

# **Solihull Strategic Accessibility Study**

March 2010

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## 1. Introduction

- 1.1 The Solihull Strategic Accessibility Study provides a review of current accessibility in the Borough to a range of key services and facilities. The study will be used as a tool to help guide the general location of developments, identify potential gaps in service provision and set density targets for residential developments.

## 2. Methodology

- 2.1 The Study has examined accessibility to the four main services and facilities identified in Government guidance as having the most impact on life chances: access to health, education, fresh food and employment. The following services and facilities have been used in the study to represent these four main areas:
- Health – doctors surgeries and health centres
  - Education – primary schools (infants and juniors) and secondary schools
  - Fresh food – all fruit and vegetable retailers
  - Employment - Annual Business Inquiry data to identify the number of jobs that can be accessed within set times, by different modes<sup>1</sup> as well as total population catchment by 500m x 500m grid square<sup>2</sup>.
- 2.2 The study was undertaken by Mott MacDonald using information and data provided by the Council on the location of all health and education facilities and fresh food retailers. Using 'Accession' software, Mott MacDonald produced a series of 'runs' to firstly highlight accessibility to health, education and fresh food by walking and / or cycling and / or public transport for specified time periods. In addition, 'composite' maps were produced to demonstrate the combined accessibility by walking, and / or cycling and / or public transport to each facility.
- 2.3 A comprehensive 'composite' map was then produced to highlight overall accessibility to health, education and fresh food combined. This demonstrated which areas of the Borough are the most and least accessible to three of the four key services and facilities.
- 2.4 However, unlike access to health, education and fresh food, access to employment was more difficult to assess, largely due to the issues around identifying where employment opportunities are located and the number of jobs available. Therefore, a slightly different methodology had to be developed to assess access to employment.
- 2.5 An important requirement of the study was that it could be used to help identify both where in the Borough new residential development would be best located in relation to access to employment, as well as where new employment should be located in relation to the population able to access it by sustainable transport modes.
- 2.6 The Borough was therefore divided into 500m x 500m grid squares with accessibility to employment based on:
- Total jobs access – the number of jobs that can be accessed from each 500m grid square (within specified parameters)
  - Total population access - the total population that can access each 500m grid square (within specified parameters)

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<sup>1</sup> Can be used to identify appropriate housing locations in relation to employment opportunities

<sup>2</sup> Can be used to identify appropriate employment locations in relation to the population (potential workforce) available

- 2.7 The parameters used to assess accessibility to health, education and fresh food are outlined in Table 1.
- 2.8 The parameters used to assess accessibility to employment are outlined in Table 2.

Table 1 – Accessibility Parameters for Health, Education and Fresh Food

Service / Facility	Mode(s) of travel assessed	Walk speed / cycle speed	Time of travel assessed	Journey times mapped	Accessibility level
Health – Doctors surgeries and health centres	Walking Public Transport Walk and public transport combined	4.8km/hr	13:00 – 14:00	Less than 10 minutes	High
				10 – 20 minutes	Medium
				20 – 30 minutes	Low
				30 – 40 minutes	Very low
				More than 40 minutes	Outside desirable parameters
Education – Primary schools	Walking	4.8km/hr	Not applicable	Less than 10 minutes	High
				10 – 15 minutes	Medium
				15 – 20 minutes	Low
				More than 20 minutes	Outside desirable parameters
Education – Secondary schools	Walking, Cycling Public transport Walking, cycling and public transport combined	4.8km/hr 16km/hr	08:00 – 09:00	Less than 15 minutes	High
				15 – 30 minutes	Medium
				30 – 45 minutes	Low
				More than 45 minutes	Outside desirable parameters
Fresh food – Fruit and vegetable retailers	Walking Public transport Walking and public transport combined	4.8km/hr	13:00 – 14:00	Less than 10 minutes	High
				10 – 20 minutes	Medium
				20 – 30 minutes	Low
				30 – 40 minutes	Very low
				More than 40 minutes	Outside desirable parameters

### Table 1 – Accompanying Note:

#### Health – Doctors surgeries and health centres:

- Accessibility to doctors surgeries and health centres has been assessed by walking and public transport only. Accessibility by cycling has not been considered because there was a need to be realistic about the type of people visiting surgeries and health centres (such as those feeling unwell, those with children or elderly people) and the fact that they would be unlikely to cycle.
- The journey times selected were in 10 minute intervals up to 40 minutes. Guidance and research advocates that a walk of 10 minutes / 800m is an acceptable walk time / distance. Therefore, for the purposes of this study, a location with a journey time of less than 10 minutes to a doctors surgery or health centre is considered to be highly accessible, a medium level of accessibility is between 10 – 20 minutes, low accessibility is between 20 – 30 minutes and very low accessibility is between 30 – 40 minutes. A location with a journey time of over 40 minutes is considered to be outside desirable parameters and therefore not accessible. To ensure consistency, the same time parameters have been used for both walking and public transport accessibility.
- Unlike access to other the services and facilities considered as part of this study, access to doctors surgeries and health centres can be at any time of day, dependent on when appointments are available. Therefore, a time period reflecting the middle of the day (13:00 – 14:00) has been mapped, rather than the traditional ‘AM peak’ travel time (08:00 – 09:00).

#### Education - Primary Schools:

- For the purposes of this study, only accessibility to primary schools by walking has been assessed. It is considered that a primary school is the type of facility that should be within walking distance of residential areas and it is considered that primary school children would be unlikely to cycle.
- For primary schools, the journey times that have been mapped are at slightly smaller intervals compared to the other services / facilities that have been assessed. This is largely because smaller children may be less able or willing to walk for longer periods. Therefore, for the purposes of this study, a location with a journey time of less than 10 minutes to a primary school is considered to be highly accessible, a medium level of accessibility is between 10 – 15 minutes and low accessibility is between 15 – 20 minutes. A location that is beyond a 20 minute walk time is outside desirable parameters and is not considered to be accessible.
- As accessibility by walking is not affected by what time of day the journey is undertaken, it has been not been necessary to specify a particular time of travel to be assessed.

#### Education – Secondary Schools:

- Accessibility to secondary schools by walking, cycling and public transport has been assessed as these are all likely to be feasible modes of travel for secondary school pupils.
- The journey times selected were in 15 minute intervals up to 45 minutes, rather than the 10 minute intervals considered for some other services and facilities included in this study. This is because secondary schools are not as wide spread as some other services and facilities and as they have a wide catchment area, it is considered that pupils are more likely to travel further to access them. Therefore, for the purposes of this study, a location with a journey time of less than 15 minutes to a secondary school is considered to be highly accessible, a medium level of accessibility is between 15 - 30 minutes and low accessibility is between 30 – 45 minutes. A location that is beyond a 45 minute journey time is outside desirable parameters and is not considered to be

accessible. To ensure consistency, the same time parameters have been used to assess walking, cycling and public transport accessibility.

- A travel time between 08:00 and 09:00 was assessed as this reflects the morning peak hour when pupils are most likely to be travelling to school.

#### Fresh Food:

- Accessibility to fresh food has been assessed by walking and public transport only. Accessibility by cycling has not been considered as it is recognised that although a healthy and inclusive means of travel, cycling is not an option for some, particularly elderly people with health problems or parents who may have to take children to the shop with them.
- The journey times selected were in 10 minute intervals up to 40 minutes. Guidance and research advocates that a walk of 10 minutes / 800m is an acceptable walk time / distance. Therefore, for the purposes of this study, a location with a journey time of less than 10 minutes to a fresh food shop is considered to be highly accessible, a medium level of accessibility is between 10 – 20 minutes, low accessibility is between 20 – 30 minutes and very low accessibility is between 30 – 40 minutes. A location with a journey time of over 40 minutes is considered to be outside desirable parameters and therefore not accessible. To ensure consistency, the same time parameters have been used for both walking and public transport accessibility.
- Unlike access to other the services and facilities considered as part of this study, access to fresh food shops can be at any time of day. Therefore, a time period reflecting the middle of the day (13:00 – 14:00) has been mapped, rather than the traditional 'AM peak' travel time (08:00 – 09:00).

#### Overall Accessibility:

- For an assessment of overall accessibility to all of the above services and facilities see pages 20 and 21.

#### Routes:

- Accessibility by walking and cycling has been assessed using all public footpaths and highways. When using the accessibility maps it is important to also take into account the suitability of the route for travel by any particular mode of transport for example, accessibility by walking may be high but may not be an option in reality if access can only be achieved along roads with no footpath.



Table 2 – Accessibility Parameters for Employment

Service / facility	Mode(s) of travel assessed	Walk speed / cycle speed	Time of travel assessed	Assessment undertaken	Accessibility level
Employment: Number of jobs that can be accessed	Walking Cycling Public transport Walking, cycling and public transport combined	4.8km/hr 16km/hr	09:00	Total jobs access: No. of jobs within 15 minutes No. of jobs within 30 minutes No of jobs within 45 minutes	Based on number of jobs: High = More than 40,000 Medium = 20,000 to 40,000 Low = 10,000 to 20,000 Very low = 1000 to 10,000 Less than 1000 is outside desirable parameters
Employment: Population (potential workforce) available	Walking Cycling Public transport Walking, cycling and public transport combined	4.8km/hr 16km/hr	Arriving at 09:00	Total population access: Population within 15 minutes Population within 30 minutes Population within 45 minutes	Based on number of people: High = More than 40,000 Medium = 20,000 – 40,000 Low = 10,000 to 20,000 Very low = 1000 – 10,000 Less than 1000 is outside desirable parameters

### Table 2 Note:

Employment – Number of jobs that can be accessed from each 500m grid square:

- The maps are a tool to be used in conjunction with other maps to highlight which areas of the Borough are the most and least accessible in terms of access to jobs within set travel times by particular modes of transport.
- Accessibility to jobs by walking, cycling and public transport has been assessed as these are all likely to be feasible modes of transport for people travelling to access jobs.
- The journey times selected were in 15 minute intervals up to 45 minutes as 45 minutes was considered to be an acceptable maximum journey to work time by public transport. To ensure consistency, the same time parameters have also been used for both walking and cycling accessibility. For the purposes of this study, it has been assumed that people need to arrive at their destination by 09:00.
- Separate maps have been produced to highlight the number of jobs that can be accessed within 15 minutes, 30 minutes and 45 minutes travel time on foot, by cycle and by public transport from each grid square.
- For the purposes of this study, a location where over 40,000 jobs can be accessed by any mode is considered to have high accessibility, medium accessibility is where 20,000 – 40,000 jobs can be accessed, low accessibility is where 10,000 – 20,000 jobs can be accessed, very low accessibility is where 1,000 – 10,000 jobs can be accessed and locations where less than 1,000 jobs can be accessed are outside desirable parameters.

Employment – Total population (potential workforce) that can access each 500m grid square:

- The maps are a tool to help identify the most appropriate locations for employment use in terms of the number of people that can access them within set travel times and by particular modes of transport.
- Accessibility by walking, cycling and public transport has been assessed as these are all likely to be feasible modes of transport for people travelling to access jobs.
- The journey times selected were in 15 minute intervals up to 45 minutes as 45 minutes was considered to be an acceptable maximum journey to work time by public transport. To ensure consistency, the same time parameters have also been used for both walking and cycling accessibility. For the purposes of this study, it has been assumed that people need to arrive at their destination by 09:00.
- Separate maps have been produced to highlight the total population able to access a particular location within 15 minutes, 30 minutes and 45 minutes travel time on foot, by cycle and by public transport.
- For the purposes of this study, a location which is accessible to over 40,000 people by any mode (walking, cycling and public transport) is considered to have high accessibility, a location which is accessible to between 20,000 and 40,000 people has medium accessibility, a location which is accessible to between 10,000 and 20,000 people has low accessibility, a location which is accessible to between 1,000 and 10,000 people has very low accessibility and a location which is accessible to less than 1,000 people is outside desirable parameters

### 3. Results

3.1 The maps on the following pages show accessibility to the services and facilities assessed as part of this Study. The key to the maps is as follows:

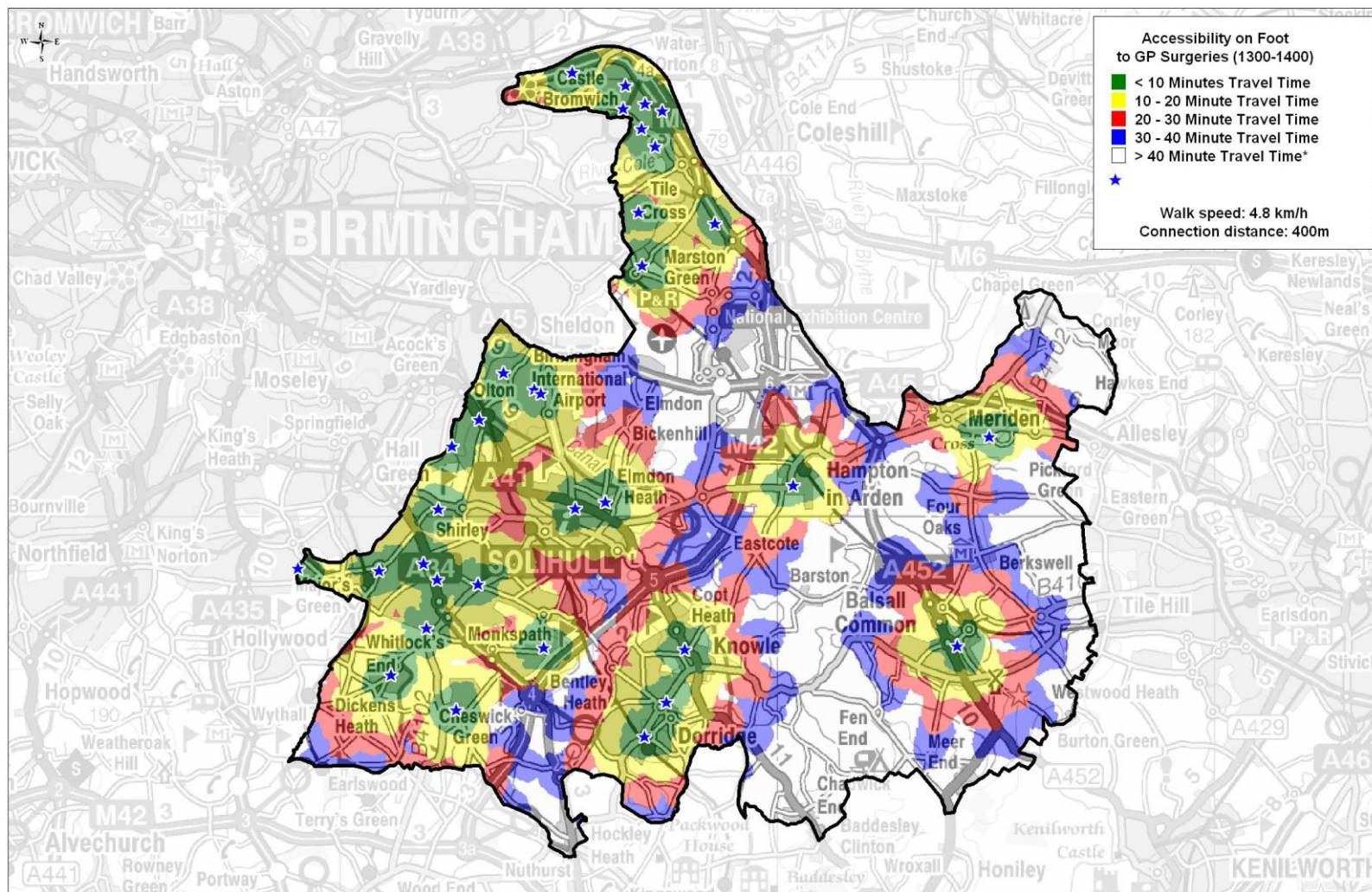
High accessibility	Green
Medium accessibility	Yellow
Low accessibility	Red
Very low accessibility	Blue
Outside desirable parameters	No colour

#### Maps – Accompanying Note:

##### Routes:

- Accessibility by walking and cycling has been assessed using all public footpaths and highways. When using the accessibility maps it is important to also take into account the suitability of the route for travel by any particular mode of transport for example, accessibility by walking may be high but may not be an option in reality if access can only be achieved along roads with no footpath.

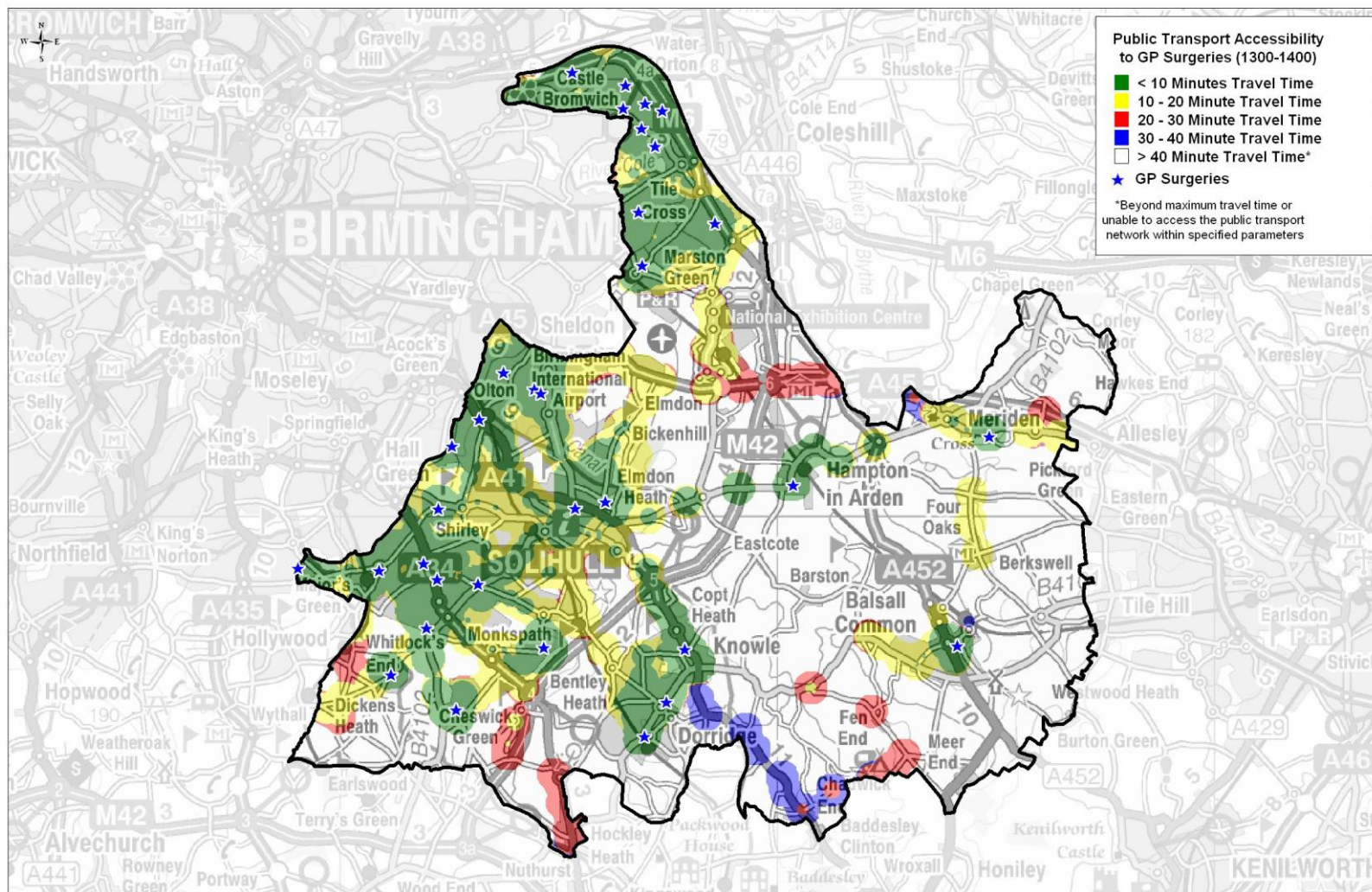
## Accessibility to doctors surgeries / health centres by walking



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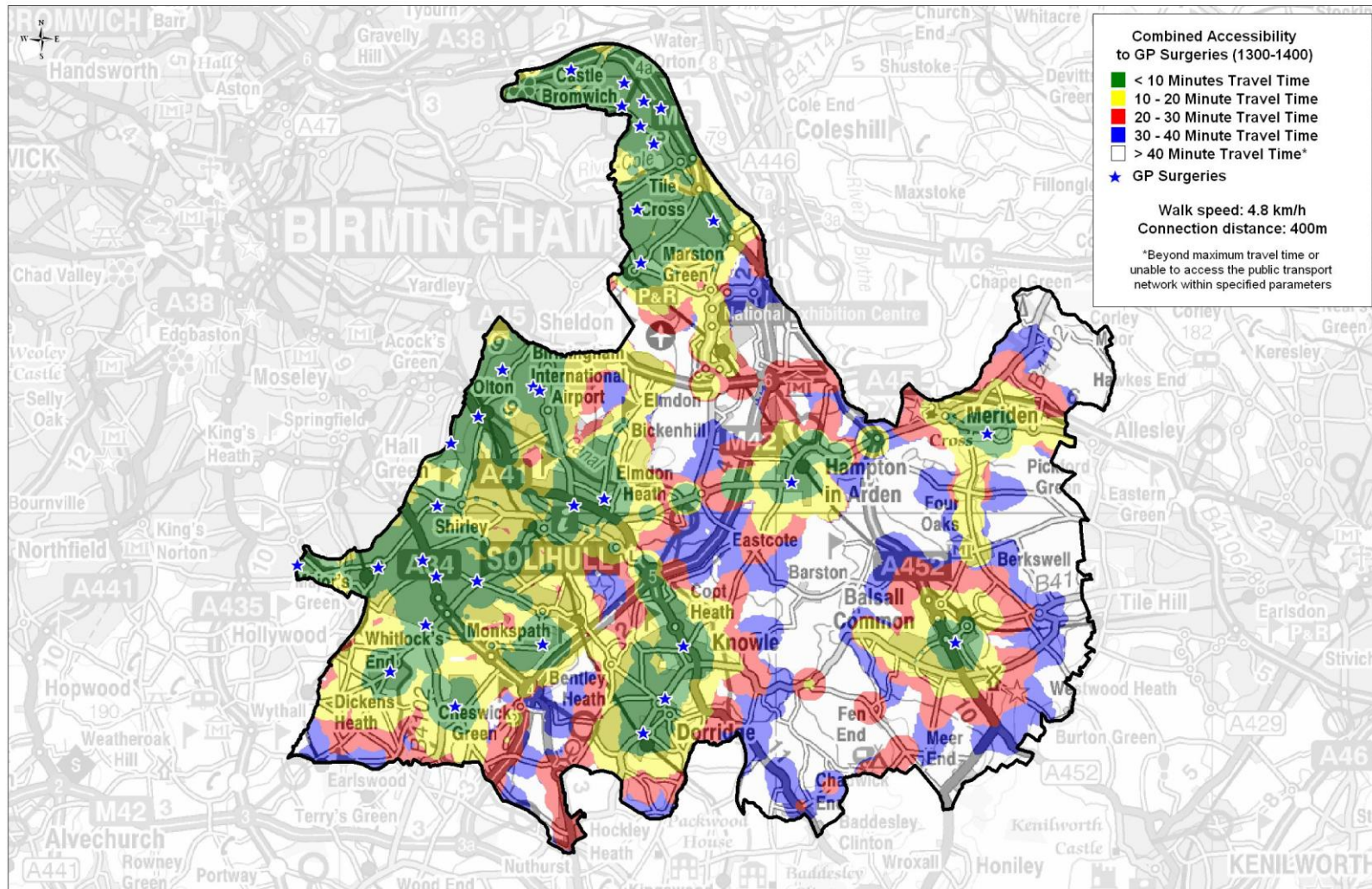
## Accessibility to doctors surgeries / health centres by public transport



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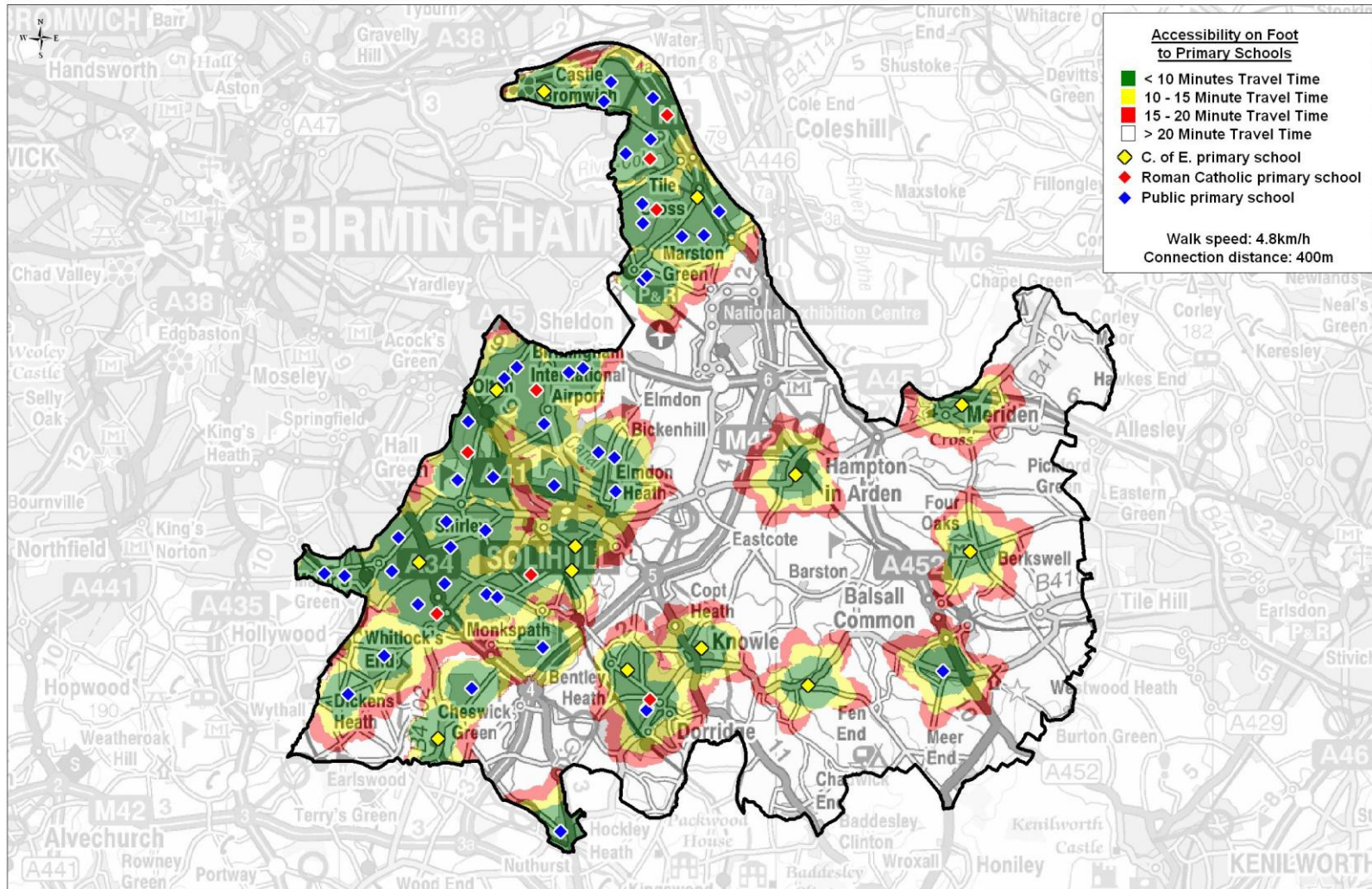
## Combined accessibility to doctors surgeries / health centres (walking and public transport)



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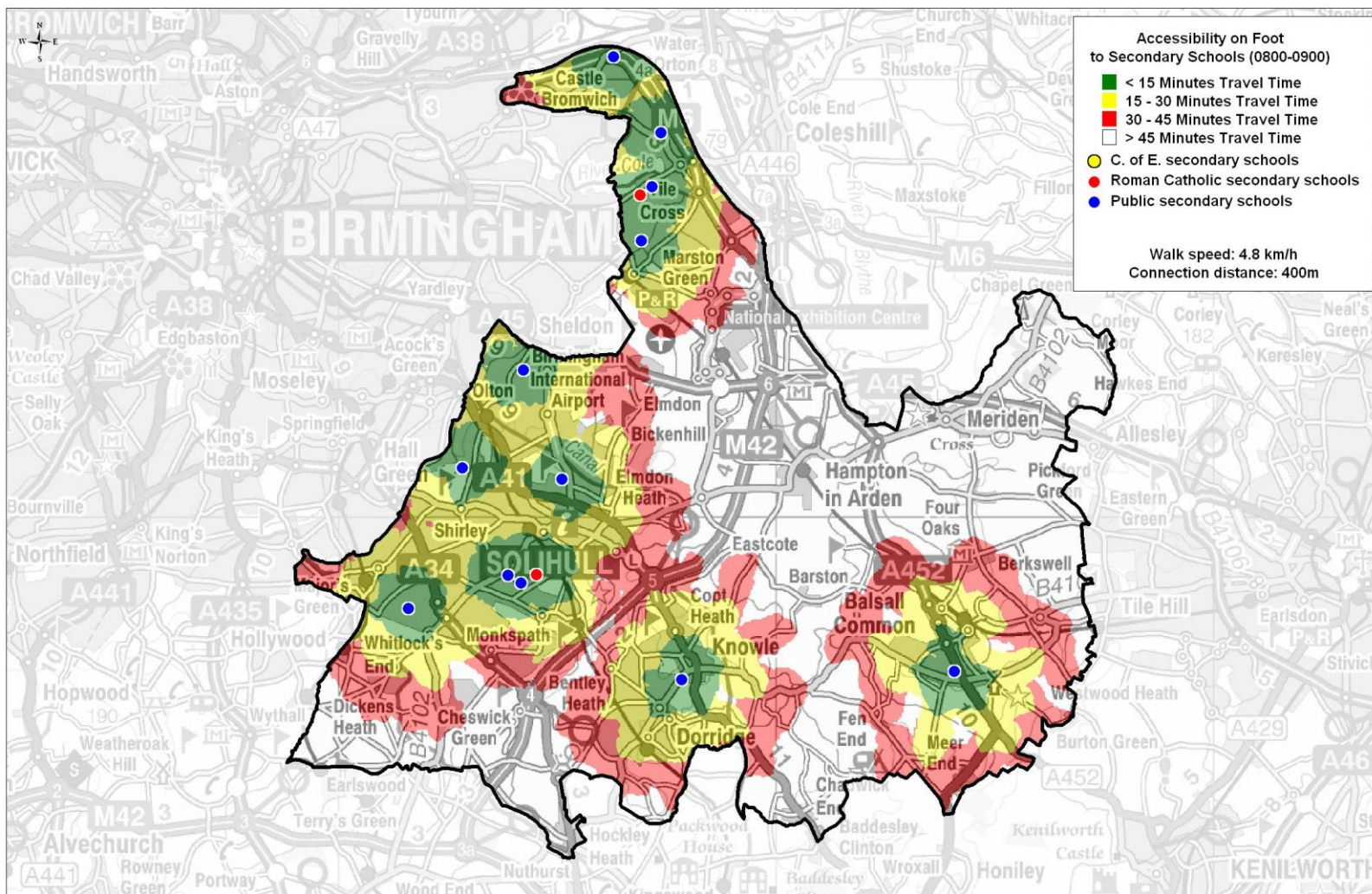
## Accessibility to primary schools by walking



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## Accessibility to secondary schools by walking

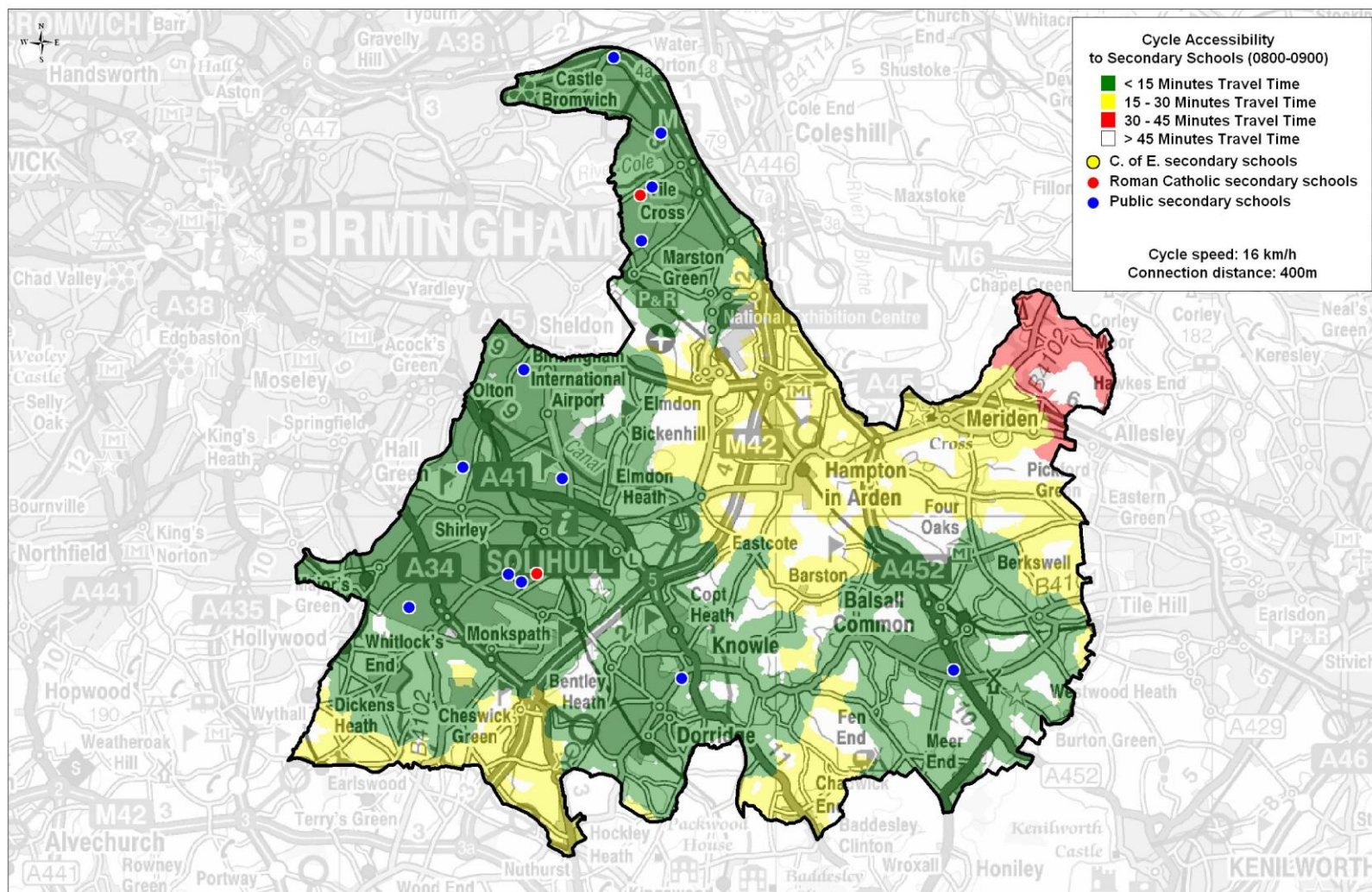


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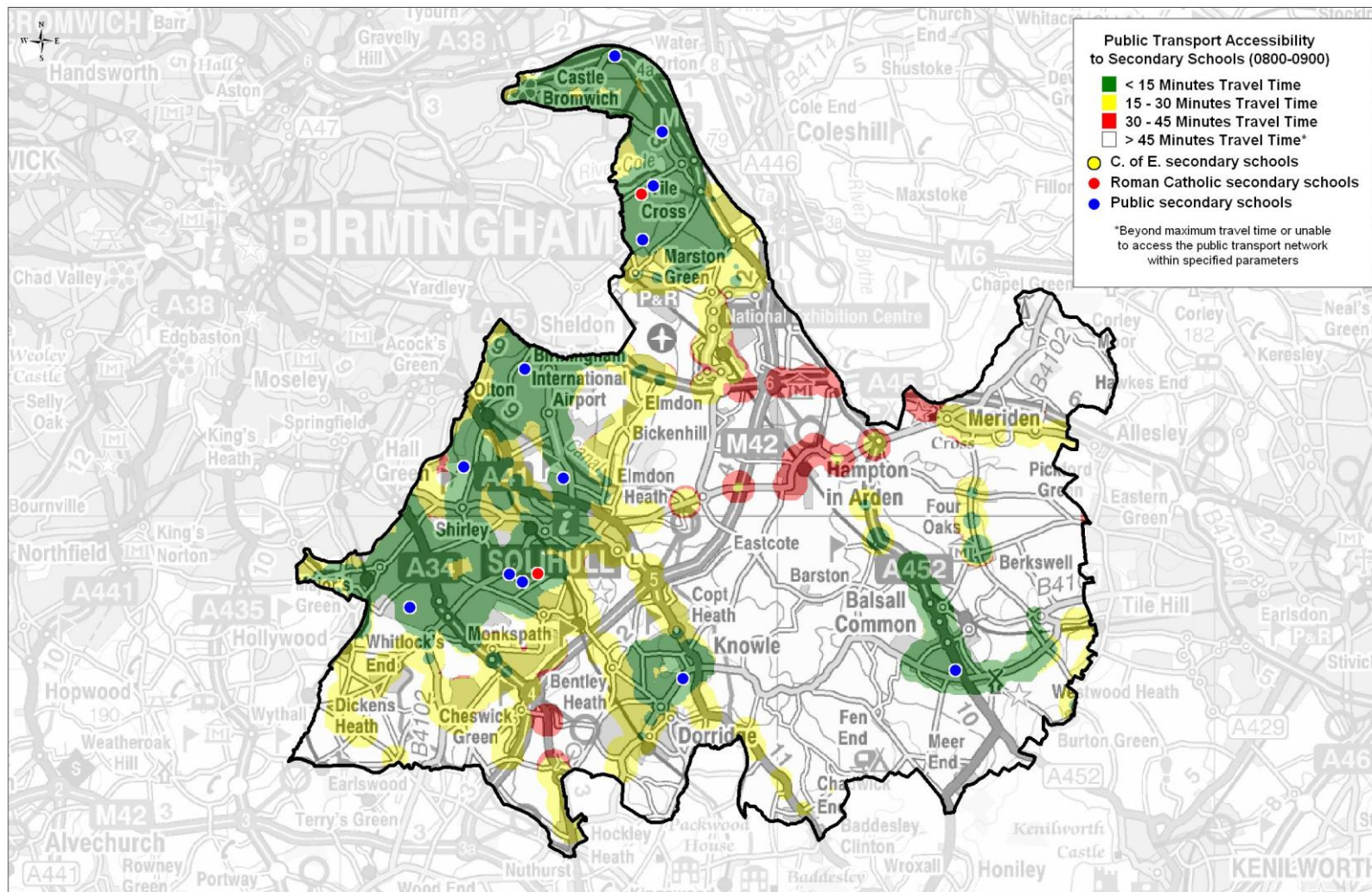
## Accessibility to secondary schools by cycling



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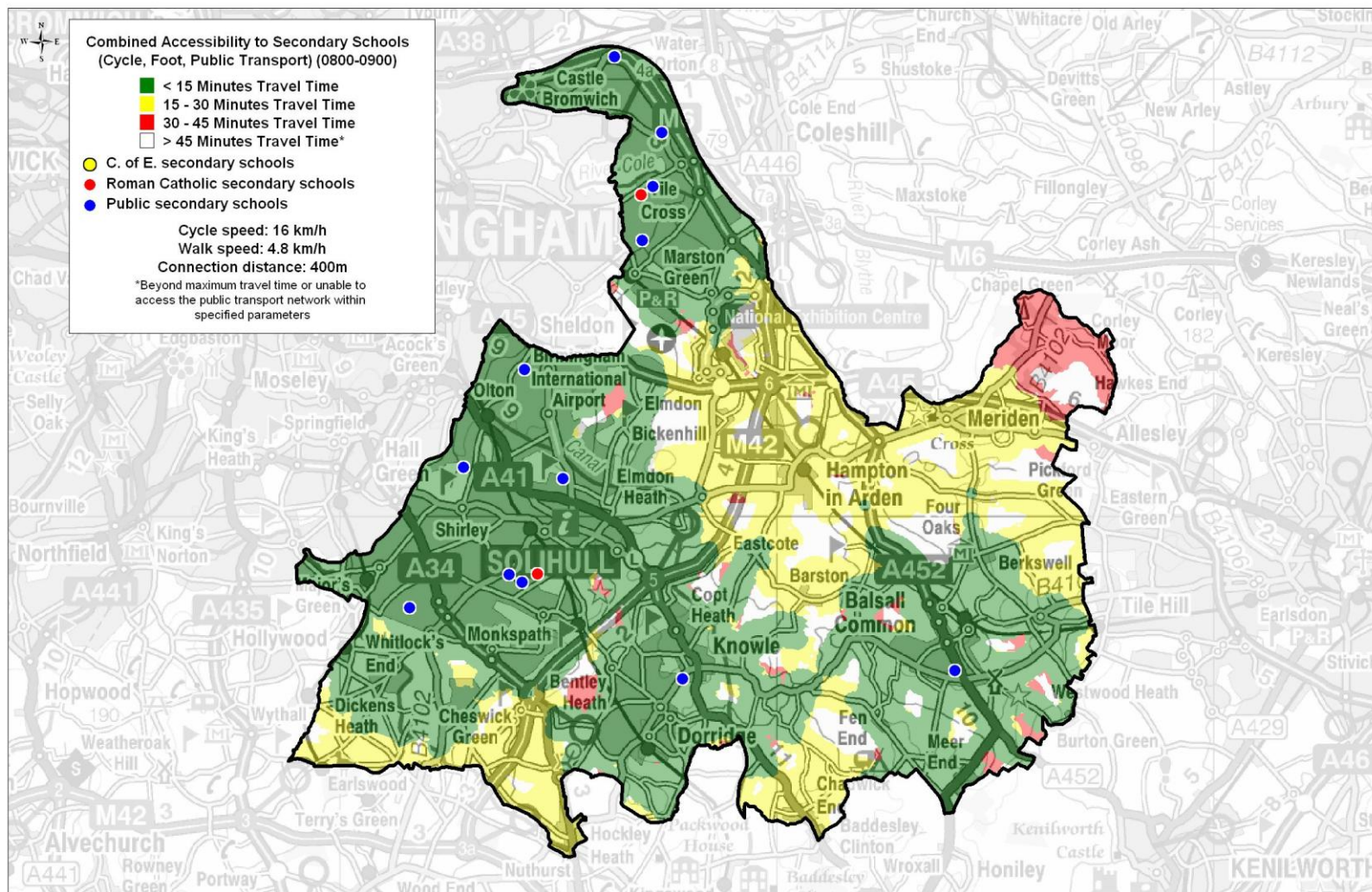
## Accessibility to secondary schools by public transport



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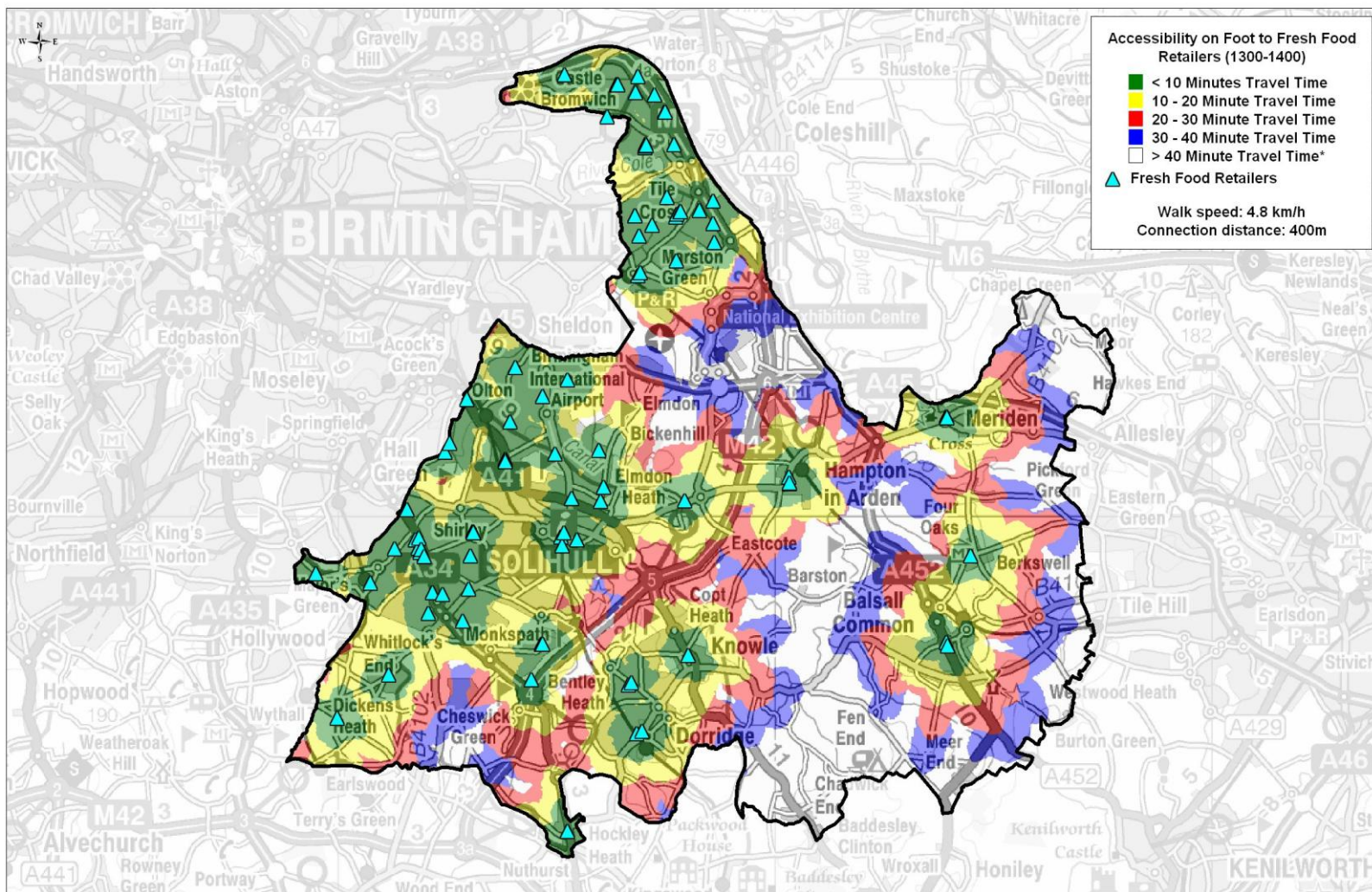
## Combined accessibility to secondary schools (walking, cycling and public transport)



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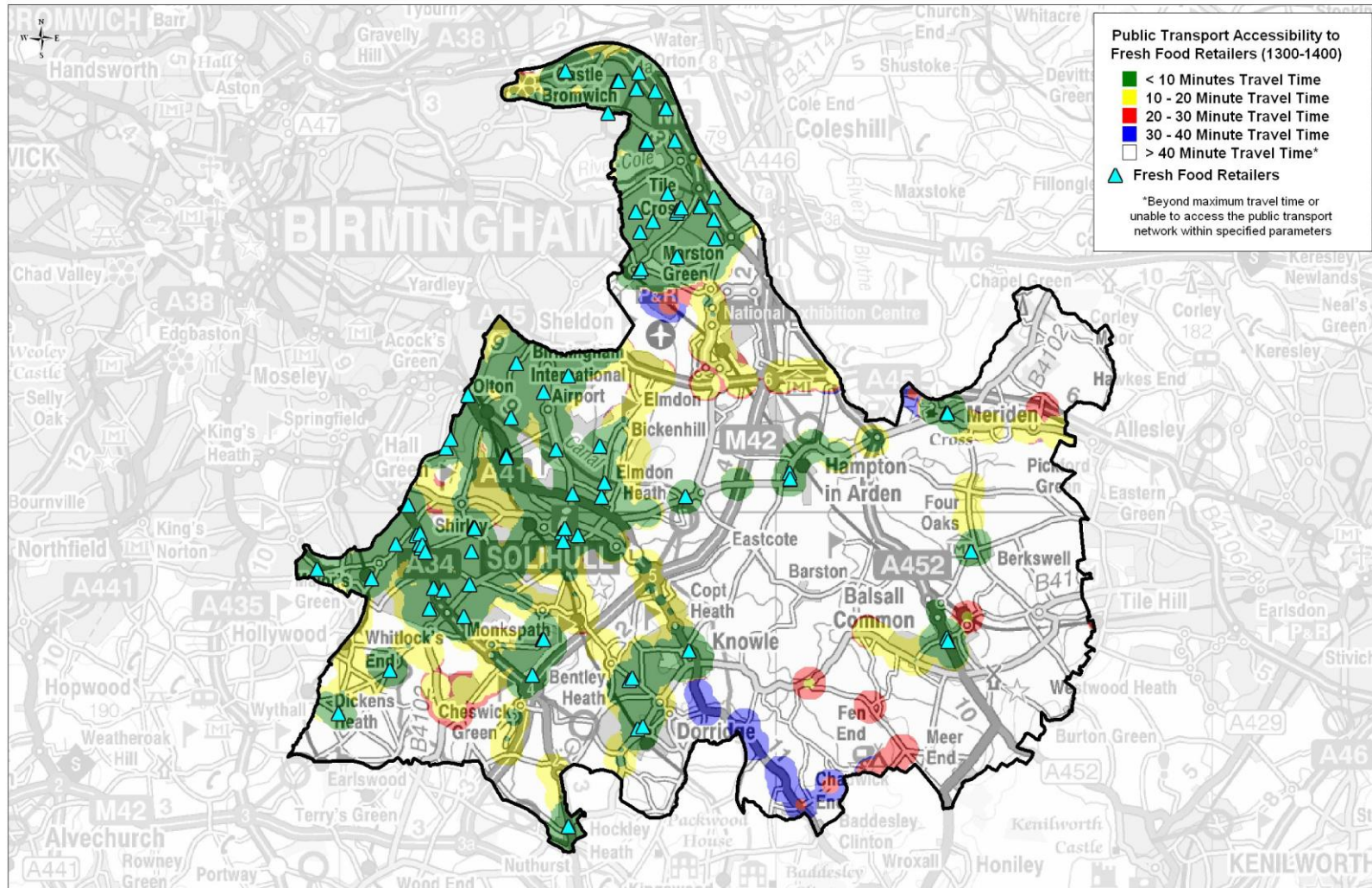
## Accessibility to fresh food shops by walking



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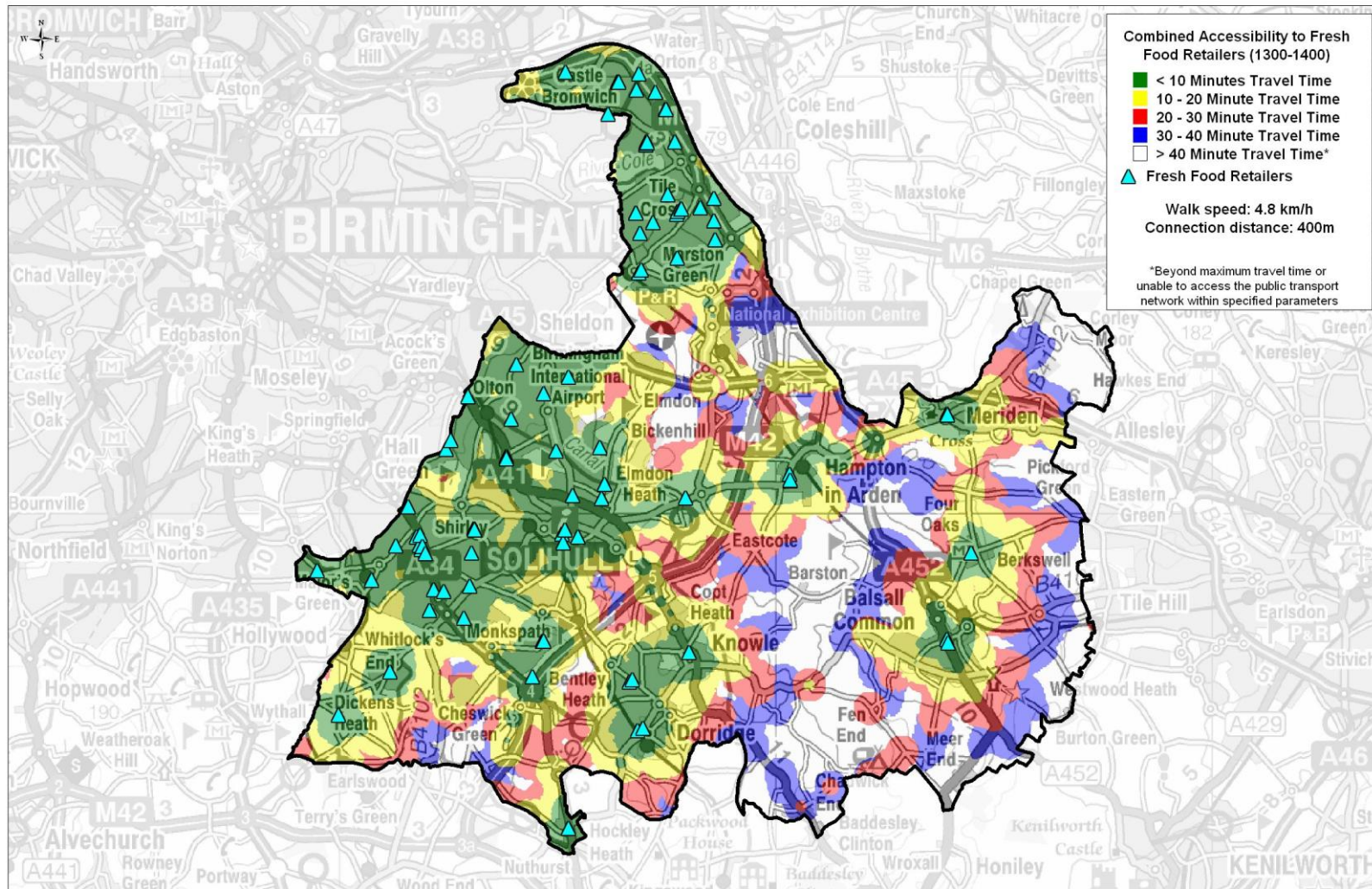
## Accessibility to fresh food shops by public transport



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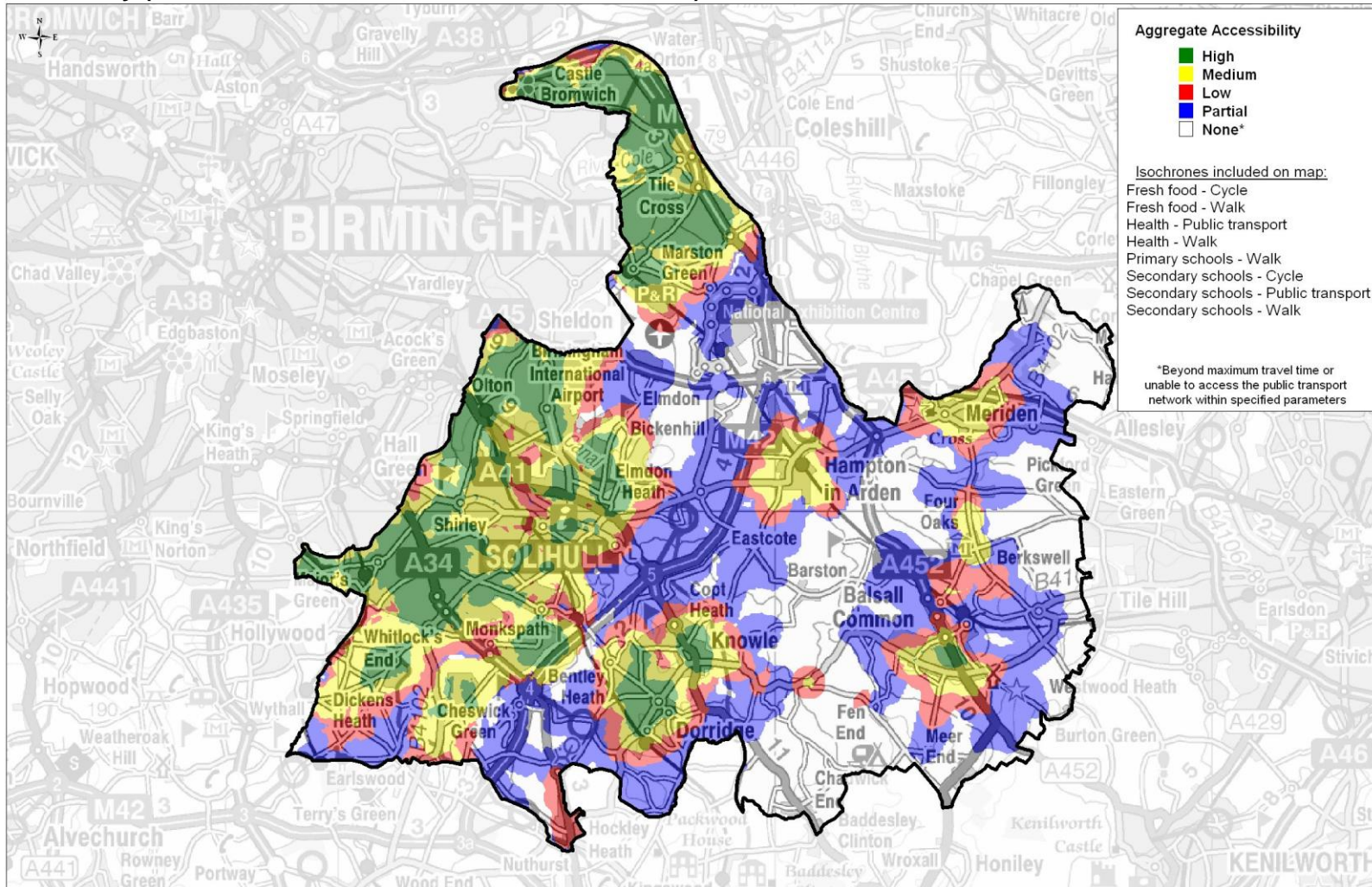
## Combined accessibility to fresh food shops (walking and public transport)



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## Overall Accessibility (Health, Education and Fresh Food Combined)



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Note: Access to fresh food by public transport has been assessed, not access by cycle as is indicated on the map. See notes to accompany this map on the following page.

## Overall Accessibility Map – Explanatory Note

The overall accessibility map was created to demonstrate which areas of Solihull are the most and least accessible based on travel times to key services and facilities. The table and text below summarises how the overall accessibility map has been developed.

Service / Facility	High Accessibility (Green areas on map)	Medium Accessibility (Yellow areas on map)	Low Accessibility (Red areas on map)	Partial Accessibility / Very Low Accessibility (Blue areas on map)	Outside desirable parameters (no colour on map)
Doctors surgeries / health centres	Less than 10 minutes travel time by walking or by public transport	10 – 20 minutes travel time on foot or by public transport	20 – 30 minutes travel time on foot or by public transport	30 – 40 minutes travel time on foot or by public transport	More than 40 minutes travel time on foot or by public transport
Primary schools	Less than 10 minutes travel time by walking	10 – 15 minutes travel time on foot	15 – 20 minutes travel time on foot	-	More than 20 minutes travel time on foot
Secondary schools	Less than 15 minutes travel time by walking, cycling or by public transport	15 – 30 minutes travel time on foot, by cycle or by public transport	30 – 45 minutes travel time on foot, by cycle or by public transport	-	More than 45 minutes travel time on foot, by cycle or by public transport
Fresh food	Less than 10 minutes travel time by walking or by public transport	10 – 20 minutes travel time on foot or by public transport	20 – 30 minutes travel time on foot or by public transport	30 – 40 minutes travel time on foot or by public transport	More than 40 minutes travel time on foot or by public transport

For an area to be categorised as having high accessibility it will have high accessibility to all of the above services and facilities.

Medium accessibility - access to at least one of the above services or facilities is medium and access to all of the other services and facilities is low, medium or high.

Low accessibility – access to at least one of the above services or facilities is low and accessibility to all of the other services and facilities is low, medium or high.

Partial/Very Low accessibility - at least three services can be accessed within the very low, low, medium or high accessibility parameters, but which also have one service where accessibility is outside desirable parameters.

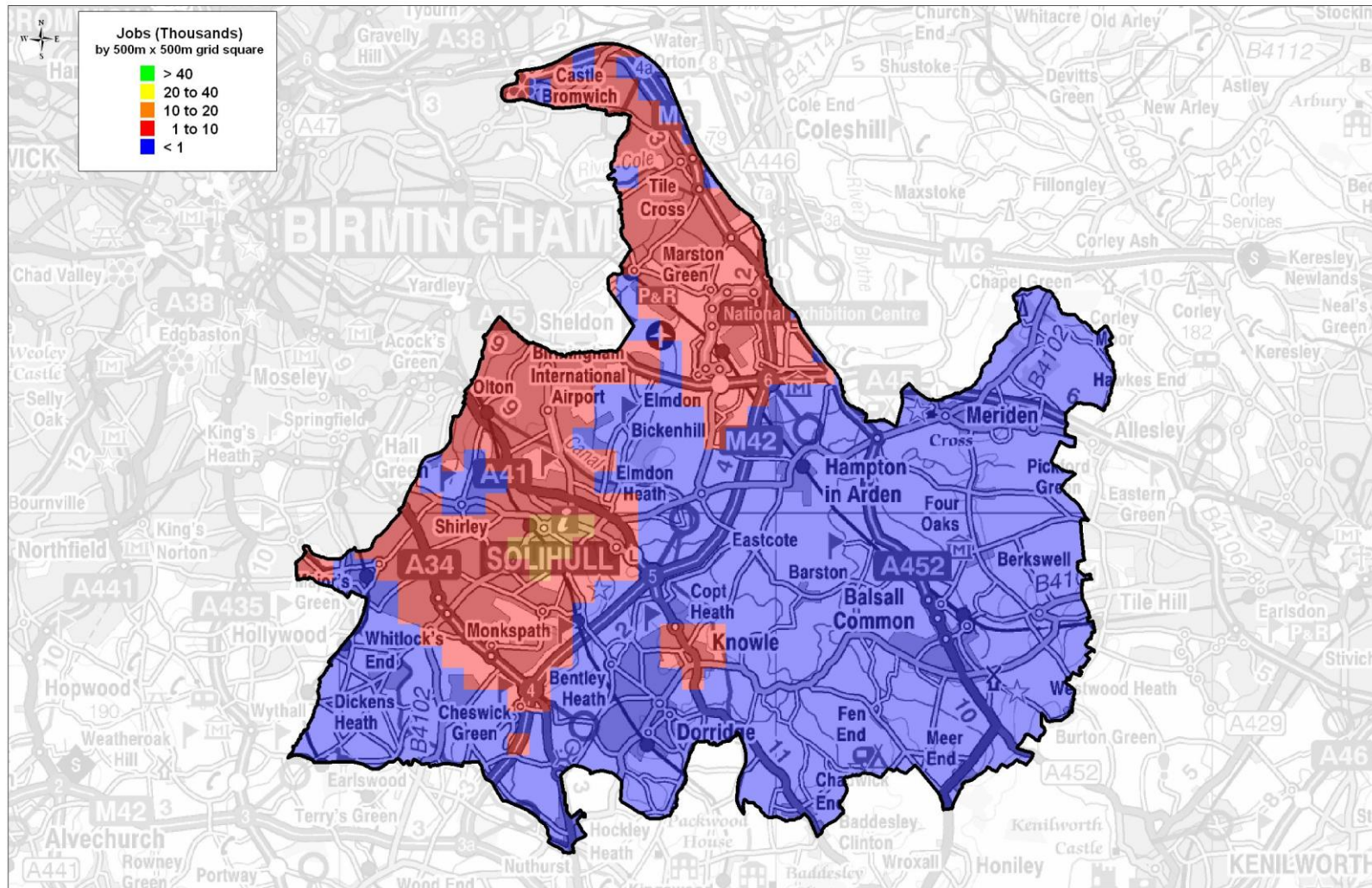
Areas outside desirable parameters – access to at least two of the above services and facilities is outside of desirable parameters.

It is important to read the overall accessibility map alongside all other accessibility maps within this study.



## No. of jobs within 15 minutes travel time by walking

Total Jobs access within 15 minutes travel time on foot (ABI 2009)

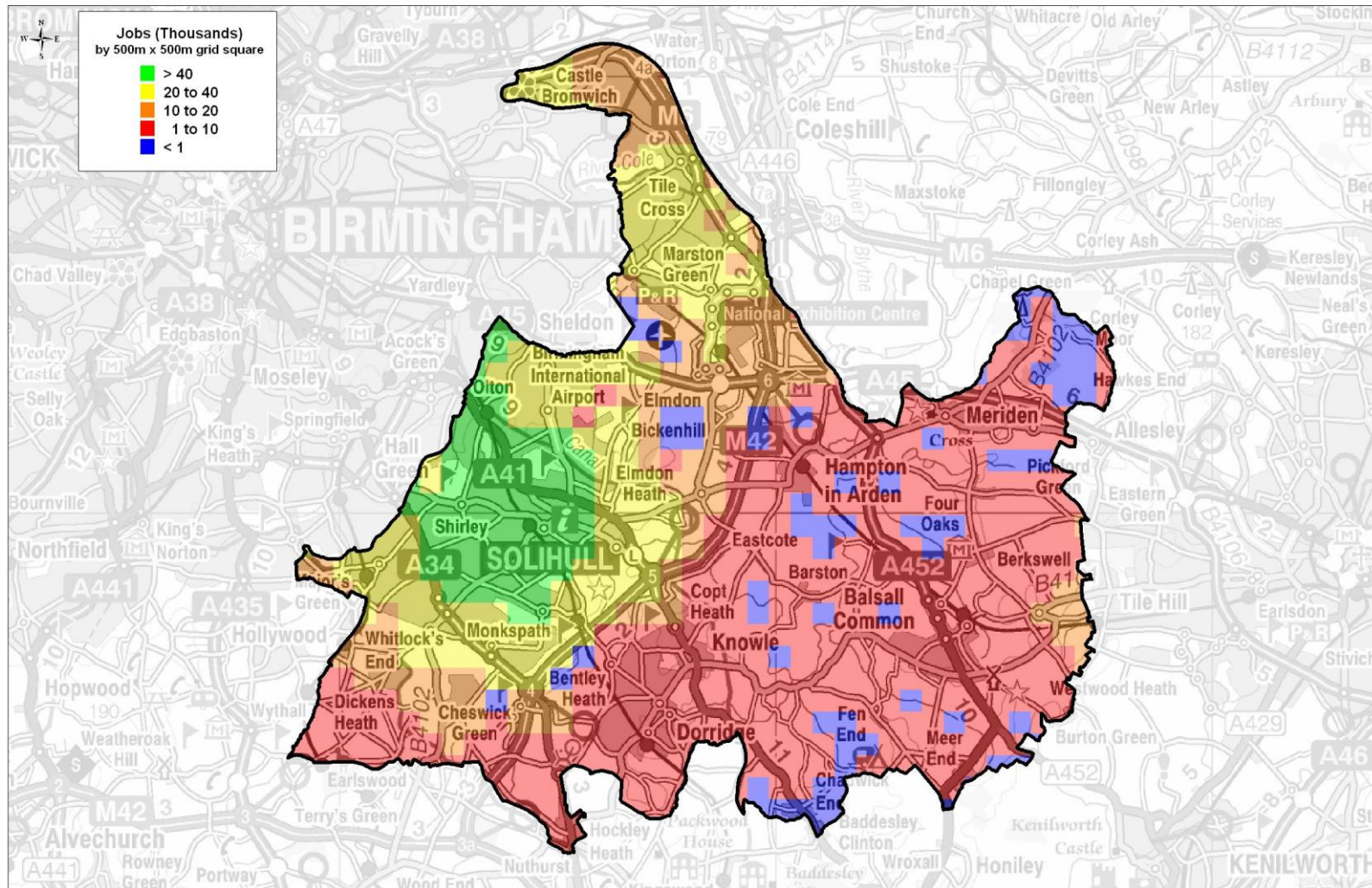


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## No of jobs within 15 minutes travel time by cycling

Total Jobs access within 15 minutes travel time by cycle at 09.00 on a weekday (ABI 2009)

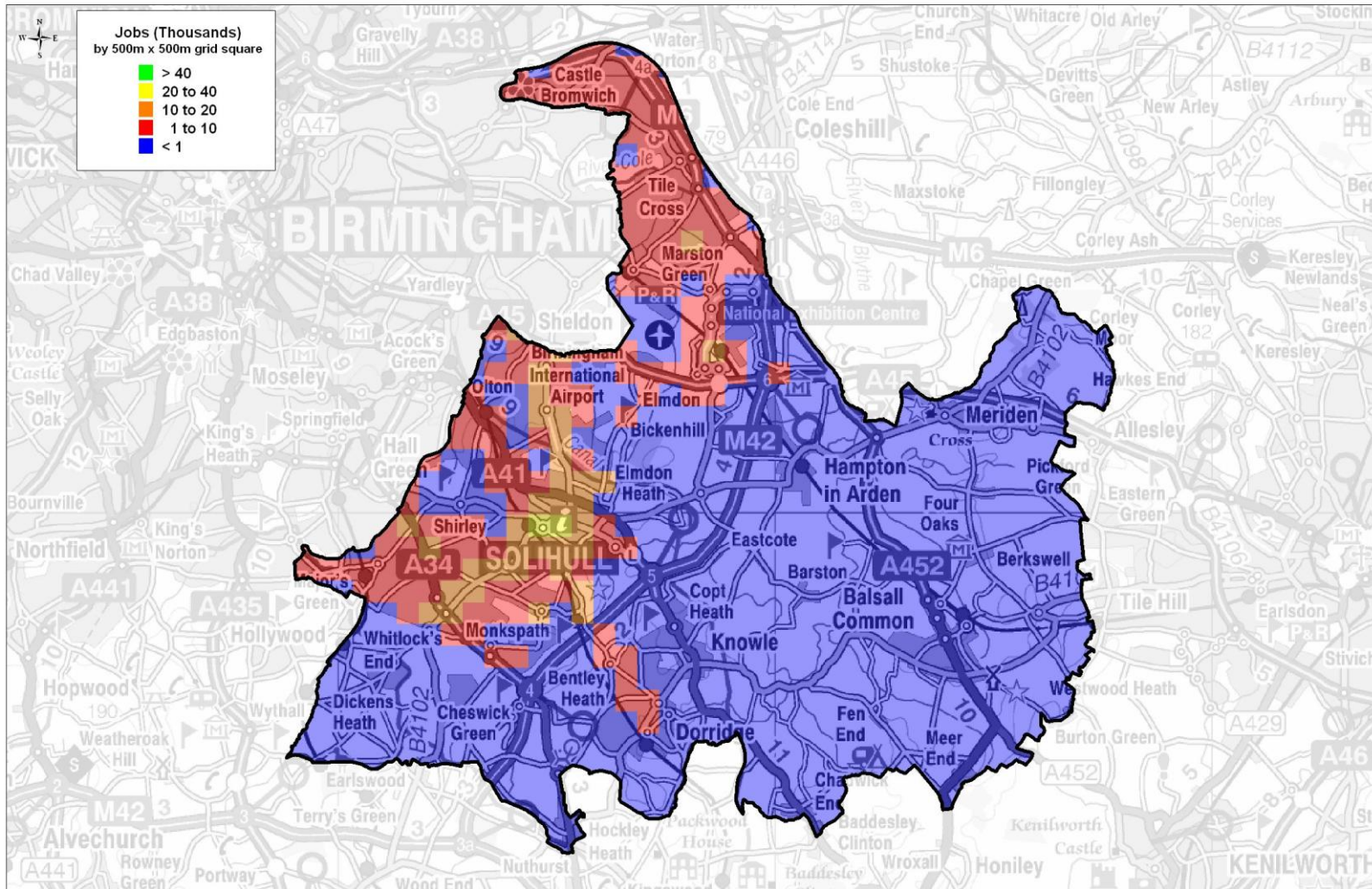


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## No of jobs within 15 minutes travel time by public transport

Total Jobs access within 15 minutes travel time by Public Transport at 09.00 on a weekday (ABI 2009)

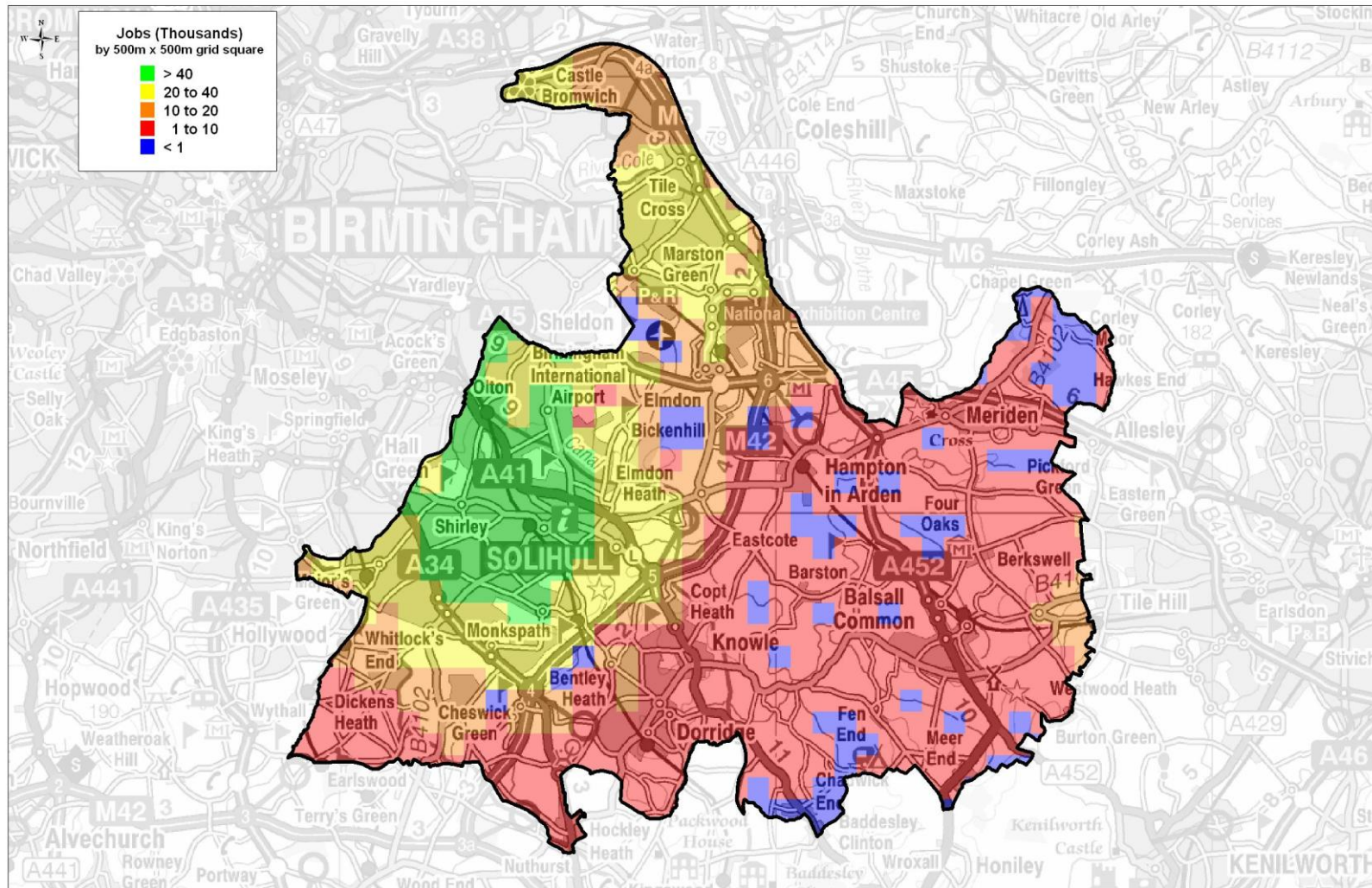


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## No of jobs within 15 minutes travel time by walking, cycling or public transport combined

Total Jobs access within 15 minutes travel time by cycle, public transport or on foot at 09.00 on a weekday (ABI 2009)

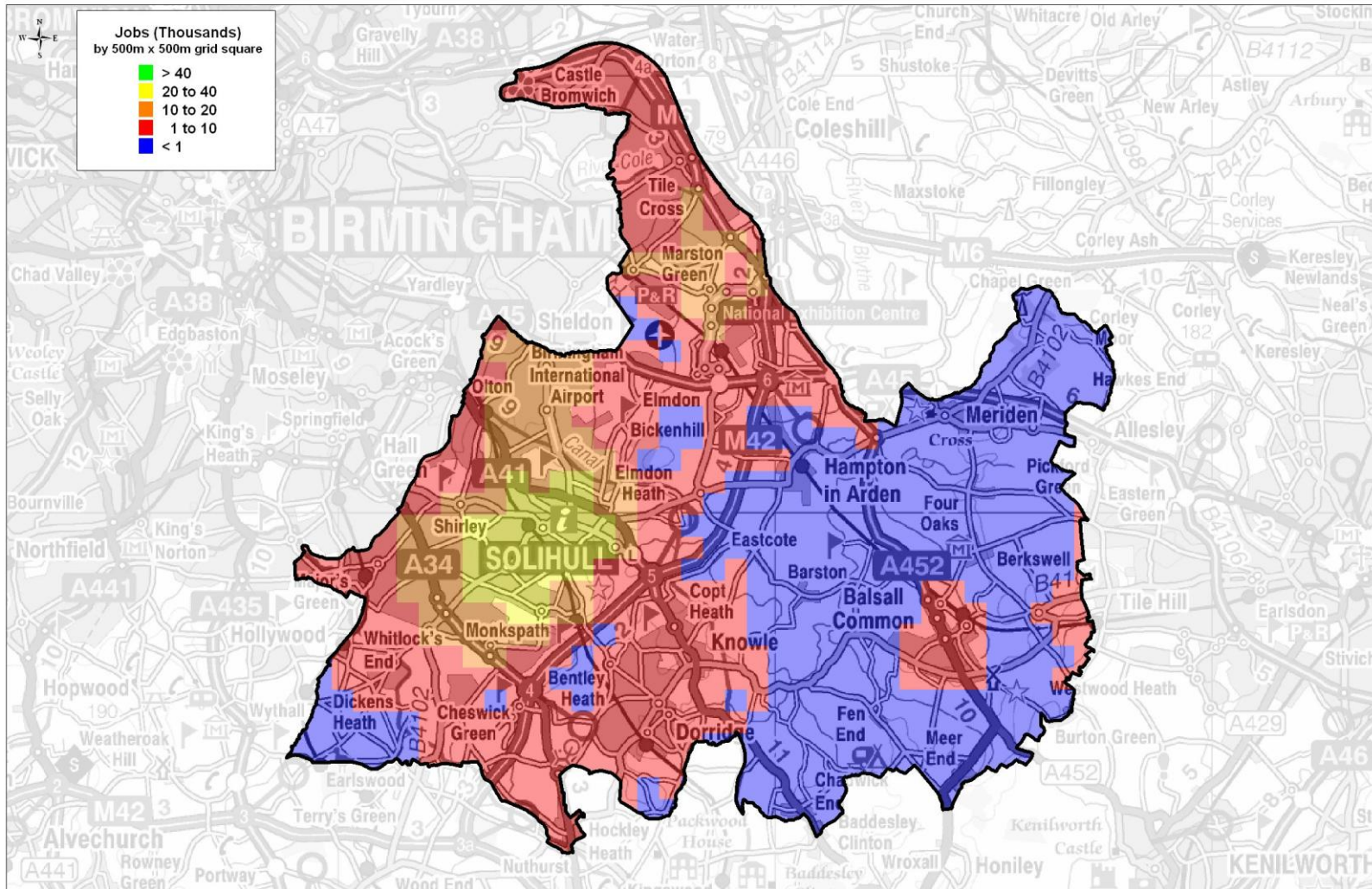


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## No. of jobs within 30 minutes travel time by walking

Total Jobs access within 30 minutes travel time on foot (ABI 2009)

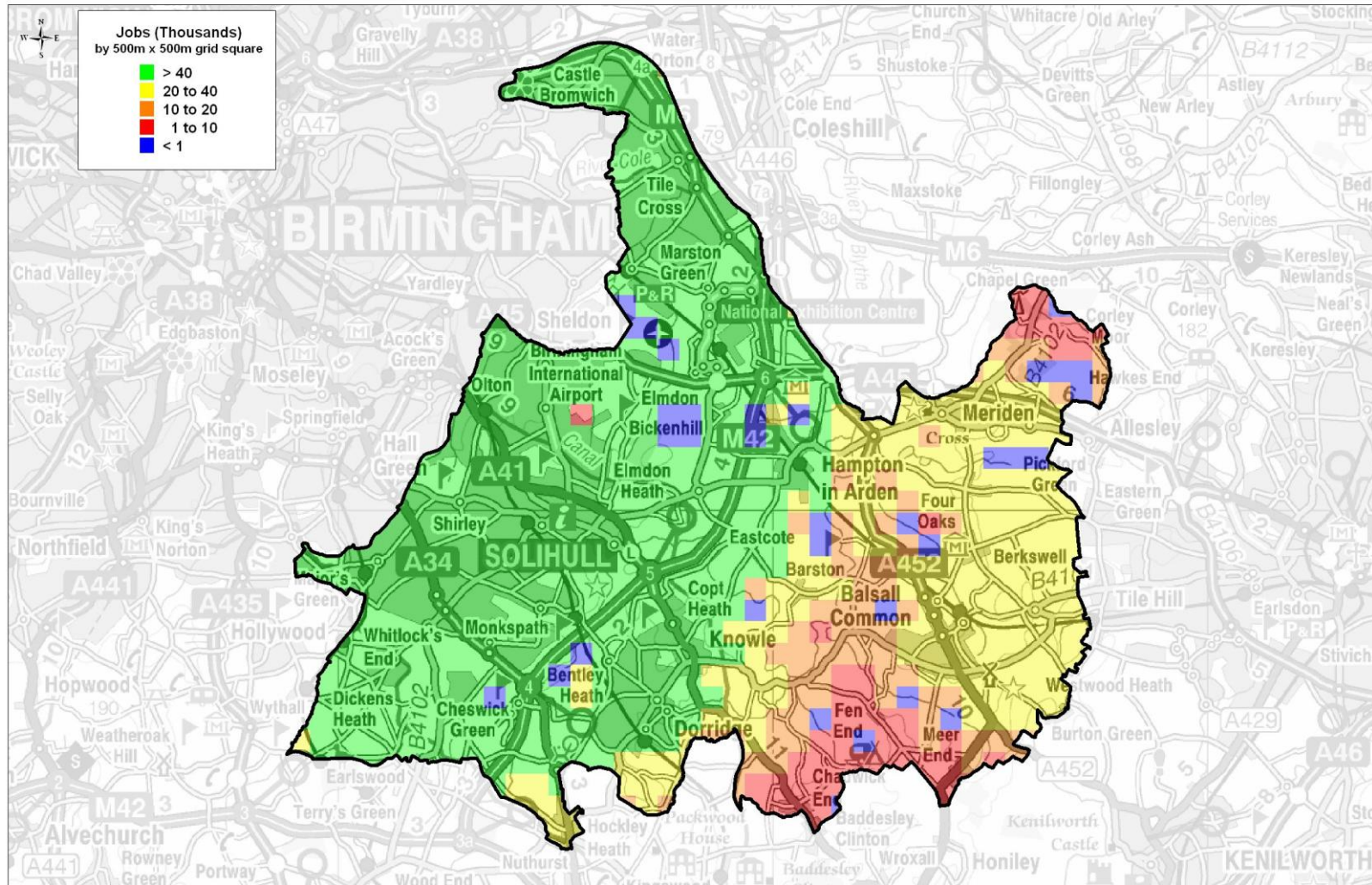


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## No of jobs within 30 minutes travel time by cycling

Total Jobs access within 30 minutes travel time by cycle at 09.00 on a weekday (ABI 2009)

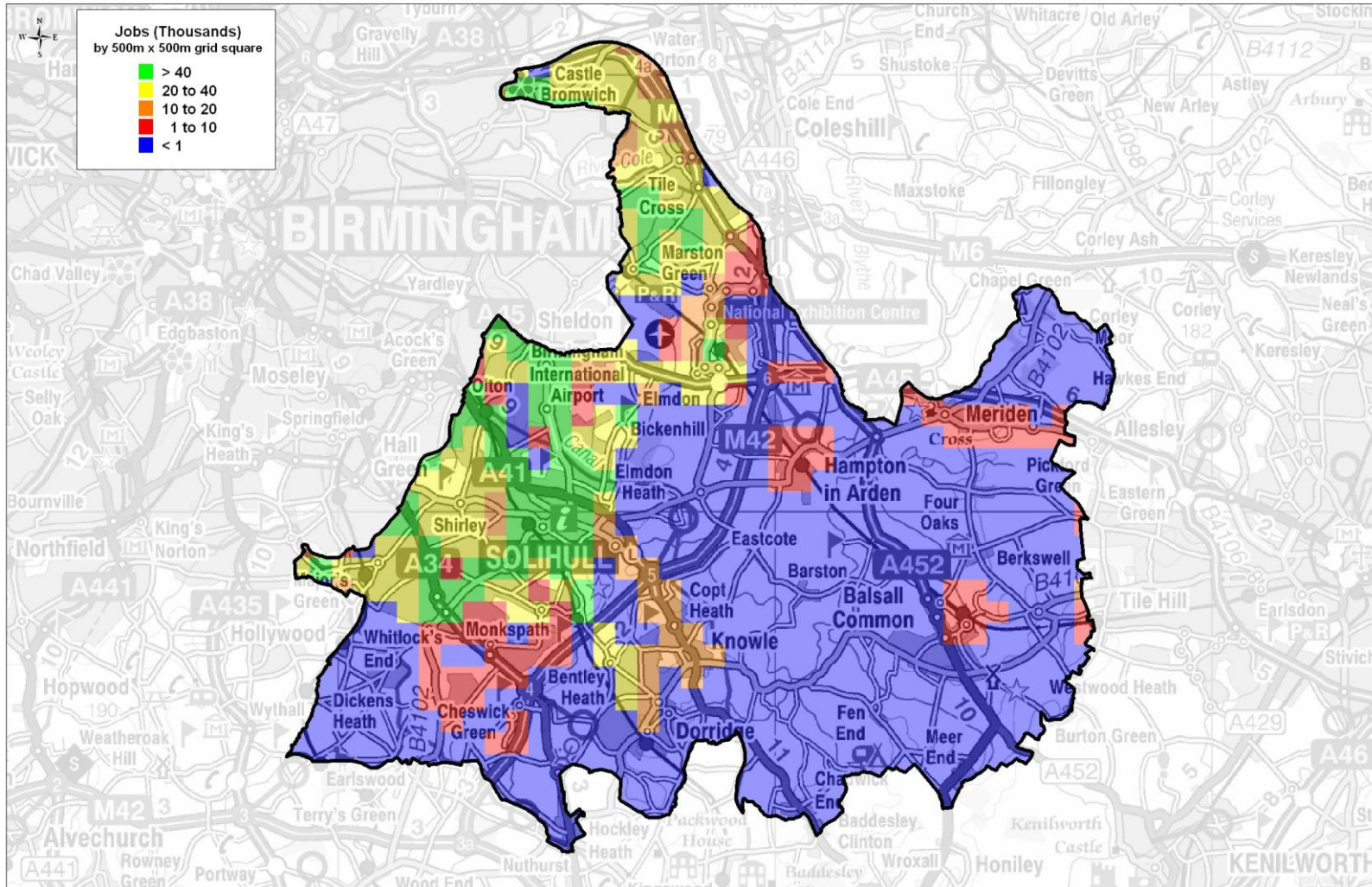


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## No of jobs within 30 minutes travel time by public transport

Total Jobs access within 30 minutes travel time by Public Transport at 09.00 on a weekday (ABI 2009)

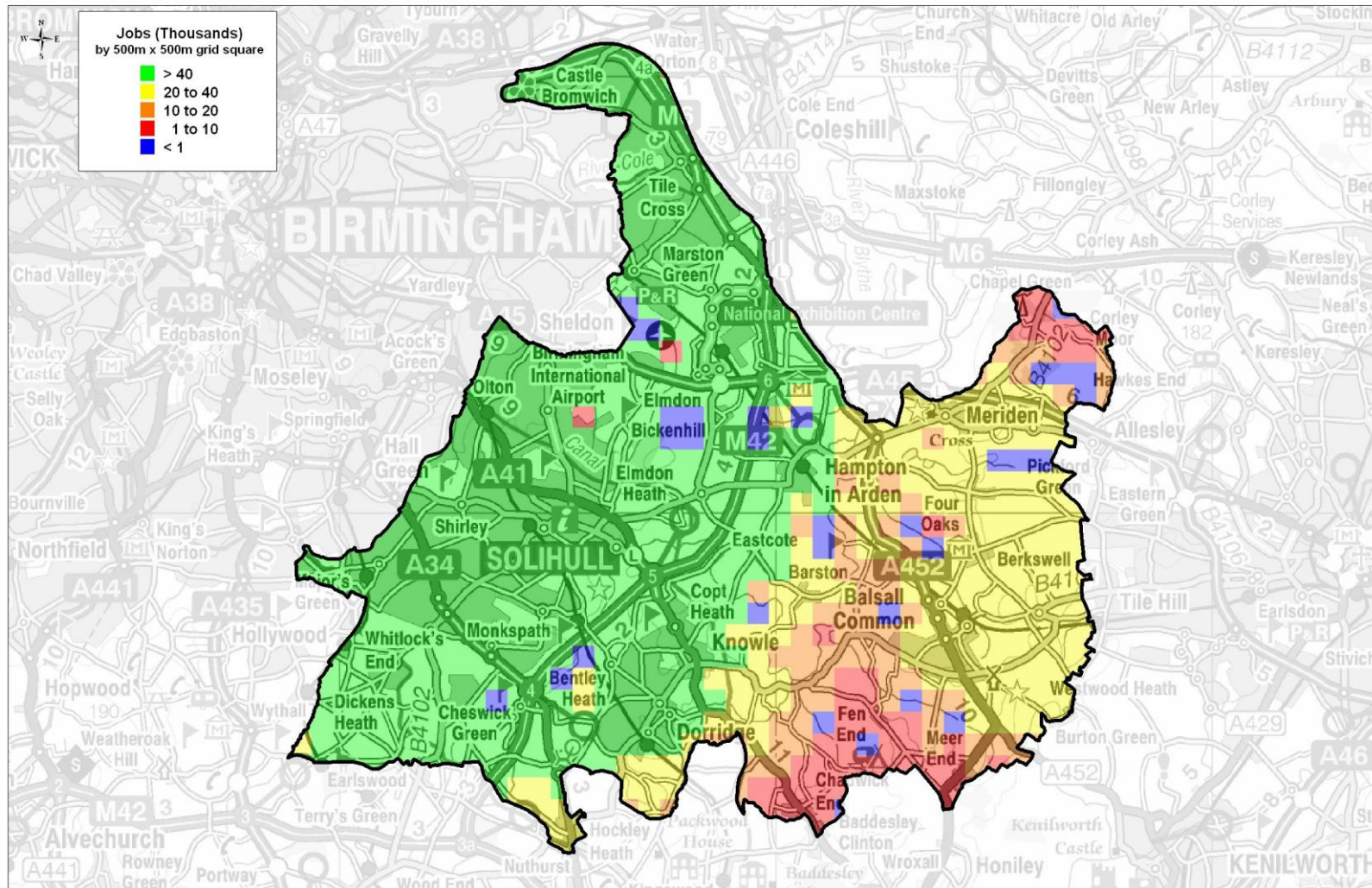


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## No of jobs within 30 minutes travel time by walking, cycling or public transport combined

Total Jobs access within 30 minutes travel time by cycle, public transport or on foot at 09.00 on a weekday (ABI 2009)



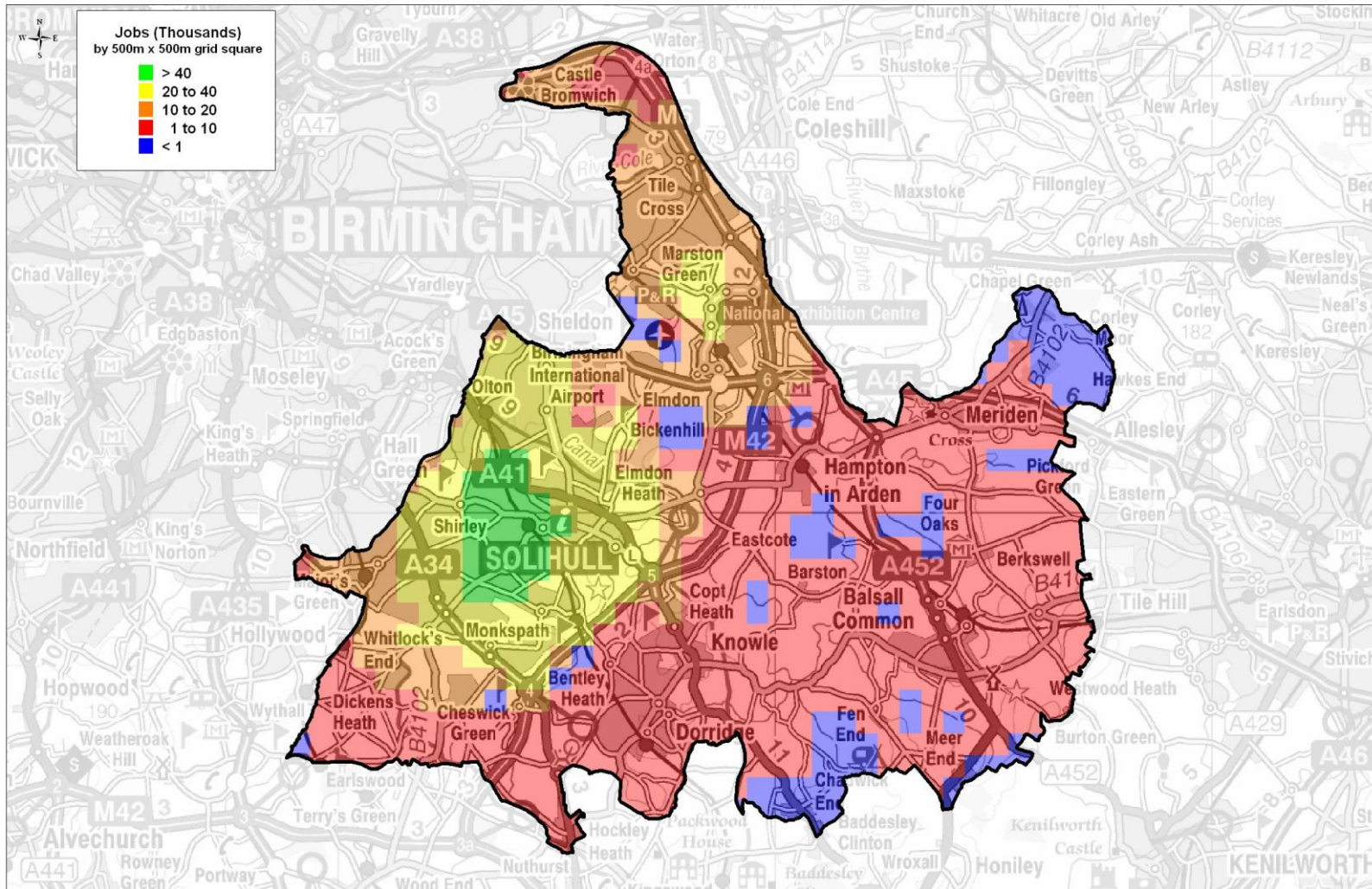
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## No. of jobs within 45 minutes travel time by walking

Total Jobs access within 45 minutes travel time on foot (ABI 2009)

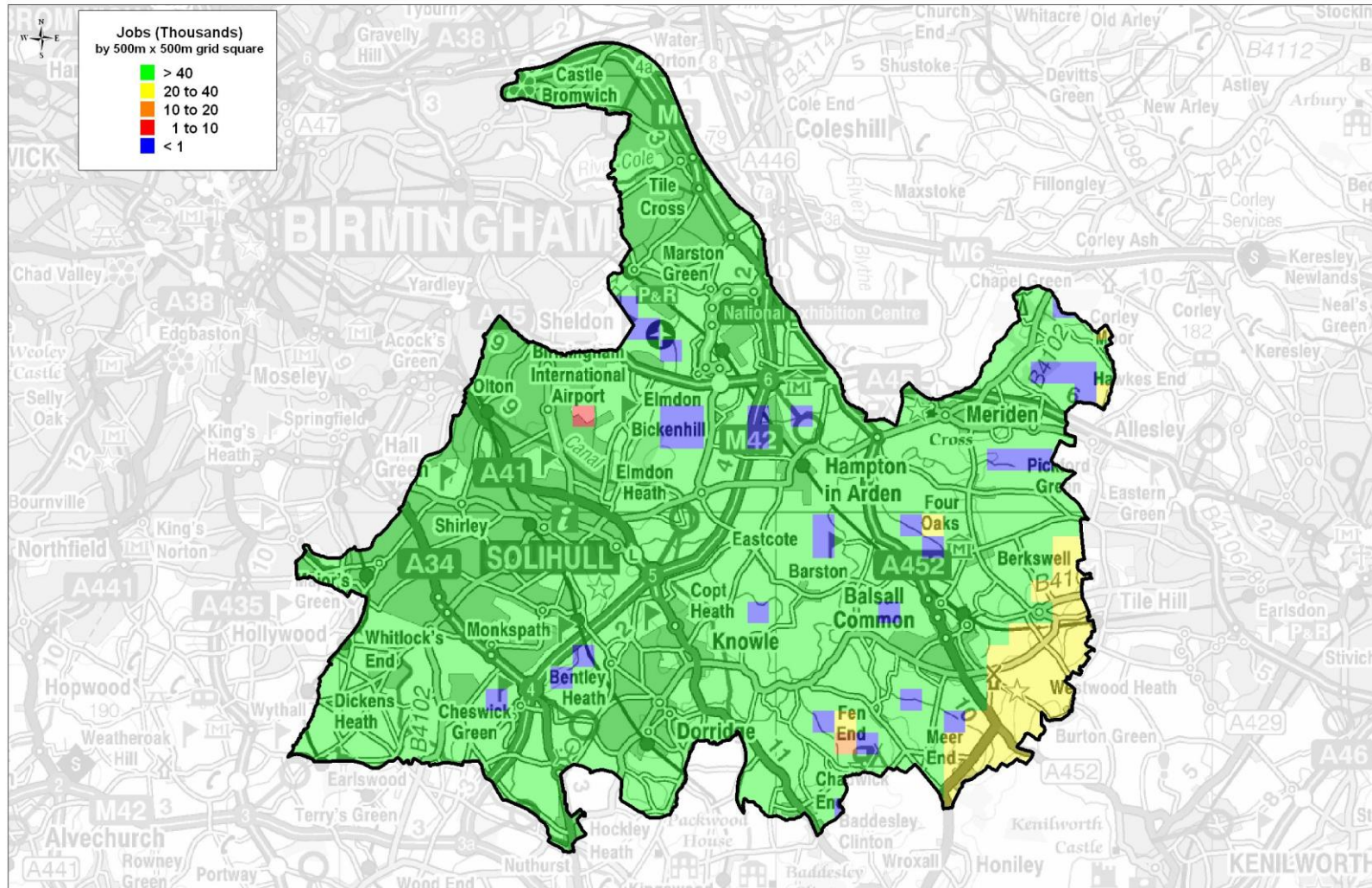


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## No of jobs within 45 minutes travel time by cycling

Total Jobs access within 45 minutes travel time by cycle at 09.00 on a weekday (ABI 2009)

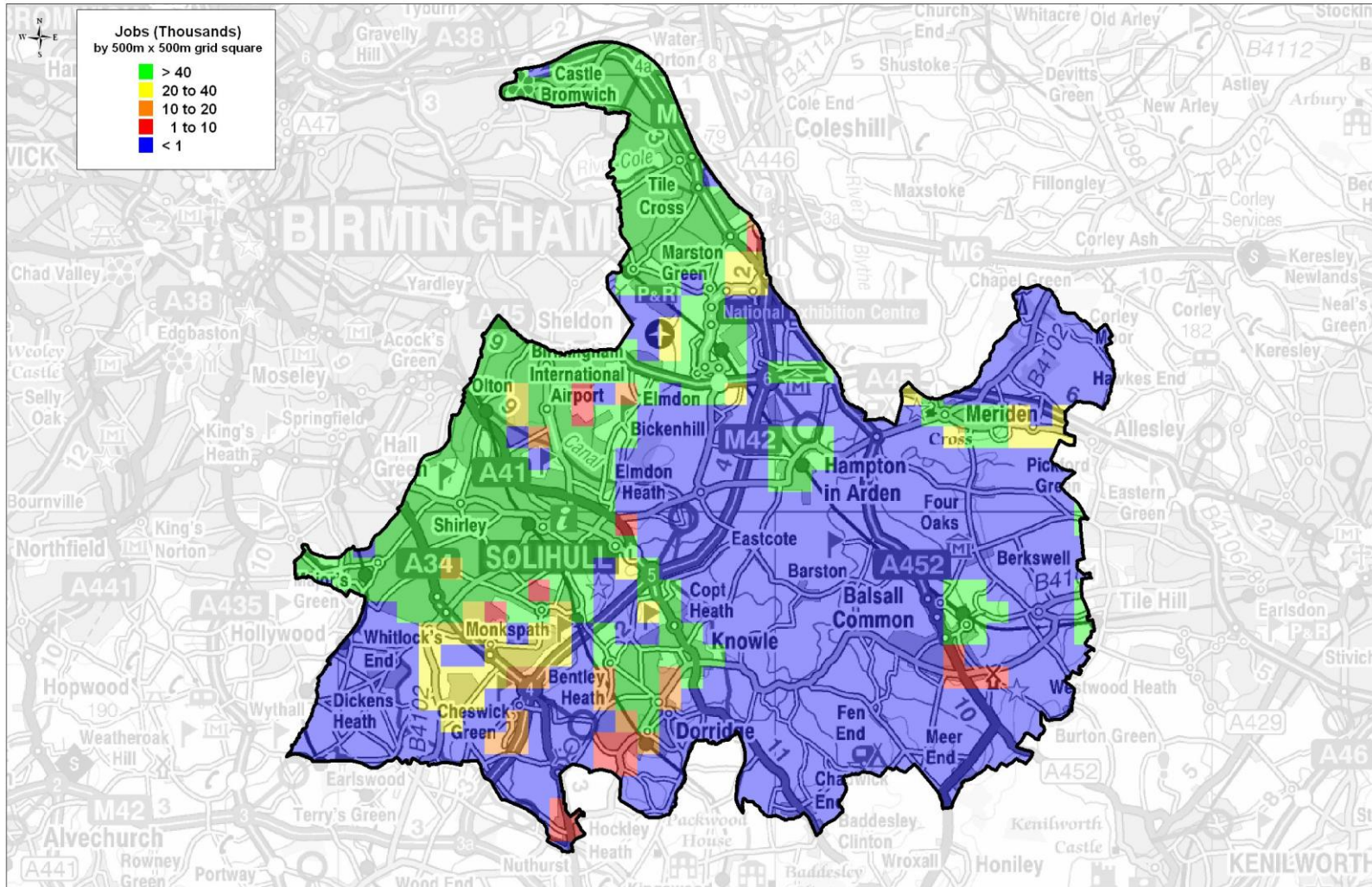


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## No of jobs within 45 minutes travel time by public transport

Total Jobs access within 45 minutes travel time by Public Transport at 09.00 on a weekday (ABI 2009)

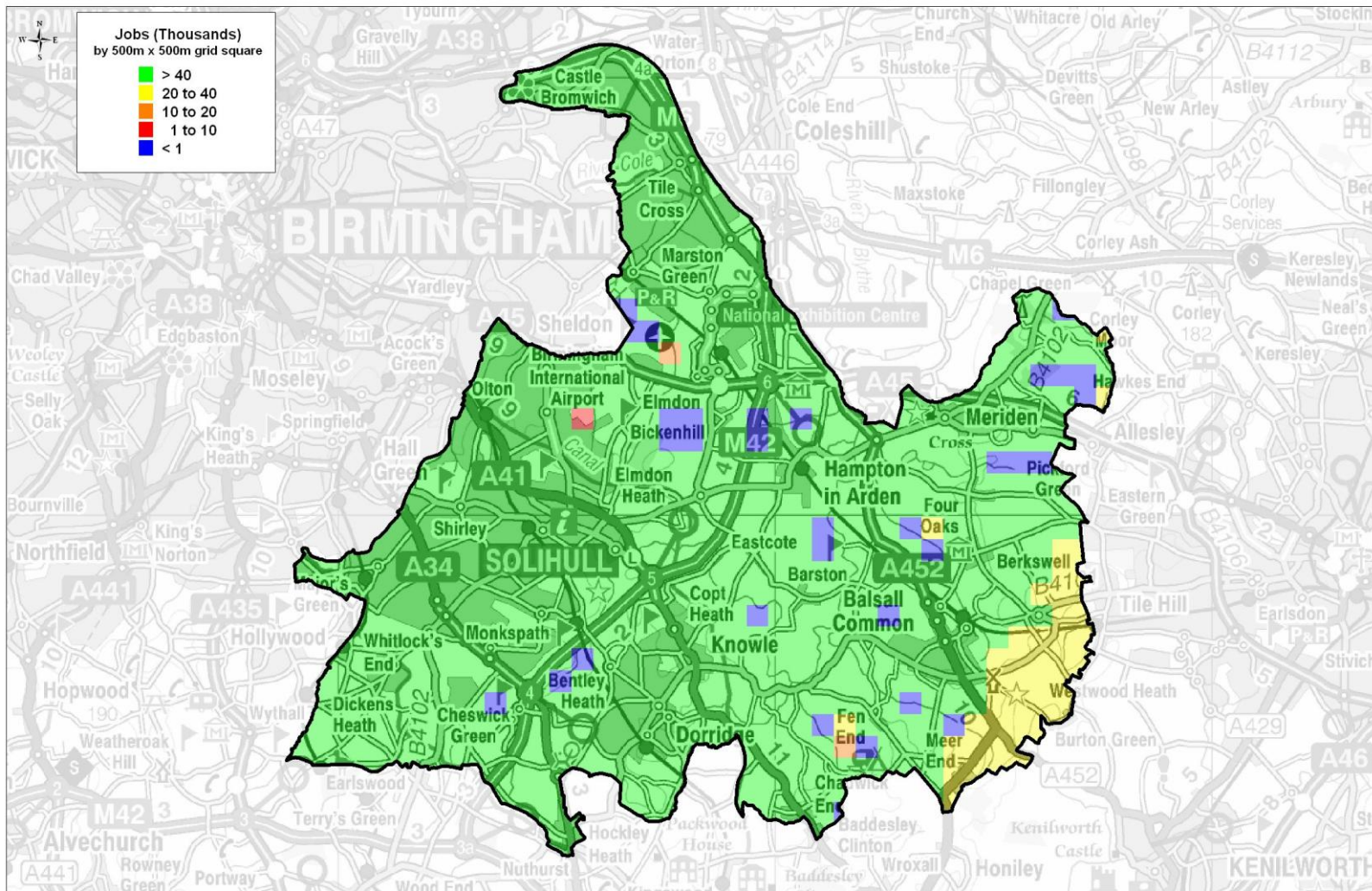


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## No of jobs within 45 minutes travel time by walking, cycling or public transport combined

Total Jobs access within 45 minutes travel time by cycle, public transport or on foot at 09.00 on a weekday (ABI 2009)

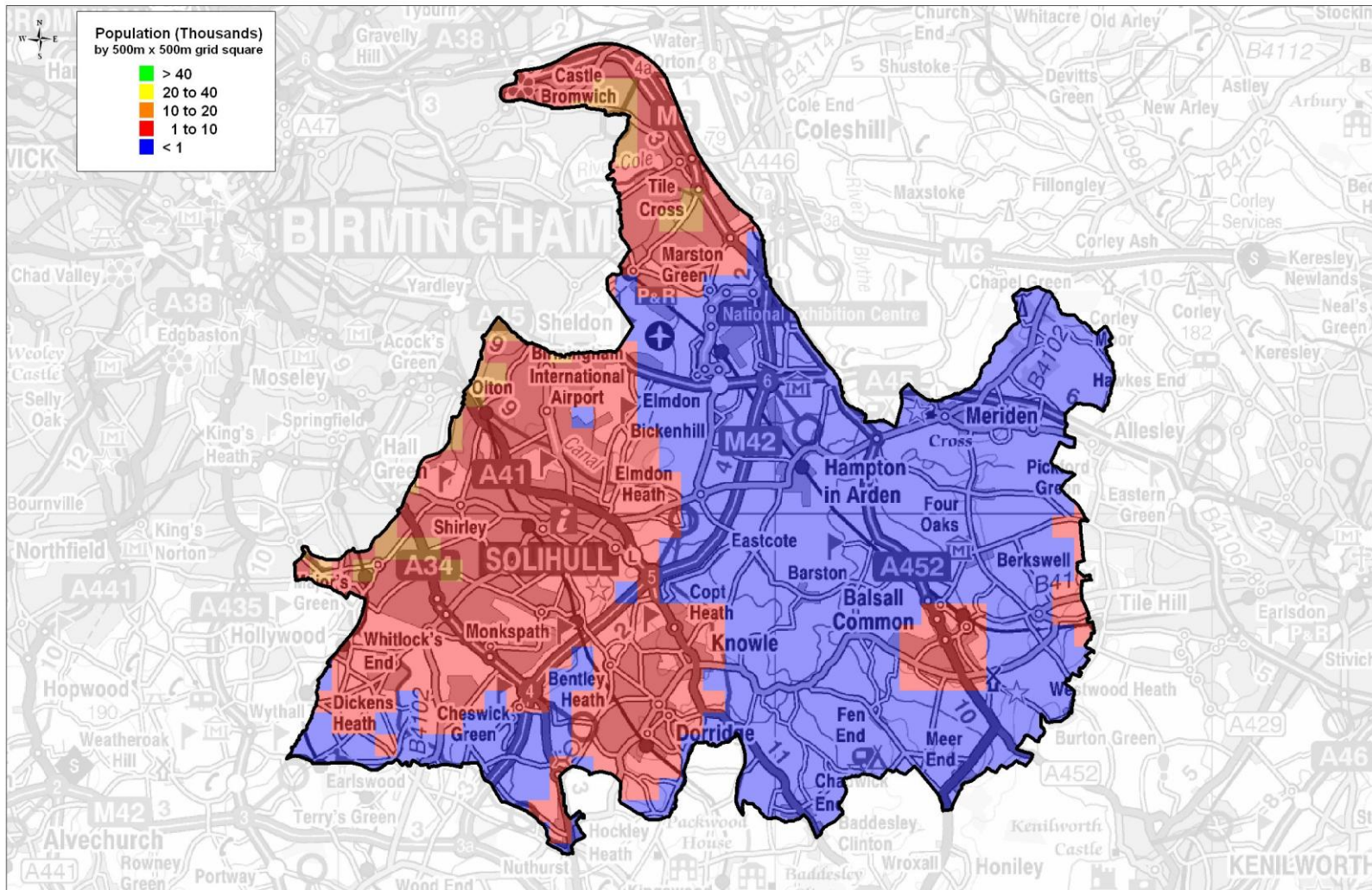


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## Population within 15 minutes travel time by walking

Total population access within 15 minutes travel time on foot (ABI 2009)

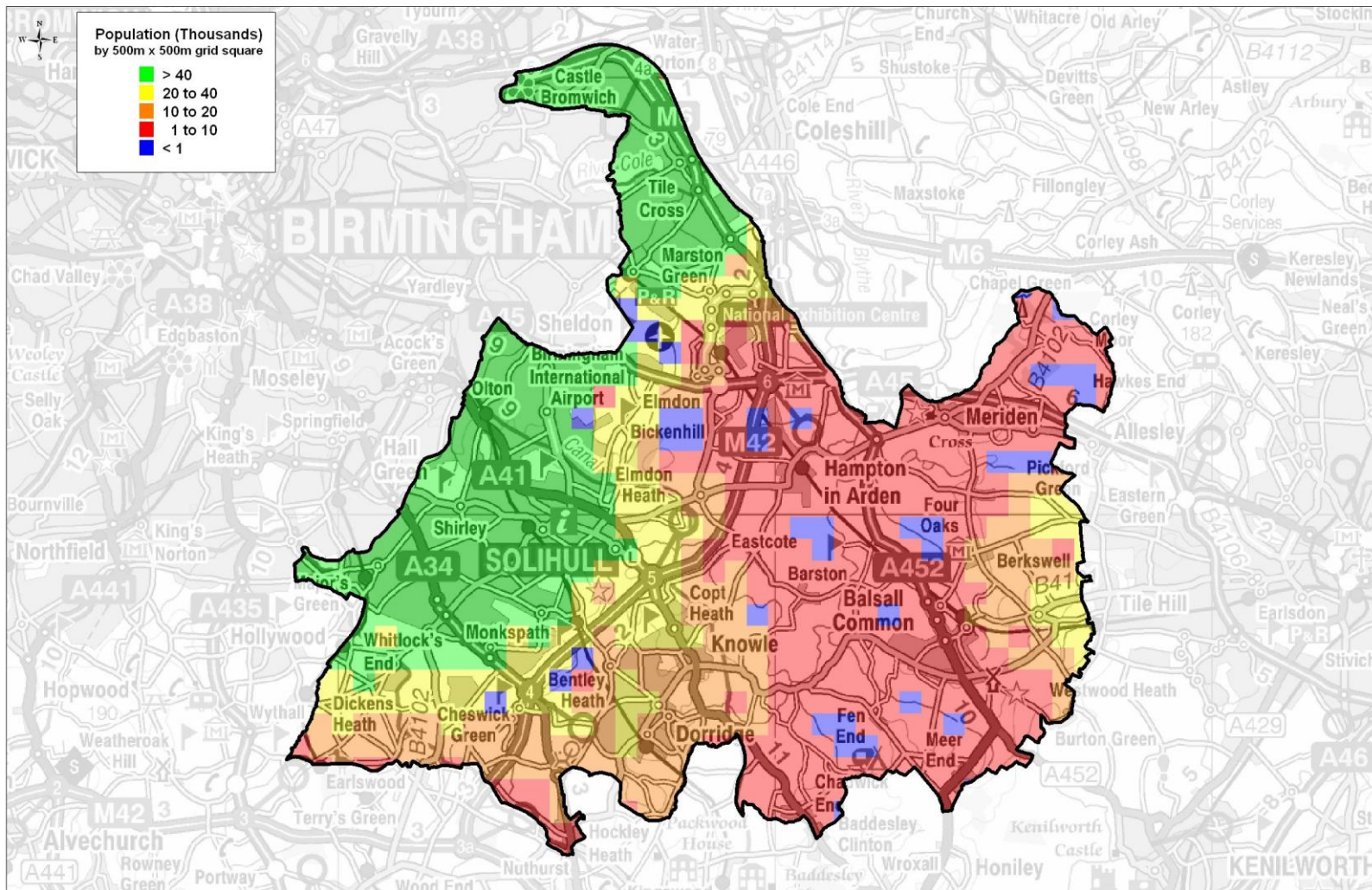


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## Population within 15 minutes travel time by cycling

Total population access within 15 minutes travel time by cycle at 09.00 on a weekday (ABI 2009)

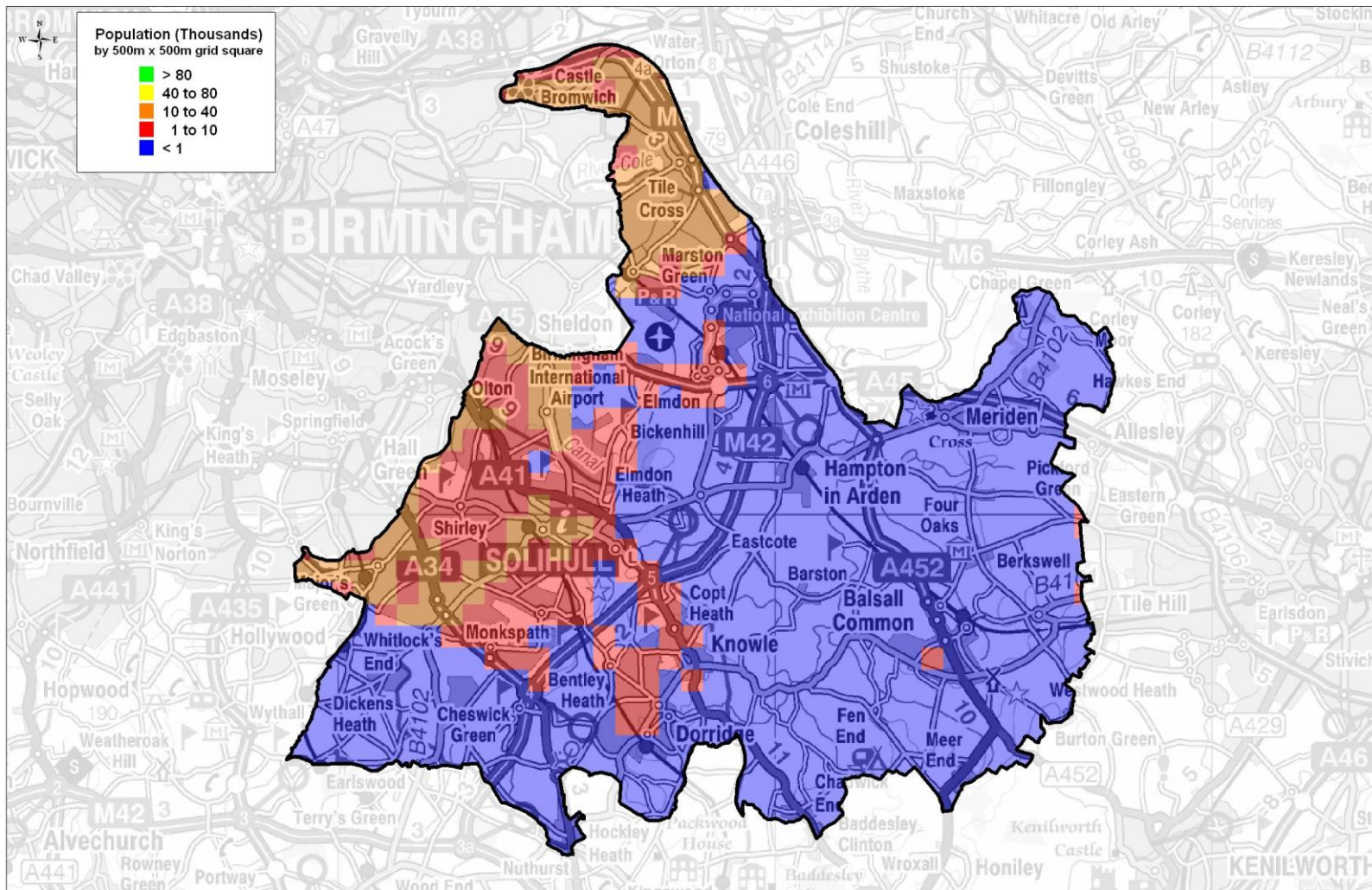


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## Population within 15 minutes travel time by public transport

Total population access within 15 minutes travel time by Public Transport at 09.00 on a weekday (ABI 2009)

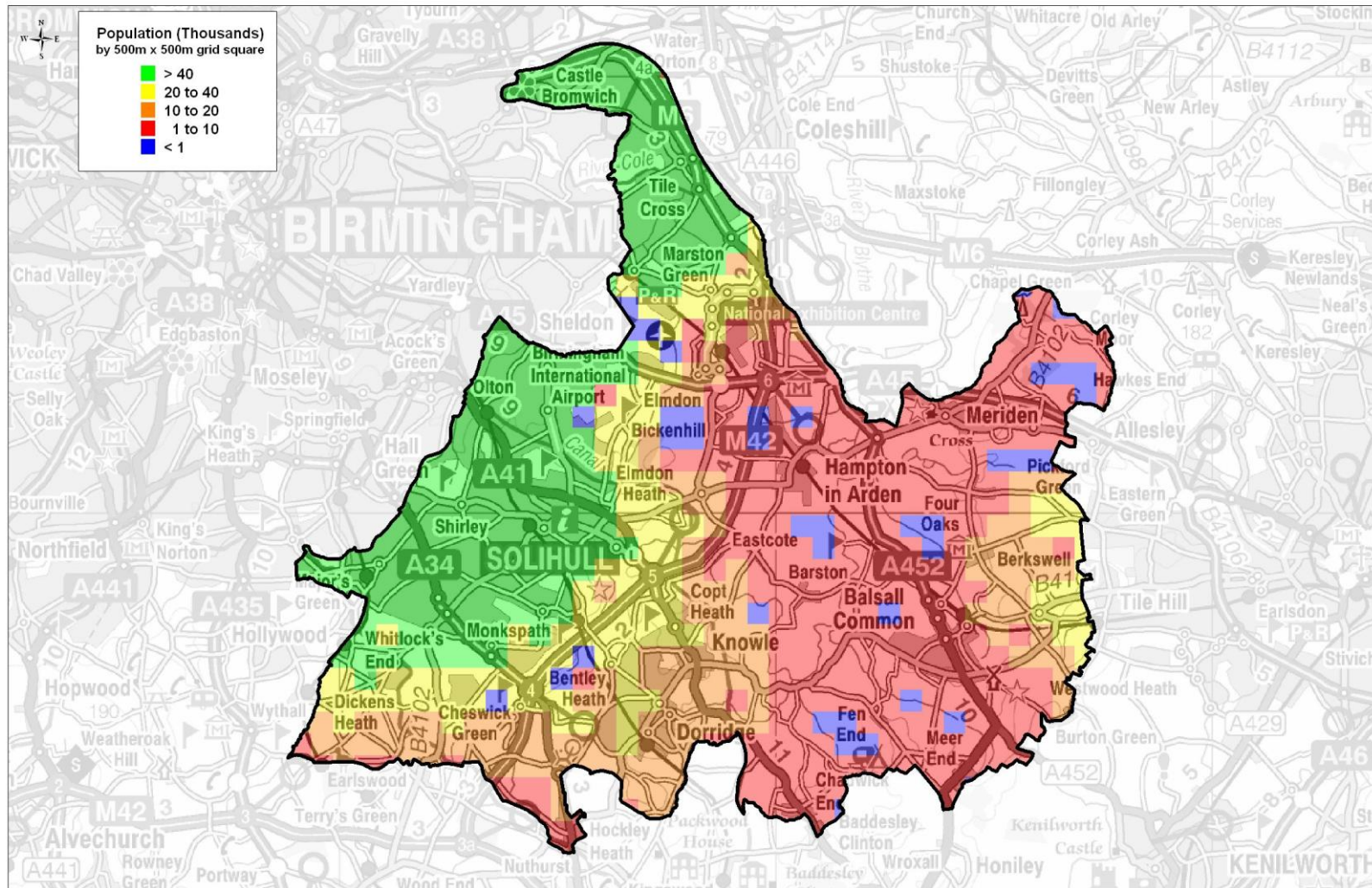


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## Population within 15 minutes travel time by walking, cycling or public transport combined

Total population access within 15 minutes travel time by cycle, public transport or on foot at 09.00 on a weekday (ABI 2009)



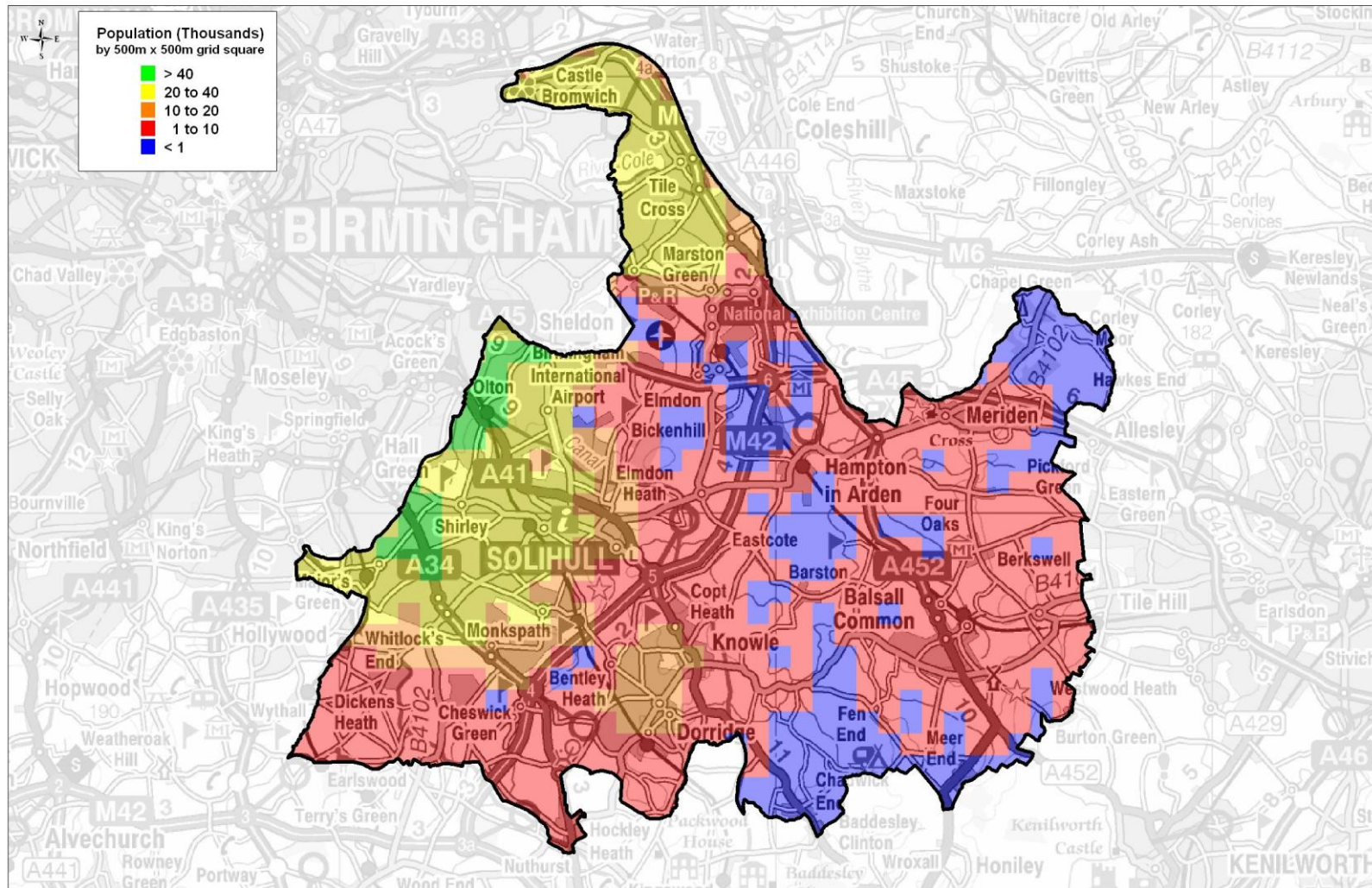
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## Population within 30 minutes travel time by walking

Total population access within 30 minutes travel time on foot (ABI 2009)

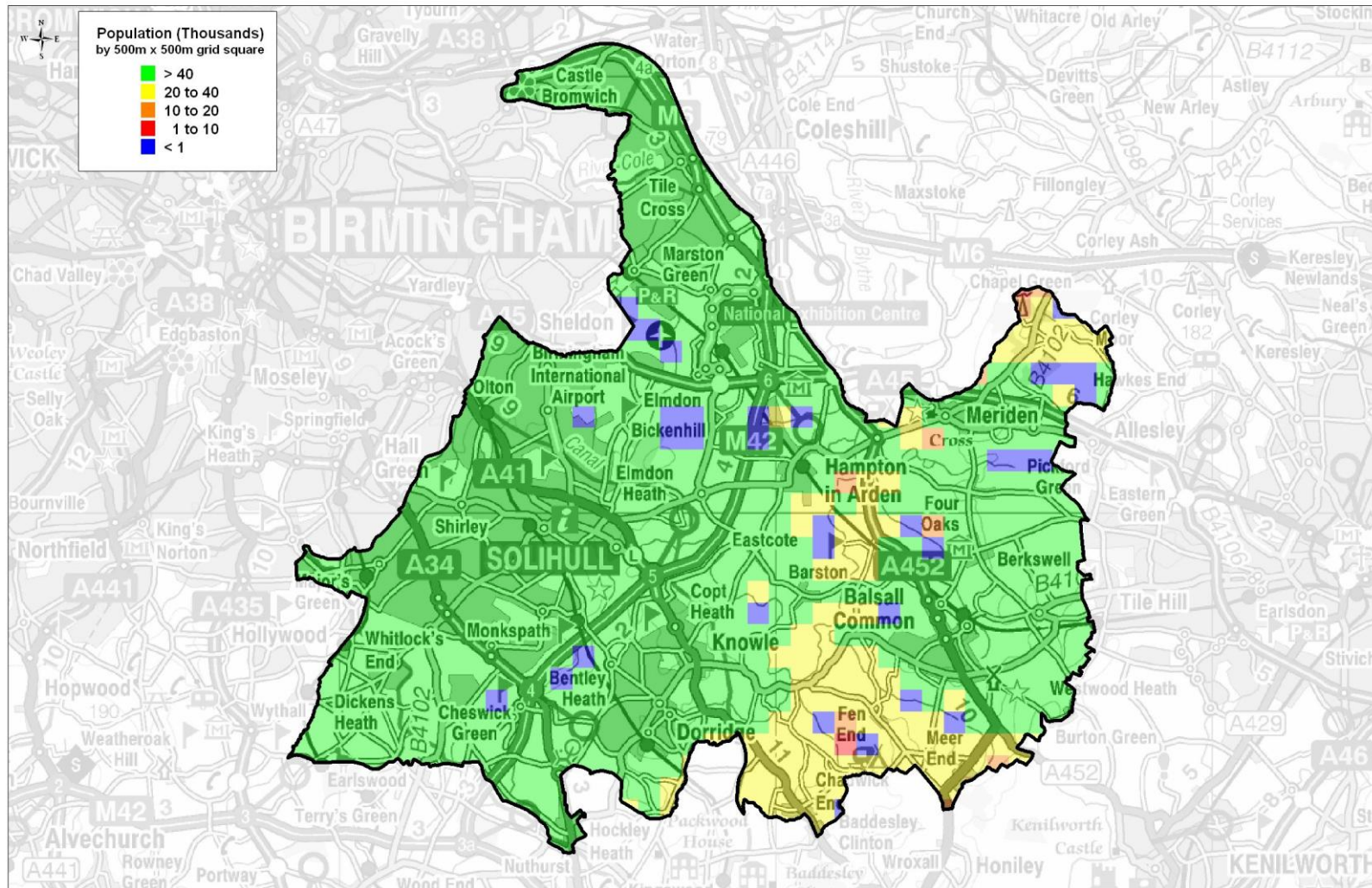


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## Population within 30 minutes travel time by cycling

Total population access within 30 minutes travel time by cycle at 09.00 on a weekday (ABI 2009)

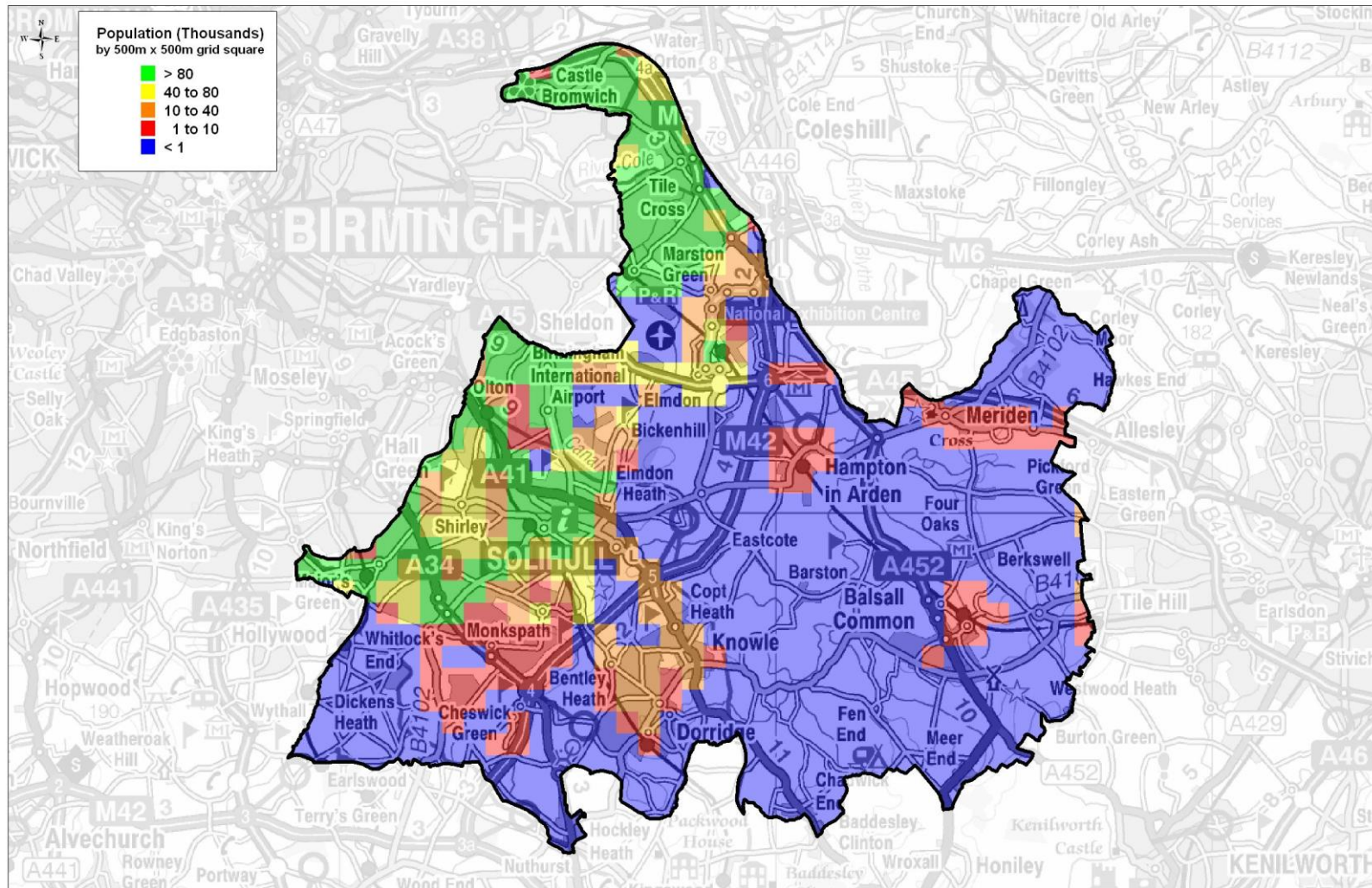


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## Population within 30 minutes travel time by public transport

Total population access within 30 minutes travel time by Public Transport at 09.00 on a weekday (ABI 2009)

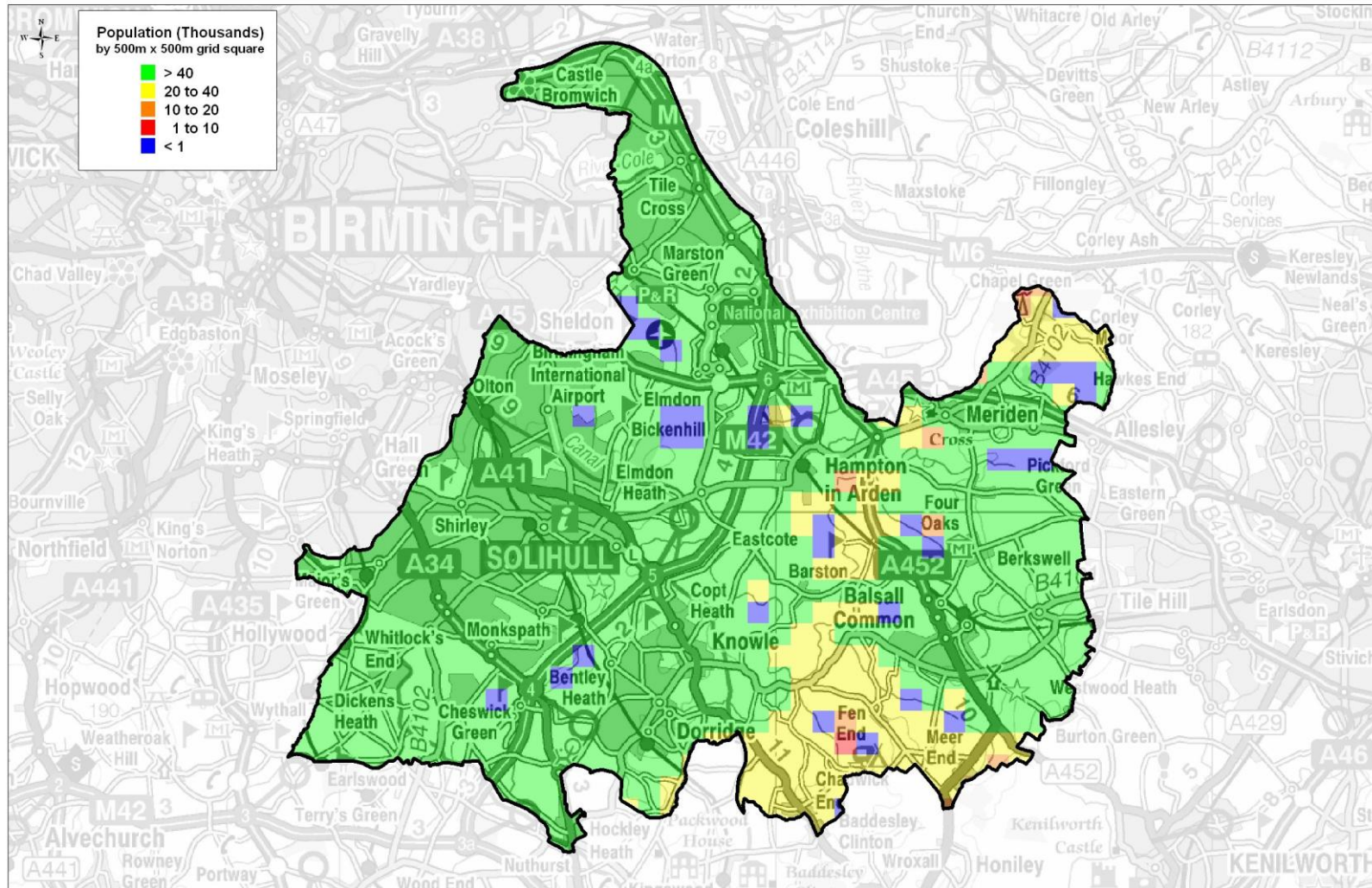


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## Population within 30 minutes travel time by walking, cycling or public transport combined

Total population access within 30 minutes travel time by cycle, public transport or on foot at 09.00 on a weekday (ABI 2009)

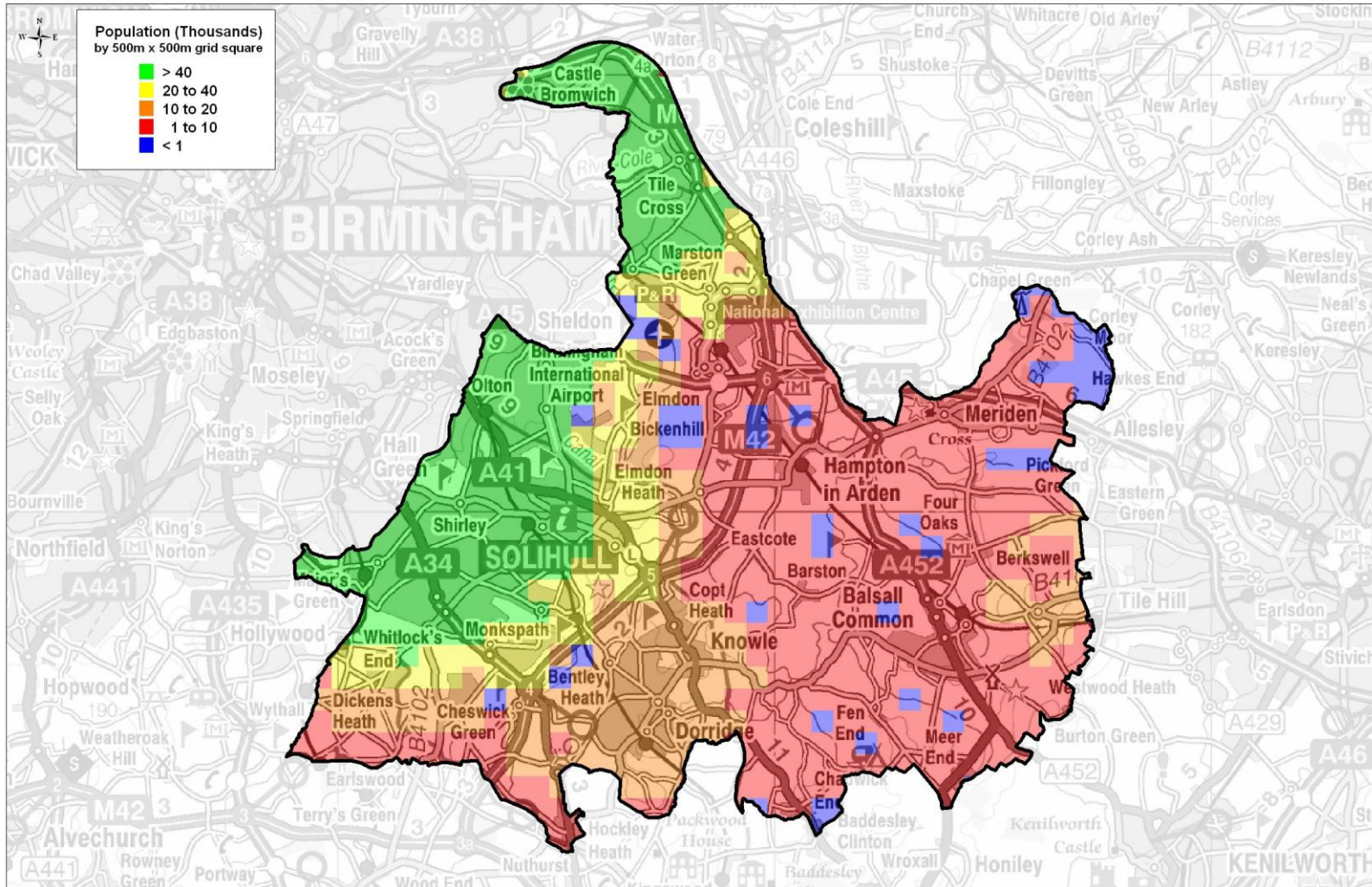


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## Population within 45 minutes travel time by walking

Total population access within 45 minutes travel time on foot (ABI 2009)

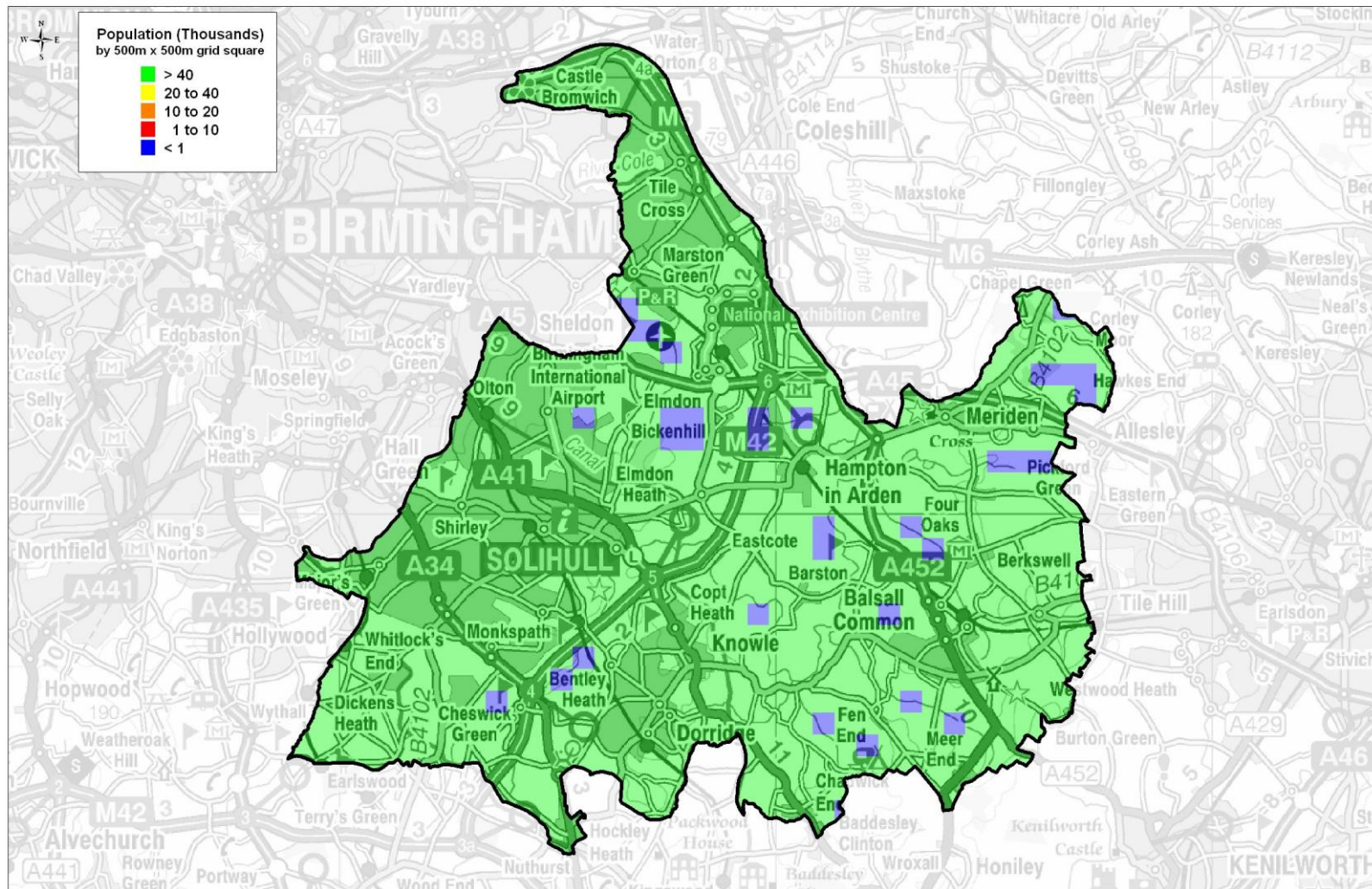


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## Population within 45 minutes travel time by cycling

Total population access within 45 minutes travel time by cycle at 09.00 on a weekday (ABI 2009)

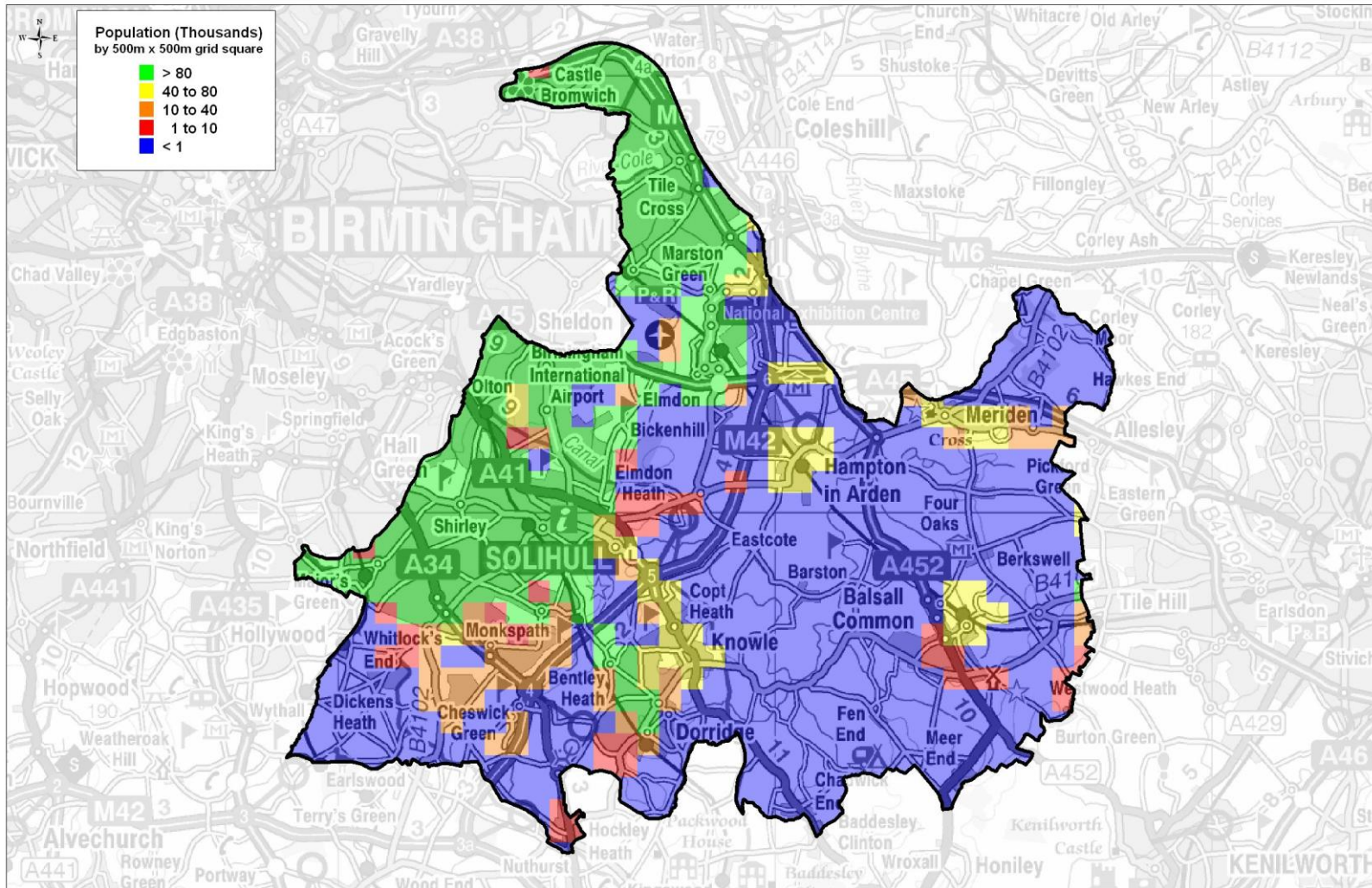


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## Population within 45 minutes travel time by public transport

Total population access within 45 minutes travel time by Public Transport at 09.00 on a weekday (ABI 2009)

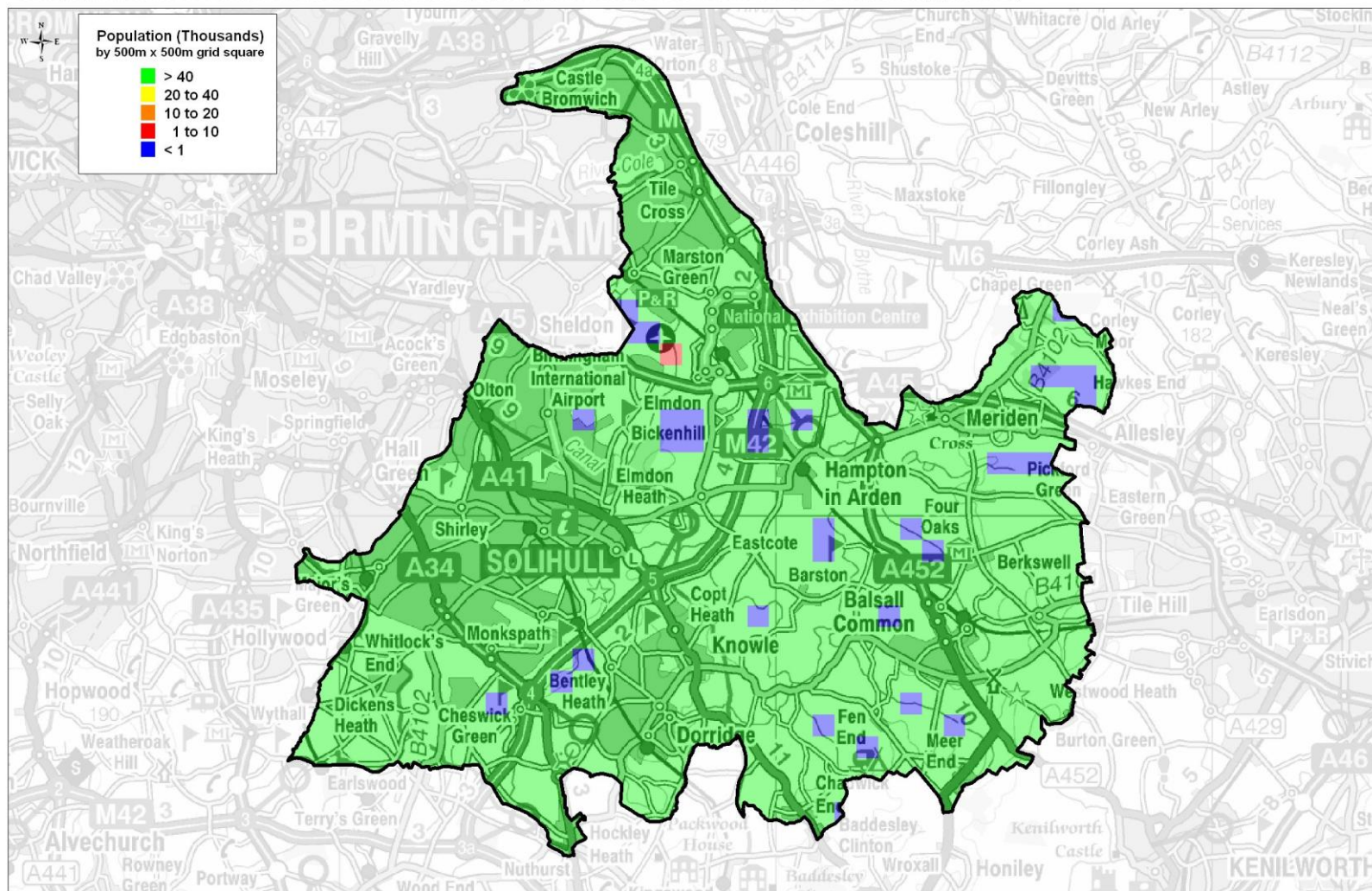


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## Population within 45 minutes travel time by walking, cycling or public transport combined

Total population access within 45 minutes travel time by cycle, public transport or on foot at 09.00 on a weekday (ABI 2009)



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