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***“Policy mobilities, planning cultures and Cycle Superhighways: an analysis of London and Copenhagen”***

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*“World class cities want in on this cycling infrastructure and they look to Copenhagen for inspiration and guidance. It’s happening in London, Paris, Barcelona.... Copenhagen is hot right now”*  
(Embry, 2009).

### **Abstract**

It appears that now, more than ever, it is important to understand how policy mobilises. The policy world is in constant motion; the solutions adopted in one locality are quickly being rolled out in another. To date, discussion of the distinct geographies of policy mobilisation has been scant. Cities around the globe are characterised by highly embedded local characteristics that are based on long path dependent histories. These histories have created unique planning cultures that have distinct reactions to global policy mobilisation. There is a need to explore this relationship to better understand how and why particular policies manifest themselves in particular forms. This dissertation asks: to what extent has planning culture influenced the ability for policy mobilisation to occur between Copenhagen and London? By using cycling infrastructure policy as the lens through which to examine policy mobilisation, this research will offer insights and recommendations to an area of urban policy that is currently the focus of international attention.

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## **List of acronyms**

CSH: Cycle Superhighways  
TfL: Transport for London  
CoC: City of Copenhagen  
LCN: London Cycle Network

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## **1. Introduction**

This dissertation aims to explore the relationship between planning culture and policy mobilisation. This will be done by understanding how one particular cycling infrastructure policy has travelled between, and been integrated into, two contexts. Through a comparative case study of Copenhagen and London the research will demonstrate how the Cycle Superhighway (CSH) policy interacts with local cultures that have developed from path dependent historical circumstances. Specifically, it asks the question: to what extent has planning culture influenced the ability for mobilisation to occur between Copenhagen and London? In doing so the dissertation will unravel the complexities of policy mobilization. This chapter will explain the motivations and purpose of the research, as well as the structure of the dissertation.

### **1.1 Policy mobilisation, planning culture and cycling policy**

Now, perhaps more than ever, we are seeing policies travel across the globe. Researchers, consultants and policy makers are ‘scanning’ the policy landscape to apply ready-made, off-the-shelf policies and best practices that can be quickly applied in a local context. The policy world is in constant motion: the solutions adopted in one locality are quickly being rolled out in another.

To date, discussion of the distinct geographies of policy mobilisation has been scant. Cities around the globe are characterised by highly embedded local characteristics that are based on long path dependent histories. These histories have created unique planning cultures that have distinct reactions to global policy mobilisation. There is a need to explore this relationship to better understand how and why particular policies manifest themselves in particular forms.

At a time of increasing importance on sustainable transport policies, this research will also add to discussion on cycling infrastructure policy. Transport policies are currently in the political spotlight as urban authorities searching for methods in which to relieve traffic congestion, improve air quality and the health of citizens. Additionally, new policies are being sought to increase the ‘liveability’ and aesthetics of inner city districts because of heightened inter-urban competition.

Cycling infrastructure policies, in particular, are currently a priority for many transport authorities to relieve inner city congestion, relieve pressure on transit networks and improve the environment. There remains however, considerable debate concerning infrastructure design and best practice requirements for cyclists amongst policy makers. This debate is particularly strong between the European and North American contexts. By using cycling infrastructure policy as the lens through which to examine policy mobilisation, this research seeks to add to the discussion on this infrastructural design debate.

## 1.2 Research strategy

This dissertation will analyse the way in which deeply embedded planning cultures manifest themselves in mobilizing policy movements. By combining literary discussions of policy mobilities with a discussion of planning culture, it offers a new perspective in which policy mobilisation can be studied. This discussion is one that steps away from analysis of the actions of individuals and organization and instead embraces a more holistic understanding of historical path dependency and contemporary culture. It will do this by initially unraveling *how* the Cycle Superhighway (CSH) policy has moved between Copenhagen and London. More specifically, the research aims to understand what distinct cultural factors acted to influence the implementation of the policy across the two contexts. In order to do this, the research also needed to understand the differences between the two schemes. The full list of research objectives are outlined in Table 1.a below.

Table 1.a Research objectives

<b>Research Objectives</b>	
1.	Explore the extent to which planning culture has influenced the ability for mobilisation to occur between Copenhagen and London.
2.	Understand the extent to which policy knowledge has been mobilised between the two cities.
3.	Evaluate the key design differences between the two schemes to illustrate how the delivery of the two concepts has differed.
4.	Identify the factors for the introduction of CSH in London and Copenhagen. In doing so, a comparison can be made between the concepts behind the two policies.

## 1.3 Research structure:

This chapter has introduced the aims of this research and briefly justified their importance. Chapter Two will explain contemporary thinking concerned with policy mobilisation and offer a new perspective to analyse the concept through planning culture. The dissertation will then delve into discussions of cycling policy, forming a bridge between higher-level theory in Chapter Two and the Case Study Context in Chapter Four. The research methods in Chapter Five will validate the use of incorporating an urban design observational technique with a series of qualitative interviews and document reviews. After, the empirical findings will be presented and discussion of the interview findings will follow. The final chapter will succinctly relate the findings with the broader theoretical concepts of policy mobilization and planning culture. Based on the research, key recommendations will also be made to London's planning authorities in regards to cycling infrastructure development.

## **2. Policy mobilities and planning culture: a new perspective**

Why do some policies succeed and others fail? It has been explained by McCann (2011) that policies cannot simply be picked up and shifted to other places. Put simply, “context matters” (Peck, 2011:3). While it is understood that policies are re-interpreted as they become embedded into a particular social, spatial or institutional context, little is known about what specific contextual characteristics will have particular outcomes in policy assembly. In particular, little attention has been given to *how* embodied planning practices, or planning cultures, impact upon this territoriality of policy mobilization. This chapter sets the theoretical framework on which the research is based. It will explain the concept of policy mobilization and how planning culture and path dependency can act as a new perspective from which to analyse the movements of policy between cities.

### **2.1 Policy mobilisation**

#### *2.1.1 ‘Policy transfer’ or ‘policy mobilisation’?*

Studies of how policies travel have evolved from ‘policy transfer’, to ‘policy mobility’. The former is associated with the ways in which national policymaking ‘agents’<sup>1</sup> “import innovative policy developed elsewhere in the belief that it will be similarly successful in a different context” (McCann, 2011; 11). It has been argued that this approach assumes that little happens to policies as they travel (McCann, 2011; 111).

The latter, embedded within the new generation of critical policy studies, understands that mobile policies are not simply “travelling across a landscape”, but “they are remaking this landscape; and they are contributing to the interpenetration of distant policy making sites” (Peck & Theodore, 2010; 170). As a result from the shift towards the use of this terminology, a new generation of geographical approaches to policy mobility have emerged. These entail a new set of interpretations, all which indicate the importance of context.

#### *2.1.2 Policy mobilities: context matters*

Policy regimes do not simply launch and land across “empty spaces” (Peck, 2011:3), but are translated and re-embedded within and between different institutional, economic and political contexts (Peck and Theodore, 2001; 427). As a result, they do not necessarily travel fully formed. It may be that only particular elements or ideas of policies may actually be re-applied and re-adapted into another social, spatial or institutional context.

Through the work of Peck and Theodore (2008), Lowry and McCann (2009), McCann (2010), McCann and Ward (2010) and Peck (2010)), it is understood that local context plays a strong role in transforming and translating policy models and ideas. There now remains an opportunity to understand *how* this context will condition the policies travelling within them. What are, for example, the specific characteristics that will

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<sup>1</sup> The term transfer ‘agents’ has been given to the individuals who act to move policies around the globe (McCann, 2013).

morph a policy differently in one city compared to another? These characteristics can be traced to the social interactions, expertise, representations and embodied practices that the policy has been exposed to as it has travelled.

### *2.1.3 The fixity of urban space*

The political economies at the urban scale cannot be separated from the processes at the global scale. McCann and Ward (2010; 177) refer to this local/global relationship as the “productive tension between relationality and territoriality”. By understanding that this complex relationship exists, it becomes clear that urban space is a complicated “mosaic” of multi-scalar influences, rather than a “self-enclosed and contiguous block of territory” (Brenner, 2004; 66). However, policy mobilization studies also reveal that global flows are also intrinsically geographically bound. Policy and policy-making is “intensely and fundamentally local, grounded and territorial” (McCann and Ward, 2010; 175).

These ideas resonate with David Harvey’s work on the ‘spatial fix’ (1981) and the accumulation of capital flows in the built environment (Harvey, 1982), which explain that global capital is fundamentally fixed in space. Similarly, Massey’s (1991) notion of a global sense of place explains that local environments are a product of complex amalgamations of global flows of people, capital and communications.

While there is a wide-range of literature that analyse how urban policies move through space<sup>2</sup>, there now also exists an opportunity to view policy mobilisation studies through the diffusion of cycling infrastructure. The widespread recent dispersal of sustainable transportation policies has made them an important area for analysis.

## **2.2 Planning culture**

### *2.2.1 Importance of path dependency*

The concept of path dependency has been given increased attention as a means of investigating the impact of historical processes on present circumstances and decisions. The concept can be summarised as follows: “if at a certain point in time, the historical development of a place takes one direction instead of another, some, otherwise feasible, alternative paths will be closed- or at least difficult to reach – at a later point” (Bengtsson, 2009, 1). Analysis of thorough path dependent histories is often undertaken as research in its own right. This dissertation however, will merely reference the ability of path dependency to influence contemporary planning cultures in London and Copenhagen– as the two concepts are inextricably linked.

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<sup>2</sup> Examples include the diffusion of automobile infrastructure (Sheller and Urry 2000; Urry, Featherstone, and Thrift 2004; Hagman 2006; Freund and Martin 2007; Laurier et al. 2008) and more recently, the mobilisation of the New Urbanist movement (Moore, 2010; McCann and Ward, 2010).

### 2.2.2 Relationship between culture and planning

While not widely recognised or discussed, planning is strongly rooted in and restricted to cultural contexts and traits of society (Huxley, 2000; 369). As a result, planning systems and traditions, concepts, development processes and decision-making are highly influenced by their cultural context and the cultural background of the key actors who are involved within these processes (Knieling and Othengrafen, 2009: xxxvi). This is referred to as ‘planning culture’.

While the planning ‘environment’ and planning ‘artefacts’ (eg. planning law and development control instruments) differ according to the ‘societal’ environment, deep cultural cores heavily influence planning culture. This includes the public philosophy and political norms and habits that exist in the context in which it sits (Knieling and Othengrafen, 2013:1276). Due to the dynamic and fluid nature of such culture, it is important that we improve our understanding of the drivers of change and how planning culture can adapt to changes at a range of different levels (Knieling and Othengrafen, 2013; 1281). Huxley (2000; 369) has argued that there is a need to study the complex relationship between planning and cultural contexts in a more comprehensive way.

## 2.3 A new perspective

McCann – a predominant scholar in the field of policy mobilisation – has undertaken a number of studies, which seek to understand policy mobilisation by examining the social interactions of ‘boosters’, ‘actors’ and ‘agents’<sup>3</sup> who have engaged with a particular development case (McCann and Ward, 2010; McCann, 2011). These studies draw attention to the role of consultants, architects and politicians, among others, to influence the mobilisation of policy.

The research in this dissertation however, will demonstrate how embedded planning culture can influence how policies will travel. By combining literary discussions of policy mobilities with a discussion of planning culture, it offers a new perspective in which policy mobilisation can be studied. This perspective steps away from analysing the actions of individuals in particular case studies. Instead, it attempts to adopt a more holistic understanding of the role in which historical path dependency and contemporary planning cultures play in policy mobilisation.

This chapter has introduced the overarching theories that act to guide this research. By touching on the importance of path dependency and its relationship to generating distinct planning culture, the literature review has justified the use of a new perspective from which to analyse how policy is mobilised. The next chapter will delve into discussions of cycling policy in order to insert these notions into this new theoretical paradigm in which the research is framed.

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<sup>3</sup> Policy ‘boosterism’ is the act of promoting a particular policy. ‘Boosters’, ‘actors’ and ‘agents’ are those who facilitate such promotion (McCann and Ward, 2010; McCann, 2011).

### **3. Understanding cycling policy**

This chapter will form a bridge between the higher level theory discussed in Chapter Two, with the contextual overview of cycling in Denmark and England in Chapter Four. The chapter will firstly discuss the broad history of cycling policy at the global scale, demonstrating why and how there has been a renewed focus on cycling policy in many countries over the past decade. Subsequently, it will discuss the key requirements of cycling infrastructure. This discussion will form the framework for which the data collected in the observational study will be analysed in Chapter Six. This chapter will conclude by introducing the Cycle Superhighways concept.

#### **3.1 Renewed focus on cycling infrastructure policy**

The bicycle saw a massive decline in most western nations after World War II, as the rise of the car in the 50s and 60s (due to ‘Fordism’) completely transformed cities. Once centered around walkable shopping districts and train lines, cities began to spread into vast suburbs and homogenous landscapes. The car didn’t only change our cities, rather they created an entire culture; it became a symbol of freedom, a symbol of maturity and a form of identity in the western world.

Today, however, many cities are also investing heavily into bicycle infrastructure in downtown districts. Recent studies have illustrated that “higher levels of bicycle infrastructure are positively and significantly correlated with higher rates of bicycle commuting” (Dill and Carr, 2007: 122). As a result, cycle paths and bike share schemes have been implemented in cities across the globe to encourage and facilitate cycling.

There are however, significant variations in cycling levels in different countries<sup>4</sup>. The most bike-oriented urban areas in the UK, Canada, US and Australia have lower levels of cycling than the least bike-friendly cities in the Netherlands, Germany and Denmark (Buehler and Pucher, 2012: 9).

As cities look to implement cycling infrastructure, best model practices are sought from overseas – predominantly from the Netherlands and Denmark. This has led to policy mobilisation ‘boosterism’ movements such as ‘Copenhagenize’ and ‘Amsterdamize’. The ‘Copenhagenize’ movement is summarised by Embry (2009):

*“This catchphrase, this movement, crosses languages, cultures, borders... Ljubljana in Slovenia literally copy pasted Copenhagen style infrastructure and now they've got 10% of their commuters*

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<sup>4</sup> At the low end of the scale, the bicycle share of trips is only about 1 per cent in the US, Australia and Canada. This figure stands slightly higher at 2 per cent in the UK and Ireland. At the upper end of the scale, the modal share of cyclists in the Netherlands is 26 per cent, 18 per cent in Denmark, and roughly 10 per cent in Germany, Belgium, Finland and Sweden (Buehler and Pucher, 2012: 9).

*travelling by bike. That's definitely 'Copenhagenizing'... World class cities want in on this [cycling infrastructure] and they look to Copenhagen for inspiration and guidance. It's happening in London, Paris, Barcelona.... Copenhagen is hot right now".*

Academic research into all aspects of cycling has also “boomed” in recent years (Pucher and Buehler, 2012; xi). These research areas include; cycling economics<sup>5</sup>; travel times; safety; psychological factors; socio-economic factors; the natural environment and the built environment (Heinen et al, 2010). Thus far, academic literature in policy mobilisation studies or cycling has failed to understand the extent or success of the transfer of knowledge and policies from the ‘best practice’ cycling cities.

### 3.2 Cycling infrastructure design:

In the 2001 study ‘Cycling safety on bikeways vs. roads’, Pucher (2001) found that countries with more cycling facilities have a higher modal split share of cycling and higher cycling safety. Network layout and specific design styles and elements however, also play a fundamental role in the safety of cyclists and influencing cycling levels (Heinen, et al, 2010; 62). Heinem et al (2010: 63) has stated “the type of infrastructure matters”. Cycle infrastructure can be generally classified into four categories, based on level of separation<sup>6</sup> from traffic (Table 3.a).

Table 3.a: Cycling infrastructure design types (adapted from Furth, 2013: 108)

Shared streets and shared lanes	No dedicated cycling space	 Source: <a href="http://news2.onlinenigeria.com">http://news2.onlinenigeria.com</a>
Bike lanes	Separation by roadway striping	 Source: <a href="http://rvelo.wordpress.com">http://rvelo.wordpress.com</a>
Separated paths	Tracks along road, physically separated by motor traffic by curb or barrier	 Source: <a href="http://streetsblog.net">streetsblog.net</a>
Standalone paths	Independent right of way corridor	 Source: <a href="http://wiki.coe.neu.edu">wiki.coe.neu.edu</a>

<sup>5</sup> Eg. Cost-benefit analyses compared with other transport modes

<sup>6</sup> In the United States cycling policy (or lack of) has been based upon John Forester’s Vehicular Cycling (VC) Theory. This theory posits, “cyclists fare best when they act as, and are treated as, operators of vehicles (Forester, 1992 cited in Furth, 2013). Forester’s theory was successful in creating an effective ban on separated bike paths in the American Association of State Highway and Transport Officials (AASHTO) Guide for Development of Bicycling Facilities. Anti-separation vehicular cycling ideology has, for a long time, stymied the development of cycling infrastructure in North America, and to some extent, Australia. That influence is now waning, as academics and policy makers now embrace the European attitude toward cycling infrastructure design (Furth, 2012; 135).

The implementation of specific design types does not guarantee cyclist comfort and safety. Rather, these factors are determined by infrastructure that takes into a range of technical possibilities and limitations of cyclists and the bicycle, including muscle power and traffic vulnerability. These are specific to particular contexts. Jan Ploeger (2009; 273) has listed a number of fundamental infrastructure requirements for cyclists (Table 3.b). These requirements are said to ensure minimal resistance and mental stress; reduce vulnerability from motorised traffic; provide coherence and encourage bicycle use over private cars. They will be used as criteria for the observational analysis explained in Chapter Five.

Table 3.b: Infrastructure requirements for cyclists (Adapted from Ploeger, 2009; 273)

<b>Requirement</b>	<b>Detail</b>	<b>Criterion</b>
<b>Coherence</b>	Forms a coherent unit and links with all the departure points and destinations of cyclists.	At network level: routes should connect to the cyclist's departure point and destination. At route level: a cyclist can find their way and understand the logic of the network (ie. they can form a 'mental map').
<b>Directness</b>	Continually offers the cyclist as direct route as possible (so detours are kept to a minimum)	Influences on speed including flows, delays and detours are major determinants for quality of infrastructure. It is recommended that cycle speeds should never be lower than 10km/h in order to maintain safety (stability).
<b>Attractive-ness</b>	Is designed and fitted in the surroundings in such a way that cycling is attractive	Psychological factors, generally expressed in terms of 'experience' will play a significant role in determining whether or not somebody will travel by bicycle and how comfortable their journey will be.
<b>Safety</b>	Guarantees the road safety of cyclists and other road users	To attain a safe traffic situation, encounters with large volumes of fast moving motorised traffic should be avoided. When bicycles and car traffic do use the same traffic space, the confrontations between them should be governed by limits.
<b>Comfort</b>	Enables a quick and comfortable flow of bicycle traffic	The factors leading to comfort levels includes obstructions caused by bottlenecks or short-comings of infrastructure, which demand extra physical effort from cyclist; mental stress related to safety; constant stopping and starting and vibrations from poor surfaces.

The requirements stated by Ploeger (2009) above are supported by a 2003 study (Pikora et al), which assessed the environmental determinants of cycling for transport. The results indicated a very high importance on the separation from traffic and continuity of cycling surfaces.

### 3.4 Cycle Superhighways

Rather than being defined by level of segregation, like the four classifications stated by Furth (2013), Superhighways are defined by network connectivity. Their primary goal is to directly connect those living in suburban areas with the urban core. While design elements are an important aspect of Superhighways, they are not the concept's defining characteristic (Cykel Superstiers Project Outline, 2012).

Over the past two years, the Cycle Superhighway concept has received increasing attention, with the term being given to a number of new projects in Denmark, Sweden, the United States, the United Kingdom and Australia. The “model” is being considered in the US cities of Portland, Austin, Minneapolis, Wilmington and Rochester (Bredenberg, 2012). Similarly, on the 12<sup>th</sup> of August, 2013, David Cameron announced that the UK would see £94 million given to cycling infrastructure, including a new “Cycle Superhighway” in Leeds (BBC News, 12<sup>th</sup> August, 2012).

This chapter has zoomed in from the macro-scale down to the micro. Firstly, discussing the renewed focus on cycling infrastructure at the global scale and how these policies are being diffused, it has them honed in on cycle infrastructure design: which has acted as the basis for a comparison between the delivery of the two policies in Copenhagen and London in Chapter Six. By building the groundwork in cycling policy diffusion and the ‘best practices’ and differences in design, the chapter has laid the groundwork for the case studies in the next chapter.

## **4. Case Study Context**

This chapter will conclude the theory and contextual analysis on which the research of dissertation has been based. By building a historical narrative of cycling in Copenhagen and London, it will highlight the distinct path dependent histories operating within each city in order to explain the emergence of their unique planning cultures in the present day. After focusing on each city, the chapter will conclude with a summary of the key differences between the two cities.

### **4.1 Cycling in Copenhagen, Denmark**

In the immediate decades after WWII bicycle popularity fell rapidly in Denmark, hitting a low of less than 10% in the mid-1970s (Ruby, 2012). Unlike North America, many European countries and Australia however, Denmark experienced a major backlash to car dominance in the late-1970s. In response to the loss of green spaces, increasing pollution levels, car accidents and the loss of bicycle culture, protests took place across the country's major cities (Ruby, 2012). These protests sparked a number of grassroots actions, including the 'white crosses' project<sup>7</sup>.

These grass roots movements coincided with two other major events that were occurring within Denmark. Firstly, the energy crisis had forced the Government to introduce 'car free Sundays' to conserve oil reserves (CoC, 2009). This "sparked" the city to re-think its cycling infrastructure (Tragellis, 2012; 4). Secondly, the 1970s saw a number of planning reforms taking place. These reforms gave citizens a new ability to have a direct influence on planning. With this, there came a clear demand for cycle paths (Gade, 2011).

Denmark's capital city Copenhagen is often referred to as the "bicycle capital of the world" (Urban Mobility, 2013). The gradual addition of new cycle paths over the past four decades has led to almost 400 kilometers of segregated lanes today (Tragellis et al, 2012; 4). Additionally, the city has a wide range of infrastructure accompaniments including 'bicycle railings' and 'foot posts,' as well as non-physical policies and initiatives such as low road speed limits and 'trappers'<sup>8</sup> (Tragellis et al, 2012; 4). In a 2012 survey 70% of cyclist commuters said that they 'felt safe' cycling in Copenhagen and about 60% said that they were satisfied with the condition of cycle tracks (Bicycle Account, 2012).

The high proportion of cycle trips in Copenhagen is directly related to the well-panned cycle infrastructure of the city (Tragellis et al, 2012: 4). Accidents however, still occur. In 2010, ninety-two cyclists were seriously

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<sup>7</sup> A grass roots campaign whereby white crosses were painted on the road where cyclists had been killed to raise awareness for bicycle road users

<sup>8</sup> A 'trapper' is a sensor that records employee bicycle use allowing the employee to earn workplace 'points' (Tragellis et al, 2012; 4).

injured in Copenhagen and three were killed. In 2012 the number seriously injured has climbed one hundred, but there were no recorded deaths.

Copenhagen's current bicycle strategy 'good, better, best – The City of Copenhagen Bicycle Strategy 2011-2025' aims to increase bicycle modal share to 50% for commuter trips. In addition to the economic, health and environmental benefits of having more cyclists, it is argued that such an increase will also create 'safety in numbers'<sup>9</sup>.

As cycling accounts for as low as 10% in areas outside of the city, it has been suggested the City needs to focus on attracting commuters who travel from suburban areas into the centre (Bicycle Account, 2012; 10). To do this, Copenhagen has recently developed a large network of Cycling Superhighways in addition to its more historic inner city cycle paths. These segregated Superhighways act to connect outer neighbourhoods with the inner city core, without the need to share roads with motorised vehicles. Two of the twenty-six proposed routes have been delivered thus far.



Figure 4.1: Copenhagen's current and planned Cycle Superhighways (source: Cykel Superstiers, 2013)

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<sup>9</sup> 'Safety in numbers' is used to describe the evidence that a motorist is less likely to collide with a pedestrian or cyclist as the numbers of pedestrians or cyclists increase (Leden, L. et. al. 2000).

## 4.2 Cycling in London, England

Similar to most industrialised countries, cycling in England experienced a steep decline after World War II due to mass motorisation (Horton, 2011). Bicycles were relegated to the fringe, increasingly perceived as an inferior or secondary mode of transport properly restricted to the poor, women and children (Rosen, 2002). Unlike Denmark in the 1970s however, it did not experience a large-scale countercultural criticism of the car. Instead, cycling rates continued to fall until 2000.

While small, ad-hoc cycling infrastructure projects were delivered from the 1970s, these were considered “false starts” (CPUK, 2012). The Labour Government’s 1977 Transport White Paper allocated some funds for cycling projects, it stated “segregated cycling infrastructure would be impractical or too costly in most cities” (CPUK, 2012: 13). Thatcher’s ‘great car economy’ further disintegrated cycling policy throughout the 1980s (CPUK, 2012: 13).

In the early 1990s the London Moving: ALA Transport Strategy stated, “The most obvious solution to congestion may seem to be to build more roads... it is one of the worst things we could do” (1994:3). This has described as a turning point in the UK’s transport policy (CPUK, 2012: 13). Although a broad range of stakeholders began to voice increased interest in cycling as a mode of throughout the 1990s, there was only a “partial institutionalisation” of pro-cycling policy (CPUK, 2012: 17).

Over the past decade, cycling in England has appeared to have “taken off” (Parkinson, 2013). The mileage cycled in the UK has increased by 12% over the past twelve years (CTC, 2013). Such increases have been higher in urban areas; particularly in London, which has experienced a 78%, increase in cycling from 2001 (Travel in London, 2012; 57)<sup>10</sup>. These increases have been attributed to a number of factors, including bicycle advocacy, the increasing costs of public transport and running private vehicles, investments into cycling infrastructure and increasing ‘safety in numbers’ (TfL (1), 2011). Current London mayor Boris Johnston aims to increase cycling in London by 400% to turn it into a ‘cycle-isied city’ (Plowden, 2012).

A recent study by the University of East London has acknowledged that while some infrastructural improvements are being made, these changes have occurred in “a relatively fragmented way,” where the “current approach is characterised by uncoordinated programmes and agencies working in isolation” (CPUK,

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<sup>10</sup> While these are the figures released by the TfL, they have been criticized by a number of online media publications due to spatial discrepancy in data collection. While it is out of the scope of this dissertation to compare these methods of analysis, other sources (eg. ASARAB, 2013) estimate that London’s cycling increase is less than suggested by TfL.

2012: 37). Additionally, while London has experienced an increase in cyclist numbers, it has simultaneously seen a disproportionate increase in cycling accidents (Beard, 2013)<sup>11</sup>.

Since 2010, London has embarked on a Cycle Superhighway scheme similar to that in Copenhagen. The scheme plans to deliver twelve radial cycle routes. Four of these have been delivered thus far.

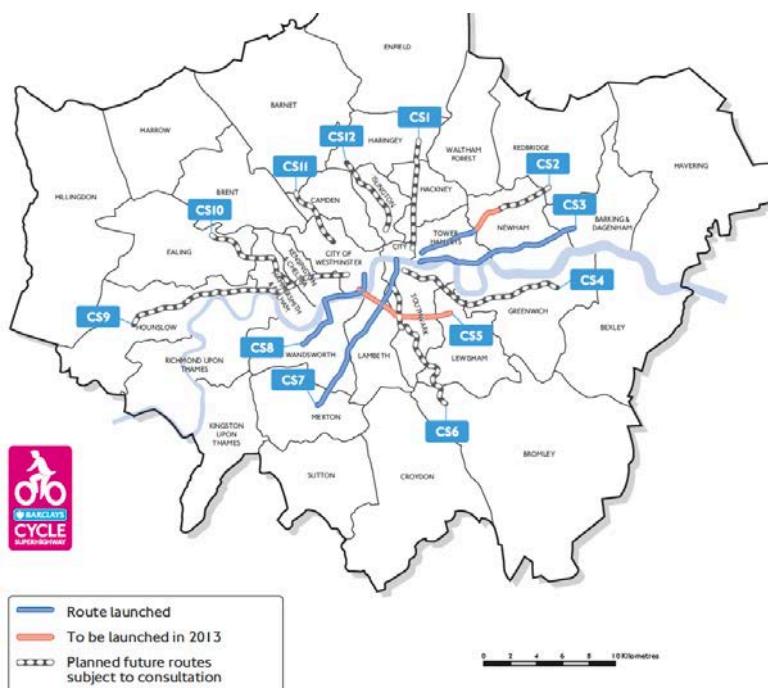


Figure 4.2 London's current and planned Cycle Superhighways (source: BCSH, 2013)

### 4.3 Copenhagen and London: a tale of two cities

The path dependent histories of each of the two case study cities have created very different outcomes for cycling in the present day. Although both London and Copenhagen followed similar cycling trends in the first half of the twentieth century, the wave of protests that took place across Denmark in the 1970s did not occur in London. As a result, Copenhagen has had four decades of solidifying cycling. Although 37% (approximately 750,000) of the city's population commute to school or work by bicycle each day (Figure 4.3), the number of seriously injured cyclists has ranged between 90-100 each year since 1998, with 0-5 deaths (Bicycle Account, 2012). Having become a model for cities looking to implement cycling infrastructure, Copenhagen is now experiencing a movement of cycling policy 'boosterism'. This is commonly referred to as 'Copenhagenize'<sup>12</sup>.

<sup>11</sup> Over the past five years there have been 65 cyclist deaths on London roads. In 2011 fatal and serious injuries were up 60% on the 2005-2009 average (Burgess, 2013). Between 2011 and 2012 the death toll dropped slightly from 16 to 14, but serious injuries Participant B by 17% (ROSPA, 2013)

<sup>12</sup> 'Copenhagenize' and 'Amsterdamize' are terms given to the cycling policy diffusion movement from Copenhagen and Amsterdamize. Subsequently, 'Copenhagenize' is also the name of the consulting firm that communicates the city's cycling infrastructure and culture to other cities.

London's policies, on the other hand, remain "fragmented" and "uncoordinated" (CPUK, 2012: 37). While cycling rates are slowly increasing, there remain significant tension between a multitude of road user and pedestrian advocacy groups, with cycling groups. It is not unusual for media platforms to refer to a London "war" on the roads (Walker and Castella, 2013). Today, only 4% (approximately 300,000) of London's commuters cycle to school or work (CitC, 2013) (Figure 4.3). Every year since 2003, London has experienced between 300 and 400 serious injuries and between 10 and 20 deaths on its roads.

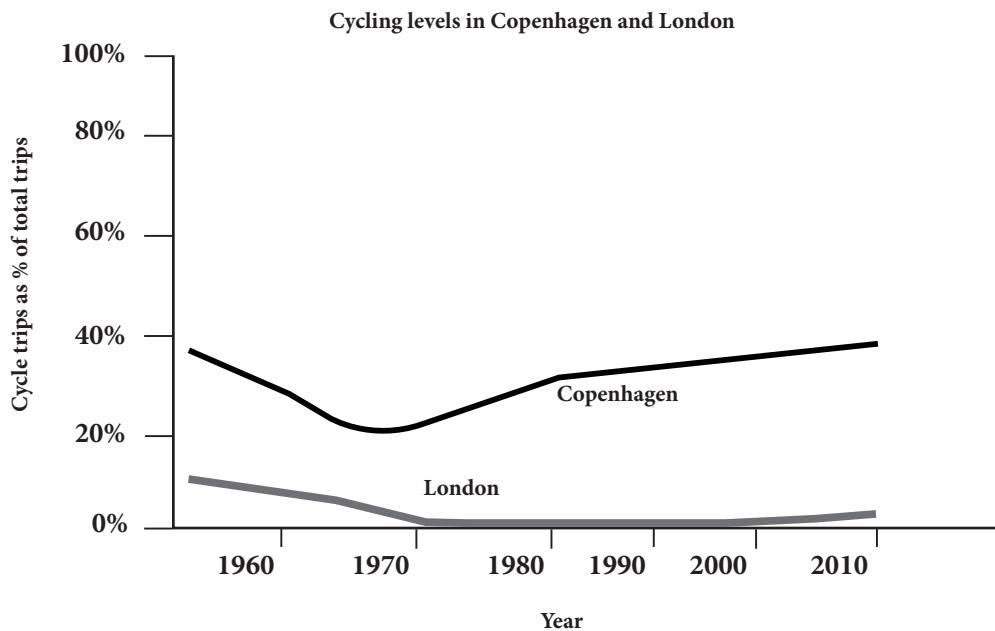


Figure 4.3: Comparison of Copenhagen and London's commuter cycling rates since 1960 (Adapted from Plowden, 2012).

While no deaths have occurred on Copenhagen's Cycle Superhighways thus far, 3 deaths have occurred on route CS2 in London since 2010. Writing for The Times in July 2013, Burgess stated the four Cycle Superhighway routes are designed to provide "safer, faster and more direct journeys into the city, but, in many places, they constitute little more than a strip of blue paint on lanes shared by cars, buses and lorries" (Burgess, 2013).

Chapter Four has firstly explained the distinct path dependent histories that have operated in the case study cities of Copenhagen, Denmark and London, England. Secondly, it has discussed how these unique histories has led to the formation of two very different, but incredibly distinct transport planning cultures across the two cities in the present day.

## **5. Methodology**

This chapter will provide details on how the dissertation will address the research objectives (Table 5.a), how the data was collected and the criteria used for analysis. A mixed-method approach was undertaken to investigate the four aims of research, including; document analysis, an observational ‘ride-through’ analysis and interviews with key stakeholders. The methodology chapter will set the framework for the findings in Chapter Six.

Table 5.a: Research objectives and the methods utilised for data collection and analysis

Research Objective	Research Method Utilised
1. Explore the extent to which planning culture has influenced the ability for mobilisation to occur between Copenhagen and London.	Interviews with key stakeholders
2. Understand the extent to which policy knowledge has been mobilised between the two cities.	Interviews with key stakeholders
3. Evaluate the key design differences between the two schemes to illustrate how the delivery of the two concepts has differed.	Observational ‘ride-through’ analysis Interviews with key stakeholders
4. Identify the factors for the introduction of CSH in London and Copenhagen. In doing so, a comparison can be made between the concepts behind the two policies.	Qualitative Document Analysis Interviews with key stakeholders

### **5.1. Qualitative Document Analysis:**

Document analysis is a form of qualitative research in which documents are analysed by the researcher to understand the subject matter. For this study public records were used to enable the researcher to understand the motivations for the delivery of the CSH schemes in London and Copenhagen. By analysing a number of sources, the researcher was able to triangulate results to achieve a more rounded picture, or ‘thick description’ of the data compiled (Biggam, 2011; 146). The data collected in the Document Analysis included all official documents relating to the planning and delivery of the Cycle Superhighways. These documents are outlined in Table 5.b.

Table 5.b: Documentation used for review

<b>London</b>	Barclays Cycle Superhighways Evaluation of Pilot Routes – TfL (TfL (1), 2011)
	Barclays Superhighways FAQs – TfL (TfL (2), 2012)
<b>Copenhagen</b>	Cykel Superstiers Project Outline – City of Copenhagen (CoC (1), 2010)
	Cykel Superstiers Koncept Plan – City of Copenhagen (CoC (2), 2010)

Key statements were extracted from policy documents from each case study city. These statements were compared with one-another to assess their key similarities and differences in *motivations* for policy implementation. The framework for the document analysis is illustrated in figure 5.1 below.

No thorough design guideline or project exists for the entire London project. The Barclays Cycle Superhighways Evaluation of Pilot Routes only included CS2 and CS7 (TfL (1), 2011). Additionally, while a full plan does exist in Copenhagen, the Cykel Superstiers Koncept Plan (CoC (2), 2010) was written in Danish only and time did not permit for a full translation of this document. It is not envisaged that the limitation will affect the outcome of the research as information about the design and concept plans were retrieved through other existing documents and supported by information gathered in the interviews.

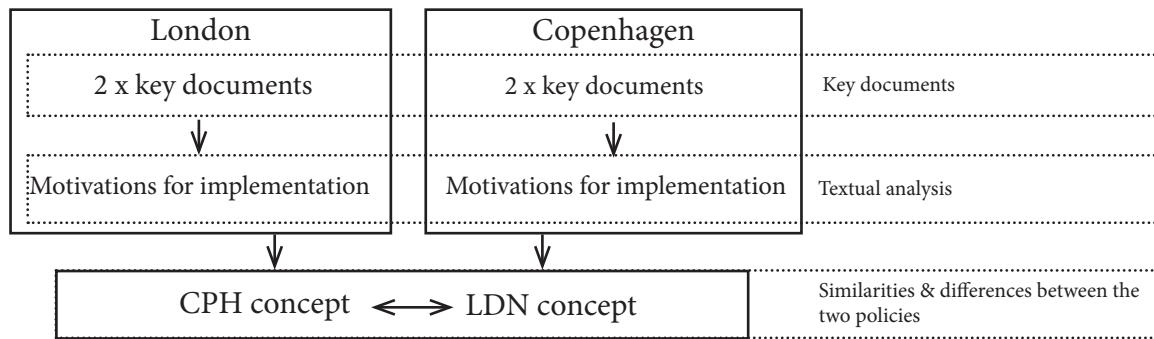


Figure 5.1. Framework for document analysis

### **5.2. Observational ‘ride-through’ analysis:**

Observational analysis is a type of participatory research method. It is founded on a ‘phenomenological’ intellectual approach, which examines the ‘person-environment relationship’ (Seamon & Mugerauer, 2000). This approach suggests there is personal involvement of the researcher during field-inquiry and can be undertaken through first-hand or existential inquiry (Seamon, 2002).

This dissertation used first-hand inquiry to analyse London and Copenhagen’s Cycling Superhighways. Similar to a ‘walk-through analysis’ (UD Toolkit, 2012), the researcher undertook what has been coined as a ‘ride-through analysis’. Qualitative descriptions were made along each route to assess design aspects against each of the network’s key design principles. These observations were supported with photographic evidence. The observational study was not rigorous a comparison of the two networks. Rather, it was undertaken to illustrate that there are simply a number of fundamental design differences.

The observation analysis was undertaken on the four Cycling Superhighways in London and the two Superhighways located in Copenhagen (Table 5.c below). These observations were initially assessed against the key design principles for each of the city’s Superhighways, as described in their design guidelines. The result from this assessment can be found in Appendix B. In doing so, this assessment was used to determine which elements of route design either fall short of, or adhere to, the initial design principles on which they were established.

Table 5.c: CSH Routes cycled

<b>City</b>	<b>Route</b>	<b>Time and date</b>
<b>London</b>	CS2 (Bow to Aldgate):	Cycled at approximately 11am– 2pm Friday 5 <sup>th</sup> July 2013
	CS3 (Barking to Tower Gateway):	Cycled at approximately 4pm – 7pm Friday 5 <sup>th</sup> July 2013
	CS7 (Merton to City):	Cycled at approximately 11am – 1pm Friday 12 <sup>th</sup> July 2013
	CS8 (Wandsworth to Westminster):	Cycled at approximately 2pm to 4pm Friday 12 <sup>th</sup> July 2013
<b>Copenhagen</b>	C99 (Albertslund):	Cycled approximately 3pm to 6pm Sunday 21st July
	C95 (Farum):	Cycled approximately 9am to 12 midday Wednesday 24 <sup>th</sup> July

Additionally, these observations made on the ‘ride-through’ analysis were assessed against Ploeger’s (2009: 273) requirements for cycling infrastructure (Table 3.b). This enabled the CSH networks to be compared with each other against the same criteria. It also ensured that the comparison was grounded in academic theory, rather than purely context-specific design principles. The results from this assessment can be found in Appendix C. ‘Attractiveness’ was removed from the assessment with Ploeger’s cycling infrastructure requirements, as the measurement of these criteria is subjective.

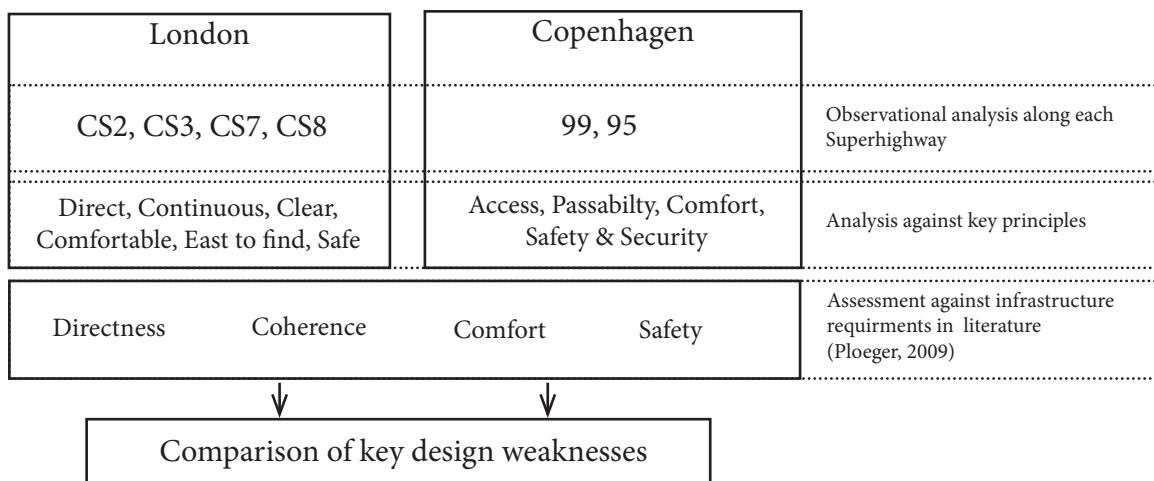


Figure 5.2: Framework for observational ‘ride-through’ analysis

The aim of the ‘ride-through’ analysis was to record general design observations along each route. It was not intended function as a rigorous comparison between the two networks. While there is research potential in undertaking a design study of this nature, such a comparison is out of the scope of this dissertation.

### 5.3. Semi-structured interviews with stakeholders

A semi-structured interview is one that relies on a certain set of questions to guide the conversation, but gives the respondent the freedom to talk about what is of interest and importance to them. This allows the

interviewer to ask questions for triangulation between the respondents, but also lets the conversation to develop into topics of importance to the interviewee.

For this study, two semi-structured interviews were undertaken with stakeholders in London and three were undertaken in Copenhagen (see Table 5.f). These interviewees were either directly involved in delivering the CSH policy, or were an influential commentator on the development of the policy.

Table 5.f: Research interviewees

<b>London</b>		
<b>Participant</b>	<b>Title</b>	<b>Rationale for interview</b>
A	Lecturer of Planning and Transport	A transport-planning academic with a particular focus on cycling in London.
B	Former TfL employee	An instrumental player in delivering London cycling policy between 2000 and 2010.
<b>Copenhagen</b>		
C	Urban mobility consultant	A mobility expert who works to diffuse Copenhagen's cycling policy across the globe through policy consultation and communications strategies.
D	City of Copenhagen employee	Fundamental in the implementation of the Copenhagen Cycle Superhighways project.
E	Danish Cycle Embassy (DCE) employee	A communications specialist who works to obtain funding for, and implement Danish cycling policies and infrastructure projects.

The structure of the interviews is outlined in Figure 5.3 below. Questions 1-3 were focused on the basic principles, motivations and technical aspects of the Cycle Superhighways in London and Copenhagen. The use of triangulation across the interviewees ensured validity in the information that was given to the researcher. The second theme of the interview questions was focused on the analysis of the CSH project that had occurred in their city; the design and delivery challenges, stakeholder tensions and lessons learned. The final questions of the interviews were concerned with the relevant city's culture of planning and policy mobilities. Appendix D contains the pre-prepared interview questions from both Copenhagen and London.

With the short time frame allocated for the dissertation research, there was a short time available for contacting and interviewing respondents. As there were no inconsistencies across the data from those that were interviewed, it is believed that further triangulation with more respondents is unlikely to have revealed further validity in the qualitative data.

In both of the cities, the interviews were undertaken with the key stakeholders working in the Superhighways delivery or communications process. Each of the interviewees was enthusiastic to share their personal insights into the project and delve into the topic. At the early stages of data collection, the semi-structured

nature of the interviews allowed for the exploration of areas of discussion that were not yet thought of in advance by the researcher.

London	Copenhagen	Theme	Research objective
Qs 1-3	Qs 1-3	Respondent role in process, key principles and motivators of CSH.	4. Identify factors for introduction of CSHs
Qs 4-6	Qs 4-6	Key challenges and obstacles in design and delivery process (Hypothetical in Sydney)	1. Explore extent to which planning culture has influenced policy implementation
Qs 7-8	Qs 7-8	Role of planning culture and policy mobilities plays in the creation of different different policy outcomes	2. Understand extent to which policy knowledge has been mobilised

Figure 5.3: Framework for conducting semi-structured interviews with stakeholders

This chapter has justified the used of a three-pronged methodological approach. By clearly outlining the research strategy, data collection and framework for analysis for each of the three research methods, the methodology has provided the clear context to discuss the key findings in Chapter Six.

## **6. Unraveling Cycle Superhighway policy mobilisation**

The purpose of this chapter is to present a set of coherent findings from the data collected in Copenhagen and London. It was found however, that although the two policies aimed to achieve the same outcome, the design of London's was implemented at a much lower quality to that in Copenhagen. The reason for this can be attributed to the inherent differences in transport planning culture, in particular, organisational norms and the tensions that exist between car drivers and cyclists. The findings will present the 'cycling credibility gap' as a means to conceptualise the level of acceptance of cycling in a city's planning culture. As derived from the stakeholder interviews, the results will present two options as to how this 'credibility gap' can be closed in order to improve the quality of urban cycling infrastructure.

### **6.1 London and Copenhagen's Superhighways: the same concept?**

In order to unravel the ability for planning culture to influence the mobilisation of policy, the research asked the question: were the motivations for developing the policy the same? To achieve this objective a review of the key policy documents in both cities was undertaken. A thorough document analysis was undertaken on two Transport for London (TfL) documents in London and two City of Copenhagen (CoC) documents from Copenhagen. Additionally, interviewees were each asked about the reasons for the policy introduction. The results are illustrated in Table 6.a.

Table 6.a: Key statements from the key London policy documents and interviews that explain the motivations of the CSH policy.

London	Copenhagen
Documentation	
“The Barclays CSHs is one of the three major programmes alongside the Barclays Hire Scheme and Biking Boroughs designed to help meet the Mayor’s vision for cycling in London” (TfL (1), 2012:1).	“How can we persuade even more commuters, to choose bicycling? When distances are longer than 5km, only 20% of all commuter journeys are made by bike. So the answer lies in unlocking this potential” (CoC (1), 2010: 2).
“Barclays CSHs encourage people to commute by bicycle between outer and central London” (TfL(2), 2012:3).	“Citizens throughout the region can enjoy the realized bicycle super trails and more and more leaving the car at home and ride over both short and long distances” (CoC (2), 2010: 3)
Interviews	
“There has been a move to prioritise the commuter and perhaps the ‘hardened commuter’, which is the person who is travelling reasonably long distances to work” Interviewee A	“These highways are basically trying to connect that middle ground in the 7 to 15 kilometer zone with the centre” Interviewee C
‘With the London Cycling Network, we had ‘jam too thin’: clearly if you splatter money around everywhere it doesn’t do anything. So this time you shrink this network so that it’s more focused.’ Interviewee B	“When you look after 4 or 5 kilometres there’s a very, very rapid decline. So, there’s must be some kind of potential here. What can we do to get more people to leave the car and take the bike when we reach these distances?” Interviewee D
	“Well the basic idea is that like on a freeway, like in America, you should be able to just jump on and go into the city centre straight and direct without stopping along the way”. Interviewee E

The motivations for the delivery of the CSH policy in each city are almost identical. Essentially, both policies are targeting those who cycle long distances to encourage them to continue to do so. Additionally, they are targeting commuters from the suburbs who may normally drive or take public transport to take up cycling.

Participant B however, also explained that from a political and financial perspective the implementation of the CSH network allows the TfL to illustrate that they are achieving greater results than a city-scale network. Explaining that the London Cycle Network (LCN)<sup>13</sup> was trying to achieve too much with a budget too small, the CSH scheme focuses the budget on particular sections of cycling infrastructure. This perspective indicates that the implementation of the CSH network in London was related to showcasing political improvement upon the previous mayor’s infrastructure projects.

<sup>13</sup> London’s cycle scheme before the CSH: adopted under Mayor Ken Livingston

## 6.2 Different design outcomes

An observation analysis was undertaken on the four CSHs in London and the two CSHs in Copenhagen. Each network was initially assessed on their own design principles during the observational ‘ride-through’ analysis (Appendix B). These observations from this analysis were then used to assess the network against the requirements for cycling infrastructure as stated in the literature (Appendix C). The results have indicated that the qualities of Copenhagen’s routes are of a much higher standard than those in London, both according to their own design principles and literature criteria. The aim of the ‘ride-through’ analysis was to record general design observations along each route. The reader is reminded that this analysis was not intended function as a rigorous comparison between the two networks. Rather, it illustrates that distinct design variations exist between the two networks.

### 6.2.1 London design assessment

Design principle (TfL (1) 2011: 6.)	Did the analysis meet design principles? (See Appendix A)	Academic requirement (Ploeger, 2009)	Did the analysis meet academic requirements? (See Appendix B)
Clear	X		
Easy to find	✓		
Safe	X		X
Direct	X		X
Continuous	X		X
Comfortable	X		X
		Coherence	X
		Safety	X
		Directness	X
		Comfort	X

Figure 6.1 London CSH design assessment

The observational analysis of London’s CSH network has indicated that it does not adhere to its own design principles, nor does it adhere to the cycling infrastructure requirements as stated in the literature. London’s key design weakness is that it is not segregated and cyclists do not have legal priority (Appendix Table C.2). This issue was discussed with Participant B, who said:

*“Before I left TfL Boris said to me ‘what do you think of the CSH?’ I said ‘This could be really good, so long as you can change the assumptions about the priorities.’ He says, ‘jolly good, you are doing*

*that though aren't you.' To which I had to say 'yes', knowing perfectly well that that is precisely what wasn't being done".*

It was explained by Participant B that fully segregated lanes like those in Copenhagen was never on the agenda for London's CSH network. There had been however, numerous opportunities for TfL to make legal changes to cycle paths over the course of the decade while she worked there. This did not occur because:

*"The Department of Transport are so slow and are not prepared to try out things. When actually they could've from the outset treated the CSH as a trial because you make it so clear to everyone that bikes have priority."*

Participant B later explained that TfL's inability to make cyclist legal changes in the years leading up to the implementation of the CSH network created what is a major weakness in the scheme:

*"The thing with the 'green splats', as I call them, the shadow lanes... colour has no status. I felt very strongly that it's a con... I was worried that with the mayor saying, 'go there its safer'. When actually, it's 'go there because politically we want it to be seen that we're doing something. But don't whinge at it; you're out on your own. It's your risk'. I think that's unacceptable".*

#### 6.2.2 Copenhagen Design Assessment

Design principle (CoC (1) 2010).	Did the analysis meet design principles? (See Appendix A)	Academic requirement (Ploeger, 2009)	Did the analysis meet academic requirements? (See Appendix B)
Safety and security	✓	→	Safety
Access to netowrk	✗	→	Directness
Comfort	✓	→	Comfort
Passability	✓	→	Coherence

Figure 6.2 Copenhagen CSH design assessment

The observational analysis of Copenhagen's CSH network has indicated that the network adheres to three of the four if its own design principles, and three of the four cycling infrastructure requirements as stated in the literature (Ploeger, 2009). Copenhagen's key weakness is poor signage and way finding. The two

interviewees in Copenhagen explained that there was once a bright orange line that once ran the entire length of the routes, but this was only temporary.

*“The road directorate said, ‘no, no, no you can’t have new road markings, as well as new signs!’ So they were allowed to just put a temporary, regular paint... literally paint from a paint shop and that has faded”(Participant C)*

*“We could only have the orange line for a little while as campaign gimmick or whatever, but it would be really perfect to have it along the route the whole way... ” (Participant D)*

The observational analysis illustrates that there are key differences in the design elements between the two CSH policy outcomes. Interestingly however, these design weaknesses between the two cities mirror one another. While London’s strong aspect is network navigation, its key weakness is concerned with the level of segregation from traffic and lack of legal priority for cyclists. While Copenhagen’s CSH routes are entirely separated from traffic, signage and wayfinding is poor. Both of these weaknesses can be attributed to the organizational norms existing at the Road Directorate and TfL.

The analysis has demonstrated that the overall infrastructure in London is of a very low standard compared with Copenhagen’s, particularly in terms of coherence and safety (Appendix Table C.1 and C.2). As a result, London’s network does not adhere to best practice design requirements, nor does it adhere to its own design principles. It has also illustrated that although Copenhagen’s networks are physically coherent, safe, and comfortable, wayfinding is a major weakness. This emphasises the importance of an institutional decision such as that of the Road Directorate’s in the quality of policy implementation.

### **6.3 Drawing on international experience**

In August 2009, the CoC announced the launch of thirteen ‘Cycle Superhighways’. Just eleven months later on the 19<sup>th</sup> of July 2010, London Mayor Boris Johnson also announced the launch of a network of ‘Cycle Superhighways’. London officials have not explicitly stated that the new programme in Copenhagen influenced its network. It has been a major aim of this research to determine to what extent London has drawn on international experience –particularly the Copenhagen model – in designing and implementing the CSH network.

When asked if policy knowledge had been taken from other cities, Participant B explained that ideas from Denmark were transferred into the CSH after members of this person’s team had travelled to Copenhagen. This resonates with McCann and Ward’s conceptualisation of policy mobilisation, which explains that the relationship between relationality and territoriality is influenced by how urban managers engage with global circuits of policy knowledge (McCann and Ward, 2010).

*“It did come from Denmark. Some of the people in my team who had been to Denmark... So this guy Nick [sir name removed] and Peter [sir name removed] who... travels all over Europe... he’s done a great deal in developing the design that works and is safer and he’s still doing bits of that” (Participant B).*

*“For the Cycle Superhighways, Nick [sir name removed] visited Copenhagen. This is where the blue came from, but the whole issue of its ‘meaning’ and implications of the coloured surface when applied here is not backed up by legal changes or protection” (Participant B).*

It was then further explained by Participant B that there was no intention to replicate the model because the new idea needs to integrate with the pre-existing context, including the sections of cycle track that already exist. This resonates with Peck (2011:3) who has suggested that policies do not simply launch and land across “empty spaces” but are translated and embedded in different forms. Participant C in Copenhagen supported the degree to which lessons were mobilised between the two cities:

*“No, they’ve [London] copied the name and the paint - that’s it. They haven’t tried to copy us at all – they’re not even separated”.*

Interestingly, while Participant C suggested that Copenhagen’s blue paint was copied by London, this was one of the only elements of implementation that was done to a higher quality in London. This illustrates the extent to which geography creates uneven processes of mobilisation.

#### **6.4 Understanding mobilisation between Copenhagen and London**

Through the series of interviewees with stakeholders in both Copenhagen and London, it has become clear that London never actually attempted to adopt the Copenhagen ‘model’. Rather, elements of the Copenhagen policy travelled to London and were integrated into its pre-existing context. The role of path dependent histories and its relationship with planning culture has emerged as a primary reason why the policies of the two cities – which are based on the same concept - have been delivered in very different ways.

Two major themes have influenced how the CSH scheme has been delivered distinctly in London and Copenhagen. One of these major themes is the industry norms that exist within the transport departments in each city. The other is the difference in levels of tension that exists between cyclists and car drivers at both the planning and societal level. These distinct planning cultures have resulted from a path dependent history of cycling in each city.

#### 6.4.1 Organisational norms

##### 6.4.1.1 Organisational culture: the status quo

It has become clear from the research that there are distinct industry norms in the transport-planning field. It was explained by Participant A that embedded organisational norms play a strong role in the development of policy.

*“Within any organization there’s an understanding about what you do, what is important and what is not important. If the organizational culture was different, then you would start from that [space for cyclists] and you would negotiate from there. Then you could say, ok how can we sort out the traffic and the buses and all these things... But they’re obviously not starting from that [at TfL]”*

As explained in the previous chapter, the two major weaknesses in each of the city’s CSH networks are related to the organizational norms that exist in government departments: the inability for the Road Directorate to adapt to new street marking changes in Copenhagen and the TfL to implement new legal changes to prioritise bicycles on cycle routes in London.

##### 6.4.1.2 Industry culture: planners vs. engineers

Participants A, B and C all explained that there also exists a strong cultural and organisational divide that between planners and engineers within the field of transport planning. While this divide is very strong in London, it seems to have little influence on the delivery of projects in Copenhagen.

Explaining how London’s contemporary cycling policies have been developed upon pre-existing schemes, Participant B explained that one of the reasons for the slow progression of cycling infrastructure in London is attributed to the disconnect between planners and engineers at the TfL (eg. giving cyclists priority at ASBs<sup>14</sup>).

*“Each time... with the 1000 miles, with the LCN, the LCN+ and the CSH there’s a sort of wish that this time everything that was crap about the last one will be different. But the thing is, you have both the transport economics and thing about road capacity... But a traffic model is not real life - it’s all fantasy” (Participant B).*

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<sup>14</sup> Advanced Stopping Bays (ASBs) were a major development in cycling infrastructure in the early 2000s because they – for the first time in London – gave cyclists priority on a shared surface. Respondent B explained that the TfL failed to develop these legal changes further (to include entire routes) in the years up until 2010 because the traffic models used by engineers for decision-making proved that “we can’t possibly take traffic out and give cyclist’s priority”.

Participant B further discussed this disconnect, explaining that the engineering and transport economics frameworks used by TfL poorly understood the needs for cyclists. Rather than being treated as a mode of transport in their own right, they were simply applied into highways codes and junction models. As a result, roads were not planned holistically, with the needs of shared uses taken into consideration. Rather, bicycles become another vehicle that acts to increase capacity.

*“The whole idea of managing the whole space, rather than just who moves onto it, when and for how long. These are the most commonsense things in the world to people who aren't traffic engineers... Once your transport economics is measured in terms of journey time – you're fucked... All of this colours the engineering and stops change”.*

The perspectives of Participant A and Participant B aligned. Both stated that at the time of CSH policy inception in 2010, the transport planning culture in London was still very much focused on maximizing private vehicles capacity. Decisions on whether or not to construct cycling infrastructure were made based on the utilisation of junction modeling techniques. These models aim to maximise private vehicle flow and capacity, rather than considering the comfort or safety of cyclists. Participant A and Participant C both stated that this distinction between planning and engineering differed in Copenhagen:

*“In Denmark and the Netherlands I don't think they necessarily model that well either, which is interesting but they just don't bother about it. They don't say, this cycle track will result in delays for drivers, they would just do it anyway.” (Participant A)*

#### *6.4.2 Cyclists and Drivers: ‘Us and Them’*

All of the stakeholders interviewed explained the importance that cultural divide between cyclists and car drivers had on the cycling infrastructure planning process. It is clear that through a cultural embeddedness of cycling, there is a distinct variation in how new policies are consulted upon and delivered in each city.

Participant B stated that in Denmark transport planners and “even” transport engineers and economists will always provide for cyclists. It was explained that comparatively cycling in London was “the pits”. As planning culture is inextricably linked to societal culture, these tensions have a strong impact on the ability to deliver cycling policies. Participant B explained that the cultural tensions in London play a strong role in the consultation process:

*“Either I'm right or you're right and we're both being treated equally means that you can never do anything other than cling onto the status quo, which is the one thing that's wrong and not good enough” (Participant B)*

Comparatively, Participant D in Copenhagen emphasised that although retailers and schools will occasionally contest the design style of a network due to the speeds at which potential commuters will cycle, there were no tensions with stakeholder groups or those with interest in increasing private vehicle capacity when planning the CSH network. Further, Participant E suggested that the lack of tensions between cyclists and drivers in Copenhagen is directly attributed to the availability of quality cycling infrastructure:

*“We have the infrastructure and it is very safe because car drivers are used to it and look out for it, whereas in London car drivers simply aren’t used to them or are even hostile because they see them as an infringement on their territory.” (Participant E)*

Interestingly, both Participants B and C explained that such tensions run even deeper than simply between cyclists and car drivers. They suggest that cycling in London is divided into a multitude of sub-cultures, each aggressively campaigning for difference in design schemes and network priority<sup>15</sup>. This further weakens the ability for consensus on infrastructure delivery.

From these results it is clear that the CSH was not a policy that would dramatically shift an entire culture of planning at the TfL. Rather, “how things have developed is very much in response to things that have happened” (Participant B). The way in which the CSH routes have been delivered fits into long historical context of events.

### 6.5 Changing culture: the ‘cycling credibility gap’

The two emerging themes explained above illustrate how the delivery of the CSH scheme has been fundamentally impacted by the path dependent histories of cycling infrastructure and policy in each city, as well as contemporary planning and societal culture. While it is one thing to unravel such processes, this simple explanation of what has happened fails to provide policy makers and academics means to further analyse and extend on such ideas. As a result, this dissertation proposes the term ‘cycling credibility’<sup>16</sup> and the ‘cycling credibility gap’ as a theory to conceptualise these processes. The ‘cycling credibility gap’ is a means to measure the ability of a city to implement a cycling network to the same standard as another city, based on the acceptance of cycling in its planning culture. A stylised representation of this concept has been illustrated in figure 6.1.

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<sup>15</sup> Eg. Arterial road routes vs back streets

<sup>16</sup> The term ‘cycling credibility’ has been coined to acknowledge the level of acceptance of cycling in a city’s planning culture.

This ‘cycling credibility gap’ theory is based on the following:

- Results in the previous section of this chapter have suggested that there is a correlation between cycling infrastructure<sup>17</sup> and the acceptance of cycling in planning culture.
- Results have also indicated that the inability to accept cycling in London’s planning culture has been a major barrier to implementing high quality infrastructure

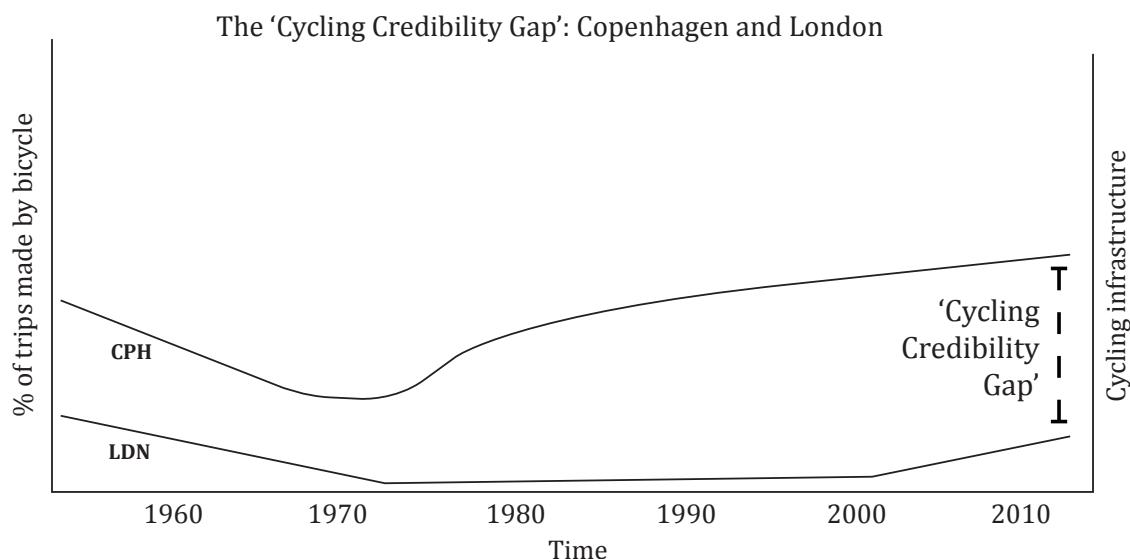


Figure 6.1: A stylised graphic representation of the ‘cycling credibility gap’ using the two case study cities.

### 6.5.1 How can cities reduce the ‘cycling credibility gap’?

The concept of the ‘cycling credibility gap’ indicates that there exists a *catch-22* situation for authorities to improve cycling infrastructure and cycling rates. How can a city improve cycling culture without cycling infrastructure? How can a city improve infrastructure without a suitable cycling culture? In doing so, it leaves the question for urban authorities: how can the size of this gap be decreased? Two solutions to this question become clear from speaking with key stakeholders:

1. Simultaneously increase communication amongst stakeholder groups whilst making incremental infrastructure improvements.

<sup>17</sup> Dill and Carr (2007) have illustrated that there is a direct correlation between cycling infrastructure and cycling rates. Based on this relationship, ‘percentage of trips made by bicycle’ data is used to also represent the level of cycling infrastructure in a city.

2. Deliver sections of high-quality infrastructure and then communicate the benefits that this brings to encourage the delivery of further infrastructure.

Participant B indicated that London has been incrementally improving its cycling infrastructure and that the CSH network can be used as the next stage of infrastructure improvement:

*“You could gradually build up by classifying the CSH saying that this is somewhere where cyclists have priority and you start to extend that and you give routes the same status... you’re gradually building up.... So long as you’re moving in the right direction....”*

Participant E also explained that he believed that incremental improvements were a suitable option for London:

*“There’s a long way from biking in London to biking in Copenhagen. It’s clearly much more unsafe in London but it can change, if London wants to. It’s a question of involving as many stakeholders as possible... It’s going to take some time but it can be done.”*

Participant D explained that it is more appropriate for London to take the second strategy:

*“Do one route to a really high standard. So you have this as like a benchmark. This is how it should be done. I think if you do a really good route and you get some positive results, then you can start copying this”.*

This chapter has presented and discussed the findings from the data collected. It is clear that while there was no direct replication of Copenhagen’s CSH, elements of the policy was mobilised to London. The policies however, have been implemented very differently due to a distinct variation in planning culture between the two cities, specifically, the difference in organisational norms, and the cultural tensions between cyclists and car drivers (in both planning culture and societal culture).

This dissertation has offered a valuable perceptive through which to view cycling in planning culture through the ‘cycling credibility gap’. Through research findings it has offered way in which this gap can be closed. The next chapter will offer a final insight into how these results shed light on how policy mobilisation and planning cultures interact with one another. It will conclude by making final recommendations as to how to decrease the ‘cycling credibility gap’ in London.

## **7. Lessons and conclusion**

This final chapter will succinctly draw together the key findings from the research to shed light on the relationship between path dependency, planning culture and policy mobilisation. This will demonstrate the importance of viewing policy mobilisation from a fresh perspective: one that considers the ability for embedded planning cultures to influence policy implementation. Finally, the chapter will offer insights and recommendations into how London can close its ‘cycling credibility gap’.

The research in this dissertation aimed to answer the question: to what extent has planning culture influenced the ability for mobilisation to occur between Copenhagen and London? Supplementary to this overarching research question, three additional objectives were explored. These objectives and the key findings from each have been summarised in figure 7.1 below.

Research Objectives	Key Findings
1 Explore the extent to which planning culture has influenced the ability for mobilisation to occur between Copenhagen and London.	→ London’s ability to implement the CSHs was influenced by embedded organisational norms and the impact of the cultural tensions between cyclists and drivers on the planning process.
2 Understand the extent to which policy knowledge has been mobilised between the two cities.	→ There is no evidence that the CSH policy was directly replicated from Copenhagen to London. However, some design concepts and knowledge was copied.
3 Evaluate the key design differences between the two schemes.	→ Based on Ploeger’s (2009: 273) criteria for cycling infrastructure requirements, the Copenhagen CSH network is of a much higher quality of that in London.
4 Identify the factors for the introduction of CSHs in London and Copenhagen.	→ The motivations for introducing the CSH network in Copenhagen and London are the same. The policies are based on the same concept.

Figure 7.1 Summary of key findings

There is no evidence that policy-makers in London directly attempted to replicate Copenhagen’s CSH policy. Rather, elements of the policy were copied and integrated into the London context. This finding supports the contemporary academic literature on traveling policy. Policies do not simply travel across an empty landscape as the term ‘transfer’ suggests, but are translated and re-embedded within and between different institutional, economic and political contexts (Peck and Theodore, 2001:427). As a result of complicated processes of mobilisation, they do not necessarily travel fully formed.

While the document review revealed that the two CSH policies are essentially based on the same concept, they have been implemented very differently. Their design principles are almost identical, but their physical design is not. Initially assessed against their own design principles, the observational analysis illustrated that revealed that the physical implementation of London's network did not adhere to the design principles on which it was based. Copenhagen's adhered to most of its design principles.

The assessment of these observations against Ploeger's (2009) cycling infrastructure requirements revealed that Copenhagen's CSH network is of a much higher quality than London's. This is primarily because the routes in Copenhagen are separated from traffic. While still debated by policy makers, between North America and Europe, there is a clear consensus in academia that separation from traffic is key requirement to increase safety and comfort for cyclists (Furth, 2012; 135). The distinct difference in policy implementation was the result of distinct planning cultures that exist between the two cities.

Chapter four briefly explained the history of cycling in the case study cities of London and Copenhagen. While Denmark experienced a major backlash to private vehicle dominance in the 1970s, England did not. Over the course of the next four decades, Copenhagen slowly increased the extent and quality of its cycling infrastructure. Simultaneously, cycling became more deeply engrained in both societal and planning culture. In London on the other hand, rates of private vehicle use continued to increase until the late 1990s. While small cycling infrastructure schemes were implemented, these were poorly funded and lacked widespread support. As a result of these divergent cycling histories, distinct planning cultures exist in each city today.

Firstly, the organisational norms operating within each of the city's transit authorities differ significantly. It was found that the major weaknesses observed in each of the network's designs could be attributed to an inability to accept or pursue change within government departments. In London, it was discovered that due to TfL's history of not "doing things well" (Participant B) for cyclists, its organisational norms make it difficult to implement high quality infrastructure today. The lack of inertia in the years leading up to CSH implementation meant that cyclists were not given priority over private vehicles when the network was delivered. This was exacerbated by the strong disconnect that exists between planners and engineers. In Copenhagen, the Road Directorate had an influence in the poor signage and wayfinding that was implemented across the network.

Secondly, there is a strong tension between car drivers and cyclists in London, which does not exist to the same degree in Copenhagen. This tension has acted as a barrier to delivering high quality cycling infrastructure due to the democratic nature of consultation processes. Such tensions also act to divide the planners and policy makers themselves.

The research undertaken in this dissertation illustrates how cultural tensions have had the ability to influence the CSH delivery process. These findings agree with Knieling and Othengrafen, who argue that planning systems and traditions, concepts, development processes and decision-making are highly influenced by their cultural contexts (2013; 1276).

The ‘cycling credibility gap’ has been developed in order to conceptualise the relationship between path dependency, cycling in planning culture and infrastructure implementation. As Knieling and Othengrafen (2013: 1281) have stated, “due to the dynamic and fluid nature of planning culture, it is important that we improve our understandings of the ‘drivers of change’.

By illustrating how embedded planning cultures influence how policies travel, this research has offered a new perspective from which to analyse policy mobilisation. With a current policy focus on cycling infrastructure in cities across the globe, it acts to offer key recommendations for cities that are looking to pursue implement new infrastructure policies adopted from elsewhere. The results from this research have indicated that there are two ways in which policy makers can tighten the ‘cycling credibility gap’. The next section of this chapter will offer lessons for London.

### **7.1 Lessons for London**

London is currently simultaneously increasing communication amongst stakeholder groups whilst making incremental infrastructure improvements. However, it is clear that from both the Observational Analysis and the increasing cyclist casualty ratio (explained in Chapter Four), that London’s cycling infrastructure does not meet the safety requirements as outlined by Ploeger (2009). The highly democratic nature of the infrastructure delivery in London has meant that the ‘cycling credibility gap’ is very difficult to close. Each new policy has only been a slight improvement on the last.

It is therefore recommended that London allow for future CSH infrastructure to lead cultural change. London currently has a political and media climate that strongly supports cyclists. There is perhaps no better time where the political ‘will’ is such that advancement in infrastructure will be most widely accepted amongst stakeholder groups. From the research a number of recommendations have been made (Table 7.a).

Table 7.a Recommendations to TfL:

Time frame	Action
<b>Short-term</b>	Modify TfL organisational structures and processes to increase flexibility in policy and project delivery
	Increase communications and coherence between planners and engineers within TfL
	Develop two targeted communications strategies with the aim of reducing the existing tensions between cyclists and drivers: 1. Industry-based strategy 2. Public strategy
<b>Medium-term</b>	When political ‘will’ exists, deliver one CSH route of very high quality (against Ploegers (2009) requirements) Communicate the benefits of this infrastructure
<b>Long-term</b>	Continue making incremental infrastructure improvements, but use the new CSH route as the status quo for quality

## 7.2 Conclusion

This dissertation has explored the relationship between planning culture and policy mobilisation. Through a comparative case study of Copenhagen and London’s CSH policies, the research has exposed the distinct planning culture elements that create resistance to policy mobilisation. Future research opportunity exists to understand the variables that exist in contexts where there is minimal policy resistance.

Embry (2009) stated that “Ljubljana in Slovenia literally copy pasted Copenhagen style infrastructure and now they’ve got 10% of their commuters travelling by bike”. While this statement may not be completely true, it could be argued that Ljubljana’s planning context was less resistant to Copenhagen style cycling infrastructure than in London. Perhaps the ‘cycling credibility gap’ was not as large? Or possibly a less democratic planning process authorised the implementation of imported urban policy?

While it is clear from the research in this dissertation that policy-making is “intensely and fundamentally local, grounded and territorial” (McCann and Ward, 2010: 178), understanding how to minimise resistance to new urban policy is crucial to understanding how we can create more sustainable urban environments. As urban ecological footprints expand, and the natural resources in which we so heavily rely continue to diminish, it is clear that our cities will need to change. With resource analysts suggesting that we have already reached peak oil, perhaps now more than ever, it is important to understand how we can quickly and efficiently implement sustainable transportation policies across the globe.

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## Appendix A

Table A.1: The London key design principles derived from the TfL Barclays Super Highways Evaluation (2011; 6).

<b>Principle</b>	<b>Description by TfL</b>
<b>Direct</b>	Routes chosen for the Barclays Cycle Superhighways are all direct links into central London.
<b>Continuous</b>	The Barclays Cycle Superhighways introduced continuous coloured surfacing or signage along the length of the routes. Customer research carried out during the feasibility phase of the programme found that this was highly valued as it allowed people to focus their attention on traffic instead of route finding.
<b>Clear</b>	The routes are clearly marked and easy to follow. There are new signs, road markings and information about journey time and links to other routes. New bespoke signs were developed with time to destination rather than distance, which show how convenient cycling can be compared to other modes.
<b>Comfortable</b>	TfL have improved road surfaces and minimised obstructions along the routes so that it is more comfortable to cycle. Better surfaces also improve safety and comfort for all road users.
<b>Easy to find</b>	Each Barclays Cycle Superhighway has a clear identity. While the blue surfaces increase driver awareness, the Barclays Cycle Superhighways' inclusion in the cycle guides and on journey planner, signage to the routes and the marketing around the routes ensure cyclists are aware of them.
<b>Safe</b>	Coloured surfacing along the routes is at least 1.5m wide. The surfacing continues through junctions, a significant challenge to implement but one that was identified as extremely important. Advanced stop boxes at traffic lights help cyclists get ahead of traffic, and improved junction layouts provide more space. There was also training and education for HGV drivers, and engineering interventions such as blindspot visibility mirrors.
<b>Supporting Measures</b>	NA (not an observable design element)
<b>Stakeholder Engagement</b>	NA (not an observable design element)

Table A.2: The 4 key principles in which the Copenhagen Superhighways as designed (Cykel Superstier Sekreteriat, 2012).

<b>Principle</b>	<b>Description by Cykel Superstier Sekreteriet</b>
<b>Access to network</b>	Bicycle Super paths to link concentrations of jobs, study areas and housing and access to public transport terminals.
<b>Passability</b>	Bicycle Super paths to provide commuter cyclists the fastest possible way between home and work or study. They must be so directly with as few obstacles and stops as possible and with space to hold its own pace without being delayed.
<b>Comfort</b>	Bicycle Super paths to do the ride to and from work or study for a pleasant experience for bicycle commuters. They must have even coating, high degree of maintenance, offer additional services and allow for great cycling experiences – eg. Via green areas.
<b>Safety and security</b>	Bicycle Super paths to ensure a low number of accidents and commuter cyclists to feel safe both in traffic and on deserted stretches. This is assessed by specific lighting and visibility of the cyclist to the surroundings. In addition to these criteria, it is assessed qualitatively, on a route meets the requirements.

## Appendix B

### **Appendix A.1: London: Observational findings assessed against design principles**

<b>CS2: Bow to Aldgate</b>			
Principle	Meet design principle?	Observations	Images
Direct	✓	Direct route between Aldgate & Bow	
Continuous	✗	Inconsistency in blue paint marking styles	
Clear	✗	Stopping bays exist at some, but not all traffic lights making rules for waiting unclear	
Comfortable	✗	Poor maintenance causes an unstable ride	
Easy to find	✓	Signage and bright blue markings make superhighways easy to locate	
Safe	✗	Vehicle traffic enters CSHs when car lanes narrow and on approach to intersections	
Supporting measures		NA	
Stakeholder Engagement		NA	

<b>CS3: Barking to Tower Gateway</b>			
Principle	Meet design principle?	Observations	Images
Direct	✓	Reasonably direct	
Continuous	✗	Inconsistency in blue paint marking styles	
		Segregated along some sections, but not others	
		Inconsistent in approach to side streets	 <p>Not continuous over side street</p>  <p>Continuous over side street</p>

Clear		Inconsistency in directions	 <p>Cycle on the left hand side</p>  <p>Cycle on the right hand side</p>
		Changes side of road. Slows cyclists. Confusing for all road and pedestrian users.	
Comfortable		Generally well-maintained and comfortable	
Easy to find		Signage and bright blue markings generally easy to locate and navigate	

Safe		Lack of segregation, no bicycle priority and poor signage at intersections	
Supporting measures		NA	
Stakeholder engagement		NA	

CS7: Merton to City			
Principle	Meet design principle?	Observations	Images
Direct		Not very direct. Illogically meanders through backstreets of Elephant & Castle.	
Continuous		Inconsistency in blue paint marking styles	
		Segregated along some sections, but not others	
		Inconsistent in approach to intersections crossings: sometimes painted, sometimes not painted	
Clear		Confusing road markings, particularly when combined with non-superhighway cycle lanes	

Comfortable		Poor maintenance causing a rough and unsafe cycle	
Easy to find		Clear signage and bright blue paint easy to find	
Safe		Superhighway used for car parking, suddenly forcing cyclists onto road	
		Superhighway used as a loading bay for trucks, suddenly forcing cyclists onto road	
		Vehicle traffic enters CSHs when car lanes narrow and on approach to intersections	

Safe		Complicated intersection crossings are difficult to navigate. Confusion in direction can leave cyclists susceptible to fast-moving vehicles	
		Bus stops suddenly force cyclists into vehicle lanes	
Supporting measures		NA	
Stakeholder engagement		NA	

## Appendix A.2: Copenhagen: Observational findings assessed against design principles

CS8: Wandsworth to Westminster			
Principle	Meet design principle?	Observations	Images
Direct	✓	Relatively direct.	
Continuous	✗	Inconsistency in blue paint marking styles	
		Segregated along some sections, but not others	
		Inconsistent in approach to intersections crossings: sometimes painted, sometimes not painted	
Clear	✗	Confusing road markings which indicate sudden crossings across blind corners. No pre-warning of upcoming change of direction.	

		Illogical pathways along pavement. Cyclists choose to ride on road rather than trying to meander through complicated Superhighway sections.	
Comfortable		Poor maintenance. Additionally, sections of construction site suddenly force cyclists into traffic lanes	
		Poor maintenance. Cyclists prone to have tyres stuck in drainage grates.	
Easy to find		Clear signage and bright blue paint is easy to find	
Safe		Bus stops suddenly force cyclists into vehicle lanes	

		<p>Footpath is shared between cyclists and pedestrians at two points along the route. No indication of right-of-way. Unsafe for both pedestrians and cyclists.</p>	
		<p>Bus stops suddenly force cyclists into vehicle lanes</p>	
Supporting measures		NA	
Stakeholder engagement		NA	

<b>C95: Central to Farum</b>			
Principle	Meet design principle?	Observation	Images
Access to network		Guidance unclear in central areas where orange guiding line does not exist. Good signage and route guidance in suburban portion of route.	
Passability		Large lane widths both within urban core and in the outside suburbs makes passability very easy.	
Comfort		Very well-maintained, few visual obstructions and distractions create clarity and consistency in network.	
Safety and security		Entire 30 km route is segregated from vehicles; clear intersections crossings, with bike-only traffic lights; segregation from parked cars and bus stopping, as well as lighting and air pumps at sections of the route.	

<b>C99: Central to Albertslund</b>			
Access to network		Guidance generally poor along most of route, with only some very few signs along route to guide cyclist. Remnant of the orange guiding line remain along some sections of route.	
Passability		Large lane widths both within urban core and in the outside suburbs makes passability very easy.	
Comfort		Very well-maintained, few visual obstructions and distractions create clarity and consistency in network. Waiting rails at traffic lights at some sections of route make it easier for cyclists waiting for traffic.	
Safety and security		Entire 17.5 km route is segregated from vehicles; clear intersections crossings, with bike-only traffic lights; segregation from parked cars and bus stopping, as well as lighting and air pumps at sections of the route.	

### Appendix C

**Appendix Table C.1: Observational analysis assessed against Ploeger's (2009) requirement: Coherence**

Coherence		
Ploeger's requirement for coherent cycling infrastructure (2009:273)		
Observational Analysis Findings	London	Copenhagen
	<ul style="list-style-type: none"> <li>• Some routes follow arterial roads, some split with back-streets</li> <li>• Inconsistency in design elements</li> <li>• Some sections segregated, some not</li> <li>• Sudden changes in directional flow</li> <li>• Painted strips continue over perpendicular side streets sometimes, at other times they do not</li> <li>• Clear blue markings along the route make it very easy for the cyclist to navigate through network</li> <li>• Clear signage</li> </ul>	<ul style="list-style-type: none"> <li>• CSH routes generally followed the major arterial roads in the northern direction towards Falum, and west towards Albertslund (see figure 4.1)</li> <li>• Routes were very clear and consistent in design elements</li> <li>• Consistency in segregation and distance from parked vehicles</li> <li>• Consistency in paint markings</li> <li>• Like a 'mental map' cyclist can picture what will be ahead</li> <li>• Poor signage and wayfinding</li> </ul>
Did analysis meet requirement?		

**Appendix Table C.2: Observational analysis assessed against Ploeger's (2009) requirement: Safety**

Safety			
Did analysis meet requirement?	Observational Analysis Findings	Ploeger's requirement for coherent cycling infrastructure (2009:273)	
		London	Copenhagen
	<ul style="list-style-type: none"> <li>• Most sections of London's CSH network are not segregated, leaving cyclists susceptible to the risks of fast moving traffic</li> <li>• Cyclists using London's CSHs do not have legal priority over vehicles</li> <li>• Width narrow to approximately 1 metre in sections, leaving little room between curb and traffic</li> <li>• No buffer between CSH lanes and parked cars (cyclists susceptible to 'dooring')</li> <li>• Bi-directional segments of routes create risk of cyclist collisions</li> </ul>	<ul style="list-style-type: none"> <li>• Guarantees the road safety of cyclists and other road users</li> <li>• To attain a safe traffic situation, encounters with large volumes of fast moving motorised traffic should be avoided. When bicycles and car traffic do use the same traffic space, the confrontations between them should be governed by limits.</li> </ul>	<ul style="list-style-type: none"> <li>• Entirely segregated networks</li> <li>• Legal priority, except in intersections</li> <li>• Cyclist priority traffic lights to avoid 'right hook' (drivers turning right at a set of lights)</li> <li>• Buffer between paths and parked cars</li> <li>• All paths are a minimum of 2.8 m (some sections &gt;5m)</li> <li>• All paths are single-direction only</li> </ul>

**Appendix Table C.3: Observational analysis assessed against Ploeger's (2009) requirement: Directness**

Directness		
Ploeger's requirement for coherent cycling infrastructure (2009:273)	<ul style="list-style-type: none"> <li>Continually offers the cyclist as direct route as possible (so detours are kept to a minimum)</li> <li>Influences on speed including flows, delays and detours are major determinants for quality of infrastructure. It is recommended that cycle speeds should never be lower than 10km/h in order to maintain safety (stability).</li> </ul>	
Observational Analysis Findings	London	Copenhagen
	<ul style="list-style-type: none"> <li>Some routes such as the CS2 and CS3 are reasonably direct.</li> <li>CS7 and CS8 meander through backstreets.</li> <li>As paths are not separated, cyclist is often moving at slow speeds with vehicular traffic congestion</li> <li>Width of paths creates cyclist congestion at sections of network, severely reducing speeds</li> </ul>	<ul style="list-style-type: none"> <li>Minimal meanders across entire network</li> <li>Separation from traffic</li> <li>Width of lanes &gt;2.5 allows for overtaking other cyclists.</li> <li>No delays experienced (note: time of day may have influenced this)</li> </ul>
Did analysis meet requirement?		

**Appendix Table C.4: Observational analysis assessed against Ploeger's (2009) requirement: Comfort**

Comfort		
Ploeger's requirement for coherent cyclinf infrastructure (2009:273)	<ul style="list-style-type: none"> <li>Enables a quick and comfortable flow of bicycle traffic</li> <li>The factors leading to comfort levels includes obstructions caused by bottlenecks or short-comings of infrastructure, which demand extra physical effort from cyclist; mental stress related to safety; constant stopping and starting and vibrations from poor surfaces.</li> </ul>	
Observational Analysis Findings	London	Copenhagen
	<ul style="list-style-type: none"> <li>Unstable surfaces</li> <li>lack of separation from traffic leaves cyclists susceptible to the perceived risks of injury causing a stressful commute</li> </ul>	<ul style="list-style-type: none"> <li>Well maintained</li> <li>Low stress levels experienced due to a traffic separation</li> <li>No bottlenecks were experienced on either route (note: time of day may have influenced this)</li> </ul>
Did analysis meet requirement?		

## **Appendix D**

### **Semi-structured interview questions**

1. What was your role in the design and delivery of the CSH network?
2. What were the motivations behind the Cycle Superhighways and on what principles were they designed?
3. What were the major challenges in the design and implementation of the Superhighways? Why?
4. What were the challenges/tensions faced in the consultation process? Why?
5. If they were re-delivered, what would be done differently? Why, why not?
6. Do you see the Cycle Superhighways improving as we move forward? Why, why not? Could we better learn or mobilise policies from elsewhere? Why, why not?
7. Do you hope that cities like London will become like Copenhagen in terms of cycling infrastructure design, or do you envision that it will develop in its own way? Why WhY not?
8. Lessons for London? Why?