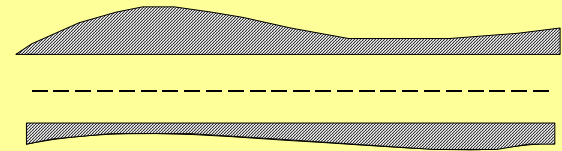
1. Either side of existing 'centre' line
2. On south side of carriageway
3. On north side of carriageway
4. Either side of 'true' centre line
5. Running lanes to north and south, with central median strip



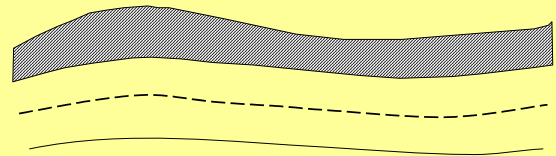
OPTION 2



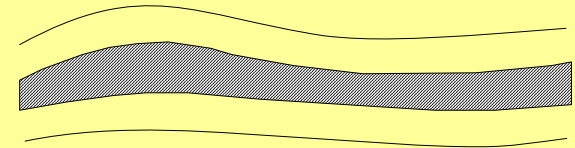
OPTION 4



OPTION 1



OPTION 3

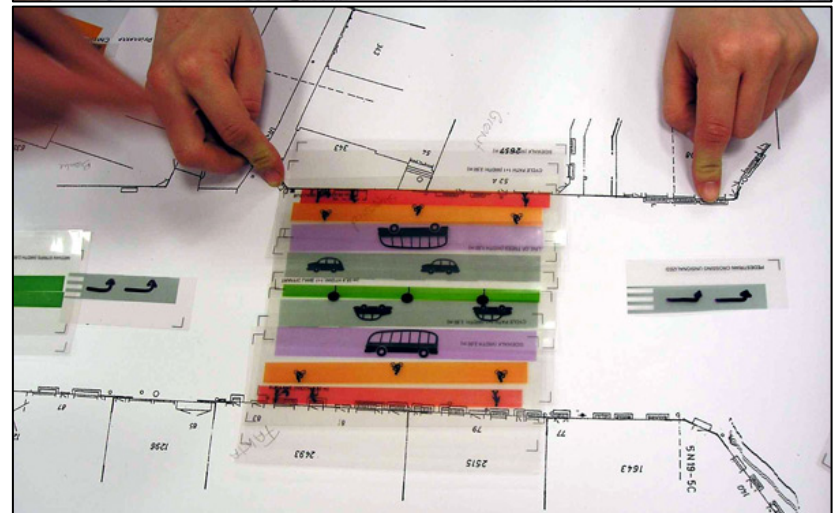


OPTION 5

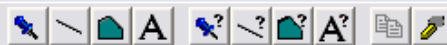
9503 Block Paving



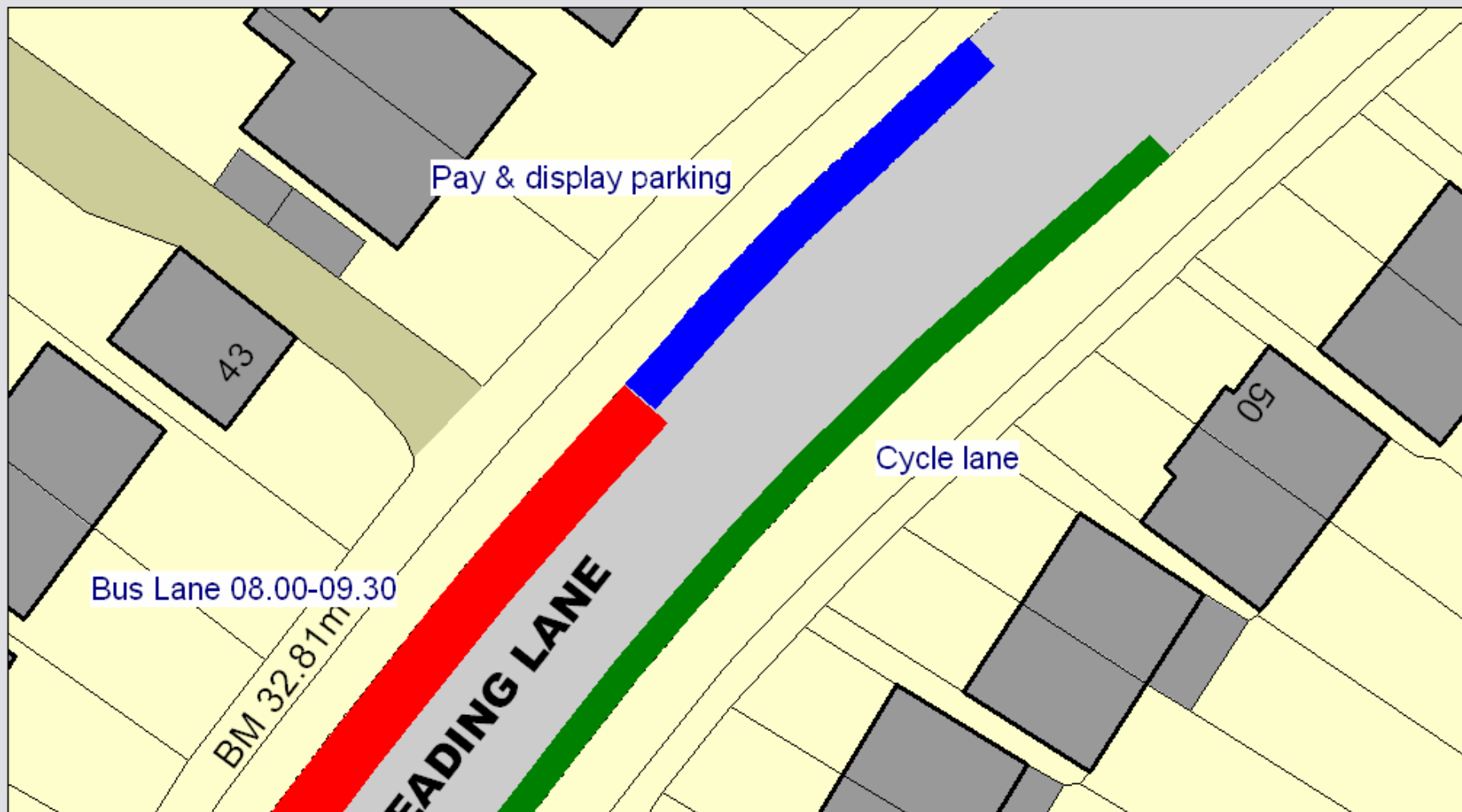
Engaging with Stakeholders



Project Schemes Reports View Help



9502 Coloured Surfacing

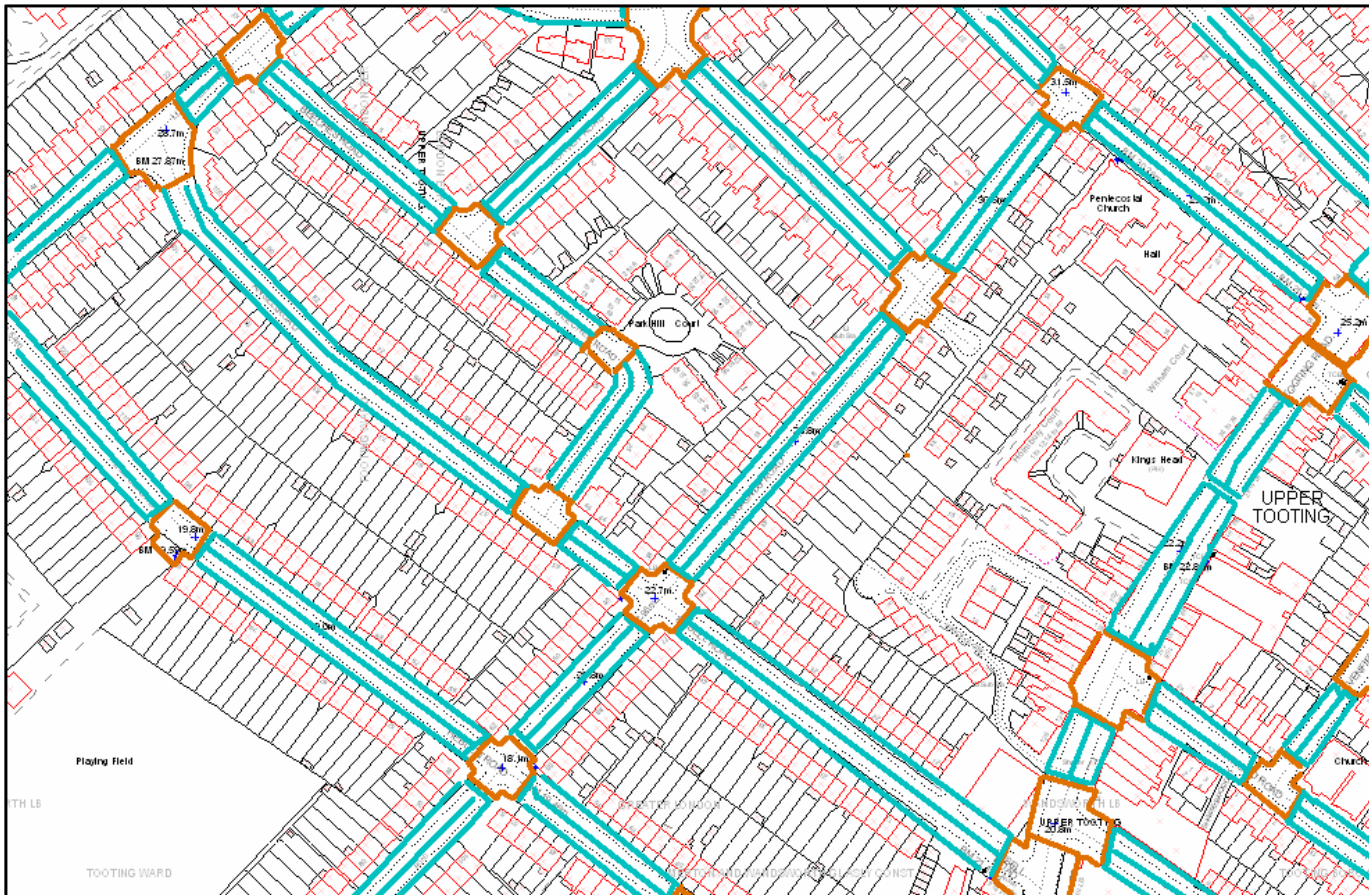


Research 3: Street Auditing

(Dft Inclusive Mobility Division)

- Measuring whether existing streets meet the requirements of people with disabilities and restrictions
- Based on computer-based audit tool, and laboratory measurements

Delimit Street Sections and Junctions



- Divide audit area into a set of contiguous:
 - Road sections
 - Junctions
- Ensure that the whole highway network is covered

Select an Object for Audit: Footway



FRONTAGE

FOOTWAY

KERBSIDE

CARRIAGEWAY

CROSSING

**BUS/TRAM STOP
AREA**

Select a 'Place' Feature for Audit: Post Box

Footway: Features

LAMP POST

TREE/SHRUBBERY

TRAFFIC SIGN

INFORMATION SIGN

TRAFFIC SIGNAL

BOLLARD

PARKING METER

TICKET MACHINE

OTHER POST/POLE

SEAT/BENCH

POST BOX

TELEPHONE BOX

GUARD RAILING

CONTROL BOX

TOILET

CYCLE PARKING

PUBLIC ART

MOVEABLE FEATURE

RUBBISH/RECYCLING
CONTAINER

OTHER

FRONTAGE

FOOTWAY

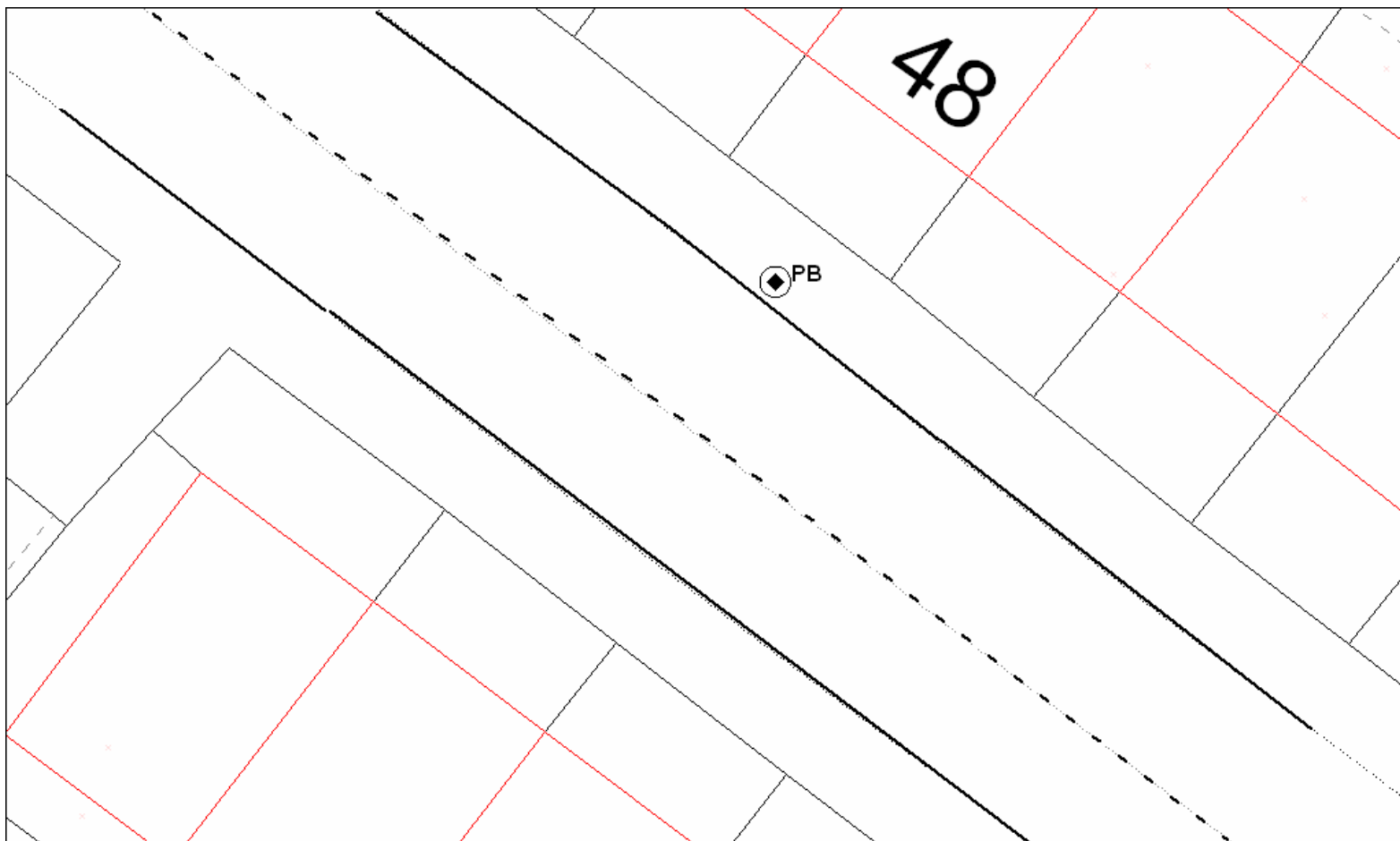
KERBSIDE

CARRIAGEWAY

CROSSING

BUS/TRAM STOP
AREA

Locate Post Box on Map



Post Box Attributes

In use? Yes ☐ No ☐ Details

Dimensions
(length/width) cm by cm

Vertical reach acceptable?
(Range = 0.75 to 1.2m) Yes ☐ No ☐ Details

Forward reach acceptable?
(max = 0.5m) Yes ☐ No ☐ Details

Viewing level acceptable?
(Range = 0.9 to 1.8m) Yes ☐ No ☐ Details

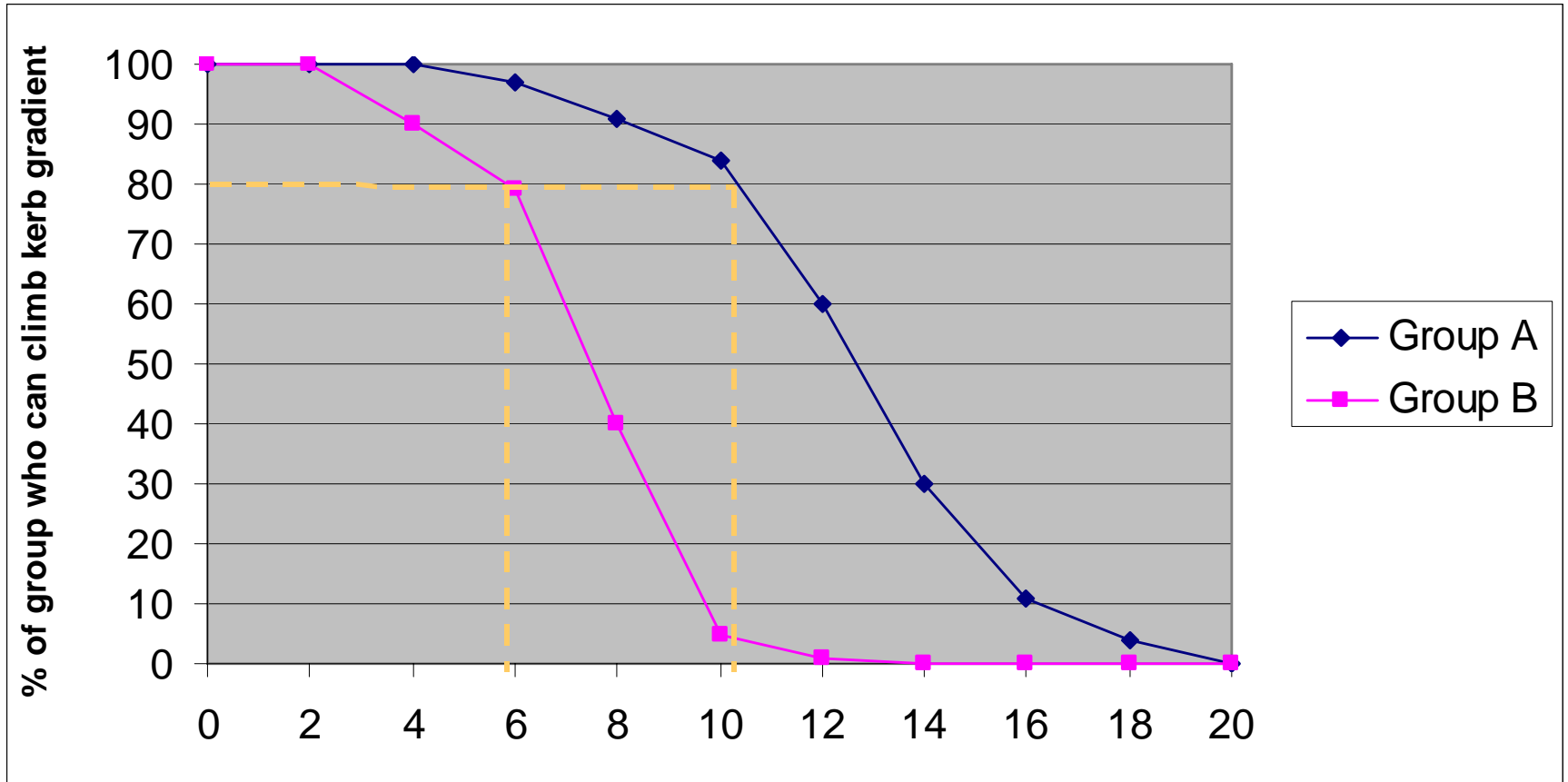
Suitable Location? Yes ☐ No ☐ Details

Colour contrast Good ☐ Average ☐ Poor ☐

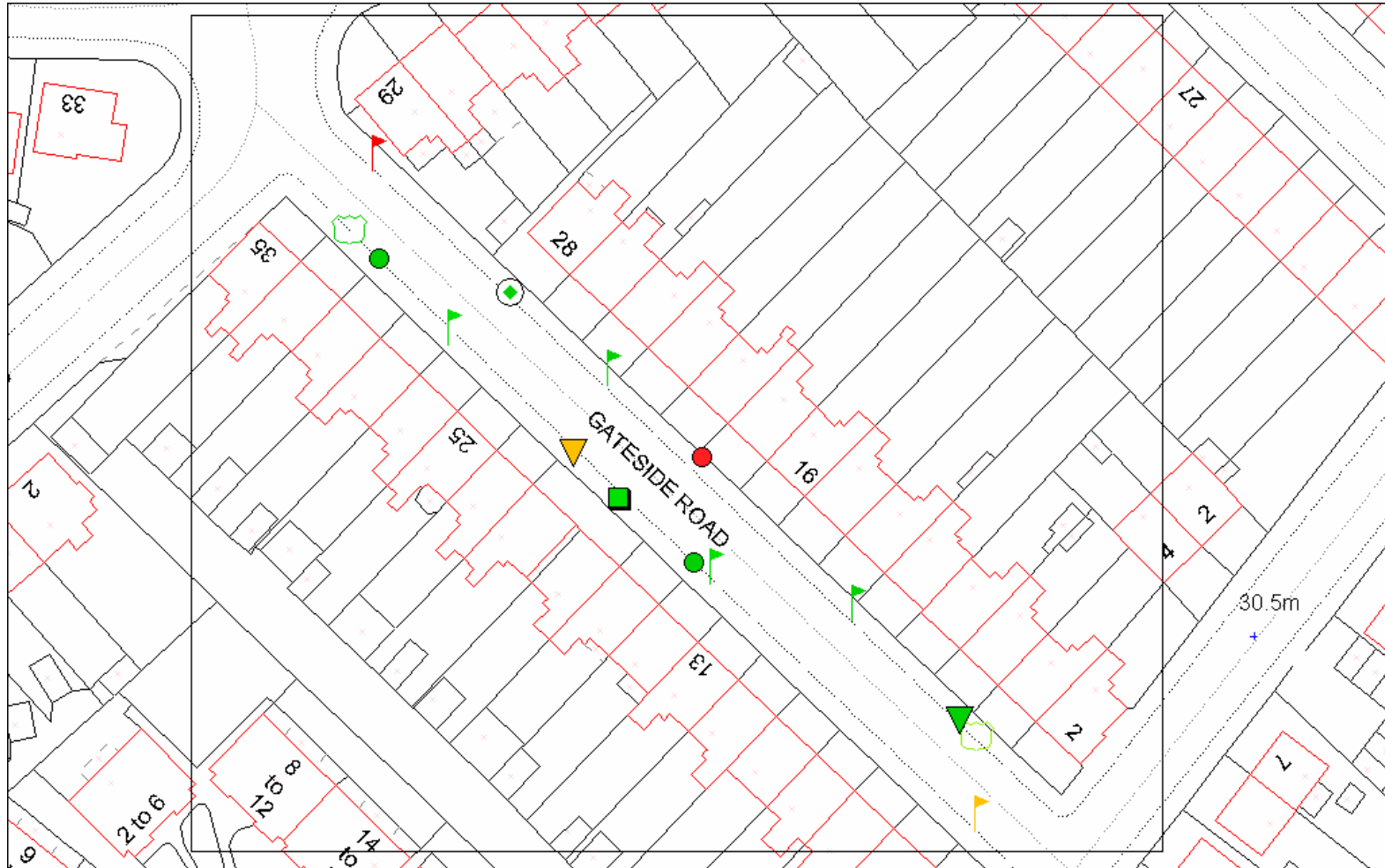
Visibility at night Good ☐ Average ☐ Poor ☐

General condition Good ☐ Average ☐ Poor ☐

Capability Profiles on Gradient for Groups A and B



Display Feature access status



Lamp post



Rubbish container



Traffic sign



Tree

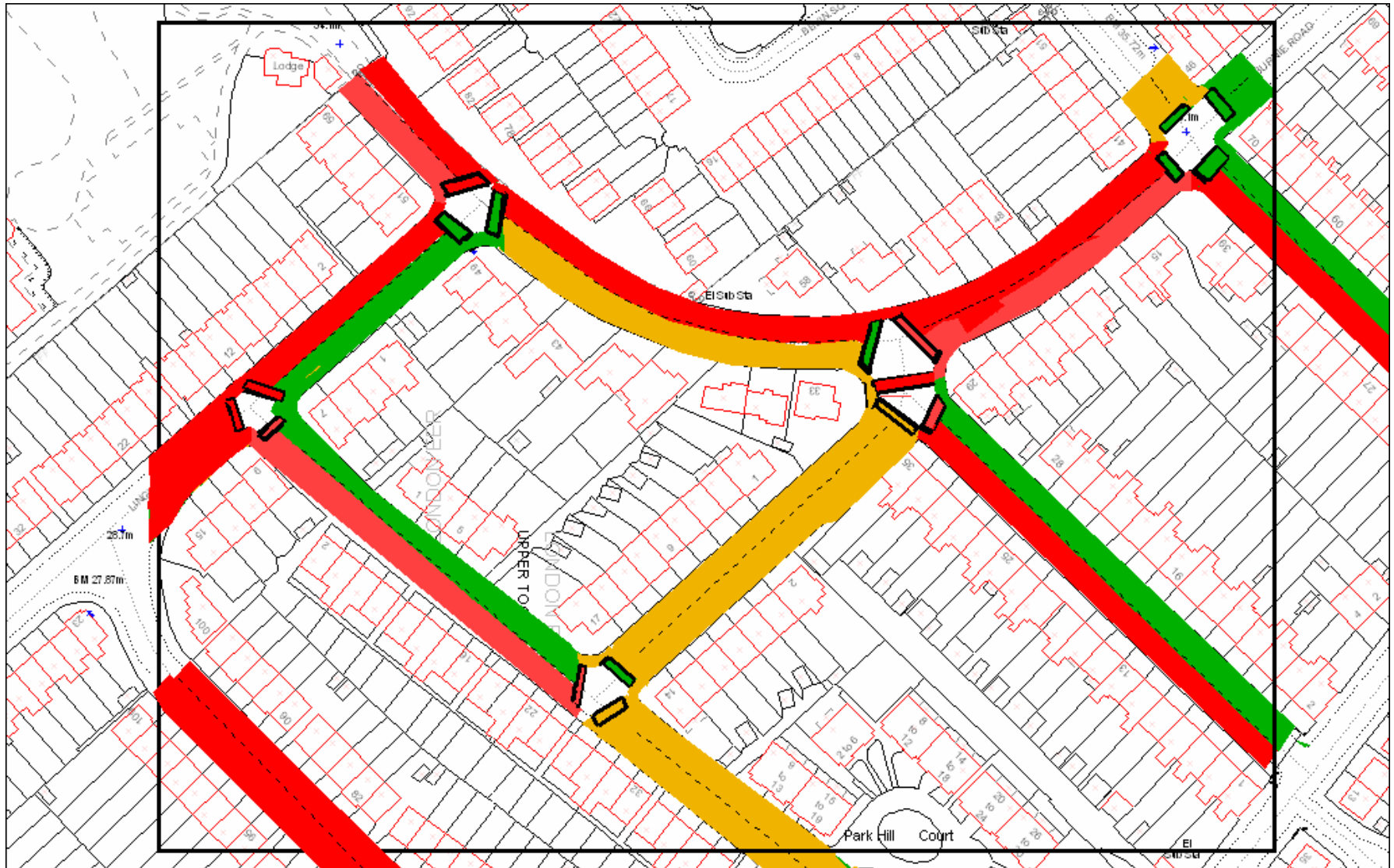


Post box

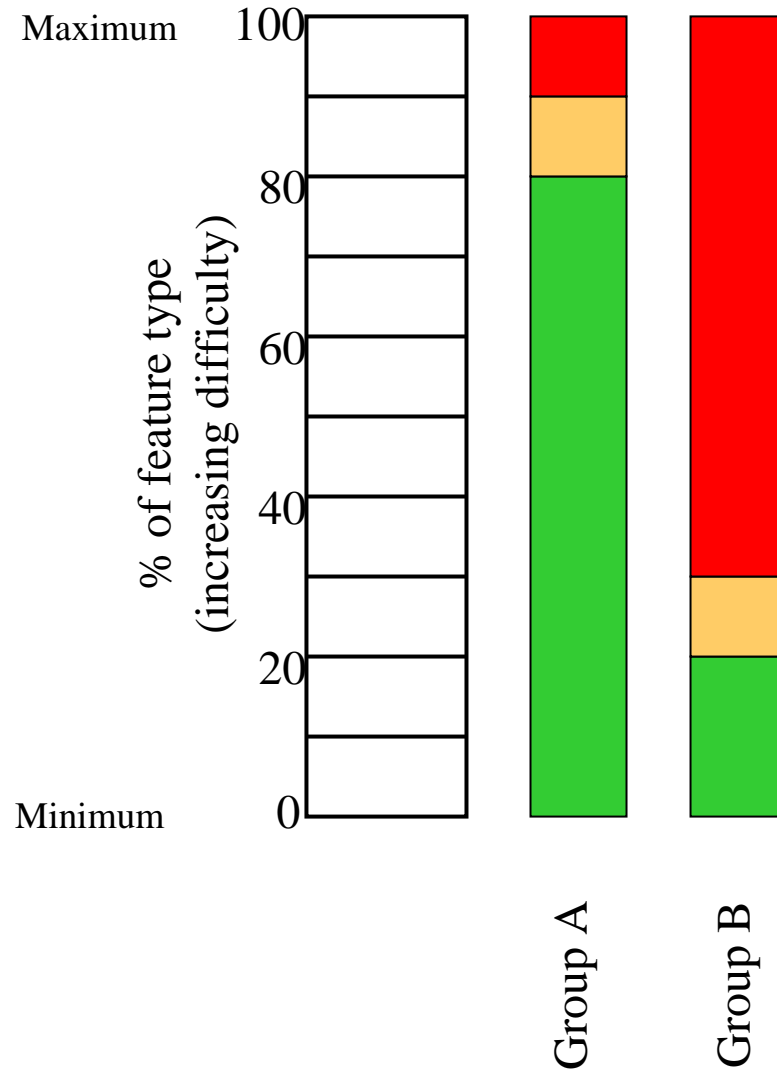


Parking meter

Performance of Sections & Junctions, all Capabilities, Group B



Assessment of impact of Feature Type Y on access for Age/Gender Groups A and B



Research 4: Local Accessibility

(EPSRC)

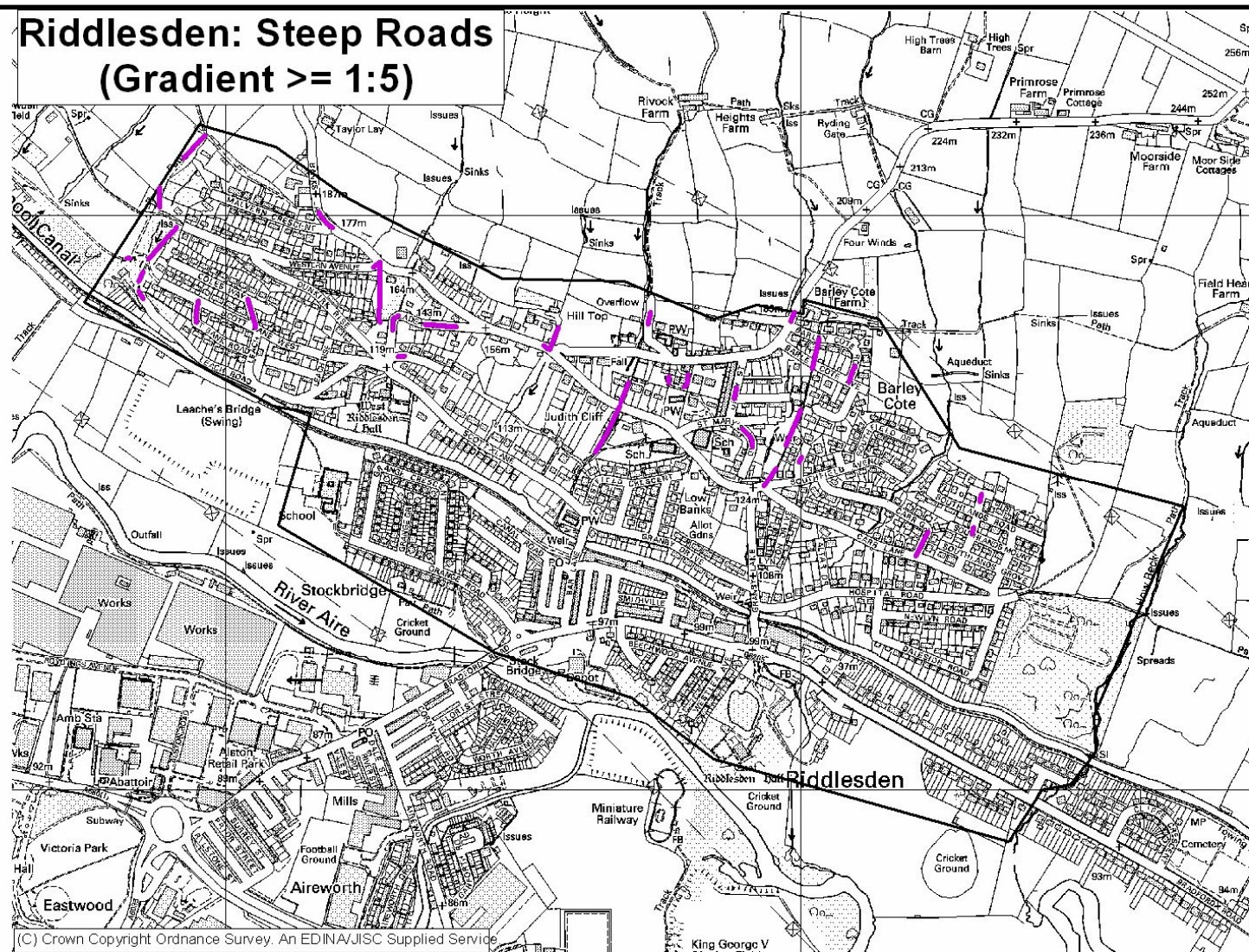
- Measures of accessibility, taking into account relative unattractiveness of different walking routes
- Based on survey results for different social groups

Data Collection

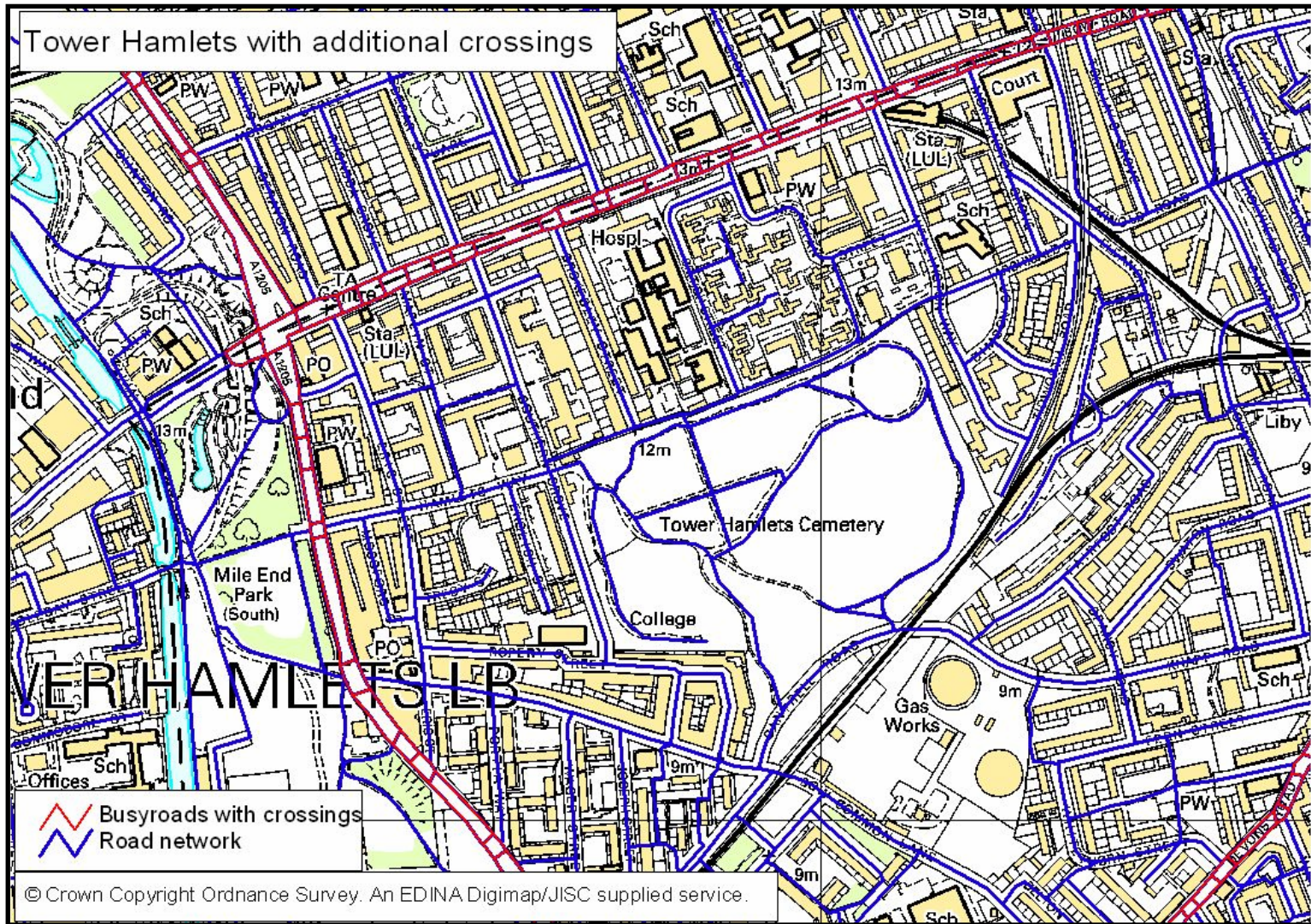
What additional time will person spend walking to avoid a route to a bus stop:

- Up a steep hill?
- Across a busy main road with no pedestrian crossing?
- Along a poorly lit road at night?
- With no seat or shelter at bus stop?

Riddlesden: Steep Roads (Gradient $\geq 1:5$)



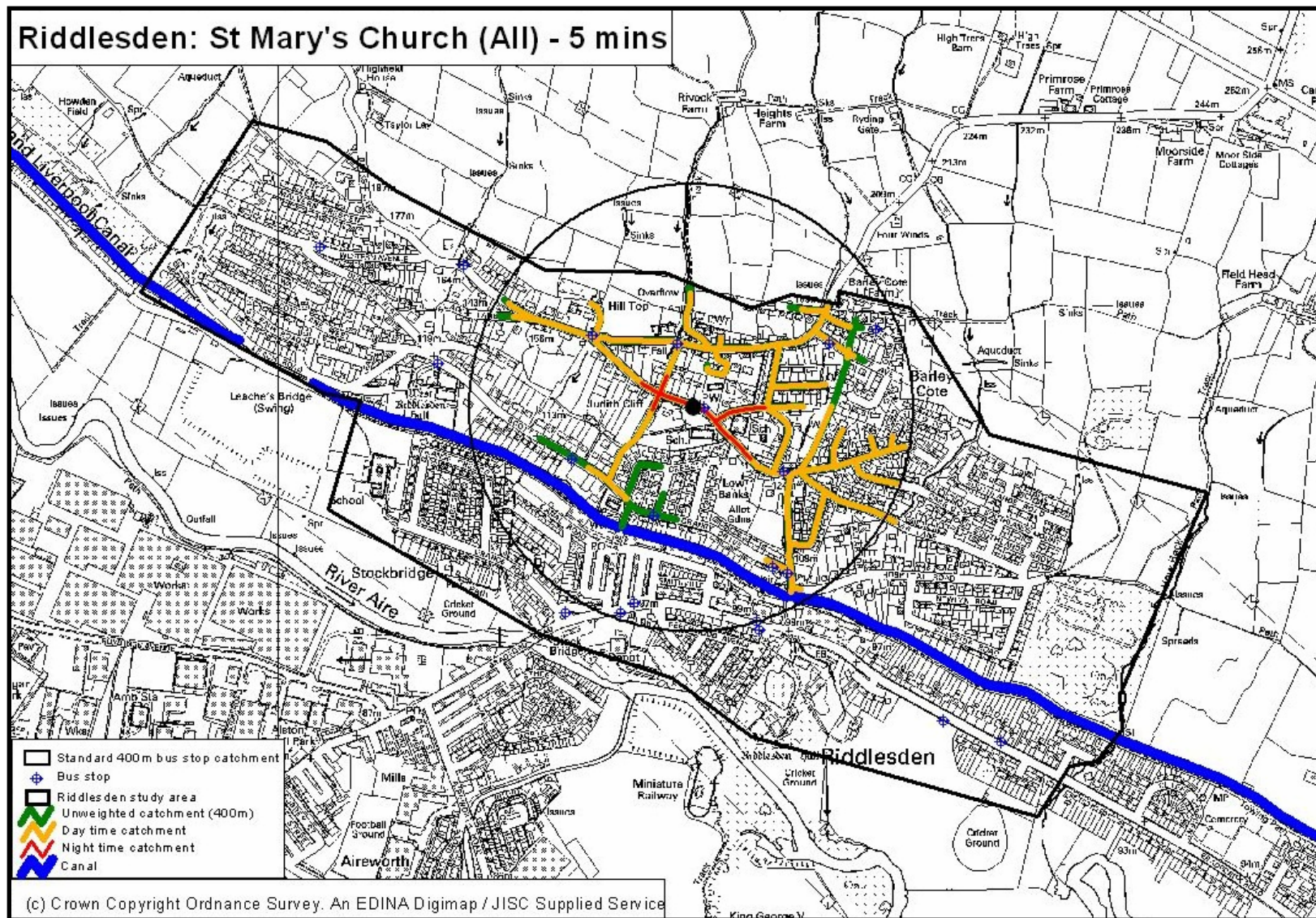
Tower Hamlets with additional crossings



Mapping Catchment Areas

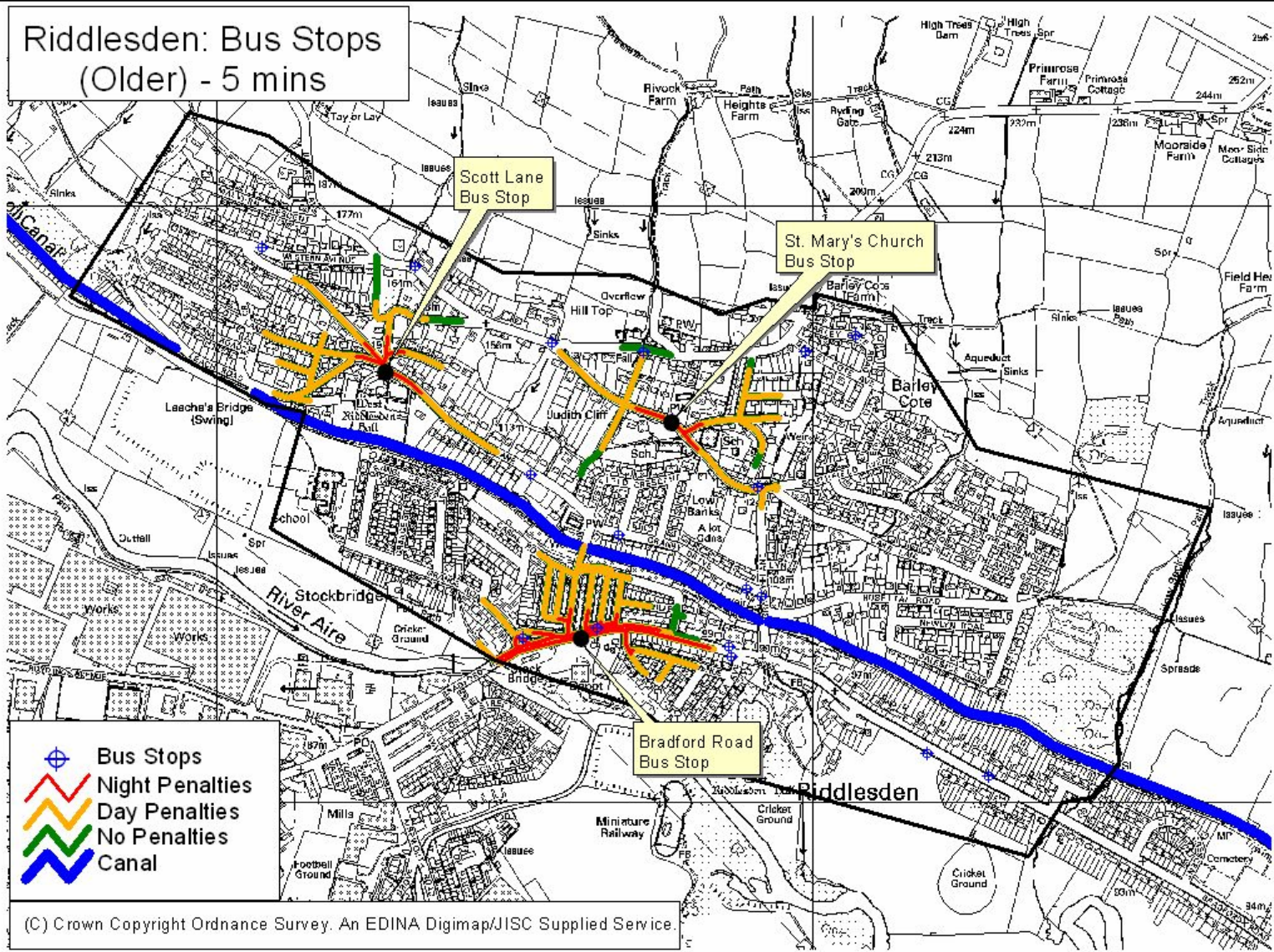
- Assumes a basic 5 minute walking zone
- Different walk speeds assumed for different age groups
- Catchment areas reduced to reflect the weighting given to less attractive walking routes

Riddlesden: St Mary's Church (All) - 5 mins



(c) Crown Copyright Ordnance Survey. An EDINA Digimap / JISC Supplied Service

Riddlesden: Bus Stops
(Older) - 5 mins



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Conclusions

- Growing UK interest in streets as places, and contributing to sustainability and quality of life
- Currently developing new guidance to assist with planning & implementation
- Provides new areas for research