



Project **CREATE**
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Project website: **www.create-mobility.eu**

D4.2 - Technical reports for Stage 3 cities

Work Package 4 “Qualitative analysis of Transport policy developments”

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1 Introduction to deliverable D4.2 “technical reports for stage 3 cities”

How to reduce road congestion in large cities in Europe and the Euro-Med? How to encourage a switch from cars to more sustainable transport modes? Historically, rapid urban growth has led to a growth in car ownership and use, and consequential increases in urban road traffic levels. These increases, in turn, are associated with a range of negative impacts, including traffic congestion, traffic collisions, social exclusion and dangerous levels of air and noise pollution.

Recently, some European cities (Berlin, Copenhagen, London, Paris, Vienna) appear to have been successful in decoupling economic growth from traffic growth – and in the process, have been able to offer urban living environments that are cleaner and less congested, while maintaining increases in living standards. Why have these cities been able to achieve this turnaround, and what lessons can be drawn for other parts of Europe and the Euro-Med?

To answer this fundamental question, the CREATE project (Congestion Reduction in Europe, Advancing Transport Efficiency) brings together a team of international analysts in order to explore historical patterns of urban road traffic and car use, to identify success factors in encouraging modal shift and lessons learnt in Western European capital cities, and to work with Eastern Europe and Euro-med city partners (Adana, Amman, Bucharest, Skopje and Tallinn) to assist them in developing sustainable strategies.

Further information available on the CREATE Website: <http://www.create-mobility.eu/>

1.1 About Work Package 4 in the CREATE Project

How to account for the shift away from car-oriented policies towards sustainable urban transport policies?

As part of the CREATE project, the primary goal of Work Package 4 (WP4) is to analyse the historical ‘Transport Policy Evolution Cycle’ processes in Stage 3 cities, i.e. five Western European capitals (Berlin, Copenhagen, London, Paris and Vienna): Can we identify similar qualitative drivers of change across European cities? What are the main differences between cities and how to account for them? To what extent does the analysis of policy developments over time helps us make sense of recent policy choices and deadlocks? This is done by identifying the qualitative and contextual drivers that have enabled – or hindered – a shift from Stage 1 “urban congestion growth” to Stage 3 “encouraging sustainable mobility and liveable cities” policies. It also contributes to highlighting lessons to be learnt in order to speedup these processes in Stage 1 cities.

The work done as part of WP4 is coordinated by Dr. Charlotte Halpern, at Sciences Po, Centre d’études européennes et de politique comparée (CEE), CNRS, Paris.

1.2 About these documents, D4.2 technical reports for stage 3 cities

These documents, **D4.2 technical reports for stage 3 cities**, reflect the work produced as part of WP4 during Task 3, “Qualitative analysis of transport policy development cycle processes in the five Stage 3 cities during the Shift from Stage 1 to Stage 3”. Paying attention to case-specific contextual factors, policy instruments and programmes and involved stakeholders, **this case-study approach unveils the processes and the main drivers for change¹**.

D4.2 reports contribute to understanding the shift away from car-oriented policies towards alternative transport policies in different city contexts. Each report seeks to develop a comprehensive qualitative analysis of the historical development of policies relating to traffic congestion and car use over the past four decades. It investigates the ways in which transport policies are designed and implemented in the five Stage 3 cities, how they have evolved over time, which policy mix has been favoured at different times, their intended/unexpected effects, and how coordination has been ensured.

Each report draws on the following datasets:

¹ For more information, see D4.2 reports and technical notes.

- The work done in Tasks 1 and 2, as introduced in the 1st WP4 Technical report. This first technical report developed the common analytic framework, methodology and data collection strategy that is applied in WP4, provided a first assessment of the spatial and chronological perimeter it targets, and a brief mapping out of multi-level institutional and transport governance settings in the five Stage 3 cities, including a chronology of the shift from Stage 1 to Stage 3. Data sources include policy documents, proposed and passed measures, yearly budgets, and expert interviews with key policy actors.
- The dataset that were constituted as part of the WP4 database, interviews, workshops and site visits. This provided invaluable support for analyzing dynamics of change in each city and understanding the discrepancy we found between policy objectives and effective change.

Drawing on the common outline developed during Task 4.1, a case study analysis was developed for each stage-3 city in order to identify major factors of change and provide a detailed analysis of transport policy developments. The list of case study writers is provided here. We are thankful to Charles Buckingham (TfL) for his support in editing these reports and for his comments and suggestions for change.

List of case study writers for D4.2 reports

Stage 3 city	Case study writers
Berlin	Charlotte Halpern and Ann-Kathrin Bersch
Copenhagen and its region	Charlotte Halpern and Alessandra Carollo
Greater London	Dr. Caralambo Focas (on behalf of TfL)
Paris and Île-de-France region	Charlotte Halpern and Alessandro Maggioni
Vienna	Charlotte Halpern and Nicole Badstuber (UCL)

More precisely, these case studies assess the relevance of the 3 stages approach, characterize dynamics of transport policy change (incremental versus disruptive), and highlight factors of policy change (e.g., institutional and political, organizational, social movements, politics etc.).

More precisely, each D4.2. report includes the following information:

- A short summary
- Context: socio-demographic changes, major evolutions in urban development
- Institutional and political arrangements
- The governance of transport
- The organization of transport, including the transport offer
- Main policies, measures, or projects
- A brief conclusion about the 3 stages approach
- References, including grey literature and major policy reports, main publications about urban governance and transport.

The work achieved as part of WP4 is complementary to other work produced as part of the CREATE project. Particularly noteworthy is the work done as part of WP3 and D3.2 reports, which introduce transport supply data and policies influencing travel demand in each city. When relevant, specific sections from D3.2 reports are referred to. This will be done systematically during Task 4, and as part of WP5.

These reports are not in themselves a definitive synthesis of transport policy evolutions and their causes, but rather it is a compendium of resources, with some basic interpretation, to feed into this further analysis. It is complementary to the work produced as part of WP3, which reviews transport supply data and policies influencing travel demand in the city.

These reports only reflect the authors' view. Where opinions are expressed about the causes of change or the significance of specific aspects, these are with the sole intention of guiding further analysis under the CREATE programme and to act as a starting point for that further analysis.

1.3 Summary findings for D4.2 reports

For each of these report, the Sciences Po team (C. Halpern and C. Orlandi) produced a technical note, which content will be available on the project website as part the CREATE project's technical notes series – TN 6 to 9. These six-pages notes are meant to reach out to a wider audience. They highlight key drivers and processes explanatory of the shift towards stage 3, current and future challenges, as well as a discussion of the relevance of the stage-1-to-3 approach. This will reach out to a wider audience. We are thankful to Charles Buckingham, Radu Gaspar and the EIP team for their support in editing the final version of the Technical notes.



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D4.2 - Technical report for Stage 3 city: Copenhagen

Work Package 4 “Qualitative analysis of Transport policy developments”

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1.1 Brief reminder about the CREATE project

How to reduce road congestion in large cities in Europe and the Euro-Med? How to encourage a switch from cars to more sustainable transport modes? Historically, rapid urban growth has led to a growth in car ownership and use, and consequential increases in urban road traffic levels. These increases, in turn, are associated with a range of negative impacts, including traffic congestion, traffic collisions, social exclusion and dangerous levels of air and noise pollution.

Recently, some European cities (Berlin, Copenhagen, London, Paris, Vienna) appear to have been successful in decoupling economic growth from traffic growth – and in the process, have been able to offer urban living environments that are cleaner and less congested, while maintaining increases in living standards. Why have these cities been able to achieve this turnaround, and what lessons can be drawn for other parts of Europe and the Euro-Med?

To answer this fundamental question, the CREATE project (Congestion Reduction in Europe, Advancing Transport Efficiency) brings together a team of international analysts in order to explore historical patterns of urban road traffic and car use, to identify success factors in encouraging modal shift and lessons learnt in Western European capital cities, and to work with Eastern Europe and Euro-med city partners (Adana, Amman, Bucharest, Skopje and Tallinn) to assist them in developing sustainable strategies.

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1.1 About Work Package 4 in the CREATE Project

How to account for the shift away from car-oriented policies towards sustainable urban transport policies?

As part of the CREATE project, the primary goal of Work Package 4 (WP4) is to analyse the historical 'Transport Policy Evolution Cycle' processes in Stage 3 cities, i.e. five Western European capitals (Berlin, Copenhagen, London, Paris and Vienna): Can we identify similar qualitative drivers of change across European cities? What are the main differences between cities and how to account for them? To what extent does the analysis of policy developments over time helps us make sense of recent policy choices and deadlocks? This is done by identifying the qualitative drivers that have enabled – or hindered – a shift from Stage 1 “urban congestion growth” to Stage 3 “encouraging sustainable mobility and liveable cities” policies. It also contributes to highlighting lessons to be learnt in order to speedup these processes in Stage 1 cities.

The work done as part of WP4 is coordinated by Dr. Charlotte Halpern, at Sciences Po, Centre d'études européennes et de politique comparée (CEE), CNRS, Paris.

This document, **D4.2 Copenhagen report**, is part of the second series of technical reports produced as part of WP4 during Task 3, “Qualitative analysis of transport policy development cycle processes in the five Stage 3 cities during the Shift from Stage 1 to Stage 3”. It seeks to develop a comprehensive qualitative analysis of the historical development of anti-congestion policies and car use over the past four decades. It investigates the ways in which transport policies are designed and implemented in the five Stage 3 cities, how they have evolved over time, which policy mix has been favoured at different times, their intended/unexpected effects, and how coordination has been ensured.

By highlighting discrepancies between policy choices and policy results, D4.2 reports contribute to understanding the shift away from car-oriented policies towards alternative transport policies in different city contexts.

This is done across the 5 cities as follows:

- Explore urban sustainable policy dynamics by looking at three policy dimensions:
 1. policy objectives (i.e. Which are the main policy documents? How are the power and resources distributed among different levels of government? Major policy reforms? Proposed, passed and failed measures?),
 2. policy structures (i.e. what are the main resources: legal, financial, organisational? Evolution of budgets? Organisation charts? Creation of new agencies?)
 3. policy instruments (i.e. regulatory/legislative, economic/fiscal, agreement-/incentive-based, informative/communication-based).
- Map out the evolution over time since the policy shift began by explaining dynamics of issue salience, institutional and political changes, as well as changes in the governance of transport.
- Understand how controversies regarding urban sustainability policies were resolved by looking at policy results (failed/accepted measures).

The completion of Task 3 draws on the work done in Tasks 1 and 2, as introduced in the 1st WP4 Technical report. It developed the common analytic framework, methodology and data collection strategy that is applied in WP4, provided a first assessment of the spatial and chronological perimeter it targets, and a brief mapping out of multi-level institutional and transport governance settings in the five Stage 3 cities, including a chronology of the shift from Stage 1 to Stage 3. Data sources include policy documents, proposed and passed measures, yearly budgets, and expert interviews with key policy actors.

The work achieved as part of WP4 is complementary to other work produced as part of the CREATE project. Particularly noteworthy is the work done as part of WP3 and D3.2 reports, which introduces transport supply data and policies influencing travel demand in each city. When relevant, specific sections from D3.2 reports are referred to. This will be done systematically during Task 4, and as part of WP5.

1.2 About this document, D4.2 Copenhagen report

This D4.2 Copenhagen report develops a case study of this specific Stage 3 city. A preliminary draft was produced by Alessandra Carollo in November 2016. It was then completed by Dr. Charlotte Halpern (Sciences Po) (January 2018) in order to develop an analysis of transport policy developments in Copenhagen and its region. It provides key data and high-level interpretations for this case to feed into the wider cross-city analysis of transport policy evolutions being undertaken for Work Package 4 of the CREATE project.

More precisely, each D4.2. report includes the following information:

- A short summary
- Context: socio-demographic changes, major evolutions in urban development
- Institutional and political arrangements
- The governance of transport
- The organization of transport, including the transport offer
- Main policies, measures, or projects
- A brief conclusion about the 3 stages approach
- References, including grey literature and major policy reports, main publications about urban governance and transport.

This D4.2 Copenhagen report is not of itself a definitive synthesis of transport policy evolutions and their causes in Copenhagen but rather, a compendium of resources, with some basic interpretation, to feed into this further analysis. It is complementary to the work produced by CREATE partners in Copenhagen, as part of WP3, which reviews transport supply data and policies influencing travel demand in the city.

This report only reflects the authors' view. Where opinions are expressed about the causes of change or the significance of specific aspects, these are with the sole intention of guiding further analysis under the CREATE programme and to act as a starting point for that further qualitative analysis.

1.3 Short summary of D4.2 Copenhagen report

When, why and how was Copenhagen able to (re-)invent itself successfully into “the bicycle city”? To what extent are these developments replicable in other cities in CREATE and beyond? This report both highlights and accounts for the process of gradual yet transformative change, which has characterized transport policy developments in Copenhagen and its metropolitan area over the past four decades. It provides some explanation as to why and how a sustainable urban transport agenda emerged as a major political priority and flagship initiative. It also suggests that the situation is not as clear-cut as suggested by political discourses: pro-car policies and car use have not been completely abandoned in Copenhagen, and similarly, sustainable mobility policies are being strengthened beyond the city's limits.

In this perspective, the analytical framework developed as part of WP4, which combines the public policy approach with the urban governance approach (see WP4 D4.1 report), proved particularly useful in order to examine the ambiguous relationship between policy discourses on the one hand, and policy outcomes on the other hand. More than in any other cases studied in WP4, the Copenhagen case confirms the need to examine policy implementation dynamics in order to make sense of the choice and selection of policy instruments, including the role attributed from an early stage on to communication-based policy tools.

Two main findings are highlighted as a result of the historical analysis of transport policy developments in Copenhagen and its metropolitan region.

First it shows that **the shift towards urban sustainable transport was not achieved through a unidirectional transition from stage 1 to stage 3¹**. As in other stage 3 cities in CREATE, this process has been more incremental than abrupt. Yet in Copenhagen, incrementalism is particularly pronounced and primarily explained by high levels of competition between competing urban development models. Sustainable transport policies were introduced in the inner-city area from the late 1960s onwards, which is far sooner than in any Stage 3 city in CREATE, and continuously strengthened ever since, with a specific focus on cycling. Such early beginnings are closely related to the city's humble past: in a context in which the city was losing inhabitants and lacking the means to plan ambitious transport infrastructures and policies, this transport mode was considered the most affordable option for a majority of its inhabitants. It was only in the mid-2000's that cycling was promoted as a showcase for the liveable city model. The city actively contributed to promoting its sustainable transport model region-, nation- and worldwide. In parallel, neighbouring municipalities as well as national policies promote the development of car use as well as rapid transit public transport in order to increase accessibility to and from the capital city inner-area thus leading to some major transport controversies about the Nordhaven tunnel and the congestion ring.

Second, the report highlights the role of three drivers of change: 1) institutional competition and the city's search for increased autonomy in designing and implementing its own policy agenda, 2) low levels of institutional coordination in transport at regional level, 3) place-making as a preferred urban regeneration strategy in a context of deep socioeconomic crisis. More specifically, the role of horizontal and vertical competition between levels of government emerges as a major explanatory factor for the ambiguity referred to earlier to account for historical transport policy developments. Similarly to other cities in WP4, the development of an ambitious sustainable transport agenda in the city of Copenhagen is closely related to the city's struggle to compete with other metropolises worldwide and retain its autonomy vis-à-vis the Danish state and its hinterland. The report explores into details the Municipality's pioneering and active role in promoting Stage 3 policies, while other stakeholders – levels of government, transport companies, private actors, etc. – still tend to prioritize car-oriented (Stage 1) and/or traffic mitigation (Stage 2) policies and urban development models. It also provides some explanation for the persistence of strong differentiation dynamics between the city of Copenhagen, where sustainable urban transport measures and investments are concentrated and developed under the city's leadership², and the greater metropolitan area, where fragmented leadership and spatial development growth models have prevented a definite shift towards a regional sustainable transport agenda. All in all, a combination of all three types of transport policies coexists in Copenhagen, thus raising some issues of coordination between policy types – Stage 1, 2 or 3 –, and between levels of government.

In the final section, **the report discusses current challenges in transport policy developments in Copenhagen**. Expected demographic growth in the region shows the limits of the Copenhagen model and the need to promote its expansion beyond the city's borders as well as to introduce some adjustments in order to take into account current capacity investments in rapid public transit systems. The report also highlights the disconnect between political discourses and policy developments. Traffic congestion in the capital-city region have led to vivid controversies about transport policy goals both in Copenhagen and in the region. A combination of car-oriented and traffic mitigation policy measures has been suggested with the support of pro-car interest groups as well as politicians from across levels of government, including social democrats in Copenhagen. At national level, there is some growing concern regarding the status of the Copenhagen model: is it a showcase for promoting the Danish way of life or an exception that should remain confined to the centre of the capital-city? To what extent, how and through what levels of investments should the state support and fund transport policy initiatives in Copenhagen, as they sometimes compete with the capital city-region's role as the national powerhouse? In this respect, the report confirms strong convergence dynamics with recent transport policy developments in other cities in CREATE.

¹ For a discussion of the Transport Policy Development Cycle approach, see the CREATE D2.1 and D4.1 reports.

² See CREATE D3.2 Copenhagen report.

2 Introduction to the Copenhagen case study

Much has been written on transport policy developments in Copenhagen and to this day, this city is considered the 'gold standard' of the liveable city. It has gained a worldwide reputation as the "Bicycle city", and has been the recipient of a number of awards and labels such as the C40 Climate Leadership (2013) and the European Green Capital (2014) Awards. It has become a source of inspiration for other cities wishing to emulate this ambitious sustainable urban transport agenda and to "Copenhagenize" their cities by implementing a large-scale "place-making" and "planning for people" approach. Nevertheless, Copenhagen also constitutes an outlying case within the CREATE project when considering other dimensions of transport policy developments: the public transport supply was less developed until the recent period, few formal mechanisms of institutional cooperation have been introduced between the city and its hinterland, and the strong and enduring disconnect between the city and the region when considering transport policy developments and outputs over time has regularly been highlighted in the literature (Naess et al., 2009).

Such levels of differentiation have often justified examining separately the changes taking place in the city of Copenhagen and in its hinterland. Moreover, Copenhagen's fame as the "Bicycle city" often justified the preference for monographs or most-similar comparative studies, with Amsterdam for example. Yet the work done in CREATE offers an opportunity to examine possible convergence patterns with transport policy developments underway in other Stage 3 cities. By contrast, **this report examines the shift away from car-oriented policies in both the city and the region.**

Taking a long-term view on transport policy developments in Copenhagen and the wider metropolitan area, **the report's main objective is both contextual and explanatory at the same time.** More precisely, it contributes to the understanding of historical transport policy developments in Copenhagen in three different ways. First, it offers a detailed overview of major developments in transport over time by looking at the evolution of policy objectives, tools and resources. Second it provides some explanation for such policy changes by examining various drivers – or combination of drivers – that might have exerted an influence on the process as well as accelerated or strengthened it. Third, it suggests going beyond cultural explanations in order to make sense of dynamics of change as well as to consider all forms of mobility, not just cycling³, in order to account for transport policy developments in Copenhagen and the wider region.

Area selection and data availability

The area under study in WP4 is the city of Copenhagen and its Greater urban area. It differs slightly from the choices made in WP3 in so far as no distinction is made, within the city, between the "inner city" and the "outer city". Unlike the choice made in the Paris Ile-de-France case, it has proven more difficult to account for changes taking place at regional level. The region's intermittent existence as an administrative unit⁴ and the lack of continuity in regional transport policies doesn't allow consistency in including this level of government into the analysis throughout the time period under study in CREATE. As suggested by the existing literature on sustainable mobility in Copenhagen (Naess et al, 2009), **we expected some profound differences between the Copenhagen region and the city in terms of the scope and rhythm of policy change, and forms of governance.** Moreover, we expected central-local relations to exert a critical role in shaping forms of cooperation between the capital-city, adjacent municipalities and regional authorities.

Nevertheless, when possible, we took into account transport developments outside the city of Copenhagen as well as all actors involved in the design and daily operation of transport in Copenhagen. This had some implications regarding data availability. Due to high degrees of institutional and political fragmentation, and in the absence of an integrated transport authority, each level of government and transport provider produced its own data management capacity. Moreover, joint policy initiatives and measures remain very rare. As a result, considering policy developments in the city and the greater Copenhagen area raises issues of data collection and method.

³ The study visit to Copenhagen with Sciences Po masters students in November 2014 proved particularly helpful as a first insight into the management of ecological transition processes across policy domains, including transport and mobility. An overview of the main findings are available on the Urban School's website, in the study trip report: http://www.sciencespo.fr/ecole-urbaine/sites/sciencespo.fr/ecole-urbaine/files/voyage_stu_copenhague.pdf. In addition, the critical work done by Naess et al (2009) proved particularly inspiring together with the thorough reading and discussion we did of that work together with Sciences Po masters students during the 2016 Fall semester.

⁴ The Capital Region (*Hovedstadsregionen*) was an administrative area consisting of the following local authorities: two municipalities (Copenhagen, Frederiksberg), three counties (Copenhagen, Frederiksborg and Roskilde). It was abolished in 2007 and replaced by the Capital Region of Denmark (*Region Hovedstaden*), which covers a slightly different area. The Capital Region is, however, still in use in the transport policy domain and responsible for local public traffic, as well as the planning and maintenance of roads and railways. This is addressed further on in the report.

Sources

In addition to the social sciences literature devoted to developments underway in Copenhagen since the early 1990s, the report benefited from the input provided by the Municipality of Copenhagen to WP4, including the WP4 Copenhagen city questionnaire (Hansen et al., 2016) and research support for accessing statistical data, public reports, archives and press archives. The report also benefited from the work done as part of WP3 (D3.2 Copenhagen report), presentations made during WP3 and WP6 workshops⁵ and study visits organized in Copenhagen.

As part of WP4, a number of interviews were conducted with a large variety of stakeholders. A group interview was organized together with CREATE partners in Copenhagen in February 2016⁶. This was completed by a series of face-to-face and telephone interviews organized by the Sciences Po, CEE team⁷.

Data collection was systematized as part of the completion of the WP4 database. This was achieved by the Sciences Po, CEE team (Alessandra Carollo, Charlotte Halpern, Simon Persico)⁸.

Report outline

This report is organized in two sections. It starts by providing a dynamic overview of demographic, socio-economic and institutional changes in the Copenhagen region. This also includes changes in transport organization. The following section explore the relationship between changes in context and transport policy developments. Four main phases are identified with some significant change in the type of policy goals, measures and projects that have been introduced in the capital-city region, including current challenges.

⁵ See the D3.2 Copenhagen report (Kayser et al., 2016). See also contributions to CREATE meetings, including the WP3 workshop (Sciences Po, Paris, 8-9 March 2017), CREATE consortium meetings and the WP6 scenario-building workshop (UCL, London, 21-22 February 2018).

⁶ This group interview was organized together with the Municipality of Copenhagen with some 10 participants. It took place in February 2016 in Copenhagen. See D4.1 WP4 report. We are thankful for the support provided by CREATE partners in Copenhagen.

⁷ Respectively in February 2016 and October 2016. See D4.1 WP4 report.

⁸ This case study has also benefited from the work done outside the CREATE project by the Sciences Po team. Charlotte Halpern organized a one-week study visit to Copenhagen with Sciences Po master students between November 11-14, 2014. The material gathered on this occasion proved particularly helpful as a first insight into forms of urban governance and policy-making in Copenhagen and its region. Our group met with leading representatives from the political, administrative and academic spheres. The study trip's report is available: https://www.sciencespo.fr/ecole-urbaine/sites/sciencespo.fr/ecole-urbaine/files/voyage_stu_copenhague.pdf

3 Major drivers of transport policy change in Copenhagen.

Copenhagen plays a unique role in the capital city region and Denmark. It clearly dominates the Danish urban system and holds some specific features that are closely related to its role as the country's political, economic and administrative centre. Within the region itself, there are some profound differences between the city of Copenhagen and its suburbs in terms of demographic and socio-economic dynamics, land use and urbanization patterns, as well as lifestyles and behaviours. This has an impact on mobility patterns and individual preferences, especially in a context of high institutional fragmentation and a low degree of institutionalized forms of horizontal and vertical cooperation between levels of government.

The aim, in this section, is to examine those factors that could have potentially shaped transport policy developments in the capital-city region. Drawing on the framework of analysis introduced in D4.1 and in complement to the CREATE D3.2 Copenhagen report, demographic, socioeconomic, political and administrative factors are examined successively.

3.1 The emergence of strong socio-spatial differentiation mechanisms

The assumption that cultural and lifestyle factors underlie change in travel behaviour takes a particular significance in discourses and studies about Copenhagen. In this section, we chose to focus on those drivers for policy change often highlighted in the literature on urban governance⁹. In doing so, we propose examining the extent to which demographic, urbanization and socioeconomic trends, politico-institutional arrangements, and the organization of transport have shaped policy changes over time. This also should help generate alternative explanations for understanding the relationship between lifestyles, transport demand and policy change which lies at the core of the transport policy evolution cycle approach.

3.1.1 Demographic and urbanization trends

The city of Copenhagen is the capital city of Denmark. In comparison to other cities in CREATE, it is a relatively small city, with some 580 000 inhabitants in the city itself and 1,8 million in the Greater urban area in 2015 (see Table 1). For historical reasons, the City of Frederiksberg retained its autonomy and never was amalgamated to the city of Copenhagen (see map 1b). The two municipalities are often referred to as "the two central cities", but in this report and unless otherwise mentioned, the term "city of Copenhagen" is used as a term embracing both municipalities.

The Copenhagen Greater area covers approximately some 9000 km² and 43 municipalities (see Map 1a). In this report, the two following areas will be referred to in the following terms:

- The metropolitan area, which includes the suburbs closest to the city's borders, and consists of 16 municipalities with high levels of density and high percentages of daily commuters to and from Copenhagen.
- The greater Copenhagen region, which includes suburbs located further outside the city borders. It includes 43 municipalities with some daily commuting.

Since the opening of the Øresund bridge, statistics about transport demand often include some reference to the city of Malmö and its surrounding area, as well as to the Øresund region (see Table 1a & Map 1).

Table 1a. Key figures about the Copenhagen region as of 2017 (source: Statistics Denmark)

	Population
City of Copenhagen + Frederiksberg	690 000 (of which 100 000 in Frederiksberg)
Copenhagen Metropolitan area	1,3 million
Capital Region of Denmark	1,99 million
City of Malmö	270 000
Greater Malmö region	600 000
Øresund Region (Copenhagen + Malmö)	3,8 million (of which 2,5 in Denmark)

⁹ See D4.1 report

Map 1a. Copenhagen Greater area



Source: Ministry of the Environment, 2015

Map 1b. The ten Copenhagen districts surrounding Frederiksberg.



Source: Wikipedia commons©

Demographic trends

Patterns of demographic growth over the past four decades show some differences when considering successively these three areas.

The **city of Copenhagen** is an old European city and a fully developed urban area, with little green recreational areas. Its population peaked in 1950 and declined in the 1970s and 1980s. It has been growing again since the 1990s, amounting to some 0.7 million inhabitants in 2014¹⁰ which corresponds to some 12 per cent of the total Danish population (5,7 million inhabitants).

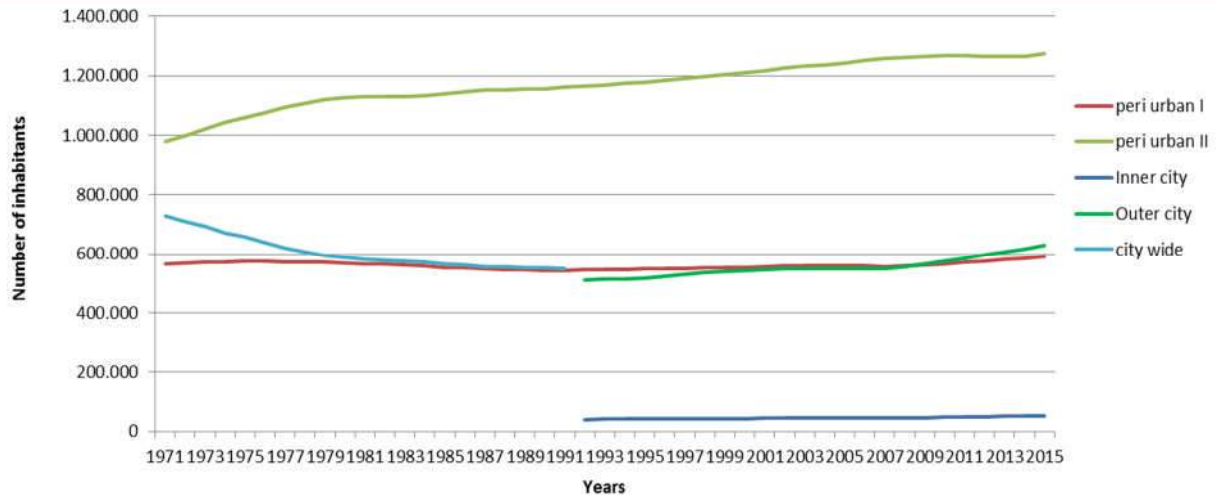
By contrast to the situation observed in the city, population has increased rapidly in the rest of the region throughout the entire period considered in WP4. Growth was achieved by developing agricultural land and municipal authorities played a pivotal role in this process¹¹. In **the metropolitan area (inner suburbs)**, population growth was particularly strong before the 1970s. Since then, it has shown similar patterns to those observed in the city of Copenhagen: a decline between 1976 and 1990, and renewed growth ever since. The largest share of manual workers that left the city of Copenhagen since the 1990s have settled in the western inner suburbs, which holds the largest share of subsidized social housing. It now amounts to some 0,6 million inhabitants and shows some signs of stabilization, mainly due to the reduction of new ownership housing.

¹⁰ These numbers include Frederiksberg Municipality with approx. 100,000 inhabitants.

¹¹ This is still the case today, with over 80 per cent of all new urban areas having been established on former agricultural land since 2000 (Fertner et al., 2012).

In the rest of the region (outer suburbs), continued growth was observed since the 1970s onwards, up to some 1.27 million in 2014. Up until the 1990s, this “spreading approach” (Valdemarra Pineda and Vogel, 2014) was fuelled by the increasing wealth of the population, much of which was spent on one family houses and private cars (Illiris, 2004, p.408). During this period, the average distance between new housing and the city centre reached some 23 km (Næss et al., 2009). This justified urban and infrastructural developments in the suburbs.

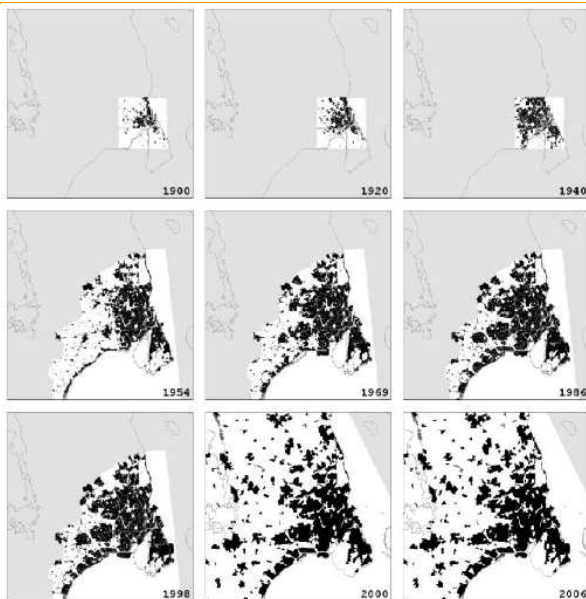
Graph 1a. Total number of inhabitants per area types (1971-2015)



NB: No data available for segregation of inhabitants in Inner and Outer City before 1992.

Sources: COWI, based on (Statistics Denmark, 2016a) and (City of Copenhagen, 2016a). Retrieved from D3.2 Copenhagen report, p.17.

Map 2. The urban morphology of Copenhagen (1900-2006)



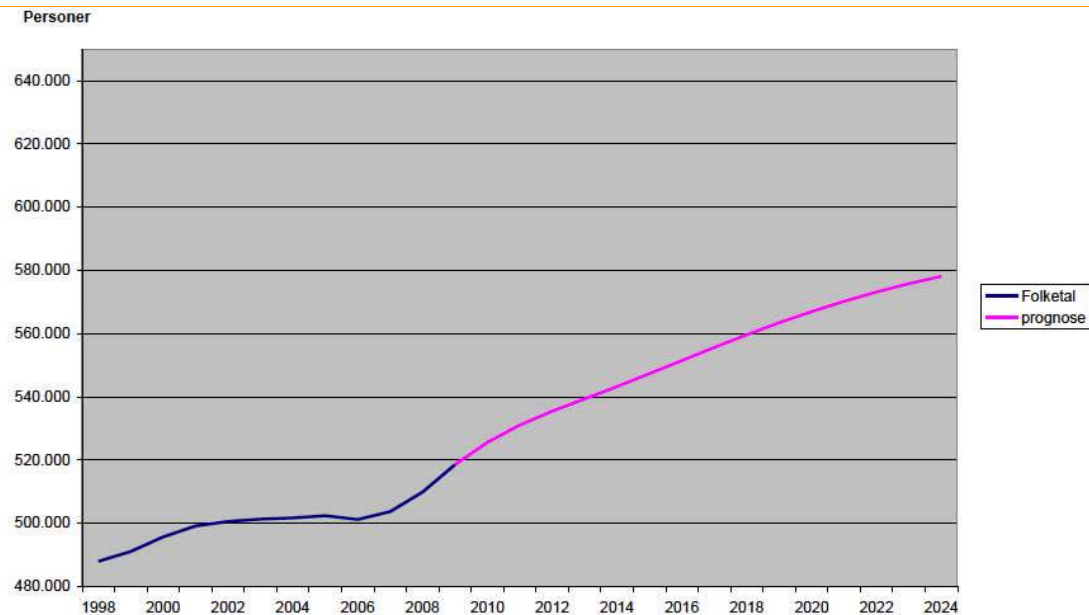
Source: Retrieved from Fertner (2012); Andersen (2014).

Notwithstanding the socio-economic impact of the 2008 crisis, which severely affected Denmark and Copenhagen more specifically, the city's population is growing again and estimates to 2030 have confirmed this trend¹² (see Graphs 1b & c). It plans for some additional 50.000 inhabitants by 2020 and some 45.000 new apartments by 2024. The city's population is expected to reach some 0,75 million residents by 2040. The growing demand for new housing, commercial space and recreational areas is primarily addressed by developing brownfields (Carlsberg, Valby), former harbour areas ("Sydhavnen" and "Nordhavnen"), and a recreational area in the south (Ørestaden). This growth is

¹² A detailed analysis is provided in D3.2 Copenhagen report (p.20-27), including educational level of inhabitants, employment status, number of jobs and workplaces, GDP and income per capita.

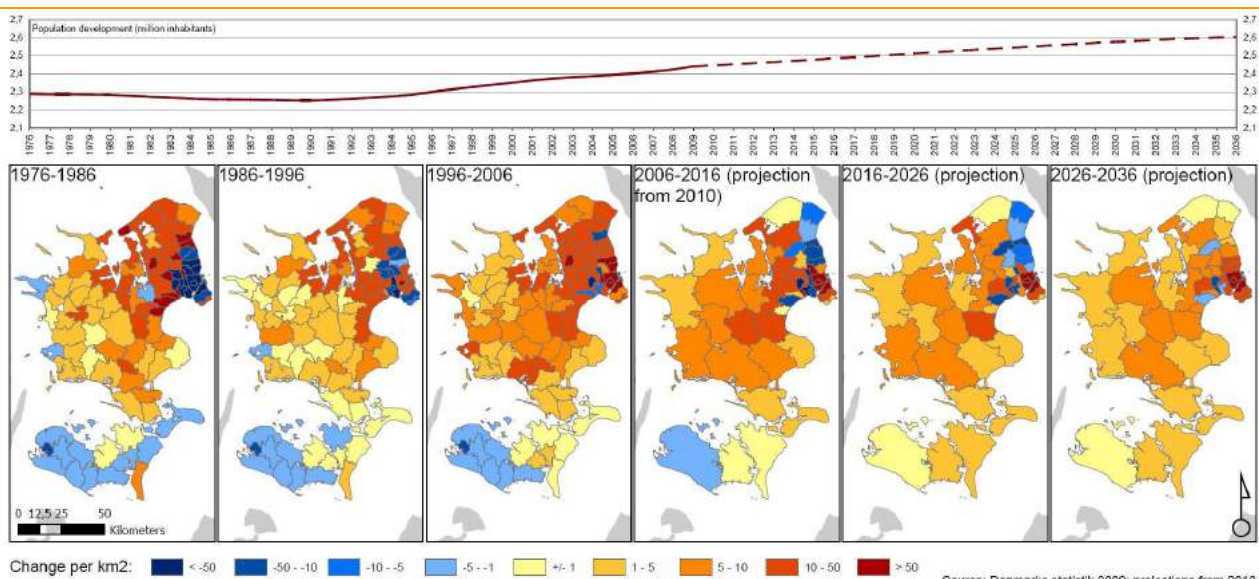
expected to benefit to the rest of the region, with an increase of 300.000 inhabitants and an additional 5000 ha of urban area (Fertner et al. 2012) over the next 30 years. Nowadays, demographic growth in outer suburbs continues almost exclusively in the counties of Roskilde and Frederiksborg.

Graph 1b. Population and population forecast for the city of Copenhagen, 1998-2024.



Source: Statistics Denmark, Presentation at CREATE WP3 Workshop, Paris, March 2017.

Graph 1c. Population and population forecast for the Copenhagen region by 2036: total (graph) and per km² at on municipal level (maps).



Source: Denmark statistics 2009, projections from 2010, The Economist.

All in all, urbanization dynamics in the Copenhagen region account for low levels of density in residential areas when compared to other large European cities¹³.

¹³ This is coherent with findings from WP3, see D3.2 Copenhagen report.

3.1.2 The spatial distribution of socioeconomic groups in the region

Demographic changes fuelled in some profound changes in the distribution of socioeconomic groups across the Copenhagen region¹⁴. In a context in which local authorities had the power to substantially influence the housing market – types of dwellings, whether or not to promote subsidized social housing – a large share of municipalities located in the inner and outer suburbs developed their own strategies in order to attract higher income groups.

Until the early 1990s, **Copenhagen was considered a poor city with a decreasing population** that is, a 40 per cent decrease between 1954 and 1992 (see Graph 1). It hosted a majority of low-income inhabitants in modest housing. Port activities were gradually dismantled, employment decreased sharply, and contributed over time to accelerating the impoverishment of working class areas. There was little interest among private investors and economic actors in renewing a declining city centre. Most of the major companies that had contributed to the city's heyday were reducing their activities in Copenhagen or relocating elsewhere (e.g., Carlsberg, A.P. Møller, etc.). The city of Copenhagen was not able to mobilize sufficient resources in order to influence policy developments outside its borders and to prevent the departure of its residents. Together, this contributed to the extension of the Copenhagen urban agglomeration (Andersen and Jörgensen, 1995; Andersen 1998). Wealthier social groups and young parents left their town apartments in order to build a single-family house further out in neighbouring towns or agricultural land. In those areas, rapidly developing road infrastructure allowed for daily commuting by car to and from the city. In these areas, the share of independent proprietors is overrepresented (Illiris 2004). By contrast, lower-income groups, including working classes, elderly people and students remained in the city, and were later joined by ethnic minorities and migrants.

Since the 1990s, and more decidedly during the 2000s, **a reverse phenomenon took place**. Similar to the situation observed in a number of other EU cities, urban life was considered fashionable again. In the case of Copenhagen, this change manifests itself through a continued increase in the number of students, young professionals and higher income groups. Apart from the southern and western inner-city area, where manual workers are still overrepresented today, together with unemployed persons and elderly people – retired from manual occupations – a large share of these socioeconomic groups has left the city centre and migrated towards the inner suburbs (see below).

These demographic and socioeconomic changes did not, however, emerge spontaneously but also resulted from and have fuelled major differences in terms of policy preferences at both an individual and a collective level. In Copenhagen, urban regeneration programmes since the 1990s onwards have increased the attractiveness of residential and commercial spaces in the city in conjunction with large urban development projects aimed at transforming former industrial and recreational areas. Workplaces are increasingly concentrated in the city of Copenhagen and dwellings have now become more affordable in the outer suburbs. When compared with other municipalities in the region, the city of Copenhagen still actively seeks to maintain an important stock of cheap housing, in addition to the old stock of flats where legislation kept prices low. Nevertheless, their share has been reduced since the 1990s as a result, on the one hand, of urban renewal policies, and on the other hand, of possibilities of converting rented flats to occupied ownership. Over time, so-called “Gentrification policies” have led, in close relationship with the development of the metro system, to regenerating the built environment by enlarging the size of dwellings, transforming courtyards into gardens and recreational areas and increasing the number of public spaces (Interview Metro, February 2016). In this context, the city of Copenhagen's inner-city area became one of the most expensive places to live in Denmark (Andersen, Winther, 2010)¹⁵.

By contrast, municipal authorities outside Copenhagen have developed aggressive attractiveness policies across policy domains (e.g., housing, green areas, transport and mobility, etc.) in order to compete with the city of Copenhagen's renewed attractiveness and claim to have become “the best place to live”.

3.1.3 Persistent differences in political behaviours and policy preferences across the region

Together, demographic and socioeconomic differences within the region still shape political behaviours and municipal strategies across a number of policy areas, including transport. These differences are strongly related to municipal strategies in terms of urban planning and housing.

¹⁴ Changes in age groups are examined in D3.2 Copenhagen report.

¹⁵ See also Interview with Hans Thor Andersen, Copenhagen, February 2016 and the presentation given as part of the study trip of Sciences Po master students to Copenhagen (November 14, 2014): “A brief introduction to Copenhagen: recent developments and governance structures”.

Socio-spatial and urbanization dynamics are reflected in political discourses, which refer to the city's uniqueness in order to criticize its insularity or praise its advantages. They account for the city of Copenhagen being a "red city" in which **the Social Democratic Party has enjoyed a comfortable majority for seven decades**. The recurring politicization of housing and transport often shows a clear distinction between the city and the rest and the region, and to a lesser extent, to right and left leaning governments. Housing and transport are particularly representative of such political and spatial divisions. At regional level, demographic and socioeconomic trends have contributed to a political dichotomy between, on the one hand, right leaning local governments in the region, and mainly to the north, with little cheap housing and a preference for car use, and on the other hand, left leaning local governments, in the city of Copenhagen and the western suburbs, where a larger stock of cheap and/or subsidized housing is actively maintained and with a preference for non-motorized mobility.

These political and spatial divisions also created **strong support for the emergence of an ambitious urban transport agenda** in the city centre in combination with aggressive communication strategies, whereas a pro-car approach is maintained – either directly or indirectly – beyond the city's borders. In addition to dealing with the situation inherited from the past, i.e., a low offer in public transport until the construction of the metro, local authorities in Copenhagen have supported the development of alternatives to car traffic, through pedestrianisation initiatives, low-speed measures and the reduction of car-space. This, in turn, has contributed to an exacerbation of its singular position within a car-centred region. Indeed, in the rest of the urban agglomeration, car use is still considered a dominant transport mode and other municipalities have been more reluctant to introduce ambitious sustainable mobility policies. Lower levels of density partly account for such choices, but in a majority of cases, this is first and foremost due to municipalities' aggressive urban development strategies in order to attract investments and commercial developments to the suburbs.

These differences are also reflected in commuting patterns to and from the City centre (see Graph 2b). They reflect above-mentioned political and spatial divisions, and confirm the close interrelationship between the location of housing, jobs and the transport offer within the regional context. The concentration of employment in Copenhagen and a form of development conducive to urban sprawl have both considerably increased transport demand within the metropolitan area. Different policy alternatives are being discussed in order to address the specific issue of daily commuters to and from central Copenhagen. This includes the management of traffic flows, the planning and maintenance of roads and railways, as well as the coordination of public transport provision. Since the opening of the Øresund Bridge, this also concerns daily commuting from Malmö (Knowles, 2006). Part of the regional transport demand in the Greater Copenhagen region is fuelled by demographic and socioeconomic changes taking place in Malmö and its regional area, across the Øresund bridge (see Table 1 above). Real estate prices on the Danish side have contributed to growing integration of this Euroregion's housing and employment markets. As a result, transport demand to and from the city of Copenhagen, including its airport, have consistently increased over the past decade.

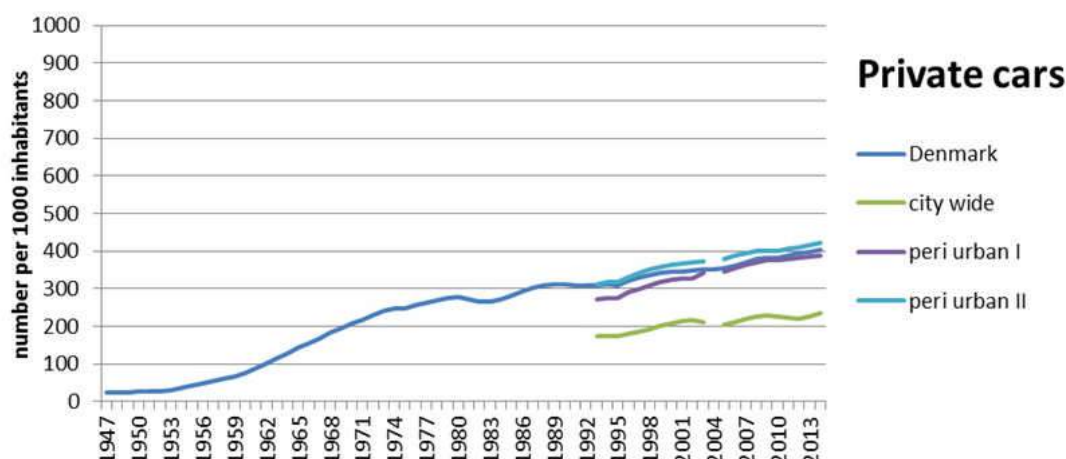
3.1.4 Urbanization dynamics and changes in transport behaviors and preferences

In this context, each mode of transport appears to have its own catchment area (see Graph 2b). This is particularly visible when considering the development of car use – dominant in the inner and outer suburbs – and that of active forms of mobility, such as cycling – dominant in the city centre. The city of Copenhagen was characterized throughout this time period by low level of car ownership – some two-thirds of the families do not have a car (see Graph 2a) – and for a majority of residents relying upon alternative forms of mobility, including bicycle, for their daily transport needs.

Public transport appears to be playing a secondary role throughout the region and remains unevenly developed¹⁶. In addition, it is also characterized by strong levels of segmentation with each network being closely related to its own catchment areas: the Metro in the city centre, buses in the inner suburban area and the S-tog mainly serving areas located further outside the city and alongside major corridors. Altogether, and when compared to other Stage 3 cities in CREATE, the use of public transport remains quite low. As a consequence, the region as a whole could be defined as *"a more transport-demanding and car-dependent urban structure"* (Næss et al., 2009).

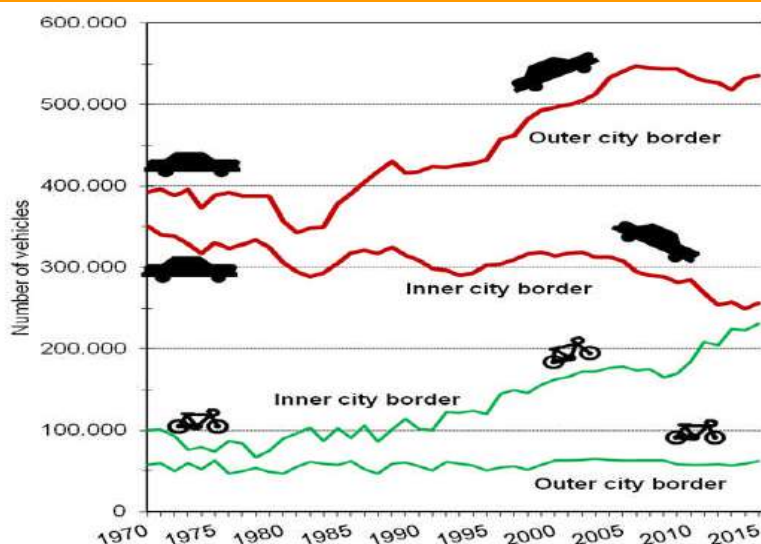
¹⁶ The percentage of public transport in Copenhagen remained low until the mid 2000s and the opening of the metro network.

Graph 2a. Development of the fleet of private cars, Denmark and Copenhagen compared (numbers per 1000 inhabitants).



Sources: COWI based on Vejdirektoratet, 2016 and Statistic Denmark 2016, extracted from D3.2 Copenhagen report, p.58.

Graph 2b. Average cross sectional road traffic volume (all motor vehicles) per workday between 07 and 18 hours. [Number of vehicles]



Source: City of Copenhagen, 2016

Yet, the work achieved as part of CREATE also suggests that **the situation is not as clear-cut as suggested** in political discourses and studies focusing on the city only: pro-car policies and car use have not been completely abandoned in Copenhagen, and similarly, sustainable mobility policies are being strengthened beyond the city's limits. Transport demand in the region is now addressed through a more integrated approach to mobility, which takes into account new urbanization trends in the suburbs. Due to real estate prices, a growing number of families with children have left the centre of the city of Copenhagen and brought a new way of thinking into the suburban cities, including a different approach to mobility and a strong interest in alternatives to car use. Similarly, the arrival of wealthier socio-economic groups in Copenhagen gave way to a rising demand for greater freedom of choice between transport modes, including car ownership and use. Recent controversies regarding urban access restriction and the development of the Nordhavn tunnel have confirmed the persistence of deeply rooted differences in terms of individual preferences for mobility as well as highlighting current changes resulting from the spatial redistribution of socio-economic groups within the region¹⁷. This will be further explored in the analysis of transport policy developments over time (see section 4).

¹⁷ Discussions during the CREATE workshop echoed such concerns for the long-term outcome of a rapidly changing socioeconomic environment in terms of transport and mobility demand. Some participants stuck to the classic dichotomy between the city and the region, but others highlighted an increased blurring of frontiers as well as persistent differences related to gender, education and income.

Over time, these urbanization dynamics have created **new needs for policy coordination and institutional cooperation between levels of government**, both horizontally (within the region) and vertically. Indeed, much of the current situation results from interinstitutional relations, and from the state's ambiguous approach to the role and function that its capital city should exert within the national economic development strategy.

3.2 The role of political, institutional and administrative factors

Transport policy developments are shaped by evolving central-local dynamics, and the ambiguous function attributed to the capital-city in national policies. In this section, we argue that **the state primarily relied on a “divide and rule” principle** in order to maintain its strong hold on major policy choices – a situation which is comparable in a number of ways with that of the Ile-de-France region¹⁸. Its ambiguous relationship to the capital-city's role as the national powerhouse is reflected in incessant revisions of its strategy, through administrative reforms, spatial planning or large infrastructure projects. This section also accounts for **the Capital region remaining a weak institutional actor** and the way by which for **the city of Copenhagen progressively strengthened its political capacities**. A list of major legislative and policy documents relevant to the analysis done in WP4 is provided below (Table 1b).

Table 1b. List of the main legislative and policy documents relevant to the analysis done in WP4.

1947 Finger Plan
1965 Copenhagen urban development plan
1970 Reform on decentralized governance
1974 Greater Copenhagen Council
1989 Regional Plan for Copenhagen Metropolitan Area
1990 Greater Copenhagen Council is abolished
1989 Copenhagen Municipal Plan
1989 Regional Spatial Development Plan
1992 Øresund Parliament Act
1993 Copenhagen Municipal Plan
1995 Copenhagen Transport Act
1997 Copenhagen Municipal Plan
1997 Traffic and Environmental plan
1999 Act of Parliament on Hovedstatens Udviklingsråd (HUR)
2001 Copenhagen Municipal Plan
2005 Regional plan for Copenhagen Metropolitan Area
2005 Copenhagen Municipal Plan
2007 Structural reform, suppression of HUR and creation of the Capital Region of Denmark
2007 National Spatial Plan – Finger Plan
2007 The eco-metropolis: our vision for Copenhagen 2015
2009 Copenhagen Municipal Plan
2009 Danish Transport strategy
2011 Copenhagen Municipal Plan
2014 Regional Development and Growth Strategy + 2015 Action plan
2015 Copenhagen Municipal Plan
2016 Parliament Act on the Ring 3 line

3.2.1 The Finger Plan, a cornerstone policy document with ambiguous outcomes

Spatial planning in the capital-city region is closely related to institutional competition between levels of governments and to the ambiguous legacy of the Finger Plan for Greater Copenhagen (*Fingerplanen*) or so-called Finger Plan. It was introduced in the post WWII context under the leadership of the central government. **Its aim was twofold.** First it was meant as an urban development programme, in order to prepare for a one million inhabitant metropolis. As such, it primarily drew on spatial planning tools as a way to structure and contain urban growth. Second, it also aimed at structuring spatial planning objectives in the region in combination with the creation of a metropolitan spatial planning authority. Until the late 2000s, Denmark was divided in some 270 municipalities and 14 counties with directly elected councils and collected taxes. Municipalities and counties were both required to prepare spatial plans. As such, they were considered major stakeholders in any attempts by central government to develop a national spatial planning strategy for the capital city region.

The Finger Plan was initially conceived as **a major opportunity to foster increased inter-municipal and state-local cooperation**. It did not stem from central government alone. Thematic working groups were established in cooperation with municipalities and counties in order to develop policy solutions and tools for the development of the capital region. Regrouped as part of the short-lived Regional planning office, three counties, 22 municipalities and some

¹⁸ See D4.2 report on Paris Ile de France

additional stakeholders gathered on a voluntary basis and developed the 1947 Finger Plan with the financial support of the largest municipalities and central government (Danish Ministry of the Environment, 2015). In addition to its organizational dimension, the Finger Plan laid out some key principles that have, ever since, dominated spatial and urban development in the capital-city region: to concentrate urban development alongside major railway axes (fingers of a hand) that stretched out from the city of Copenhagen (palm) toward suburban areas¹⁹.

The Finger Plan's legacy has been the object of many discussions among planners and transport experts (see Fertner 2012). On the one hand, the principles that were discussed as part of its elaboration have exerted **a massive, long-term impact** on policy discourses, representations and objectives about growth in the capital-city region. It remains as such a major reference in all subsequent planning documents (laws, directives, plans etc.) and still very much shapes current visions about urban and regional development, as well as policy preferences in a number of areas, including transport planning. But on the other hand, its impact on urbanization was limited and **it did not succeed in fostering institutionalized forms of cooperation** in the region. This is primarily explained due to its legal status – a report only, and no legally binding measures. This is also explained due to the inability to create a joint metropolitan planning authority. The regional planning office was abolished in 1950 and, in 1958, the state created the Regional planning secretariat, with the aim of adapting the Finger Plan in order to promote a multi-polar development approach. In the absence of a common vision, either at national nor at local levels, of the role and function to be attributed to the city of Copenhagen and to these emerging poles, subsequent planning documents - Principle draft for a regional plan (1960), First-step regional plan (1963) – opened large room for manoeuvre for inter-institutional competition.

Over time, the city of Copenhagen's role and function became less and less clear in the regional context, and it was unable, due to the numerous challenges it faced, to attract national investments until the early 1990s. This also due to the fact that the regional authority has remained a weak level of government.

3.2.2 The capital-city region: a weak level of government.

The formal recognition of the Copenhagen capital-city region and its status in the Danish administrative system has been a hotly debated topic since the early 1970s. This is due to continued tensions between centralization versus decentralization logics at national level and to the resistance from the large majority of municipal authorities to relinquish some of their powers and autonomy for the benefit of a metropolitan or regional authority. Over the past four decades, two-tier and three-tier administrative systems were introduced alternatively in a metropolitan area that was already long existing from a functional – if not an institutional – point of view. Such frequent changes account for the low degree of formal forms of cooperation between stakeholders at regional level.

A succession of temporary organizations

In view of the growing competition between municipalities, the municipalities of Copenhagen and Frederiksberg, in cooperation with the counties of Copenhagen, Frederiksberg and Roskilde, established the **Regional Planning Council** in 1967. This council was formally acknowledged by the state as part of the 1970 reform on decentralized governance, which did not take into account the specificity of the capital-city region.

The council was granted additional powers and renamed the **Greater Copenhagen Council** in 1974. This *de facto* 4th level of government relied upon indirectly elected representatives. In spite of internal dissensions and of the resistances from both municipalities and the central government to recognize its authority, these regional bodies were instrumental in fostering the development of joint initiatives at the regional scale and promoting an integrated approach to regional growth that drew on both spatial planning and transport planning objectives. It was, however, dismantled in 1989 (see below) as part of the Government's attempts to simplify decision-making procedures and reduce the number of local civil officers.

The creation of the **Greater Copenhagen Authority (HUR)** in 2001 is considered another milestone in the development of joint spatial planning strategy and policies at regional level, especially in the field of transport where it was instrumental in achieving higher levels of coordination in transport. Together with the municipalities of Copenhagen and Frederiksberg, 9 other counties developed joint initiatives in the field of transport planning, regional cooperation and economic development. In the field of transport, this also allowed the joint exertion of responsibility over public transport companies.

¹⁹ This is further developed in Section 4.1

HUR was eventually abolished in 2007 as part of the 2007 national administrative reform and replaced by the **Capital Region of Denmark (*Region Hovedstaden*)**, which covers a slightly different area. Most of the Greater Copenhagen area is now located in the "Capital Region of Denmark", whereas the outer part of peri-urban area II is located in "Region Zealand". Similar to the 4 other administrative regions that were created on this occasion, the Capital Region acts as a functional level of government and enjoys limited responsibilities in health, including hospitals, environmental protection, research and regional development. The Capital Region of Denmark only plays a limited role in transport and economic development as part of its competences in regional development. In its latest regional spatial development plan (2012-2016), transport policy goals focus primarily on large infrastructures that ensure direct connections with Malmö (Sweden) through the Øresund Bridge, Hamburg (Germany) through the Fehmarn fixed-link and other international and European connections through the airport. Some policy goals for mobility within the region were also introduced, such as the development of the public transport offer on the one hand, and the development of electric automobility on the other hand.

The 2007 national administrative reform in the context of the capital-city region

The 2007 reform is considered a major turning point in central-local relationships and a major step back in this process of strengthening the regional level. Both the central and the municipal levels now enjoy strategic powers and resources across a number of policy areas, including the competences formerly held by HUR in spatial planning.

The reform's main rationale was to ensure increased efficiency in the management of health policies and to drastically reduce the number of municipalities down to 98. In effect, it led to the weakening of formal mechanisms of regional coordination, allowed the state to intervene again in regional developments through its spatial planning agency, and favoured local responsibilities, by transferring more power to municipalities at the reform implementation phase. As stated in the 2009 OECD territorial review, the OECD observed, after this reform, that "*regions do not have many instruments to stimulate municipalities to co-operate in implementing one vision for the region*" (OECD, 2009).

Regional coordination was weakened whereas municipal authorities gained considerable planning and fiscal autonomy. Municipalities – including the city of Copenhagen – account for over 60 per cent of government spending (OECD, 2009). They enjoy the privileges of local self-government, having the obligation of collecting municipal taxes²⁰. In addition, they receive an annual block grant from the national government, which is negotiated annually by Local Government Denmark (the national federation of municipalities) and the national ministry of Finance. Since the 2007 reform, municipalities have also gained additional responsibilities in setting the agenda for regional development and growth, as well as for environmental sustainability. Municipal powers in spatial planning are now shared with the central state, namely the Danish ministry of Environment, as part of two-tier planning system.

3.2.3 What role for the capital-city region in the national context? The role of the State

The state's strategy in the capital city-region has not been continuous over the time span considered in this report. Since the adoption of the Finger Plan in 1947, it produced a number of transport and regional spatial planning policy documents. Their main goal was to ensure coherence between spatial planning objectives across municipal borders (e.g. urban development) and with national policy goals across sectors, including transport in terms of planning, capacity investments and policy resources. As a result, it is assumed that **the national state maintains a strong hold on transport policy developments** in the capital-city region through a number of policy tools and resources. This is further developed in this section by looking successively at administrative reforms, spatial planning and transport policy goals.

Maximising national economic growth by promoting municipalities over regions

Since the early 2000s and even more so following the 2008 crisis, the main concern has been to promote a more balanced economic development strategy nationwide by limiting urban sprawl and population growth in the capital-city region. The 2007 National Spatial Plan reflects this concern by stating that "*All regions should contribute to maximizing national economic growth*". National priorities and investments were redefined according these policy objectives. Political debates about the administrative organization of the capital-city region, the national spatial planning

²⁰ See also Section 3.2

strategy and the national transport strategy also reflected the growing concern of rural areas and other regions in Denmark for a more balanced approach to spatial development²¹.

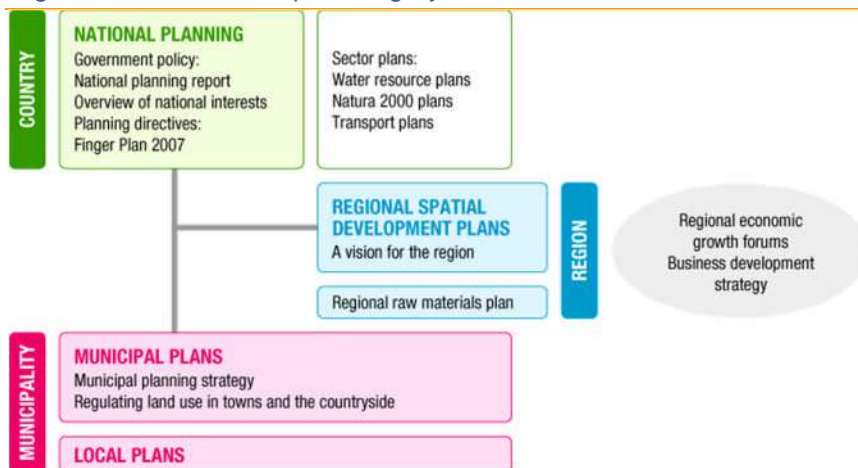
The National Urban Agenda, published during the same period, seeks to strengthen a number of cities and to counterbalance the dominant role played by Copenhagen and the capital-city region. Unlike the previous period (1990-2012), during which the city of Copenhagen benefited from unprecedented levels of national investment across policy areas, including transport, the state's support shifted towards the capital-city region – with the exception of the city of Copenhagen – and to other regions or cities in Denmark. It also sought to shape the slow process of urbanization taking place in the region and resulting in low-density settlements and a growing mismatch between the location of housing and workplaces²². In transport, this raised increased issues in terms of commuting and traffic congestion.

In this context, the 2007 administrative reform can also be understood **as an attempt to strengthen national policy capacities and resources**.

Before 2007, and in a context of a three-tiers administrative system, three levels of spatial planning co-existed. National planning strategies were formulated by central government, regional plans were drawn up by regional planning authorities (10 counties, Greater Copenhagen authority, and the regional municipal council of Bornholm), and each municipality prepared a local development plan (*Lokalplan*) and a municipal plan (*kommuneplan*)²³. Since 2000, these are completed with a mandatory municipal strategy, which should be revised during the first part of every mandate. This ensures increased coordination between planning priorities and political strategies. Each plan was meant not to contradict the planning decisions of upper levels. When a change was brought to plans at the upper levels, all plans at lower levels had to be revised accordingly.

Since the 2007 administrative reform, **a two-tier administrative system was introduced**. Only two levels of spatial planning coexist with the ministry of Environment being designated as the main coordinating organization (see Figure below). This administration was put in charge of establishing the general framework for regional spatial development and municipal plans. It held veto powers in order to ensure that municipal plans were consistent with overall national interests. A new series of tools were introduced in order to ensure coordination between levels of government and the consultation of a large number of stakeholders: national planning reports and directives, consultation processes, etc.

Figure 1. The Danish planning system since 2007



Source: Ministry of the Environment (2007) "Spatial Planning in Denmark"

Revising the Finger Plan under the leadership of the Ministry of Environment: 2007 and 2013

In addition to the changes brought to the Danish planning system, this administration also benefited from an unprecedented momentum to revise the 1947 capital region spatial plan (Finger Plan) according to the state's current

²¹ This will be further explored as part of the analysis of transport policy developments in section 4.

²² For a comprehensive approach to metropolization processes in the Copenhagen region, see Fertner (2012).

²³ Additional planning tools may be used in order to develop more detailed plans: framework, conservation and project detailed plans.

spatial planning strategy and interests. This initiative was meant as an attempt to strengthen cooperation horizontally, both at state (between national administrations, agencies, policies) and regional level.

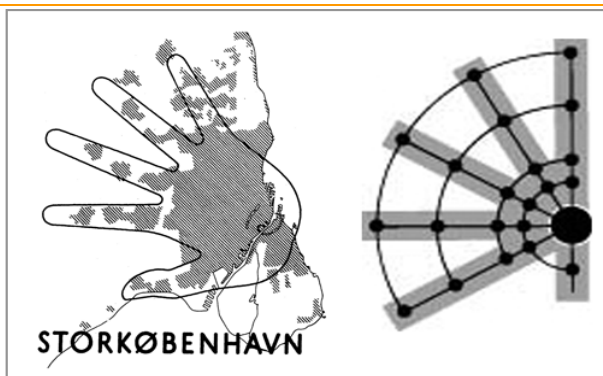
The 2007 spatial development directive (*Fingerplan 2007*) refers specifically to the original plan and reframes into the regional context. The need to adopt a specific spatial development plan for the Copenhagen region was justified accordingly: “Greater Copenhagen is one cohesive residential area and labour market across municipal borders. Therefore, this area has special regulations for planning”²⁴.

To this date, the 2007 Finger Plan remains the major planning guideline for the metropolitan area of Copenhagen (see Figures 2 a & b)²⁵. Unlike its predecessor, this document draws its legitimacy from being formally adopted as part of the 2007 national planning act. The 2007 Finger Plan is therefore considered a legally binding document in all 34 municipalities covered by the plan. It also includes both a procedural and a substantial dimension. This document further specifies the concrete ways through which urban development can be achieved while at the same time aiming at limiting traffic congestion and urban sprawl. It identifies four different types of areas:

- the core urban region (palm), where urban development and regeneration is to take place in existing urban zones in relationship with opportunities for improving public transport services;
- the peripheral urban region (fingers), where new developments and activities can be located taking into account existing and planned infrastructure as well as in relationship with opportunities for improving public transport services;
- green wedges between and across fingers, which should not be used for urban development or recreational activities
- and remaining areas, between urban fingers

It stipulates that future urban developments should be concentrated in the two first types of areas, and within a 600m radius from train stations (station proximity principle).

Figure 2a. Finger Plan 1947

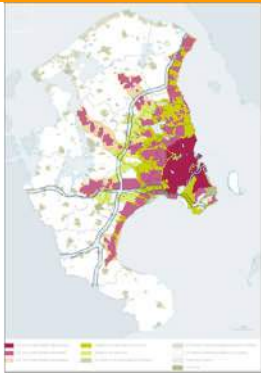


Source: Danish Ministry of Environment, 2012.

²⁴ Danish Nature Agency, <http://eng.naturstyrelsen.dk/planning/planning-in-citiestowns/> (last consulted in December 2017).

²⁵ See also Danish Ministry of the Environment, Nature Agency, 2012, Spatial planning in Denmark: https://danishbusinessauthority.dk/sites/default/files/media/2012_planning_eng_guide.pdf

Figure 2b. Finger Plan 2007

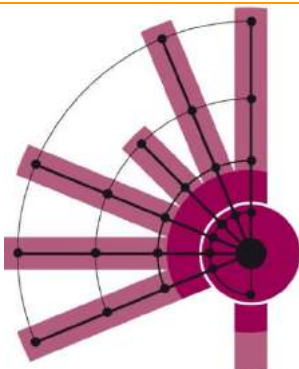


Source: Danish Ministry of Environment, 2012.

This revised planning document also led to **unwanted outcomes, notably in terms of policy coordination**²⁶. This is partly due to the fact that it was introduced concomitantly with the 2007 administrative reform and the dismantling of powers at regional level, which would have ensured effective coordination at implementation stage both between levels of government (vertical coordination) and within levels of government (horizontal coordination). Municipalities took over those responsibilities formally associated with the county level. Regional spatial development plans were given overall strategic, guiding functions but no binding power over municipal plans. Second, municipalities also enjoyed more discretionary powers at implementation stage, including much of the authority for the planning and maintenance of roads, public transport and cycling lanes.

In the absence of strong coordination mechanisms, the 2007 Finger Plan's effectiveness remained limited. This justified launching a new revision process in 2013 as part of a more general debate regarding the Danish spatial planning system. A number of suggestions were made in order to address both the 1947 Finger Plan's long-term unintended effects, the challenges identified at implementation stage since 2007, as well as new challenges. **In transport, the major challenge was to accommodate growing demand for daily commuting to and from the city of Copenhagen**, that is some 170.000 people coming into Copenhagen and some 107.000 passengers travelling out of Copenhagen in the morning peak period. The proposed revision acknowledged the need to develop three types of connections: connections further out in the region, between fingers as well as around the core urban area. Two "fingers" were added to the original Finger Plan in order to adapt to current urbanization patterns (see Figure 2c). Some missing links were identified in the existing S-train network, especially in terms of radial connections between the main rail axes (the fingers in the Finger plan). Moreover, the new plan recognized that additional capacity was needed altogether in the capital-city region, thus feeding into the work done by the Danish Commission on Congestion in 2013²⁷. Several capacity investments were launched in transport as a result of these discussions, including two major public transport infrastructure projects: the city ring in the inner-city area (metro system, expected in 2019) and the Ring 3 in the suburbs (light rail, expected in 2023/2024). Both projects aim at improving the quality of public transport in the region and reducing journey times through more direct routes. Discussions also involved major roads projects, such as the Nordhavn tunnel²⁸.

Figure 2c. Proposed Finger Plan 2013



Source: Danish ministry of Environment, 2013.

²⁶ Interview representative from Denmark capital region, November 2016.

²⁷ See Section 4.4

²⁸ See Section 4.5

The 2013 proposed spatial planning document has not, until this date, been adopted. The reform of the planning system was a hotly debated political topic during the 2015 legislative elections campaign, with the newly elected government transferring responsibility over the revision of the Danish planning Act to the Ministry of Business and Growth, together with its executive state authority, the Danish Business Authority. The main political rationale has been to simplify the overall procedure and further strengthen municipal planning rights, in order to encourage local initiatives and growth²⁹. As stipulated by the Danish Business Authority³⁰: “*The Danish Planning Act allocates the responsibility for planning in Denmark between the Danish Minister for Industry, Business and Financial Affairs, the five regional councils and the 98 municipal councils*”. Nevertheless, **some of the choices and decisions made during the 2013 Finger Plan revision process were maintained**. This was the case in transport, and this is very much explained due to the ability of major stakeholders to frame issues related to transport in the capital-city region as a major dimension of the government's economic growth agenda.

National transport policy objectives: a growing interest for rail-based solutions since the 2000s

Despite continued attempts to further coordinate national policy goals as part of the spatial planning reform, a number of policy domains, such as transport, retain high levels of planning autonomy within the Danish political and administrative system. Indeed, a large share of transport and infrastructure planning is defined under the authority of the Ministry of Transport as part of the national transport strategy. As a result, **coordination between spatial and infrastructure planning remains low and context-dependent** (OECD, 2009). Some tensions are regularly observed during transport policy design and implementation due to competing leadership claims between the ministries of environment and transport. Similarly, influence-seeking strategies are primarily organized in silos and benefit from high levels of political competition within the Danish political system. Joint national policy initiatives are rare. Organizational competition is further exacerbated by political competition between members of the ruling coalition. In the current context, similar tensions are observed with the Ministry of Business and growth, and that of Finances.

National transport policy objectives have thus been adopted following a rationale that may differ from that dominating spatial planning goals. Since 1962, Denmark had been constructing the main axes of national arterial railways and roads as part of the “Big H” strategy in order to increase connexions with Nordic countries and Mainland Europe on the one hand, and between Copenhagen and Mainland Denmark on the other hand (see Map 2³¹). Apart from the Fehmarn Belt Fixed Link with Germany, most of these connexions have been developed up until the former planning period. National capacity investments in national roads and highways to and from Copenhagen and the capital-city region also fit under this broader goal.

Map 2. Putting an end to Denmark's insularity through bridges.



Source: The Economist, 09/08/2007, “Crossing the waters”: <http://www.economist.com/node/9622190>

Similarly to the changes observed in spatial planning and territorial reforms, a shift was observed during the late 2000s in the national transport strategy. The 2009 Danish Transport Strategy confirms a shift away from developing international connections. New policy priorities were identified, with increased attention given to connections within Denmark as well as a growing interest for promoting urban transport across Danish medium-sized cities as well as

²⁹ This was made public in the “Overview of state interest in municipal planning 2017”, published by the Ministry of Business and Growth in 2015.

³⁰ See Danish Business Authority's website: <https://danishbusinessauthority.dk/danish-spatial-planning-system> (last consulted 15 December 2017).

³¹ See also Map 4 in Section 4.3

cycling. For railways, this is achieved through the so-called “one-hour” model, which seeks to reduce travel time by train between main Danish cities down to one hour, and the development of metro systems. In the case of roads, the reduction of congestion on the road network justifies the development of new road and public transport infrastructure that will allow increased connections to and from the country’s main hub. Also, the general framework for passenger transport differentiates between road usages.

A full integration of transport modes has not been achieved yet and only a few formal and institutionalized mechanisms were introduced across levels of government in order to overcome levels of segmentation. This does not mean that no coordination between modes takes place in transport planning, but it needs to be constantly renegotiated and remains, as such, context-dependent. Joint initiatives and measures are developed on a case-by-case basis.

In this context, we assume that **transport planning remains hierarchically organized**, with central government keeping a right to veto regional and municipal plans. Political consensus is either achieved within Parliament or *ad hoc* commissions in which economic, civil society and local interests are represented. This also applies to policy-making in the city of Copenhagen, in spite of its unique political and administrative status.

3.2.4 The city of Copenhagen: a unique administrative status

Within this national and regional administrative setting, the city of Copenhagen enjoys a specific status, including some responsibilities in spatial planning, transport and economic development. In addition to considerable municipal powers, the city’s strength also lies in a high level of political continuity, with the Social Democratic Party retaining the political majority for more than 60 years.

Political leadership was considerably enhanced in Copenhagen as in other large cities in Denmark following the 1998 reform. It induced a shift from magistracies (*magistratstyre*) to an intermediate government system (*mellemformstyre*), or the so-called “mini-mayor” system. In this institutional setting, the ruling party appoints the Lord Mayor, but the city council elects, from varying parties, a cabinet of several “mayors per expertise,” such as a technical and environmental mayor. While a mixed-party cabinet can lead to mayors with different priorities, it can also increase the incentive to collaborate and produce policies that enjoy widespread support and survive beyond the term of a single mayor (Katz, Noring, 2016). In addition, the focus on strong local capacity is reinforced through the city government’s ability to establish publicly owned corporations with specialized areas of responsibility and authority. This is not, however, the case in transport (see below).

The 1998 reform was instrumental in two different ways. To begin with, **it accelerated within-party transformations in the local Social Democratic Party** in Copenhagen. This Party has been dominant in Copenhagen politics since the pre-World War II period. Yet from the late 1980s onwards, a new generation of mayors emerged within majority parties and increasingly differentiated themselves from “old politics” by supporting alternative policy issues (e.g., culture, sustainable development, quality of life, etc.) and by drawing on alternative support within local societies and economies. In Copenhagen, leaders from the Social Democratic Party developed new relations with economic actors, universities and civil society organizations while at the same time, they were somewhat reconsidering historical relations with unions and representatives of the public sector on the one hand, and renegotiating relationships with central government on the other hand. In addition to within-party transformations, new alliances were made with political parties (e.g., the Greens, the Liberals) that had grown stronger over the years and increasingly challenged the Social Democratic leadership over local politics.

The 1998 reform and the shift towards the “mini-mayor” system was also instrumental in **redefining common policy goals** across a larger part of the political spectrum and achieving consensus. First, the reform had an impact on the allocation of portfolios between political parties. On the one hand, it contributed to the specialization of those political representatives in charge of traffic planning and transport, and on the other hand, it allowed for smaller parties within the ruling coalition to take leadership over traffic planning. Second, this reform offered an opportunity for reorganizing the municipal administration and mainstreaming strategic policy goals across municipal departments. Until then, responsibilities over traffic planning had been split between two different administrations:

- The Magistrate’s 4th Department – or so-called “technical mayor” or the “City Development Mayor” - was responsible for technical functions and infrastructure, roads, parks and city development.
- The Magistrate’s 5th Department – or so called “tram mayor”, “traffic mayor” and later “environmental mayor” – had been responsible since 1917 onwards for the administration of Copenhagen tram ways and, later, the city environment.

After the 1998 reform, housing was prioritized on the municipal political agenda and led to the creation of the “Housing and technical Department”, and it was only a few years later, due to the growing role of environmental issues on the political agenda, that it was renamed as the “Technical and Environment Magistrate”. Table 2 offers a detailed

overview of this organizational evolution. Today, this administration counts among the city's 7 administrations and corresponding committees. It is *"responsible for the city's environmental and climate activities, development of the traffic area, development of new urban areas and for a number of authoritative functions. ... In addition, [it] is in charge of the city's green areas. The activities portfolio covers operation and construction activities in relation to roads and parks, parking facilities, operation of cemeteries and cleaning services. Also, the administration is in charge of the implementation of strategic plans, such as the CPH 2025 Climate Plan and policies for vulnerable urban areas"*³². In 2017, it draws on considerable policy resources, including some 2.200 employees and a budget of DKK 1.8 billion (some €240 million).

These organizational changes in the city of Copenhagen are expected to have **strengthened municipal policy capacities** both vis-à-vis central government and neighbouring municipalities.

Table 2. List of Copenhagen's Lord and technical mayors per political party since 1938³³.

Lord Mayor	Technical mayor or the city development mayor (4rth Department)	Tram mayor or traffic mayor, later environmental mayor (5th Department)	Housing and technical mayors (since 1998)	Technical and environment mayors (since 2006)
V. Christensen, (S, Social Democratic Party), 1938-1946		H.P. Sorensen, SD, 1943-1946		
H.P. Sorensen, (S, Social Democratic Party), 1946-1956	J. Hansen, (The Communist Party, later a part of Ø), 1946-1954	A. Sundbo, (S, Social Democratic Party), 1946-1954		
S. Munk, (S, Social Democratic Party), 1956-1962	L. Estrup, (C – Conservative Party), 1954-1962	I. Dahl (S, Social Democratic Party), 1954-1962		
U. Hansen, (S, Social Democratic Party), 1962-1976	A.W. Joergensen (C – Conservative Party), 1962-1978	W. Brauer (SF – Socialist Party), 1962-1970 A. Gutterman (RV – Social Liberal Party), 4 month in 1970 L. Helveg Petersen, (RV – Social Liberal Party) 1970-1978		
E. Weidekamp, (S, Social Democratic Party), 1976-1989	V. Sigurdsson (VS, later part of Ø), 1978-1986 G. Starck (VS, later part of Ø), 1986-1989	I. Hansen, (The Communist Party, later a part of Ø), 1978-1981		
J. Kramer Mikkelsen, (S, Social Democratic Party), 1989-2004	L. Engberg, SD, 1992-1994 P. Martinussen, SD, 1992-1993 B. Frost, (V–Libertarian Party): 1994-1997	C. Ammundsen (SF – Socialist Party): 1982-1997	S. Pind (V– Libertarian Party), 1998-2005	
L. Engberg, (S, Social Democratic Party), 2004-2005				K. Bondam (RV – Social Liberal Party), 2006-2009
R. Bjerregaard, (S, Social Democratic Party), 2006-2009				B.A. Kjelgaard (SF – Socialist Party), 2010-2011
F. Jensen, (S, Social Democratic Party), since 2010				A. Baykal (SF – Socialist Party), 2011-2013 M. Kabell (Red-Green alliance). 2014-2017

³² Its core activities are: Local development planning and architecture, environment, traffic, parking, parks and recreational areas, urban renewal, neighbourhood improvement, cleaning and maintenance of outdoor areas, construction cases, cemeteries. See this administration's website: <https://international.kk.dk/artikel/technical-and-environmental-administration>

³³ Sources: <https://bibliotek.kk.dk/raadhusbibliotekets-online-resurser/borgerrepraesentationen/borgmestre>; http://static.sdu.dk/mediafiles/Files/Om_SDU/Institut/Statskundskab/Publikationer/Kap1.pdf

				N. Hedeager Olsen (Ø) since 2017
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Source: compiled with TMF Copenhagen: <https://bibliotek.kk.dk/raadhusbibliotekets-online-resurser/borgerrepraesentationen/borgmestre>; and http://static.sdu.dk/mediafiles//Files/Om_SDU/Institutter/Statskundskab/Publikationer/Kap1.pdf

3.2.5 Concluding remarks

Several lessons can be drawn from this section. In the absence of a formal metropolitan or regional functional authority or level of government, we assume that **interinstitutional competition constitutes a dominant mode of governance in the Copenhagen capital-city region**. Over the time period considered in this report, some functional arrangements were introduced in order to increase cooperation between municipalities and between levels of government. Additional measures were taken in order to ensure greater levels of coordination between transport and spatial planning policy objectives. Yet they were limited in time or only exerted a limited impact.

As a result, we expect interinstitutional competition to have a strong impact on transport policy developments in the capital-city region, and to account for the city's capacities to plan and develop initiatives and investments in the absence of institutionalized forms of cooperation at regional level. Moreover, it confirms that transport policy developments should be analysed in a broader regional context in order to take into account regional and urban development dynamics. The pivotal role of competition as a dominant mode of governance is further exacerbated due to high levels of fragmentation in the organization of transport in the capital-city region.

3.3 The organization of transport in the Copenhagen region

The organization of transport in Copenhagen is characterized by high levels of fragmentation. The 2001-2007 period, during which the Greater Copenhagen Authority (HUR) enjoyed an overall planning responsibility for the capital area, including public transport, is considered an exception. Since the 2007 reform, municipalities and central government share most competences in spatial planning and transport. The region, despite some responsibilities on environment and transport, remains a weak level of government. In this context, the lack of common interests can only be overcome by strong political or institutional leadership.

We expect **forms of cooperation to remain context-dependent and submitted to evolving power relations between levels of government**. We also expect joint projects and policy initiatives to be negotiated on a case-by-case basis, through the creation of *ad hoc* mechanisms of cooperation (or the so-called pragmatic approach). Finally, we expect this situation to be particularly exacerbated in public transport, where institutional fragmentation is superimposed over organizational fragmentation. A summary is introduced in Table 3, and more details are given below about each transport mode. A more comprehensive description of transport supply is available in the D3.2 Copenhagen report (p.29 and beyond), and we chose to focus in this report on those aspects that would account for evolving forms of governance.

Table 3a. An overview of the transport network (as of 2015)

Copenhagen (city of)	
Roads	
Road network	1.020 km
Cycle lanes & paths	250 km, incl. 50 km in its own layout
Motorisation (cars / per 1000 inhabitants)	225
Public transport	
Railway (regional)	170 km, incl. S-trains and regional trains, 7 lines (6 lines going through Copenhagen)
Metro	21 km, 2 lines (in Copenhagen)
Bus	47 routes (9 lines in Copenhagen)
Planned infrastructure projects	
	Cityringen (metro), 17 stops by 2019 and line 4 (metro) with the Nordhavn segment by 2019 and the Sydhavn segment by.
	New light rail system in the region.
	6 road projects, either extension or new infrastructure.
	14 cycle superhighways by 2020 (7 achieved, 7 underway).

3.3.1 The road network: accommodating multiple users

The division of tasks between levels of government was clarified following the 2007 administrative reform: before 2007, counties owned regional roads. Roads are now owned either by the state or by municipalities:

- State roads are administrated by the Danish Road Directorate and consist mainly of motorways with some principal main roads. All Danish motorways are state roads. In the metropolitan area, the road network is divided in such a way that the state owns highways and a few regional main roads
- Municipalities own the largest share of the local street network. They enjoy much of the authority for planning and maintaining roads and cycle lanes.

Some further details are given below about municipal roads and the development of cycling.

Municipal roads

Albeit with some minor differences, the local street network is usually divided into different road classes, but not necessarily using the same terminology across municipal borders. However, road networks across municipalities share the following distinction:

- **Traffic roads** serving car traffic between towns and urban areas and between areas / districts with towns and urban areas. These roads are planned, designed and maintained in order to ensure a good traffic flow. Yet a number of these roads may also include speed calming measures, right-of way bus lanes, etc. The majority of roads include a clearly demarcated cycling lane.
- **Local roads** only serving local traffic and ensuring the connexion between traffic roads.

In addition to these widely shared features, an additional distinction should be made between public- and private-owned streets. Yet policies and regulations vary considerably across cities.

In the city of Copenhagen, the total length of the public-owned network is of 562 kilometres, with an increase by some 24 per cent since 1998³⁴. This growth mainly occurred on minor roads and resulted from the development of former industrial areas into new residential areas. Private-owned streets are minor roads, primarily in residential areas, and do not have the same influence on the overall car traffic. In principle, ownership depends on the ability to cover construction and maintenance costs, as well as complying with parking regulations. Public access is guaranteed on these roads, but the municipality is legally bound to take over these roads or to cover for any investment seeking to reduce traffic, if the traffic passing through constitutes more than 50 per cent of the overall traffic on these roads³⁵. In other words, the municipality cannot export the traffic to the private-owned streets. Privately-owned roads add some 400 kilometres to the total road network.

Unlike the situation observed in other municipalities, **there are no highways in the city of Copenhagen. All of them end at the city's border, thus allowing for strong traffic management within the city's administrative borders.** The primary radial roads are, however, owned by the national government, while the signal regulation is monitored by the city of Copenhagen. This division of tasks have been criticized for reducing the scope for joint traffic management, such as the possibility to ensure 'green waves' when crossing municipal borders and leaving / entering the city's road network. Since 2011 the city of Copenhagen and the national Road Directorate have developed a joint traffic-monitoring centre in order to manage incidents across administrative borders and provide drivers with some network-wide information about traffic.

The development of cycling in Copenhagen and the Capital-city region

- In Copenhagen:

As regards to cycling and the amount of resources devoted to its development in the city of Copenhagen, the number of municipal staff dedicated to its growth has increased significantly over the years. **The cycling network is one of the largest and most developed worldwide.** The first cycling plan was introduced in 1981, and a large comprehensive cycling strategy was first introduced in 2002. Cycling policies have primarily sought to provide road and parking space for cycling: cycling lanes were enlarged and extended, additional bicycle parking spaces were developed, and elevated bicycle tracks were introduced on all major roads in Copenhagen. Some € 100 million was invested in cycling infrastructure between 2006 and 2010.

³⁴ For an estimate of the present road network length in rest of the capital-city region, see D3.2 Copenhagen report, p.32.

³⁵ See D3.2 Copenhagen report for precise numbers about increases in the road network (p.30-31), for the way in which statistics reflect differences between public- and private-owned roads, and how it has evolved over time

Since 2011, the latest action plan “**Good, Better, Best: The city of Copenhagen's Bicycle strategy 2011-2025**” was introduced in combination a revised Cycle track priority plan up until 2016. Some additional measures were introduced in support of the city's cycling strategy, including green waves through traffic signals (at 20 km/h), the development of a public-hire bike system, significant infrastructure developments, such as short cuts in the harbour area, a bike bridge and an extended network of green bicycle routes free from car traffic.

Following the introduction of the **Bicycle Path Prioritisation Plan 2017-2025**, the city now puts increased emphasis on mainstreaming cycling policy objectives and unexpected effects, such as traffic congestion on the cycling network. It is expected to cost between DKK 1.1 and 1.8 billion (€ 147 and 241 million)³⁶ and has the following goals:

- Increase the share of cycling in commuting trips from 40% to 50%
- Capacity extension on existing lanes, with an increase from 25% to 80% of the number of bike lanes with 3 lanes
- Increase the quality of the journey: comfort, safety and speed
- In the region:

Since 2009, 23 municipalities in the Copenhagen region jointly developed the **Cycle Superhighway project as part of a partnership** that also includes the Capital Region of Denmark. The network will eventually consist of 28 Cycle Superhighways of a total length of 500 km³⁷. In addition to this framework agreement, each route requires the municipalities concerned to sign a joint agreement in order to specify their level of commitment and the concrete ways through which they will ensure similar travel conditions alongside the route (e.g., lighting, pump stations, green wave technology, minimum width, etc.). The network's completion is expected to amount to a total of €55 and 117 million (DKK 413 and 875 million). It benefited from direct funding support from the Capital Region of Denmark and that of the state. A joint secretariat was created in order to develop additional information and communication tools about the project (e.g., website, apps, maps, etc.). So far, 7 routes have opened and a total of 14 are planned by 2020:

- Copenhagen – Albertslund, 18 km distance west of the city, since 2012,
- Copenhagen – Farum, 22 km in the northwestern end of the metropolitan area in 2013
- Copenhagen to Ishøj, 14 km line in 2016
- 3 additional routes connecting Copenhagen to other municipalities in the region opened in 2017: Allerød, Frederikssund, Værløse
- 2 ring lines have opened in 2017: one connecting Copenhagen with Frederiksberg (Indre Ring, 14 km) and another one, connecting municipalities outside the densest parts of the metropolitan area (Ring-4, 15,7 km)

³⁶ CPH Post online, 24th February 2017. This article also mentions the following estimates for the division of space between road users: 7 per cent for cyclists, 26 per cent for pedestrians, 54 per cent for cars and 12 per cent for parking.

³⁷ See the project's website (English version): <http://supercykelstier.dk/english/> (last consulted 15 december 2017)

Map 3a. The Super Cycle Highway network (as of March 2018)



Planned highways
 Financed highways
 Existing highways
 Source: Visionsplan, 2018

3.3.2 Public transport: planning and organizing the network.

When it comes to public transport, institutional fragmentation is superimposed over organizational fragmentation. It should also be noted that Copenhagen stands out among other cases studied in WP4 as a region in which public transport appears to have received less attention and resources over the time span considered in this report. This is partly due to above-mentioned demographic, socio-economic and institutional features³⁸: In the city of Copenhagen, the lack of resources prevented capacity investments in public transport until the 1990s, and in the region, investment in S-Trains remained dependent upon the state's investment while car use dominated capacity investment until the 2010s.

Yet we argue that this is also due to **a number of structural barriers as well as to inter-organizational competition**, which, over time, prevented the emergence of a pro-public transport coalition – as observed in other cities in CREATE – and lessened this transport mode's attractiveness vis-à-vis car use in the suburbs and cycling in the city centres. In this section, we briefly review failed attempts to introduce a joint regional transport authority, before successively examining public transport systems.

How to achieve integrated transport planning in the absence of a joint transport authority at regional level?

Two periods in time clearly stand out when it comes to initiatives aimed at increasing integration in public transport. Between 1974 and 1990, the need to effectively regulate urban and car growth had led to the creation of a joint transport authority and operator, which only lasted until 1990, a year after the Greater Copenhagen Council (or Capital Council) was abolished (see section 4.2). This constituted an unprecedented attempt to better integrate public transport services across the capital region. The short-lived HUR was another milestone in successive attempts to further integrate major responsibilities in public transport within a single regional organization.

³⁸ This is further discussed throughout section 4. See also the work done as part of WP3.

But apart from these two sequences, **the planning and organization of public transport remains highly fragmented**. As part of the changes brought to the regional governance in 2007 and the development of new public transport services and systems, a new attempt had been made in order to further integrate public transport organization and planning in the Greater Copenhagen area. It did not, however, led to the creation of joint regional transport authority, nor did it allow the development of institutionalized forms of regional cooperation in this field, as repeatedly highlighted in the interviews done as part of WP4. **The state and the single municipalities are both responsible for transport and infrastructure but operators and authorities do not share a common public transport plan or strategy**. Transport planning and provision is split between three different companies, whose ownership structure, interests and catchment area differ from one another, and in some cases, overlap. Joint initiatives remain rare. Single operators work with municipalities in order to plan public transport services and develop their respective networks. In terms of integrated public transport planning it is often the most flexible network, i.e., buses, that have to adapt to more structured networks (e.g. the Metro). Table 4 and Map 4 provide an overall summary of the main transport companies (see also below).

Table 4. Who does what in the Copenhagen metropolitan area?

Political authority	Region	Municipality		State (Government)	
Transport planning	Movia		Metro	Transport Ministry	Danish Transport
Transport operator	Privat-Baner (local rail)	Bus operator	Ansaldo	DSB / DSB S-trains	Øresund-trains

Map 4a. Public transport systems in Copenhagen area.



Source: DOT, 2017

Regional trains: DSB

Railways in Copenhagen and the wider region are owned and operated by **DSB**, the national train company, which is an independent public corporation owned by the Danish Ministry of Transport. DSB is responsible for the national and regional train lines in Copenhagen, and the S-train system in Greater Copenhagen. S-trains have been in operation on 3 different lines (A, B, F) since 1934. Additional S-Train lines were developed in the 1940s (C, Frederikssund), in the 1960s (H, Koge – Hillerod). The last S-Train line was developed southwards between 1972 and 1983 (H, Frederikssund – Osterport) alongside one of the original “fingers” in order to service municipalities in the inner- and outer suburban areas. Apart from line F (circular), all lines go through Copenhagen main station.

Today, this electrified commuter rail network connects the city centre of Copenhagen with its suburban areas. The system has a total length of 170 km and consists of 7 lines and 84 stations (see map below). The operation is carried out by the state-owned company DSB, while tracks, signals, etc. are owned by **Banedanmark**. This state-owned company was created in 1997 as responsible for the maintenance and traffic control. Since 2010, it is a government agency under the Ministry of Transport.

Since the 1980s, the economic regulation of S-train services is characterized by a series of adjustments that reflect disagreements between this state-owned company and local authorities. Until the abolition of the HUR in 2007, a division of revenues between busses and trains corresponding to the partners' contribution was in place.

Map 4b. The S-train network



Source: DSB S-Tog, 2017

The Bus network: Movia

Movia is a public transport company that was created as part of the 2007 structural reform and the Traffic Companies Act. It is responsible for 570 bus services and 9 railway services in the City of Copenhagen and the wider region. It meets the daily needs of some 2,4 million inhabitants.

The company is owned by the Capital Region, Region Zealand and 45 municipalities, Bornholm excluded. The city of Copenhagen, which provides the largest grant, as well as the 2 regions each hold a permanent seat on the company's board, whereas the remaining 44 municipalities elect 6 board members³⁹. The company brings together three pre-existing transit agencies from the former capital region area and is now responsible for public transport throughout the region of Zealand. Each agency had its own integrated fare system, which have been continued as three different "fare areas" since the creation of Movia. Till this date, it is considered to have developed the strongest regional interest.

Each year a service agreement is established with each municipality⁴⁰. These annual agreements allow adapting the bus service to the municipalities' new needs (e.g. new residential districts, new schools to serve, etc.) and funding solutions to prevent congestion, particularly in the densest central area. In Copenhagen for example, the bus network and services were profoundly transformed as part of the planning of the metro network, with the introduction of a primary bus network – A-Buses – and a higher speed network – S-Buses. This included the opening of new bus services, higher frequencies and segregated bus lanes⁴¹ as a way to ensure higher levels of reliability. *"Since then, the A-Bus system can be considered as a substitute of the tramway network"* (CREATE workshop, February 2016).

³⁹ Each member elects a representative from its municipal council, and the final selection takes place from this assembly.

⁴⁰ Interview Movia, October 2016

⁴¹ In the city of Copenhagen, bus lanes were introduced in 1973.

Map 4c. Movia's transport zone map



Source: ESRI, MOVIA

There also are some major differences in terms of levels of service – and levels of funding – between partners. The level of funding depends from the proportional distribution of grants stemming from the partners. The level of service is negotiated with the 47 partners who directly fund Movia depending on the hours of bus services driven. There is little debate about bus services running within a given municipality's borders, but inter-municipal routes are often a source of controversy and inter-municipal negotiations. The latter case concerns some 200 bus services in the region: each of them are owned and financed by the municipalities, but each of them relies upon a different funding agreement between municipalities and with Movia (interview with a transport planning expert, February 2016). Another interviewee mentioned this situation being detrimental to the overall system: *“Every municipality pays for the lines that serve its territory. If one municipality pays less, it's more expensive for the others”* (interview cycling expert, February 2016).

In the case of Copenhagen, 47 bus lines serve its territory: 9 are located within the city's borders, and others in cooperation with 29 adjacent municipalities. Passengers pay 64 per cent of the cost and the Municipality pays 36 per cent (DKK 350 mio, that is € 47 mio).

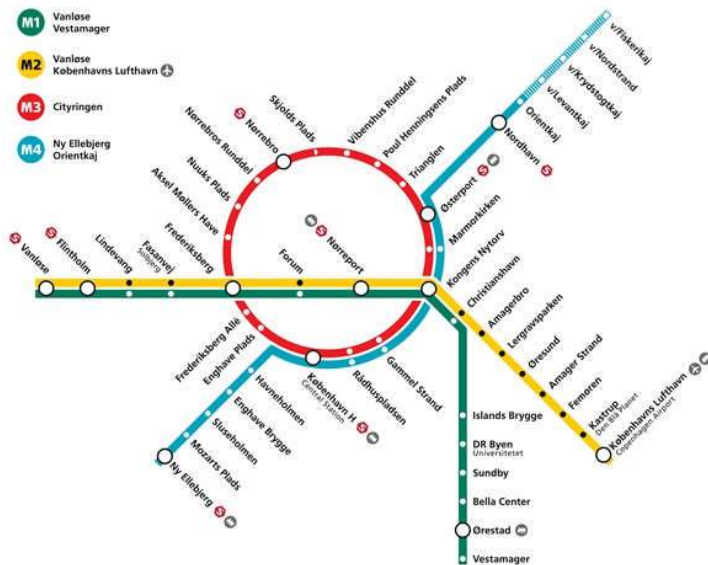
The Metro system

The development of the Metro system since 1994 has led to the creation of **Metro Company** (Metroselskabet). It was officially created in 2007 as a transport, development and construction company. It exerts overall responsibility over the operation of the Copenhagen Metro. The Metro Company is owned by City of Copenhagen (50 per cent), City of Frederiksberg and the state through the ministry of Transport. Ansaldo operates the metro system.

The metro system, which has a total length of some 20 kilometres (2 lines, 22 stops), was built *“out of nothing”* between 2002 and 2007. It is primarily located in the “two cities” but partly extends to the inner suburb area. It is currently being extended with the inner-city ring project (expected in 2019, line 3, 17 stops, see Map 4d). A further extension is planned towards Nordhavn by 2020, a new urban area under development in the northern part of the city, and towards Sydhavn by 2023. This project represents by far the largest capacity investment underway in the City of Copenhagen and introduces a major shift away from decades of low investments in rail networks and systems⁴². Together with the Ring 3 project, which also aims at developing circular connections, it is expected to radically change the radial structure that was introduced in the Finger Plan.

⁴² CREATE workshop, February 2016

Map 4d. The metro project under expansion



Source: Metro

The Ring 3 Light rail system

As of late, a newcomer was introduced in the transport governance system: the Ring 3 Letbane I/S, created in 2013 and renamed Hovedstadens Letbane (Greater Copenhagen Light Rail) after the Parliament formally adopted the project in 2016. This public-owned company has 13 owners: the state through the ministry of transport (40 per cent), 11 Municipalities (34 per cent) and Capital Region of Denmark (26 per cent)⁴³. It is in charge of planning and developing the Ring 3 light railway project, a 28-kilometre-long dual-track light rail is expected to run alongside the Ring 3 Motorway Road (between Ishøj in the south and Lundtofte in the north) and the Ishøj Cycle superhighway route. It will link suburban centres with one another by cutting across existing railway corridors (fingers). It will also provide increased accessibility to existing S-train lines, and to major regional economic, education and health centres in the region, including DTU and large hospitals (see Map 4e)⁴⁴. Its opening is expected by 2023 and the total infrastructure costs are estimated at €590 mio (DKK 4,4 billion)⁴⁵.

⁴³ According to the Greater Copenhagen Light Rail company's estimates, trains will travel at an average speed of 30km/h (maximum speed of 70km/h) covering the 27km stretch in 55 minutes. The line is expected to carry 43,000 passengers a day and up to 14 million passengers a year. See the company's website and annual reports: <http://www.dinletbane.dk/> (last consulted on 16 December 2017)

⁴⁴ 29 stations are expected to be built.

⁴⁵ Consultant firms have already been selected in order to work on the project's phases: preparatory works (COWI, Parsons Brinckerhoff, NIRAS, SYSTRA and Tetra Plan), Environmental Impact Assessment report and associated technical assessments (Ramboll Denmark), conceptual design and subsequent tender for building, operating and maintaining the future infrastructure (Ramboll Denmark and Arup), and station design and landscape integration (Gottlieb Paludan Architects).

Future challenges in public transport

- The shape of the regional rail network accounts for the network's saturation at peak hour, when all lines converge towards and away from the City of Copenhagen (Interview Metro, February 2016). High levels of investments would be needed in order to increase the service offer and quality (e.g., infrastructure, rolling, planning, etc.) (interview Capital region, November 2016).
- The strengthening of public transport would require increased forms of institutional and organizational cooperation among stakeholders, as well as new compromises about spatial planning objectives, and power distribution between levels of government. This also includes the need to revise funding arrangements in order to generate alternative resources and reduce uncertainty⁴⁶.

The preference given to *ad hoc*, case-by-case solution over an institutional one also results from the lessons learned from the 2001-2007 period. By reducing the inconvenience of high levels of fragmentation, this pragmatic approach seeks to **increase the attractiveness of public transport by providing stakeholders and users with an operational solution**, “*a sort of umbrella organization*” (interview transport expert, February 5, 2016).



3.3.3 Transport funding and financing

Since the 1970 reform on decentralized governance, a decentralized financial system was introduced at national level. Municipalities are increasingly dependent on tax income for planning and developing policies and services, including transport. All taxes and fees charged while purchasing and using cars go to the national government, and contribute to capacity investments in roads and car fleet renewal. Municipalities may solely rely on parking fees as a way to regulate parking demand. Municipal taxes cover for road maintenance.

Current public transport funding arrangements in the capital city area were first developed for the S-train network and later extended to other public transport services. The joint fare system and the revenue division in the capital area are largely inherited from the pre-2007 period, and a joint committee between the three companies was established in order to ensure a common strategy towards users. Yet in the absence of a sufficiently binding coordination mechanism, individual companies continued developing their own services and traffic rules. In Copenhagen, the metro project was developed through revenues from land value capture and through state's subsidies.

3.4 Concluding remarks about drivers for transport policy change

The work done as part of WP4 suggests that demographic, urbanization and socioeconomic trends are not the only drivers for change to be considered when it comes to understanding transport policy developments in the Copenhagen region. These macro factors are profoundly shaped by political, institutional, administrative and organizational arrangements. Over the time span considered in WP4, these factors jointly account for **strong differentiation dynamics between the city, the metropolitan area and the wider region**, and to some profound differences between these areas. Such differences are deeply rooted in political behaviours and individual preferences. In addition, differentiation dynamics are fuelled in by evolving state-local relationships and interinstitutional competition. This also confirms the need, when examining transport governance and policy developments in Copenhagen, to go beyond the city itself in order to take into account developments underway in the region, as well as the role played by the state through its policies and investments in the capital city region.

Moreover, in a context in which **transport planning remains hierarchically organized**, with central government keeping a right to veto regional and municipal plans, municipalities still face a number of constraints in order to shape transport policy developments, let alone develop joint initiatives. This also applies to policy-making in the city of Copenhagen, in spite of its unique political and administrative status. Yet, the work done in this section also suggests that **the situation is not as clear-cut as suggested** in political discourses and studies focusing on the city only: pro-car policies and car use have not been completely abandoned in Copenhagen, and similarly, sustainable mobility policies are being strengthened beyond the city's limits. This is further explored in the following section by analysing historical transport developments since the 1960s.

4 Historical transport policy developments: policy objectives, resources and measures

This section examines the concrete way through which specific combinations of above-mentioned drivers of change shaped transport policy developments in the Copenhagen region. This is done by analysing a selection of policy objectives, resources and measures over six decades.

This section also discusses transport policy developments in the context of the “Transport Policy Evolution Cycle”. We address **the following paradox**: even though Planning for city life (Stage 3) policy measures have been introduced from the 1970s onwards, Stage 3 thinking only became dominant in political discourses and policy objectives in the late 2000s in Copenhagen, and Planning for people (Stage 2) policies only recently developed in the region. Moreover, due to continued inter-institutional competition between the city and the state on the one hand, and between the city and its hinterland on the other hand, different types of policies constantly overlap, thus suggesting **the blurring of frontiers between the 3 stages and for the shift away from the car-oriented city neither being unidirectional nor evenly spread in the region**.

Four main phases were introduced in transport policy developments, corresponding to major changes in forms of urban and regional governance: during Phase 1 (1954-1970), state-local relations in combination with strong differentiation mechanisms between the city and the region contribute to shaping the development of car-oriented policies in the post WWII context; during Phase 2 (1971-1990) mitigation policies are introduced throughout the region, including cycling as the only affordable transport policy alternative in the city centre, in a context of rapid and uncontrolled urbanization dynamics in the region and urban decline in the city; during Phase 3 (1991-2009), and in a context of unprecedented state-city cooperation, sustainable transport is increasingly favoured as part of the city’s political agenda – urban growth and later on, climate change – while transport policy goals at the regional and national levels remain ambiguous. During the final Phase (since 2007), we observe a growing disconnect between, on the one hand, the emergence of the Bicycle city model and its rapid diffusion worldwide, and on the other hand, a series of major transport controversies that highlighted the need to collectively address mobility futures in the regional context.

4.1 The golden age of the car-oriented city (Phase 1, 1954-1972)

Transport policy developments between 1954 and 1972 are characterized by the emergence of strong differentiation dynamics between the city of Copenhagen and the rest of the region. Above-mentioned processes of suburbanisation on the one hand, and the impoverishment of the city of Copenhagen on the other hand, contributed to growing differences in transport demand and behaviours. In this context, the way in which transport is planned and developed across municipalities in the region primarily results from residents’ preferences in terms of housing and the wish to settle in areas offering direct access to green spaces. In the absence of strongly developed public transport networks at regional level, private motorization is considered instrumental in order to ensure daily access to the city of Copenhagen and major business and employment centres.

Throughout this sequence, and although some differences are observed between municipal authorities in the region in the ability to make transport policy objectives material, car-oriented visions play a dominant role in transport policy developments.

4.1.1 The pre-war legacy and the premises of the modern city

Much of Copenhagen’s urban development took place during the late 19th and the pre-WW II period. Together with the rapid development of the port industry, major infrastructure and networks were built in order to allow the Danish capital city to compete with its main Nordic counterparts.

Transport systems and networks were developed in order to ensure mobility within the city and towards neighbouring green and leisure areas. The horse-driven tram network dating from the 1860s was replaced in 1880s by a network of steam-powered and electrical tramways, as part of a first extension plan. In addition, as part of the city’s attempt to regulate the development of networked utilities and industries, and to increase coordination between the large numbers of private companies that were operating various urban services, it took over the tram network right before WWI. The first separate bicycle paths were established in Copenhagen around the Lakes in 1910, and bridle paths was converted into isolated Cycle ways in order to secure the heavy growth of cycles on the road network. Before WWI, some 50 km of cycling lanes were already in service.

A modern urban rail network of electrified city-trains (S-trains) was developed during the 1930s under the leadership of the national railways company (DSB). This was achieved with the support of the Electrification Commission and by electrifying the pre-existing local railway network. This large infrastructure development project was achieved as part of a national policy aiming at increasing rail capacity throughout the country. Similarly to other S-train networks in Vienna or Berlin, the Copenhagen S-train network connects the city centre to the inner and outer boroughs, including the 'bridge quarters', and suburbs. It is meant as complementary to other urban transport systems and modes. The first line was opened in 1934 - Klampenborg-Copenhagen H-Vanløse-Frederiksberg - with more lines soon after. Most lines were converted from steam-operated railways to electric, metro-like operation and stations. In total, the system has four main lines that are still operated today.

Figure 3a. The development of the S-train network in Greater Copenhagen

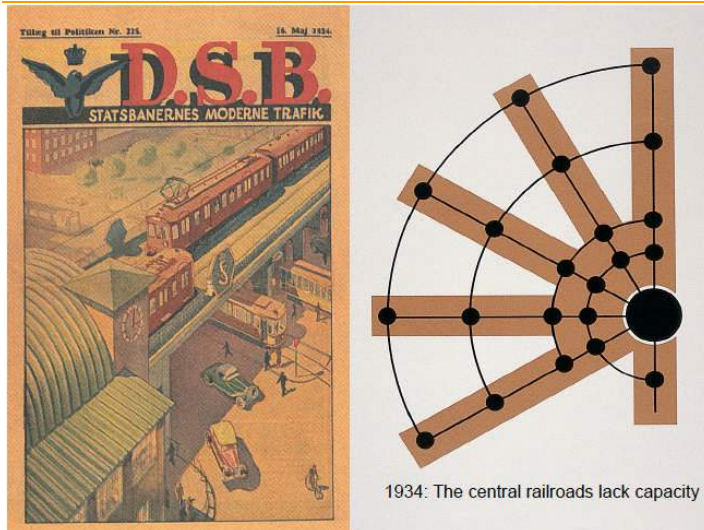
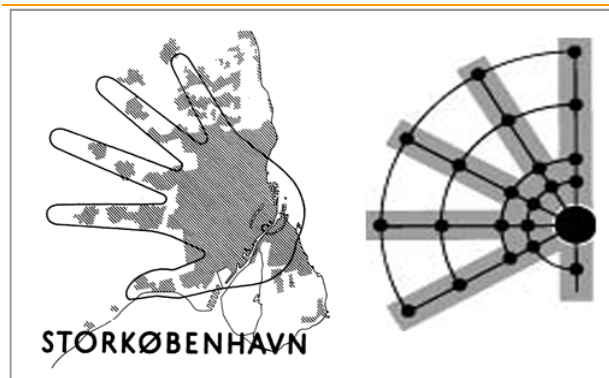


Figure 3b. The Finger Plan 1947's principles



Source: Fingerplan

4.1.2 Accounting for spatial differentiation in the region: the Finger Plan's paradoxical legacy

At the end of WW II and the occupation period, the city relied upon a decent network of public transport, including tramways, buses and regional trains. Cycling and walking were considered the most commonly used means of transport in a context in which almost two-thirds of the inhabitants of the metropolitan area lived in central Copenhagen and Frederiksberg. Car ownership remained marginal. This situation evolved rapidly in a context of urban and economic growth and justified launching the 1947 Finger plan as part of the National growth strategy⁴⁷. It is considered the first attempt at designing and implementing spatial planning objectives through

⁴⁷ See Section 3.3

regional cooperation. Its main goal was to boost and contain urban growth in the capital-city region through spatial planning tools as well as capacity investments in housing and transport. Urban development was to be concentrated alongside five major transport axes (fingers), which drew from the pre-war layout of the S-train network. Open spaces in between were to be preserved (green wedges). In the meantime, the city of Copenhagen represented the undisputed centre of the capital-city region and the heart of the future one million-large metropolis (palm).

The Finger plan exerted a long-term impact on subsequent plans, strategies and infrastructure development projects in the Copenhagen region. Its implementation drew on state-led transport investments and policies in order to develop both rail and road infrastructures. In the original plan, fast, cheap public transport networks were to ensure rapid connections between the City of Copenhagen and the suburbs. All five fingers combined a railway line (main railway or S-train) and a major road (mostly motorways) in order to ensure rapid-transit connection with the city of Copenhagen. In Copenhagen, growing urban transport demand was mainly accommodated by developing S-train and road networks. By contrast, the areas between traffic axes were preserved as open spaces (green wedges).

Making the Danish dream come true

Nevertheless, as the Danish economy underwent a rapid growth, the Finger Plan only had a limited effect on urbanization dynamics. In the two decades that followed its introduction, the Copenhagen region witnessed a growing differentiation between developments taking place in the city and those taking place in the suburbs. The lack of modern housing in the inner-city area fuelled the flow of departures towards the suburbs, where people who could afford a car and a single house were settling *en masse*, thus leaving behind lower-income social groups who could only afford cheaper modes of transport. In the meantime, population growth and transport demand in the suburbs led to a dramatic expansion of car ownership and traffic. Due to the city - and its inhabitants' - poor economic and fiscal conditions, it was unable to prevent the departure of its residents nor was it able to mobilize sufficient resources in order to influence policy developments outside its borders.

In their attempt to make the new "Danish dream" come true, national political elites also contributed to promoting a way of living in which single-family houses were inextricably linked to car ownership. As a result, suburbanisation processes cannot only be understood as the result of individual choices and lifestyles - preference for living in the suburbs. This growing disconnect between urbanization dynamics in the city and in the region also results from planning choices and policy objectives. They are first and foremost strongly related to the choices made by public authorities across levels of government to pursue their main interest – attract wealthy social groups, promote growth in the region, etc. – and their ability to make these choices material. While local (municipal and regional) policies aimed at guiding urban expansion – or in some cases, at following unplanned developments – national policies sought to increase accessibility to and from the capital-city region by developing a major national hub. Growing transport demand justified the rapid development of large motorways alongside existing railway axis and as part of the Finger Plan's implementation.

The car-oriented model as an unexpected outcome of the Finger Plan?

Although seeking to better integrated transport and spatial planning, the Finger Plan's legacy is critically addressed as a possible driver for the shift towards the car-oriented model and policies. Several explanations were mentioned in the literature and interviews in order to account for this paradox.

First, the Finger Plan was only published as a report and was in no way legally binding.

Nevertheless, it did remain a major reference in subsequent policy and planning documents across levels of government, which would tend to confirm some level of commitment across stakeholders to its core principles. Its role as a major reference across levels of government and across time appears to be connected with its core principles' ambiguity. As stated by one of our interviewees in order to underline the Finger Plan's ambiguous legacy, what had been designed as a public transport development plan also could be considered a road development plan: *"The Finger Plan 1947 can be considered as a good example of the state of mind after World War II: that plan was both a car plan and a plan for public transport. As people moved out to the suburbs, the Danish state built the S-trains. There were longer and longer journeys as people were moving out and the S-trains helped reduce these journeys"* (CREATE workshop, February 2016). More precisely, it offered a large room for manoeuvre for stakeholders to redefine and reinterpret these policy objectives as they saw fit as long as they committed to the principle of integrated spatial planning. Its implementation was guided by different

understandings of its core principles and different visions about the region's future. In the City of Copenhagen, the so-called "centred growth approach" prevailed (Valdemarra Pineda, Vogel, 2014). In the region however, the Finger Plan's implementation led to a *de facto* multi-polar regional development, in which the City of Copenhagen was considered as one of regional centres with no particular relevance in terms of infrastructure developments and priorities.

Second, **the focus on roads was coherent with the national policy agenda in spatial planning and transport.** A new generation of traffic engineers emerged as part of the training programmes provided at the Technical University of Denmark (DTU). It had been created in 1933, and directly contributed, through its research and education activities, to the diffusion of traffic planning ideas and models that drew on a functionalist approach to city planning. This approach to city planning and urban development also received strong political support from local political elites in Copenhagen, and more specifically from the Social Democratic Party and its main leaders. The creation of DTU played an influential and strategic role in shaping representations about spatial and transport planning among generations of policy-makers. The development of traffic planning as an autonomous area of knowledge and expertise also contributed to further demarcating transport and traffic planning administrations from urban planning departments. More generally it was conducive to increased autonomy of traffic planning departments within the politico-administrative system. In the case of traffic planning in Copenhagen, responsibilities were split between two Magistrate departments (see above). The diffusion of such expert knowledge and planning models account for the fact that, until the late 1960s, urban and transport planners, policy makers and politicians from across levels of government were first and foremost inspired by the car-oriented city model

In the City of Copenhagen, there was either no – or only little – opposition to the private car. **In this regard, findings from WP4 shed new light on the reasons why car ownership remained low within the city.** As explained during the Copenhagen WP4 workshop (February 2016): *"Everybody was convinced that a car city should be developed, with more roads. There were plans for huge motorway systems, which would give access to towers and offices. At that time, there was low car traffic. Nobody could imagine how fast the car traffic would be developing. It overtook the planners' imagination"*. A general plan for the city's development was launched in 1954. Acknowledging the rapid social and economic transformations underway, it suggested developing a broad network of primary roads with connections to the 'City fingers'. These roads were primarily meant as a way to accommodate car traffic and service new urban development areas in the outer districts of Copenhagen, where new building complexes were built in order to accommodate the housing demand. Yet it was soon considered insufficient and the original network of primary roads was redesigned into a highway network, according to a model that was directly inspired from the United States.

Third, and in addition to professional knowledge and dominant urban planning references and models, **some institutional and legal factors can be highlighted** in order to account for the Finger Plan's ambiguous outcomes, among which competing municipal strategies and national infrastructure-led policies in a context of economic growth. In the absence of a joint planning authority, competing municipal strategies fuelled suburbanization processes and supported the aspirations of wealthier income groups for one-family dwellings and access to green spaces. Local governments were able to draw on a number of policy tools and resources in order to attract them. This was achieved through land use plans, in order to open the development of agriculture land in order to influence the housing market. This was also achieved through aggressive tax competition strategies: in a context in which municipalities directly collect income taxes, attracting high income taxpayers held a clear advantage⁴⁸.

The dominant role of the car-oriented city model can be observed by examining transport policy objectives and measures.

4.1.3 Putting the car-oriented city model into practice: policy objectives and measures

To some extent, the diffusion of the car-oriented planning model is strongly related to evolving transport policy preferences at national level. Central government intervened directly in transport planning and

⁴⁸ "At that time, you found municipalities trying to lower income taxes in order to attract taxpayers. There was something like a race to the bottom" (Copenhagen workshop, February 2016).

infrastructure development in central Copenhagen by **setting policy priorities, preferred policy solutions and the allocation of capital investment.**

The priority given to infrastructure-led transport policy initiatives

This was first achieved as part of the 1962 National transport strategy. Its main rationale was to develop **a national arterial railway and motorway network (the so-called Big H)**, in order to increase the connections to and from Denmark that is from Nordic countries and Mainland Europe, as well as to and from Copenhagen, in that case Mainland Denmark. In addition, national legislation on passenger transport laid down the main principals and rules for the provision of transport services. As road transport became more prominent, investments in railways and resources available for alternative transport modes were constantly reduced up until the early 2000s. This shift in policy priorities also contributed to drastically reduce funding opportunities for alternative transport modes at regional and local level, all the more so since central government was considered the main source of funding in transport infrastructure development across the country until the 1970 administrative reform. Together, these choices account for the weak role played by public transport in the Copenhagen transport system until the recent period.

During this phase, **two main types of transport policies were developed in the region under the state's leadership, with the support of municipal authorities:** first, infrastructure-led policies aiming at further developing major transport axes in the region through railways and roads; second, addressing urban transport demand within Central Copenhagen by developing the S-train and the road networks. This strategy contributed to further deepen above-mentioned highly differentiated urbanization dynamics. The largest share of national public investments in regional and local transport infrastructures and policies benefited the inner and outer suburbs rather than the city of Copenhagen. Infrastructure-led urban expansion and multi-polar spatial planning was justified, at national level, in order to prevent urban sprawl in the region. National capacity investments in railways were concentrated in developing the S-train network, with an additional line built during this time period as well as several extensions of existing lines in order to reach more distant suburbs. In a context of rising transport demand, continued urban expansion and growing car ownership in the suburbs justified the rapid development of motorways alongside rapid transit corridors.

The lack of radial connections between major corridors together with low-density urban development contributed to increasing car dependency and justified the development of outer ring roads under the leadership of the National Road Directorate. In this context, road infrastructures were planned alongside the main regional railway axes and emerged as the new regional structure's skeleton. In practice, these policy preferences and choices in capacity investments led to favouring densification strategies and the "compact city model" close to regional train stations but outside the city of Copenhagen. This was particularly the case for the development of commercial spaces and offices. Public services, other facilities and, more importantly, workplaces, were increasingly located in the suburbs, alongside major transport corridors and located in a number of poles. Moreover, outward urban expansion was also considered cheaper – and easier to pursue – as it required lower infrastructure costs and less constraints than in a dense urban context. From the political point of view, this approach favoured wealthier constituencies outside the city and fuelled suburbanization processes.

Strengthening Copenhagen's role and function as the main national transport hub

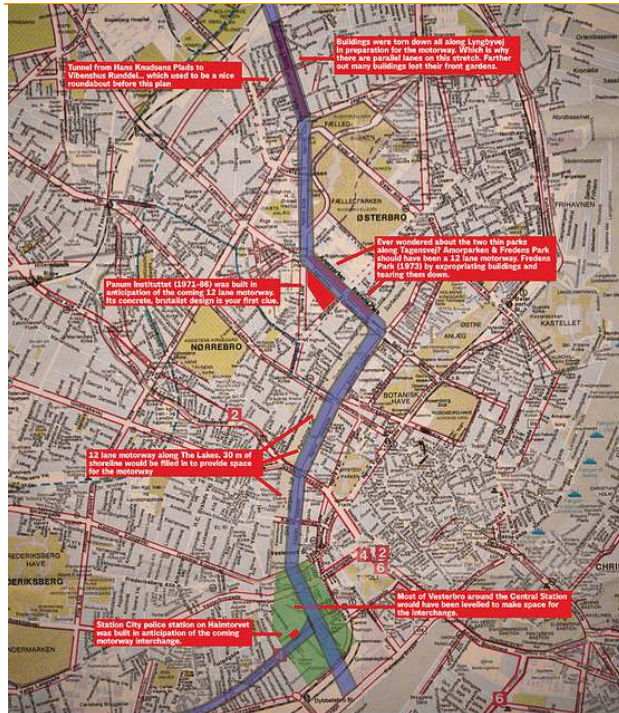
The distribution of capacity investments in transport was, in this respect, consistent with the state's and the national elites' approach to the role and function of the City of Copenhagen as the main national transport hub rather than a place in itself⁴⁹. Following the opening of the first Danish motorway "Hørsholmvejen" in 1956, which went up through the northern Copenhagen area, **the development of a network of primary roads** emerged as a preferred policy solution to growing traffic demand and car ownership in the Greater Copenhagen area. This large motorway development plan also included new expressways that were to cut through the City of Copenhagen. It was designed by the National Road Directorate, with the support of pro-roads interests within the state administration, political parties and economic groups, represented and the Danish Road Council.

Its planning was also done in close cooperation with and the support from the city of Copenhagen **as both a transport planning programme and a large-scale urban redevelopment programme.** The

⁴⁹ Interview National Road Directorate, February 2016.

development of highways justified the complete transformation of central Copenhagen, including a systematic demolition plan that would make room for new motorways, interchanges and junctions. A corresponding widespread urban renewal programme was developed, such as the City Plan Vest in the Vesterbro district⁵⁰, including the demolition of apartment buildings dating back to the 19th century in old archetypical working-class districts.

Picture 1a. Søringen - The Lake Ring (1964)



Source: © Copenhagenize

Picture 1b. The half-finished Bispeengbuén express way



Source : Stadsingeniørens direktorat, Modernissimo Blogpost, April 2015.

In addition, existing public transport networks and services – buses and trams – were reduced. Tram lines were in operation till 1972 but only a minimum level of maintenance was ensured after WWII and the dismantling of the tram network was planned by the City of Copenhagen from 1962 onwards and carried out within a decade. This choice was justified in the name of the transport policy developments taking place in other large European cities at that time, and in order to increase road space capacity. In the absence of segregated tram lines, safety issues justified replacing tram systems by bus systems. In a context of growing financial constraints, only some limited funding could be made available for public transport and in a context in which state funding prioritized regional trains in the suburbs or motorways, the proposed metro system was abandoned in 1965, due to the lack of consensus between the municipality of Copenhagen and the state about funding.

⁵⁰ This followed the example set by developments in Stockholm (Norrmalm area).

Accounting for low levels of implementation for Stage 1 policies in Copenhagen

In spite of the large support from political elites in favour of these infrastructure-led policies at both National and Local levels, only a very limited number of infrastructures were effectively built in the city of Copenhagen during this sequence – mainly due to the city's lack of financial autonomy. In addition, the level of car ownership and use remained low in comparison with the changes underway in the suburbs and in other European cities. During those years, the city faced a number of challenges, summarized as follow by Andersen and Winther (2010): *“de-industrialisation, high unemployment rates, strong segregation, polarization and poverty, job losses, loss of high-income families, an ageing population, a rise in the number of students and low-income singles, high welfare costs and cheap but dated housing stock”*. Only a small minority of Copenhagen residents could afford to buy and own a car, due to the introduction of high level of taxes on car ownership and use at the national level⁵¹. Following the 1970 reform on decentralized governance, state funding came to an end and municipalities became increasingly dependent on tax incomes. In a context of profound financial crisis, the City of Copenhagen was not able to pursue this project on its own due to its financial constraints⁵². In this context, unequal access to car ownership among individuals and unequal ability to fund and develop road infrastructure in the case of local authorities were the main factors prevented the private car's rapid development in the City of Copenhagen. Successive mayors and urban elites had little opportunity to plan and develop new infrastructures, and mostly focused on managing decline – a tendency that lasted until the early 1990s.

Together, these factors account for cheap and/or inherited transport modes being preferred – buses over trams, bicycles over cars, walking over all other modes etc. Nevertheless, in a context in which policy-makers and transport planners in Copenhagen remained primarily influenced by the car-oriented city model, this should rather be considered as a default choice rather than a deliberate wish to maintain alternatives to car transport. This is reflected in the selection of concrete policy measures. Traffic regulation measures were considered particularly instrumental due to their limited costs and their ability to make more room available for car traffic. Previous plans aiming at dismantling or reducing public transport networks were accelerated, as observed in the case of the tramway network. Similarly, due to the lack of financial resources, the large and dense pre-existing network of bike lanes was not entirely dismantled, only gradually reduced throughout the 1960s: *“we were lucky. We did not remove the cycle tracks, but we shortened them”* (CREATE workshop, February 2016). This contributed to maintaining the biking tradition, something that turns out to be crucial for the next periods (Interview cycling expert, op.cit.). Finally, the urban structure in the densest part of the inner city area also exerted a third type of constraint on the development of additional road capacity. Preparations for the Copenhagen 800 years' jubilee in 1967 justified urban renewal programmes in the core inner city centre. Parts of the inner-city road network were pedestrianized in order to create a car-free shopping district around "Strøget", a major commercial street, in 1962. At first, these measures raised the local population's scepticism⁵³, but in view of its success, local authorities slowly began increasing the number of streets and other public spaces (e.g. parking areas) to be pedestrianized.

In addition to financial constraints, urban authorities also faced massive demonstrations against road infrastructure projects in the city. This was the case of the Søringen project or lake ring project, a north-south urban motorway that was to cut through the city. Only some segments of it were developed, such as the Bispeengbuen, which opened in 1972. This 6-lanes express way that was built through a densely populated residential area on the border between the municipalities of Copenhagen and Frederiksberg. Following the local housing associations' demands, it was planned on a bridge in order not to cut through the area. Nevertheless, this infrastructure project launched massive protest from local residents, opposition from the local media as well as the mobilization of the students and the environmental movements (see picture 2). Starting in 1968, these protests reached their peak between 1970 and 1972, after state funding came to an end. While it focused the Bispeengbuen segment at first, it rapidly expanded towards the entire Lake ring project, which would have transformed the central lakes area into a network of highways. As explained during the Copenhagen WP4 workshop: *“Things started to change in April 1968. People were starting to oppose plans for huge motorways. The city was supposed to be crossed by motorways. People started to wonder if this was a good idea. The front-page*

⁵¹ A registration tax and a weight-based tax had been introduced in 1910 in order to ensure that vehicle owners contributed to roads construction and maintenance.

⁵² A complex system of compensation was introduced between the City of Copenhagen and municipalities in the suburbs, to no effect in a context of economic recession.

⁵³ Little explanation was given in order to account for such reactions, apart from cultural factors, as expressed by Gehl and Gemzøe (1984): *“Danes are not Italians, the street will be empty if we will transform it into a pedestrian street”*.

of the biggest paper in Copenhagen put in question the idea of the motorways". The plans for a coherent network of highways was subsequently put on hold in 1972 and officially abandoned in the 1989 municipal plan.

Picture 2. Opposition to the Lake Ring in "Politiken", the leading local newspaper.



Source: Archives Politiken.

4.1.4 Concluding remarks, Phase 1

Several conclusions can be drawn from the analysis of transport policy developments in the Copenhagen region during this 1st phase. First, **the car-oriented city model emerged as a major reference for policy makers, planners and politicians across levels of government**. While the principles laid down in the Finger Plan emphasised the need for integrated spatial and transport planning, it did not prevent the road network's dominant role in shaping urban growth. Such policy preferences are particularly prominent in national policy objectives and initiatives: major rapid transit infrastructures – railways and motorways – are planned throughout the region, according to the principles laid out in the Finger Plan and the Big H strategy. This is done with the support of municipalities in the region and private economic groups. Successive attempts to introduce a joint planning authority at regional or metropolitan level failed due to the municipalities' wish to safeguard their autonomy and to the state's own strategy in the region.

Second, in the absence of a regional planning authority and due to the state's ambiguous approach towards the role and function of the city of Copenhagen, **regional expansion is increasingly shaped by spatial differentiation mechanisms** between, on the one hand, an impoverished city centre and on the other hand, booming suburbs. While demographic, socio-economic and cultural factors contributed to shaping individual behaviours and preferences, public authorities did contribute to accelerating suburbanization processes through their respective housing, economic growth and transport policies.

Third, when considering transport policy developments as such, **three main observations can be drawn from the changes taking place during this sequence**. In the absence of alternative transport modes – either by choice or by lack of financial means – pro-car policies and capacity investments became dominant across the region in terms of policy objectives, resources and measures. Investments in public transport alternatives decreased, the city of Copenhagen's tram network was dismantled, and whenever possible, additional road space was allocated to car traffic across networks (primary, secondary) with some dismantling of bicycle lanes. Some exceptions were observed, mainly in the city of Copenhagen, due to financial constraints and to a lesser extent, to mobilizations, with a few pedestrianisation initiatives and lower car ownership and use. At regional level, continued capacity investments were made in the S-trains network.

4.2 Transport planning in a context of spatially differentiated growth (Phase 2, 1972-1991)

This section examines transport policy developments during the 1972-1991 time period. It argues that they are very much part of the dynamics initiated during the previous period apart from the changes observed in the city of Copenhagen. It provides some explanation for the introduction of a myriad of small-scale initiatives across levels of government aimed at mitigating the impact of traffic growth (Stage 2 policies), among which were attempts at strengthening joint transport planning measures at metropolitan level, capacity investments in public transport infrastructures and traffic mitigation measures. It also discusses the role of strong differentiation

mechanisms in shaping transport policy developments in two different ways. First, traffic mitigation measures are mainly concentrated in the city of Copenhagen, while the development of the road network continued in the suburbs. Furthermore, 'Planning for life' type of policies (Stage 3) are also being developed on a small-scale basis in the urban core. Second, inter-institutional competition to attract wealthier social groups and families (local authorities) and promote regional growth (state) continues shaping the largest share of public investments and strategies in the region while at the same time, the previously mentioned the social, economic and political disconnect between the city of Copenhagen and the suburbs was exacerbated.

4.2.1 Making transport your own: planning for people as an alternative to car use

As car was growing to become a dominant transport mode in the region, the city of Copenhagen was most affected by its negative externalities due, on the one hand, to daily commuting and, on the other hand, due to its population impoverishment. This offered some opportunities to examine and develop alternative policy solutions.

Exacerbated discontinuities in car use between the city and the region

In 1970, car traffic in Copenhagen reached a level that would be maintained throughout the next 25 years. This stagnation in car traffic is mainly explained by continued economic recession and fiscal debt. The urban population continued to decrease, many workplaces moved to the suburbs. Levels of poverty were not reduced between 1970 and 1990, with the most vulnerable population being found among elderly people and the working class. Only those who could not afford to move out - senior citizens, low-income groups – remained in the city, thus resulting into low fiscal revenues and the growing impoverishment of the city of Copenhagen (Andersen, Jørgensen, 1995). The city heavily indebted itself to the government in order to close its budget deficit. In this context, only a small share of Copenhagen residents had access to car ownership and use⁵⁴. Also, there was a growing concern among the local population about the negative impacts of car traffic, and more specifically safety issues. In 1970, the number of pedestrian and cyclists' fatalities amounted to 120 per year. Moreover, noise pollution in the vicinity of large traffic arteries was increasingly denounced in view of their negative impacts on health and air pollution.

A last determining factor relates to the worsening of central-local relations during this period. In a context of deep economic recession, the focus of national spatial policy shifted from Copenhagen towards other parts of the country in support of a national economic development strategy. From 1970 onwards, and until the early 1990s, very few investments were made in Copenhagen in any type of transport policies, apart from minor upgrades in existing networks. The stagnation of car use in Copenhagen also justified the end of the state's investments in the road networks. In the meantime, high levels of investments in the motorway, and to some extent in the railway networks, were maintained in the surrounding municipalities. In a context in which incoming traffic from the region was growing, this decision contributed to the worsening of central-local relations and accelerated the search for alternative transport policy measures. Political discourses and the local media echoed this resentment by highlighting strong out-migration flows of wealthier families towards the suburbs while the city of Copenhagen was left with population decrease, economic recession and a near bankruptcy situation (Naess et al., 2009).

Opening the scope for alternative transport policy measures: political and social mobilizations

Such growing political and social debates regarding the distribution of policy resources led to some opportunities for a reshuffling of policy priorities, and to a growing competition between transport modes in order to attract the little resources that were available for transport policy initiatives.

This lack of funding implied that the city of Copenhagen was unable to develop big projects and infrastructure-led policies in transport in order to boost its economy, attract new investments and inhabitants. In this context, **the preference given at city level for road investments over any other transport modes was increasingly questioned** by a new generation of technicians and policy makers, socialist and green politicians, as well as civil society organizations that had emerged during the protest against the Lake ring project. Albeit with

⁵⁴ See section 3 and D3.2 Copenhagen report.

a strong level of political continuity in the municipal majority, some discussions were underway, between and within left wing political parties regarding transport. A traditional approach was very much influenced by the modern city planning ideals, including access to individual cars and good quality housing. Yet socioeconomic changes were slowly transforming voters' preferences, especially among younger generations.

Moreover, as car growth was generating an increasing number of negative externalities (traffic congestion, noise, pollution, safety issues for other road users, etc.), **it became a source of complaint and protest among local residents.** The most vulnerable road users (pedestrians, cyclists) saw motorized vehicles as a source of danger. In a context in which a large share of residents could not afford to own a car, incoming traffic from the region was increasingly targeted as a sign of strong urban identity as opposed to that of the suburbs. Yet apart from the above-mentioned protest against the Lake ring, these growing demands did not accelerate the emergence of anti-road or anti-car movements, as was the case in London for example. By contrast to the situation observed in other EU cities at that time, it led to original forms of social mobilizations such as the "White crosses" demonstrations (see Picture 3), which denounced the number of cyclists killed every year in Denmark. In Copenhagen, these demonstrations echoed the local population's growing discontent with commuting traffic from the region and with the priority given to road investment at the city level.

Picture 3. The white crosses initiative.



Source: © Copenhagenize

Such demonstrations remained occasional and their impact and strong visibility can only be explained in a context of low mobilisation and overall preference for non-disruptive action repertoires. **Moreover, they to prioritize cultural and social issues over political demands.** According to a former prominent cycling activist, this situation is representative of preferred action repertoire in the Danish context: *"this is linked to the so called 'Danish model', whatever it means. In Denmark, we consider ourselves as part of the system. You don't see 'the system' as being something external so you constantly need to think about how to act from within the system"* (Interview cycling activist, February 2016). This specific form of social mobilization should also be understood in relationship with the ambiguous attitude of the Social Democratic Party vis-à-vis transport issues and car traffic throughout this time period. Its political hegemony was undisputed, mainly due to the socioeconomic changes underway at regional level and to central-local relations and to the economic and financial context⁵⁵. But on the other hand, **this also contributed to channelling internal opposition and minimising social and political demands for alternative policies and models.** Indeed, traffic mitigation initiatives were not valued in political discourses nor were they officially developed or recognized as part of a coherent strategy against the negative externalities of car growth until the later part of the second stage. In those cases in which they arouse some controversy, these measures would be removed as observed in the case of cycling (see below) and pedestrianisation initiatives.

⁵⁵ "Socioeconomic changes also explain why there has been a stable Social Democratic Party leadership in Copenhagen. Those who stayed were, traditionally, social-democratic voters" (CREATE workshop, February 2016).

Increasing road safety through mitigation policies (Stage 2)

Together, these within-city sources of pressure led to the development of car traffic mitigation policies at the local level and also exerted increased pressure on national policies to take into account **issues related to safety on roads**: compulsory seat belts, speed limits and traffic calming measures, increased traffic regulation through additional traffic signals, traffic concentration on designated roads as opposed to traffic calming measures on smaller roads. While measures regarding traffic speed were introduced at national level, others such as the construction of new cycling lanes were introduced at municipal level. Together, these initiatives resulted into a significant decrease of road fatalities, i.e., a reduction of 90 per cent between 1970 and 1995.

Moreover, the city was able to strongly monitor these traffic calming measures' implementation, due to the division of tasks within the Danish administrative system: as national highways stopped at the city borders and transformed into traditional roads, local authorities were able to monitor the implementation and enforcement of traffic regulation within its borders. First it sought to **regulate the amount of car traffic crossing the city borders through "green light" traffic management and traffic calming measures**. These measures were mainly planned on a small-scale due to financial and political reasons and sought to better channel incoming car traffic from the region onto the city's road network. On the main road axes, which attracted the largest share of policy attention and resources available at city level, this was achieved by increasing road capacity to the detriment of (existing) bike lanes and public transport. The final dismantling of the tram network was particularly instrumental in this respect. Outside what was considered the primary urban road network, speed reduction measures were introduced and a larger scope for experimenting with traffic mitigation initiatives was possible, especially in those areas in which there were some supporting social demands. **Towards the end of this second phase, traffic mitigation initiatives developed into a more comprehensive strategy** and an active car reduction policy including parking management and traffic light control and coordination. The strategic use of innovative technologies and practices was justified by the need to reduce traffic congestion and to fluidize traffic in Central Copenhagen. As a result, average speed in the city at rush hour was maintained at 30 km/h, which is relatively high compared to other major cities (see D3.2 report).

4.2.2 Reclaiming road space for all users through urban design and politicization (Stage 3)

In addition to traffic mitigation initiatives, two other types of transport policy measures were developed in Copenhagen during the second phase. The first one stemmed outside the transport sector and is strongly connected with the work of Jan Gehl. The second one is linked with the rapid development of cycling. Both can be considered as belonging to 'Planning for city life policies' (Stage 3) and are, to this date, **considered major innovations worldwide and a distinctive feature of transport policy developments in Copenhagen**.

Urban planning and design: transforming Jan Gehl's ideas into practice

While car oriented city planning still dominated national transport policies, alternative models were being developed among urban planners and were developed in the ordinary city, outside the primary road network. In Copenhagen, J. Gehl – a trained architect and urban designer – was particularly influential in promoting a shift towards a city-planning model conducive to increased quality of life. In the book *Life between buildings*, published in 1971, he advocated a strategy grounded in urban design and the transformation of public spaces⁵⁶. Unlike the projects inspired by large urban development projects abroad, such as the City Plan Vest in the Vesterbro district, this approach was not conducive to grand gestures and iconic projects but **emphasized the need to map out existing public spaces and introduce incremental changes through "soft" interventions**. In those days, this approach was not conducive to a direct and obvious link to alternative transport policy initiative. Yet by making a number of policy areas more urban, and advocating the diffusion of urban design initiatives across policy areas, it opened a precedent to what was later developed as the integrated transport approach. It also contributed to an openly critical view on car traffic and use in public discourses, by addressing them as a driver for suburbanization processes and unplanned urban expansion - "*It is cars and the availability of cheap gasoline that created the suburban construction period*". Gehl's ideas directly contributed to the emergence of an alternative to the car-oriented city model and justified shifting attention towards alternative transport modes. Instead of maximising

⁵⁶ Jan Gehl's work in urban design and public space has become a major source of inspiration for a number of cities and policy makers worldwide. See below.

available space to the benefit of car traffic, he advocated transforming them into public spaces that could benefit a large diversity of users.

This changed perspective on the built environment and the role of city – public life instead of a being a major transport hub – **profoundly transformed the way of conceiving urban planning in Copenhagen and with that, the role of transport.** The diffusion of Gehl's ideas in Copenhagen proved particularly instrumental to urban planners – as opposed to traffic planners – and to those departments in charge of urban renewal that were left with little resources. Unlike public transport and road planning, the municipality of Copenhagen did not need to seek financial and political support from other public authorities in order to develop urban design initiatives. Urban design initiatives also received the support from a new generation of political elites from the Social Democratic Party⁵⁷, the socio-liberals and the greens, which traditionally dominated the 5th department (tram mayor or traffic mayor, later environmental mayor⁵⁸) as opposed to the so called “technical” resorts. **It provided them with an alternative to car-oriented planning, and in view of the lower costs attached to such small-scale initiatives, to public transport.** This proved particularly instrumental in a city in which little resources were available and space was vacant due to out-migration flows. Moreover, as issues related to safety on roads and incoming traffic flows from the region were increasingly politicized, urban design initiatives were considered less controversial and as such, the focus of less attention. In this regard also, this incremental process of change through the strategic use of urban design initiatives became politically feasible due low levels of car ownership among residents and to the lack of funding available for larger scale transport initiatives.

Urban planners began to systematically differentiating between road types in order to identify possible open spaces that could be reclaimed for “city life”, including a large variety of potential users. In order to avoid a major controversy over the allocation of urban space, and the dismantling of new developments, they started with the outer districts of Copenhagen instead of concentrating on the historic city centre. In these residential areas, local streets that were previously classified as “urban streets” in speed limit of 50 km/h applied were gradually re-classified as “calming streets” with a speed limit of 30 km/h, including living areas and play grounds with a speed limit of 15 km/h. The attenuation of speed contributed to the concentration of car traffic on the largest roads where traffic light management applied. Urban design initiatives also led to enhancing the quality of urban spaces across the city, and as such, to making cycling (and to a lesser extent, walking) increasingly comfortable and worthwhile using as a reliable transport mode. Existing pedestrian zones in the historic city-centre were continuously extended.

In addition, this approach also had **an impact on the availability of parking spaces in central Copenhagen.** Open spaces that lay “between buildings” were redesigned as public spaces instead of parking lots. This was increasingly planned in combination with parking management initiatives. The first parking meters were introduced in the inner parts of the city in 1965 and later evolved towards a parking management system that was introduced in 1990. Between 1970 and 1995, the number of parking spaces was drastically reduced: while some 100.000 employments were located in the city centre, only 15.000 all-day parking spaces were available for employees. Between 1972 and 1991, the number and the scale of urban design initiatives increased, so much so that by the end of the second phase, a reversal had taken place in the hierarchy established between different uses of public space, thus opening the way for a reshuffling of policy priorities.

The emergence of cycling as a transport mode

A second major change that took place during this time period concerned the growing role of cycling as a transport mode as opposed to being considered a leisure activity. There again, it went largely unnoticed at first and spontaneously emerged as a transport mode in a context in which little alternatives were available to Copenhageners. *“At the time, cycling was not discussed but everyone bought a good bicycle”* (interview with cycling expert, February 2016). Yet during this second sequence, it shifted from being considered a default choice, to being an alternative transport solution more compatible with city life.

This shift resulted from a combination of factors, including the fact that it took place in which the already widespread use of cycling. Even though a diffuse dismantling of cycling lanes had been taking place during the previous phase, the city did not possess the means to pursue this policy on a larger scale. In this context, it relied

⁵⁷ Including Jens Kramer Mikkelsen, who was later elected as Lord Mayor (see below)

⁵⁸ See section 3

upon a well-developed network of cycling lanes. As observed during the Copenhagen workshop: *“The amount of bikes remained high compared to other cities, and increased since the 1970s. In other cities, the tradition for biking was over, but not in Copenhagen. Bike lanes were built in Copenhagen since 1909. The continued tradition for biking helped the city. Indeed, the bicycles lanes were there in the 1970s”*. Nevertheless, this view was counterbalanced during the discussion by other participants to the workshop: *“there were bike lanes, but in no way comparable to the situation we enjoy nowadays. During the 1980s, there were small bicycle lanes. Shopkeepers said that if the parking areas in front of the shops were removed, customers would not come any longer. The political parties listened to their complaints and bike lanes were kept as narrow as possible”*.

In addition, **demonstrations against the Lake ring project had offered increasing opportunities for advocacy groups to promote cycling as an advantageous transport mode**, e.g., low cost, flexible, reliable and faster and healthier. Stemming mainly from the environmental movement, pro-cycling groups strengthened and developed additional capabilities to organize major social events. Similar to the choices made by the organizers of the white cross demonstrations, these events were primarily meant as an opportunity to make a specific lifestyle visible into the public space without necessarily linking it with specific political demands. This was summarized as follows in an interview: *“A lot of things started to happen. Cycling federations made huge demonstrations in town. Cycling was simply the way of living and transporting yourself. They didn’t dare writing that cycling would be more significant in the future. It was part of the continuous movement of 1968: if you were a left-wing person, you were cycling”* (interview cycling activist, February 2016). Yet the strengthening and professionalization of cycling federations, in combination with the development of the Green party, also led to **their growing capacity to articulate policy solutions and lobby public authorities across levels of government**. This was first observed in policy discourses and the emergence of new policy frames: cycling was increasingly promoted as a transport mode, as opposed to being restricted to leisure activities. Second, it led to the introduction of cycling policies: in Copenhagen, the first Bicycle plan was adopted in 1981, and at the National level, the 1983 Road Traffic Act formally recognized the need to take into consideration the growing diversity of road users in planning and managing road networks. In spite of such institutional recognition, a number of interviewees highlighted the symbolic dimension of such policy documents in the absence of resources and implementation tools being made available. No coherent implementation strategy was developed at national level, and in this context, the development of pro-cycling initiatives remained context-dependent and small-scale. In the case of Copenhagen, a comprehensive implementation strategy was only developed some 15 years later⁵⁹.

As a result, the use of cycling as a transport mode increased continuously in Copenhagen throughout this period. People who worked and lived in Copenhagen were increasingly travelling by bike, while those commuting on a daily basis from the suburbs switched to the S-train and regional train networks. While cycling had often been associated with poverty and pre-war mobility, it now embodied urban renewal and quality of life. Increasing demand for cycling also justified continued incremental improvements to the network, including in shopping streets in the historic city centre where bicycle parking spaces were gradually introduced by reducing car parking. There again, this was achieved gradually due to the mobilization of shop owners and through small-scale experiments. Together, these changes – network expansion, increased safety and streets’ reclassification – explain that bicycle traffic doubled between 1970 and 1995.

Nevertheless, the role of urban design and cycling initiatives during this second sequence should not be overestimated. To some observers, it is first and foremost explained by a combination between low capacity investments and the residents’ average income. This was summarized as follows during the Copenhagen CREATE workshop (February 2016): *“when the central government decided to stop financing road infrastructure in Copenhagen, it was considered as a sort of indifference of the state for the capital’s conditions. Nowadays it is rather considered a providential decision, that prevented Copenhagen to be overwhelmed by cars”*. These initiatives remained small-scale and were mainly achieved on a pragmatic, *ad hoc* basis without being acknowledged in policy objectives. **They did not prevent the largest share of transport policy resources invested in transport at city level still being prioritized for capacity extension on the road network**. As observed by one of our interviewees: *“during this period, the capacity of the road network was increased and street areas were taken-up by cars driven by rich people from the suburbs. So, you could say that we were very tolerant for many years. In the 1970s, we discovered we had accidents, air pollution, noise ... And we didn’t do anything. We mostly accepted the situation”* (Interview cycling activist, op.cit.). Traffic mitigation initiatives were only introduced as a case-by-case reaction to specific salient events, such as car accidents, and to the extent that they remained low visibility and were only introduced to the extent that they relied upon a minimum level of

⁵⁹ See below, section 4.3

policy resources. In addition, the efforts achieved at city level in order to mitigate car traffic were not able to reduce the overall amount of car traffic in the city due to incoming traffic from the outer region.

4.2.3 Institutional fragmentation and inter-organizational competition in public transport

Throughout this period, the share of public transport stagnated. In terms of the distribution of policy resources across transport modes, public transport was enhanced when it did not come into spatial competition with cars. To be sure, some improvements were brought to the bus and the regional train networks, as well as to transport services. The development of bus lanes, in combination with priority signals, contributed to improving bus traffic in the region and in Copenhagen. Capacity investment was made on the S-train networks across the region, including the City of Copenhagen, with the development of new lines and the expansion of existing ones. The last S-Train line was developed southwards between 1972 and 1983 (H, Frederikssund – Osterport) alongside one of the original “fingers”, but no further significant expansion of the network was planned. In Copenhagen, the tramway network was dismantled, and in the region, public investments in roads prevailed over public transport.

Weak levels of inter-institutional cooperation at regional level in combination with the dominant car-oriented policy paradigm at National and local level jointly account for public transport being an underdeveloped transport mode during this second sequence. As the planning and funding of public transport initiatives required some level of coordination at regional level and lobbying capacity at National level, existing mechanisms proved insufficient to overcome conflicting views and interests about spatial planning objectives. From a formal point of view, the principles laid out in the 1947 Finger Plan had been reiterated in subsequent policy documents, including the 1989 Regional Spatial Development Plan. City growth was to be concentrated around existing transport corridors. **Yet in practice, urban planning in the Greater Copenhagen area disregarded this principle.** To be sure, some open country areas have been preserved between the five fingers. But in the absence of strong regional coordination mechanisms, low-density urbanization was conducive to urban sprawl. In addition, the Finger Plan itself appeared somewhat out-dated in the context of the region’s rapid expansion since the post WWII period and underestimated the need to create radial axes and ring roads further out from central Copenhagen. While planning principles were conducive to increased traffic concentration within clearly defined corridors, the effective development of traffic showed increasing demand for more decentralized and dispersed transport services and networks. Within the city of Copenhagen itself, city busses were unable to compete with cycling, especially in the inner-city area, due to traffic speed and aging equipment. As the share of senior citizens and traditional working class was decreasing, younger people and students were not regular public transport users (Illeris, op.cit.).

Institutional and organizational change as an attempt to foster increased integration between transport modes

Faced with the need to effectively regulate urban growth and to take into account the specific needs of the capital-city region, an act was issued by the central government in 1974, giving the Greater Copenhagen Council (HR, *Hovedstadsrådet* or Capital Council) the responsibility for regional planning in the Greater Copenhagen area⁶⁰. Copenhagen Transport (HT) was established by law at the same time by merging twelve mainly public-owned transport companies. As both a transport authority and an operator, it constituted an unprecedented attempt to better integrate public transport services across the capital region. Its funding was based on the regional partners’ tax revenues and therefore detached from service provision.

In this context, **several public transport initiatives were developed.** In 1972, the introduction of the public transport common tickets was considered a major innovation and a decisive step towards increased inter-modality. In 1978, HT took over some responsibility for planning and funding the S-train network, with the direct financial support of central government. The main rationale behind this reform was to concentrate public transport planning across the capital region and to develop a joint tariff structure across networks. Yet the operation of S-trains was still carried out by DSB while HR only covered the expenses and planned new investments. From the passengers’ point of view, this initiative was considered a success, and the number of S-train passengers increased by 50 per cent between 1977 and 1981.

⁶⁰ See section 3.

Yet in terms of governance, this first attempt at better integrating public transport provision in the capital region failed: HR was dismantled in 1989, Copenhagen Transport was dismantled a year later and the responsibility over the S-train network was transferred back to DSB. This first attempt at increasing coordination between public transport networks' coordination at regional level also highlighted strong resistances within DSB against the creation of a single regional transport authority. The three partners – DSB, HR and HT – regularly stumbled against the division of responsibilities and funding. More precisely, **classic blame avoidance strategies were developed** in order to account for this failure: HR was accused of not having sufficiently invested in infrastructure maintenance, while DSB was accused of wanting to secure revenues from increased patronage. Following the dismantling of HT in 1990 - in accordance with the national law (and European legislation) on passenger transport – the operation of a large share of the bus network was transferred to private companies. The abolition of both the Capital council and Copenhagen Transport is also considered **the result of active lobbying at state level** from, on the one hand, local authorities (municipalities and counties) that resented the limitations to their autonomy in planning and developing transport initiatives, and on the other hand, DSB and transport companies. Since 1990 HT has remained the most important operating company, but it was deprived from its powers as transport regulator and now acts independently from the administration. Some years later, in 1995, it became the public transport authority (ATM 2001) with some responsibility on all public transport systems with the exception of S-trains, whose responsibility was transferred back to DSB.

While the absence of a metropolitan transport planning authority is often highlighted as a major barrier to the development of public transport initiatives and capacity investments in the region, the role played by the Capital Council (HT) and Copenhagen Transport (HR) is not considered an experience **that should be reproduced in the absence of a more profound redistribution of powers between levels of government and a clearer transport funding structure**. The establishment of these two organizations was not conducive to a reshuffling of policy priorities in spatial planning and transport policy objectives in the region. It is considered to have had a counter-productive impact on existing public transport network: increased coordination in transport planning at regional level and the creation of both HT and HR was indeed conducive to a loss in municipalities' responsibilities over the planning of the bus network. In this context, their ability to better link, at the local level, public transport planning with urban and commercial developments was weakened and justified the preference given to road investment.

Unlike the situation observed in other cities in CREATE, transport policy developments in the Copenhagen city-region thus highlight the absence of pro-public transport advocates or their ability to cooperate. At city and national level, the growing role of cycling federations also increased competition between transport modes on the political agenda and for the distribution of resources. When compared with road transport and cycling, which both relied upon strongly mobilized, well-organized interest groups; public transport benefited from little support.

4.2.4 Concluding remarks, Phase 2

Transport policy developments during this second sequence are strongly related to regional growth and low-density urban development, which now extend beyond metropolitan boundaries into the wider region. The car is confirmed as a dominant, attractive and almost indisputable mode of transport in the region. This is more particularly the case in those areas located between rapid transit corridors (fingers) as well as in the inner suburbs, where capacity investments underestimated the extent of population growth as well as the magnitude of daily commuting flows to and from the city of Copenhagen. Despite such rapid diffusion and growth, car traffic is increasingly highlighted as a source of negative externalities, e.g., safety issues, noise and congestion, especially in those areas where levels of congestion and traffic flows are densest, that is, the cities of Copenhagen and Frederiksberg, and, to a lesser extent, local authorities located in the inner suburbs.

Regarding the pioneering role of Copenhagen in the development of 'planning for life' policies (Stage 3), the analysis helps to make sense of somewhat contradictory dynamics. To some extent, it confirms the low explanatory role of cultural factors as the main factor explaining its development. Indeed, the public policy perspective highlights the continued dominant role of car use and the prevalence given to car traffic during the entire period. This is nicely expressed in the following quote: *"The only reason we haven't destroyed Copenhagen is because we couldn't afford it, we were lucky we were poor. All the rich people that could have paid for motorways left the city. They moved to other municipalities and the city of Copenhagen was left almost bankrupt"* (Interview with transport expert, February 2016). When considering the dynamics underway in the suburbs and in the city's primary road network, the car-oriented city model remains dominant and further expands. A similar conclusion can be driven from the developments taking place in public transport, in comparison with other cities in

WP4 where strong public transport advocacy groups emerged during this second stage. Even though some strong cooperation mechanisms were introduced at metropolitan and regional levels, successive attempts to further integrate transport modes and planning failed due the mobilization of local authorities and transport companies.

Yet in Copenhagen, the changes taking place during this second sequence are also characterized by a **large number of small-scale initiatives and highly innovative policy solutions**, which, together, contribute to the city's distinctive features when compared with other cities in Europe at that time. While not necessarily stemming from the transport sector, they are considered instrumental by a wide range of stakeholders – politicians, engineers and planners – in their attempt to challenge dominant representations and interests. These policy initiatives echo the growing concern for car traffic's negative externalities and offer an alternative to reactive, symbolic measures as well as to traffic mitigation initiatives. Unlike the situation observed in other EU cities, where public transport was generally selected as the best possible alternative, policy makers in Copenhagen faced major budgetary constraints as well as a lack of political support in support of capacity investments. By drawing on Gehl's recommendations for city life, these stakeholders made the city their own and contributed to developing new policy frames and practices. The increasing role of urban design initiatives in transport planning eventually led to transforming professional practices from a technical (engineering) to a more integrated (urban) approach, and to the emergence of strong alternatives to motorized transport modes, and more fundamentally, to the car-oriented city model.

Together, these initiatives paved the way for the massive and profound changes that were introduced in a radically different context during the next phase.

4.3 Intensifying traffic mitigation policies in a context of regional growth (Phase 3, 1991-2007)

Following several decades of deep economic recession and conflicting state-local relationships, the new urban growth model that emerged in Copenhagen in the early 1990s contributed to strengthening traffic mitigation strategies. To a large extent, these developments very much followed up on the choices that were made during the second phase. Yet the main difference lies in the introduction of large-scale transport initiatives in public transport and roads, which, together, both strengthened and transformed the city's unique status in the context of the EU's enlargement to the Nordic states. This section mainly addresses the rapid extension of 'Planning for people' (Stage 2) policies in a context of strong regional growth.

First, it argues that the arrival of a new generation of political elites across political parties and levels of government fostered new forms of state-city cooperation. Whereas state policies and investments had been concentrated in the region outside Copenhagen, the redefinition of the Big H strategy led to a number of large state-led infrastructure projects aimed at strengthening Copenhagen as both a hub and a place. Under the leadership of a new, charismatic mayor, and with the support of EU policies and funding, a large urban renewal policy was developed by drawing on the changes taking place in other EU cities, while at the same time contributing to enhancing capabilities. Although from different political majorities – a liberal conservative National government and social-democrat mayor in Copenhagen – a new state-city alliance was developed in support of an urban growth strategy in Copenhagen (Thor Andersen, Winther 2010). Marking a shift away from welfare-oriented policies within the Social Democratic Party, this alliance was to last for more than 20 years.

Second, this altered form of urban governance did not put an end to strong differentiation mechanisms between the city and the region, but led, as argued in this section, to exacerbating them with some major impact on transport policy goals, resources and measures. In a context of strong fragmentation at regional level, the City of Copenhagen drew on its newly gained resources in order to unilaterally develop a comprehensive sustainable urban transport strategy that now included urban public transport initiatives. More precisely, this section accounts for the way through which transport projects and initiatives gained a prominent role in the City of Copenhagen and were designated, in close relationship with housing, a major driver towards urban growth.

4.3.1 Unprecedented state-city cooperation in support of infrastructure-led policies

The most decisive changes observed during this third sequence are linked with political and institutional factors, and more specifically with the shift taking place at state level in preparation for the 1995 EU enlargement. There was a growing concern among political and economic elites that other Scandinavian cities (Stockholm,

Helsinki) would emerge as a strategic hub in the north-European region (Giersig, 2008). In Copenhagen too, a new generation of social democrats strategically used these opportunities in order to promote alternative urban regeneration measures. Together, **external and internal pressures for change fostered a major policy shift**, observed through a change in terms of objectives, resources and measures, as well as the emergence of a new state-city alliance that was to last for some 25 years. Such unprecedented cooperation between the central government and the city of Copenhagen is considered as a pivotal turning point in the city's recent history (Knowles 2002).

Strengthening Copenhagen's European identity

In the late 1980s, prominent economic actors were concerned with the need to ensure the country's role as a gateway towards Northern Europe. In this context, there was a sudden realization that Copenhagen was not acting as a major gateway and to compete with other Nordic cities, due to its disastrous financial situation and to the lack of investments in major infrastructures. The population had been continuously declining since the mid 1950s, and there was a growing disconnect between tax revenues and the growing expenses the city had to face if it were to improve existing infrastructure and develop new networks. The city almost went bankrupt.

Several initiatives emerged at national level in order to develop a new growth strategy for the capital-city region⁶¹. The cognitive change then taking place was summarised in the following way during an interview: *"We started to realize the necessity for a renewed development in 1989. One of the fears was that we only rested on our inner market [i.e., National market, CbA⁶²]. A lot of people realised that Copenhagen was left behind compared to other capital cities in Europe. The comparison with Stockholm was on everyone's mind ... The rest of Denmark also thought it was a pity to let Copenhagen fall down. National policy makers started to realize that if Denmark did not have a competitive capital, we did not have a strong national state"* (Interview state representative in the region, September 2016). Among other initiatives, the report Our Capital – what is to be done? was presented by the Stallknecht Committee, which brought together representatives from central government and prominent economic actors under the initiative of the Finance ministry. As recalled by a former participant to the commission in an interview: *"So in 1989, we had a 20-point report. There were three main fields: infrastructure, culture, and education. ... Danish politicians could say to the world that they were investing in the capital of Denmark. This gave a new growth to the city and to Denmark"* (CREATE workshop, February 2016).

Unlike the situation observed during the first two phases during which the city's main function was to serve as a National hub, Copenhagen was redefined in state policy documents as a European city. This cognitive shift also put an end to 20 years during which no major state investments had been made in the city and its transport infrastructures. Specialized agencies were set up by the Central Government in order to directly and actively pursue policy implementation in close cooperation with the private sector through various forms of public private partnerships. This was justified in order to limit possibilities, in the event of a political change within Parliament, to revert the process (Interview state representative in the region, op.cit.)

The decision to build the Øresund fixed link towards Malmö constitutes a first step towards the European turn in the central government's strategy, and confirmed the strategic role that Copenhagen would play in this process. After 50 years of negotiations, Denmark and Sweden decided in 1991 to build a bridge across the Øresund from Copenhagen to Malmö, which included a 4-lane highway and a 2-tracks railway: construction works started in 1995 and the bridge opened in 2000⁶³. **Social Democratic elites across levels, working in cooperation with their Swedish counterparts**, were instrumental in fostering an agreement within the Danish Parliament and local authorities whose land was to be developed. It was meant to ensure Copenhagen's key role as a gateway towards Nordic countries, and to connect the Swedish Peninsula with the rest of Europe (Omega Centre report, 2014). The Øresund bridge created an opportunity to experiment with the state guarantee model. This includes, on the one hand, the creation of a state-owned company responsible for the planning, design, funding, construction and operation of a given infrastructure project, and on the other hand, this company funding the project through obtaining loans on the international financial markets. While the Danish state provided guarantees for these loans, the company's debt is repaid by infrastructure users. In addition, EU funding and

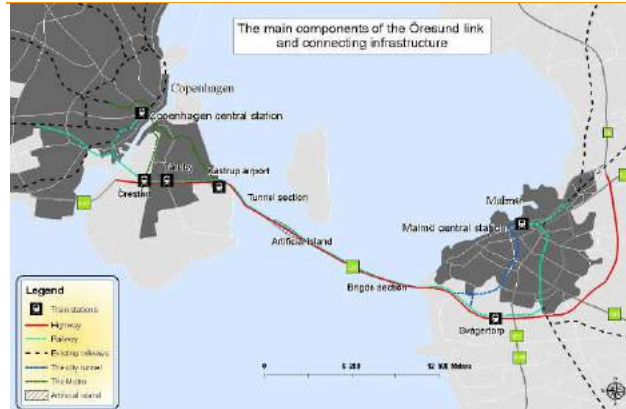
⁶¹ See the report *Hovedstaden – Hvad vil vi med den?* (see Thor Andersen 2002; Majoor, 2008, 122)

⁶² Comment by Authors (CbA).

⁶³ The bridge also includes a data cable and ensures data transmission to and from the Scandinavian Peninsula.

policy resources (e.g., expertise, political resources) were made available as part of successive INTERREG programmes, including some €50 million between 1996 and 2006, as far as infrastructure developments were concerned, and other programmes and funds (URBAN, LIFE, etc.) in order to address more specifically urban renewal policy objectives in both Copenhagen and Malmö (OECD 2009).

Map 5. The main components of the Øresund link and connecting infrastructures



Source: Lantmäteriet, retrieved from OMEGA Centre report, p.11

The construction of the Øresund bridge also had some impact on the state's urban and spatial planning policies in the Copenhagen region. Unlike the situation observed during the past decades, these projects were mainly framed in conjunction with the need to strengthen the city of Copenhagen as a place – and with the direct involvement of the city as a Shareholder and a major stakeholder due to its municipal powers – but with little to no discussion regarding these project's metropolitan or regional significance. This was mainly justified in political discourses due to the strategic dimension of the planned developments and to Copenhagen's critical financial situation. It also resulted from the active lobbying of Copenhagen's political elites.

A new generation of social democrats in Copenhagen

By successfully contributing to framing these large-scale development projects as urban, as opposed to regional and/or national, the Copenhagen's mayor and the Social Democratic Party contributed to the shift observed at national level in spatial planning policies in the city.

Following two decades of within-party discussions, **a new generation of Social Democratic leaders** came to power after the 1989 municipal elections and drew on the experience underway in a number of European cities where urban elites faced similar challenges (Giersig, 2008). Similar dynamics were underway in Malmö and Helsinki, as well as in other cities that played a prominent role in the Eurocities network (e.g., Frankfurt, Turin, Lyon, Barcelona, etc.) (Le Galès, 2003; Pinson 2015). All interviewees highlighted the following driving factors in the shift taking place in Copenhagen (see also Thor Andersen, 2002): 1) appeal to other segments of the electorate, including younger generations and pro-business groups, by developing new policy issues (e.g., environmental protection, public space), 2) the development of a multi-level resource seeking strategy as opposed to dependency on state investments and support, 3) the reshuffling of policy priorities according to their urban dimension. Together, this contributed to the emergence of the Copenhagen urban growth model.

Jens Krammer Mikkelsen, who ruled as Lord Mayor of Copenhagen between 1989 and 2004, is unanimously considered as having played a prominent role in this process. By contrast to his predecessors and unlike traditional forms of local political leadership in Nordic cities (Giersig, 2008; Reynaert et al. 2009), he rapidly emerged as a strong, individual political figure within the Social Democratic Party. He belonged to the new generation of Social Democrats that were elected as city representatives in 1978. As chairman of the City Planning and Traffic Committee, he was directly involved in the changes taking place in urban renewal and transport during the preceding time period. One of our interviewees summarised his role as follows: *"The former Lord Mayors of Copenhagen were working class. They really wanted to build new social houses, very concrete and solid. But they did not really take into account issues related to quality of life. This new mayor was a school teacher and he put strong emphasis on making Copenhagen a city of culture and quality of life. Personalities played a very strong role in this process, not just his, but also that of the technical mayors. It was not only a party-thing, but more a personality-thing."* (Copenhagen workshop, February 2016). Under Mayor Krammer Mikkelsen's successive mandates, the city of Copenhagen developed a municipally- and public-led urban regeneration

strategy aimed at restoring its financial autonomy. As the city possessed brownfields and unoccupied space, it relied primarily on housing and the real estate market as major drivers. Meanwhile, regional growth focused services and the knowledge-based economy in close cooperation with universities and economic actors⁶⁴.

This was achieved by developing **a multi-level resource seeking strategy and by drawing political support from the state and the EU**. Together with other lord mayors from large urban areas in Denmark, Kramer Mikkelsen supported a shift in national housing policies towards the revitalization of historic city centres and the regeneration of deprived neighbourhoods (see Section 3.2). Similarly to his counterparts in other social democratically led EU cities, he drew on European structural funds in order to finance urban regeneration initiatives in the most deprived areas of Copenhagen. There again, the work done during the previous decade in public spaces was instrumental in order to mobilize these funds as part of a more comprehensive strategy. In addition, renewed discussions about the Øresund link offered a new opportunity to promote Copenhagen's interests with central government and major economic groups. As part of the negotiations with the Ministry of finance regarding the city's debt, he supported the reopening of discussions about the state's spatial planning strategy in the capital-city and highlighting the need to address its specific needs within the metropolitan and regional growth. By proposing a new understanding of the principles laid out in the Finger Plan, this approach highlighted the limits of the corridor-centred strategy **and suggested focusing on the centre (palm) as a way to boost economic growth**.

Large-scale infrastructure planning in Copenhagen and the Øresund

This changed central-local relationship contributed to the development of an ambitious place-making strategy at national level that led both central government and economic groups to prioritizing Copenhagen through a number of infrastructure-led policies.

First, the decision was made to enlarge **the Kadstrup airport**⁶⁵, which was to become the first stop on the Danish side of the Øresund link. Second, the **de facto opening of a new “finger” towards the Island of Amager** constituted a major opportunity for major urban developments to take place alongside a transport axis that would ensure direct connection between the bridge, the airport and major road and rail connections in Denmark. Following the 1992 Ørestad Parliament Act, an entirely new urban area, the Ørestad, was planned on a 310-ha large area – including a protected natural park - with several segments to be successively developed in order to accommodate some 20.000 housing units and 80.000 jobs by 2030⁶⁶: as of end of 2016, the residential population has reached 10.000 people, and there are some 17.000 people working in the area (CPH City & Port development annual report, 2016). There again, planning the Ørestad was considered an opportunity to experiment with new forms of urban development. A joint non-profit organization was created by the state (Finance ministry) and the city of Copenhagen - Ørestadsselskabet⁶⁷ – with 45 per cent and 55 per cent shares respectively – in order to plan and develop the new area and all related infrastructures. The development of the new urban area was financed through land sales⁶⁸. Another major innovation in governance related to the decision-making process itself, with the choice made to introduce a specific Parliament Act: this procedure would be reproduced in later major urban development projects planned in Copenhagen (e.g., Nordhavn) with two major consequences. First, it required the proposed plans to be incorporated into Municipal plans (land-use, mobility etc.). This was achieved in 1996 and offered an opportunity to systematically review existing planning documents. The transport and urban design initiatives that had been introduced in the inner city were extended city-wide. Second, it put a *de facto* end to all the lawsuits that had been initiated by environmental non-governmental organizations against the development of a protected natural area.

⁶⁴ Interview with state representative in the region, op.cit.

⁶⁵ A 10 years' investment programme was launched, including a new domestic terminal, expanding the international terminal, large parking facilities, an underground railway station, new piers and the development of commercial activities in all terminals.

⁶⁶ It should be noted that changes of a similar magnitude were taking place at the same time in Malmö (Fitzgerald 2012; Holgersen 2014)

⁶⁷ It has been replaced in 2007 by By & Havn, a non-profit organization. See annual reports on the company's website: www.byoghavn.dk. For a recent overview, see the report produced by the Brookings Institute (Katz, Noring, 2016).

⁶⁸ For a critical discussion of the decisions leading to the development of Ørestad, see Majoor (2008, chapter 4).

Third, **the Metro project** that had been rejected in 1965 was pushed back onto the agenda as part of the discussions on the development of the Ørestad. Its main rationale was to develop a new corridor towards the airport and the Øresund Bridge. Successive discussions with Sweden about the Øresund link had initially involved national railway agencies, and a large role was to be devoted to DSB in order to develop rail connections and services between the new railways and the national and regional networks. Yet as part of the Copenhagen Mayor's attempts to strengthen the urban dimension of the proposed developments, an urban public transport policy solution was preferred to other possible alternatives (regional train, roads). In addition to funding the new Ørestad area, land sales would also finance the construction of a metro underneath Copenhagen – a funding mechanisms that was inspired by the London experience. The financing issue for the long sought-after metro project was solved. This was achieved by seeking a joint approval for the Ørestad and the metro projects as part of the 1992 Parliament Act, which also contributed to significantly reducing opportunities to challenge the project at the local level.

Public- or market-led forms of urban governance?

Together, these innovations in governance account for this urban growth strategy being characterized by a number of scholars as 'flagship oriented' (Thor Andersen and Winther 2010) and more recently, as neoliberal (see in particular Majoor 2008; Christiaanse, 2009; Olson, Loerakker, 2013). The role of the then liberal-conservative National government, and that of the conservative Prime minister Poul Schlüter, has often been highlighted as the main explanatory factor for the introduction of public-private partnerships, the systematic creation of semi-autonomous agencies and the shift in policy instruments – features that have often been highlighted as major features of the (neo)liberal city model (Fainstain 2009, for a discussion see Pinson, Morel-Journel 2016). Yet in the case of Copenhagen, as expressed by Thor Andersen and Winther (2010): *"If Copenhagen has been part of a neoliberal strategy, it has clearly been a state-led version with reasonable regard to the context of social relations and institutional structures"* (Thor Andersen and Winther, 2010). The urban growth coalition that emerged under the leadership of Mayor Kramer Mikkelsen, with the support of a left-wing coalition and that of the Danish state, actively contributed to this shift and played a decisive role in the growing role of market actors and market-oriented forms of governance. Similarly to the national Social Democratic Party leader, Svend Auken, Mayor Krammer Mikkelen was not opposed to the use of public-private partnerships in order to plan and develop some of the city's most prominent urban renewal projects, including the Ørestad, the Metro and the Docklands.

Together with the state, the municipality created **single-purpose public-owned and privately managed corporations**, with the explicit goal of regenerating large urban areas, maximizing the value of public land, and using the revenues to finance transport infrastructures⁶⁹: Ørestad Development corporation (1992) and Port of Copenhagen Ltd. (2001), created in order to redevelop the former port area⁷⁰. Both companies were brought together in 2007 as part of CPH City & Port Development, which is owned by the state and the city of Copenhagen – with a share of, respectively, 45 per cent and 55 per cent between 2007 and 2014. By combining its role as shareholder and its regulatory powers as planning authority, the municipality hoped to keep the upper hand on future developments. Iconic buildings were built in Ørestad and the harbour area as part of the redevelopment of the Docklands, as exemplified by the Royal Library building, and a consistent effort was made to attract world renowned architects. Yet this policy also led to the increased role of market mechanisms and private actors in the housing market. A steady re-urbanization of the city centre took place in close relationship with increased prices on the housing and the real estate market. Some 20.000 social housing units were sold to residents.

Together, this contributed to the development of the so called "Copenhagen model", which drew on a "self-feeding system" (Andersen, Winther, 2010) in which land use, real estate and infrastructure developments fuelled the city's attractiveness for foreign and private investments, as well as for wealthier social groups. This also had an impact on transport demand. From the mid-1990s onwards, Copenhagen experienced a growth in

⁶⁹ For a presentation of the mechanism it entails, see the case study done by Katz and Noring (2010, 17). For a critical view, see Majoor (2008) and Thor Andersen & Winther (2010).

⁷⁰ Metroselskabet or Metro was created in 2007 on a similar model, and is owned jointly by the city of Copenhagen (50 %), the Danish Government (41.7 %) and the city of Frederiksberg (8.3 %).

jobs, income and inhabitants⁷¹. Urban growth was still underway in the outer suburbs and outside the “fingers” (13,8 per cent), but an important urban population increase was also observed in the inner urban area (5,5 per cent) (Naess et al., 2009). In terms of mobility, this translated into a sharp increase in transport demand. Car traffic rose throughout the region, and the total number of kilometres driven by car in the inner parts of the city of Copenhagen increased by approximately 20 per cent between 1995 and 2000. As congestion increased, the average travel speed decreased from 33 km/h in 1995 to 27 km/h in 2005 in the city during rush hour. In the meantime, the use of public transport remained somewhat stable in the case of S-trains and underwent a sharp decline in the case of buses.

4.3.2 The Copenhagen model as a specific understanding of the integrated approach

In this section, we discuss the extent to which infrastructure-led policies shaped transport policy developments and the reshuffling of policy priorities in Copenhagen. We argue it is first and foremost related to renewed concerns about traffic growth. Second, we discuss how the city was increasingly able to plan and implement its own transport policy objectives. The analysis highlights this shift's incremental nature and in close relationship with the continued strengthening of governing resources. Two major drivers for policy change are examined. First, as new, large scale urban and infrastructure projects were underway, existing municipal planning and policy documents were regularly updated. This offered an opportunity to the city's authorities to reshuffle policy priorities and resources across policy domains, including addressing the negative impact of car traffic growth and rising transport demand to and from the city. Second, renewed concerns for car traffic's externalities justified the development of a sustainable transport agenda that primarily sought to mitigate traffic – and more generally, urban – growth. This was mainly achieved unilaterally, in a context in which the city enjoyed growing levels of autonomy due to the lack of institutionalized forms of regional governance and to ambiguous national transport policy objectives⁷².

From regeneration-led urban planning towards as a specific form of integrated approach

The nomination of Copenhagen as the 1996 European Capital of Culture accelerated the introduction of a large-scale urban renewal strategy. Grounded in urban planning theories and models, it promoted a greater integration with sector-specific policy measures - such as housing, transport, energy, etc. – thus ensuring the mainstreaming of overarching political goals. In Copenhagen, **the integrated approach primarily drew on the urban design experiences** developed at a smaller scale during the previous period, at a time when municipal agents in the urban planning department sought to avoid the creation of too many brownfields and vacant spaces at the lowest possible costs. The city now relied upon additional funding sources available at European and National levels as part of, respectively, the URBAN programme (1994) and the National agenda on urban policies⁷³. Aimed at regenerating urban centres, these programmes funded policy initiatives at neighbourhood level. They these sought to enhance the quality of urban life through densification, the regeneration of the built environment and public spaces, traffic planning and environmental protection (OECD 2009).

In this perspective, the integrated approach meant **a strong focus on public space and life as overarching goals for policy interventions across sectors**. Policy-makers and technicians sought to rely upon a larger set of planning theories and experiences, such as the British model of new towns. Urban planners and architects were increasingly considered an indispensable source of professional expertise across municipal departments and public agencies. In transport, this process begun with the development of the Metro system⁷⁴ and was later extended to other projects and initiatives. Systematic references to Jan Gehl's ideas and more generally, to the New Urbanism movement, were particularly instrumental in justifying the shift away from car-oriented city planning. As Gehl's work became increasingly known worldwide, he also further specified what “planning cities on a human scale” meant for urban planning, what it implied in terms of behaviours and city's

⁷¹ See Graphs 1a, b & c in section 3, and D3.2 Copenhagen report.

⁷² See Section 4.3.3

⁷³ In particular the Kvarterloft programme, 1997 and the Urban Renewal Act of 1998.

⁷⁴ Some years later, when the Metro company was set up to plan and develop future network extensions, an urban planner was nominated at its head.

usages, as well as the concrete tools that could be mobilized in order to make this new city model come true. In this context, car traffic was increasingly targeted as a major barrier towards this process as well as a source of externalities resolutely incompatible with this model. In his most recent work, this was made operational through five rules that should be applied in order to achieve such form of planning – two of which directly highlighted car traffic and the car-oriented city model: 1) stop building architecture for cheap gasoline, 2) Make Public Life the Driver for Urban Design, 3) Design for Multisensory Experiences, 4) Make Public Transport More Equitable, 5) ban cars. By highlighting the strong relationship between Copenhagen, as a source of inspiration, and Gehl's ideas, **policy discourses begun imitating the sound of a tambourine** that was continuously played in the background in order to stress the link between policy initiatives and projects with the city's culture, history and way of life.

In spite of the growing permeability between urban planning and transport, political discourses and public attention mainly focused on large-scale urban development initiatives and flagship projects. This meant that some adjustments needed to be made to Gehl's original thinking in order not to challenge the priority given to the mayor's ambitious urban growth agenda. Political discourses about transport and congestion highlighted traffic mitigation strategies as opposed to car reduction initiatives and goals. This did not, however, prevent the silent and progressive shift towards sustainable transport initiatives.

Organizational and political changes as main drivers for policy change

Although not the most prominent issue on the political agenda, transport benefited from increased policy resources in this changed governance context. This proved particularly instrumental in order to formalize traffic mitigation policy objectives (1997-1998) and later, to foster the adoption of car traffic reduction objectives (2005-2006). During this sequence, **housing, urban renewal and large-scale urban developments were considered higher up on the political agenda**, and sustainable transport was only acknowledged as a major priority in policy documents⁷⁵ and political discourses after 2005.

Car traffic mitigation objectives were formally introduced in the 1997 Traffic and Environmental Plan. This policy document also highlighted the need to develop alternatives, namely public transport and cycling. Nevertheless, these objectives were defined in general terms and did not rely upon specific targets. The 1998 "mini-mayor" reform was particularly instrumental in providing sustainable transport initiatives with additional organizational and political resources. Following the reform, strategic policy goals were mainstreamed across municipal departments and the municipal administration was reorganized accordingly. In this context, urban planning gained additional prominence over transport following the creation of the Housing and Technical Department in 1998. This allowed overarching goals, such as urban regeneration, to be mainstreamed across policy domains as part of the integrated approach. This was done in close relationship with increasingly specified objectives, precise targets, timeframes and actions. By allowing politicians from other political parties to be elected as "technical mayor", this administrative reform fostered the emergence of a potential political champion within cabinet and in the eyes of the wider public. As debates within the Social Democratic Party were still going on regarding the role of the car, this offered some opportunity for the Lord Mayor to draw on external support from within the ruling majority⁷⁶. Both the Traffic Improvement Plan (2000) and the Traffic Safety Plan (2001) reflect the changes underway and introduced some specific targets and concrete ways to reach these objectives.

In this changed organizational and political context, technicians and policy makers within the municipal administration drew on additional resources in order to strengthen the tools and measures that had been introduced during the former phase – i.e., a combination of Stage 2 and Stage 3 policies (e.g., traffic mitigation, urban design, cycling) – and introduce them citywide. **A first series of policy measures aimed at strengthening traffic mitigation objectives** was introduced at the city's borders. It streamlined and systematised what had been introduced during the previous time period. It included traffic signal management, traffic calming, and further reductions in public parking spaces in the inner-city area. Other initiatives sought to mitigate the negative effects of urban expressways, including setting up noise screens, developing public spaces dedicated to skating underneath S-trains and motorways built on pillars, and increasing accessibility and quality of life through urban renewal initiatives. In the case of the Bispeengbuen express way (above-mentioned), these

⁷⁵ This reflects across successive Municipal plans and Transport Acts. See list available in Section 3

⁷⁶ In the case of transport, a member of V (the Libertarian Party) acted as technical mayor between 1998 and 2005, and later on, it was someone from RV (the Social Liberal Party) or SF (Socialist Party). See Table in Section 3

mitigation initiatives were introduced progressively between 1994 and 2011, following the decision to definitely abandon this infrastructure's completion. It included a number of stakeholders - Danish Road Directorate, Danish Design Centre, the district of Nørrebro in Copenhagen, the City of Frederiksberg, etc. - and various funding sources.

A number of initiatives were also introduced in order **to reduce traffic speed, such as pedestrianization, the definition of shared and recreational areas, and changes in parking management.** Such policy initiatives demanded little resources and remained under the control of the municipal administration. Following the 2000 Traffic Improvement Plan and the 2001 Traffic Safety Plan, this approach was extended city-wide and benefited from increased resources, technologies and installations. Altogether, some € 8 million (DKK 60 million) were to be invested in the road network, with over one third of that budget being devoted to cycling initiatives. Nevertheless, differences in road ownership⁷⁷ are instrumental in order to assess the municipality's ability to develop traffic management. Due to the large network of private-owned streets, it could not intervene on the network city-wide. The road ownership structure in Copenhagen also had an impact on the management of such policy initiatives and encouraged the development of "soft measures", which were developed at neighbourhood level through small-scale projects. By involving citizen, residents and local shopkeepers from an earlier stage, technicians sought to increase these stakeholders' overall acceptability and foster a consensus. It also encouraged the development of trials and experiments, as well as the preference given to a step-by-step approach. Drawing on these experiences, a comprehensive action plan - the Copenhagen Urban Space Action Plan (CUSAP), adopted in 2005.

This was also the case for cycling initiatives. Cycling had first been promoted in order to answer transport demand in a city in which socio-economic revenues were low in comparison with the situation observed in the rest of the region. Yet as the city's urban growth strategy became more prominent, **it emerged as an instrumental tool towards the city for life planning model and was increasingly included in attractiveness policies.** From 1991 onwards, cycling policy initiatives mainly aimed at increasing the quantity, quality and safety of cycling infrastructure. Dedicated bike facilities were introduced citywide in close relationship with other urban design initiatives such as recreational areas, the dismantling of parking spaces etc. They were mainly added on a step-by-step basis and in case some opposition was expressed, the initiative was first introduced as a temporary experiment. As explained in an interview: *"The way people looked at cycling in 1990 was more normal. They said: if people wanted to ride bikes, we have to provide the right type of infrastructures"* (interview with cycling expert, February 2016). Drawing on these experiences, the Cycle Track Priority Plan (2002-2012), published in 2002, revised and considerably extended the 1st plan, which dated back from 1981. Citywide investment and initiatives were planned in a more comprehensive way. In addition to the network extension, the further segregation of cycling lanes and the development of intermodality, it included some clear, quantitative objectives to be reached by 2012, such as an increase of:

- The share of residents using a bike – from 34 per cent to 40 per cent -,
- Safety awareness (from 57 per cent to 87 per cent) and reduce the number of accidents by 50 per cent,
- Increase efficiency and travel speed by 10 per cent
- Comfort and levels of satisfaction among cyclists

Throughout this period, **the cycling association acted as a major policy entrepreneur** and maintained pressure on the municipality, both politicians and technicians. This was achieved through lobbying and campaigning activities, which maintained cycling high up in the public debate and the local media. Towards the end of the third phase, cycling had emerged as a strong alternative to car traffic, both in terms of modal share and in terms of budget spent: there was a 68 per cent increase in bike traffic between 1990 and 2009, and some € 272 million (DKK 2 billion) were spent on cycling initiatives.

Public transport as an additional alternative to car traffic

In addition to traffic mitigation, urban design and cycling, **public transport became the focus of greater attention** and, unlike the situation observed in previous phases, the recipient of a large share of policy resources. This confirms the role of converging transport policy developments across cities in WP4. The Metro system was

⁷⁷ See Section 3 on the private-owned road network in Copenhagen.

primarily developed as a contribution to traffic mitigation policies, and it is only during the recent period that it has been framed in political discourses and transport policy debates as a contribution to the reduction of car use.

The development of the Metro system is considered a major turning point in Copenhagen's urban transport agenda and policies (Naess et al., 2009). To be sure, it gave a decisive – and unprecedented – push to the development of public transport in Copenhagen. It also represents a major shift in city-state relationships. The changed urban governance context and the funding mechanism attached to the development of Ørestad contributed to silencing most opponents to the project. In Copenhagen, most debates – among policy-makers and with the population – about the proposed investment mainly addressed its desirability rather than congestion reduction on the road network as such. According to one interviewee: *"The discussion was only about the need for investments, not about avoiding congestion. There was an economic issue. Anyway, it was very much a turnaround project in debates about transport demand in Copenhagen"* (Interview Metro, February 2016). Others emphasized its role as a flagship urban development project, over which actors and debates outside transport dominated the networks' planning. In other words, it was not framed as a classic transport initiative, but as a powerful factor of urban transformation. It was indeed considered instrumental in Mayor Kramer Mikkelsen's urban growth agenda and a major step in developing new forms of funding mechanisms.

Moreover, it was also considered instrumental as part of the ruling majority's wish to attract wealthier social groups. As urban planners played a growing role within the Metro company, the link between public transport infrastructure, spatial planning and socio-economic dynamics was emphasised as part of urban renewal and public space initiatives taking place on the ground in the vicinity of the network. While transport planners and engineers were busy developing the network and its related installations, urban planners, economists and sociologists planned the metro as a direct contribution to the changes advocated by the ruling political majority in the city's social structure. Paradoxically, and somewhat counter-intuitively to the criticism later addressed to the metro's socio-spatial effects, the metro project was planned as a driver for municipally-led gentrification processes. This was summarized in the following way by an interviewee: *"Within Metro, real estate, growing prices, access to workplaces, attractiveness, etc. all of these issues contributed to feed into our thinking about the new infrastructure. We were aware of the fact that its opening would imply changes for everyone in the city and for the way through which different groups and areas in the city interacted with one another. There were also long-term effects to be considered, such as gentrification. Of course, gentrification also leads to negative effects and there are some people who do not want the metro because of that. And even though there was no real opposition among inhabitants to the metro project itself, some inhabitants opposed its short-term consequences, such as the noise and inconveniences attached to the building site. They also opposed its long-term consequences in terms of settlement. But it is a social democratic investment, and it comes with some consequences for the most socially homogeneous parts of the city, especially in the wealthiest and in working class areas. Inhabitants were always offered the possibility to sell their property to Metro, but this happened rarely"* (interview Metro, February 2016).

Yet the Metro system remained a major ingredient to the city's traffic mitigation strategy and less so a driver towards actively reducing car traffic. Its development in the densest urban areas was preferred to car reduction initiatives in order to avoid conflicts with pro-car interest groups in the suburbs and ensure a majority vote within Parliament on the 1992 Ørestad Act. It was meant as complementary to increased road capacity and aimed at preventing congestion rather than reducing car use. Its planning was combined with other capacity investments on roads, including the widening of existing motorways in the suburbs – as opposed to developing new roads, with the exception of the Great Belt Fixed link, opened in 1998 – and with urban planning tools aimed at densifying already urbanized areas. This explains why the joint development of both types of capacity investments – metro and roads – has also been interpreted as a way of *"stepping on the accelerator (i.e., increased road capacity) and the brake (i.e., public transport development and the Metro in particular) at the same time"* (Næss et al, 2009).

Considering the changes in mode share following the opening of the Metro system in 1998, both views have been somewhat confirmed. It was followed by a rapid and continued increase in passengers. **Yet it is also said to have exerted a somewhat adverse effect on existing modal share in Copenhagen.** As it was mainly restricted to the core urban centre, an area where people previously moved by bicycle or bus rather than by car, it was not, in effect, considered a strong enough competition to car traffic in the outer districts and outside Copenhagen. By moving car users underground, additional road space became available for cars and traffic

flows, till congestion rose again. Indeed, the expected modal shift from car to metro did not work as expected⁷⁸. Between 1995 and 2007, car traffic (persons/km) increased by 24 per cent, cycling increased by 24 per cent while at the same time, public transport decreased by 7 per cent. By contrast to the continued, incremental changes taking place in Copenhagen, car-oriented policies remained dominant in the region and it was not until the 2000s that some attempts were made to develop regional cooperation mechanisms.

4.3.3 Accounting for the lack of strong non-motorized alternatives at regional level

When considering the evolution of transport policy objectives in existing plans and documents outside Copenhagen, fragmentation and contradictions continue characterizing the strategies pursued at regional and national level, and within them, between administrations in charge of transport as opposed to those in charge of spatial planning and environment. In the following section, this is accounted for by examining ambiguous transport policy objectives at national level and high levels of institutional fragmentation in the region.

Ambivalent national policy objectives in transport and spatial planning

Levels of vertical coordination in spatial planning remained weak until the suppression of the three-tier planning system in 2007⁷⁹, and this situation was particularly exacerbated at National level in the absence of strong mechanisms of horizontal coordination between administrations. As the Prime minister office and the Parliament played a prominent role in the process leading to the introduction of an infrastructure-led strategy in the capital-city, traditional stakeholders in the transport sector, including the DSB and the ministry, were less able to influence the debate over the definition of key objectives and the selection of policy alternatives. Moreover, in a context in which liberals, conservatives and social democrats alternatively hold the power, transport policy documents showed no clear hierarchy between transport modes (OECD, 2009), thus accounting for intense competition and resource-seeking strategies. No clear policy arena was considered legitimate enough to foster an agreement between political parties and among policy-makers, thus leading to the multiplication of policy documents, initiatives, strategies, agreements etc. (see also Naess et al., 2009).

Policy documents reflect such continuous back and forth between the priority given to sustainable transport planning on the one hand and the reduction of congestion on the other hand. In this context, **national policy objectives still follow the principles, strategies and tools that had been introduced in the post WWII period**. As an example, the 2000 National planning statement, established under a coalition between liberals and social democrats (1992-2000), called for an optimisation of existing infrastructure, the establishment of environmental zones, the reduction of available parking spaces and the densification of urban areas. By contrast, the new Conservative and Christian Democratic Coalition (2001-2010) prioritized the reduction of congestion and the need to improve international connections in successive National Transport Agreements (2003, and 2005). The Danish Infrastructure report 2030 – elaborated in the framework of the Infrastructure commission (2006-2007) and the National planning statement – highlights the quality of Denmark's road network, deplores increasing levels of traffic congestion and suggests, on the one hand, proceeding to capacity investments in transport infrastructures, especially roads, in order to boost the country's "economic sustainability", and on the other hand, promoting a change in users' behaviours and choices⁸⁰.

National policies primarily rely on **two main types of policy tools** in order to make these goals material: at national level, regulation and taxation on car ownership and fleet renewal, which effectively encourages pro-car initiatives, and spatial planning tools, as an attempt to mitigate the negative impact of car traffic and car-based mobility in the capital-city region. Both types of policies are successively introduced here.

⁷⁸ Interview transport expert, February 2016

⁷⁹ See section 3

⁸⁰ *Danish Infrastructure report 2030*, Infrastructure commission (2008). See the English summary available here: <https://www.trm.dk/en/publications/2008/the-danish-transport-infrastructure-2030>

Traffic mitigation through national regulation and taxation on car ownership and fleet renewal

A number of mitigation policies, all consistent with a pro-car approach, were introduced at national level in order to address car traffic's negative externalities: investments in alternative fuels, environmental friendly vehicles, more efficient traffic handling, increased level of information and education. This also includes successive reforms brought to the national tax system on motor vehicles from 1997 onwards in order to prioritize small and energy efficient vehicles (See Table 5a). Car ownership was discouraged through high registration fees (or so-called 180 per cent tax on new cars) and in the absence of a national car industry⁸¹, no incentives to own and use a car were introduced.

This tax-led approach led to strong criticism from both pro-car and pro-environmental groups. The automotive industry together with the Danish car consumer organization and the industry organization of car importers denounced the fact that it encouraged the development of a dynamic market for used cars to the detriment of fostering car fleet renewal (see Graph 3)⁸². In the context of the post 2008 crisis, conservative political parties highlighted the need to reduce the level of taxation and create new source of income at national level. Environmental NGOs – represented through the voice of the Danish ecological council – also **highlighted the limits of the taxation system in two different ways**. First it is too static to take into account technological developments – most vehicles now produced in the EU are more efficient, thus explaining why the tipping point set in 2007 had become too low to effectively incentivize the purchase of cleaner vehicles. Second, NGOs have expressed their concern regarding the current tax system's inability to address possibilities to contravene existing regulations by buying used cars: these cars are exempted from expensive registration fees and for those produced after 2007, they remain under the threshold set for the green owner tax and account for the diminishing total amount of tax revenues.

Table 5a: National tax system on motor vehicles.

Type of tax	1 st introduced	Main goal	When?	Ended	Successive reforms (dates & goals)	Which vehicles?	Amount as of end 2014 vs 2016 / exemptions
Registration tax	Registration tax, 1910	Ensure that vehicle owners contributed to roads construction and maintenance	Vehicle purchase		1997: reduce the number of vehicles in Denmark 2007: incentivize the purchase of smaller & more energy efficient cars through discounts.	Now concerns all vehicles applying for registration for the 1 st time in Denmark incl. taxis, motorcycles and buses.	For passenger cars - In 2014: 105% of the taxable value up to €10.951 and 180% of the rest. - In 2016: 105% of the taxable value up to €14.999 and 150% of the rest.
	Registration tax exemption on electric vehicles, 2007	Support the development of the electric vehicle market	Vehicle purchase		2013: reduce the amount of taxation, with a specific focus on bigger vehicles. 2015: progressive removal of tax exemption for electric vehicles.		Tax on electric vehicles is progressive: - initial agreement: capped at 40% in 2015-2016 / 65%/90%/100%. - revised agreement in 2016: capped at 20% in 2017-2018 and until sales reach 5.000 cars/year

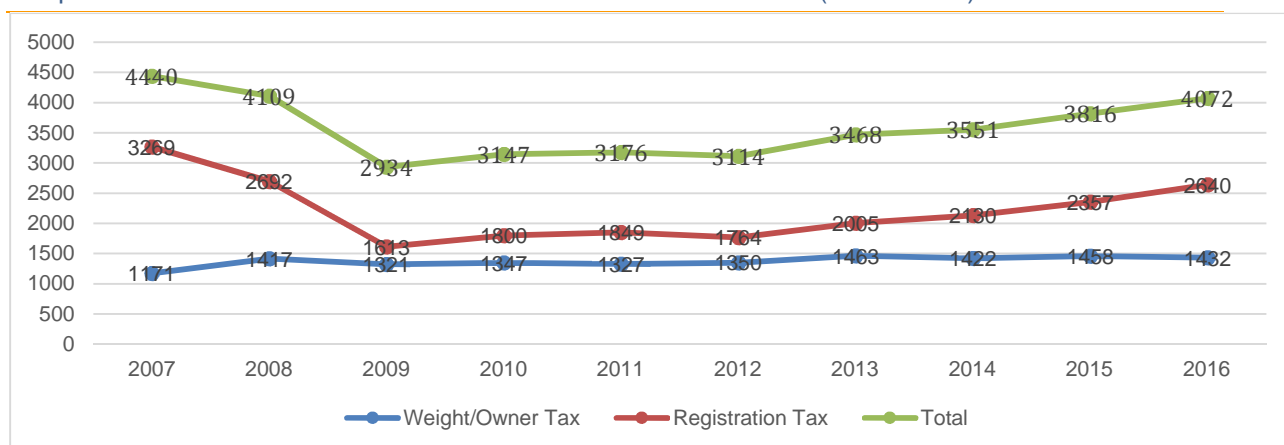
⁸¹ An electric vehicles industry was developed only recently. See below.

⁸² See also the evolution of newly registered cars since 1997, Danish Ecological Council (2017). Available at: www.ecocouncil.dk

							or by 2019, then resume with original plan until 100% in 2022
Weight-based tax	Weight-based tax, 1910	Based on the weight of the vehicle – the lighter the car, the lower the fee.	Annual	1997		Still applies to vehicles registered before 1997	
	Green owner tax, 1997	Replace the weight-based tax, provide an incentive to use vehicles with higher energy efficiency	Annual		2007: incentivize the purchase of more energy efficient cars, i.e. the number of kilometres driven per litre fuel	Only applies to vehicles purchased after 1997.	€2740 EUR (<4,7 km per litre to €83 EUR (> 20 km per litre).
	Countervailing charges on green owner tax, 1997	Applicable to diesel cars only, in order to counteract the difference in tax on petrol or diesel					
Scrapping refund charge	2007	Fee paid to a car scrapping fund as part of the yearly liability insurance	Annual			All car owners, possibility to benefit from €200 to cover the cost of having the car scrapped in a certified facility	Some €11/year

Source: compiled by Halpern, Press review (Factiva database) and Danish Ecological Council (2015 & 2017), both available at: <http://www.ecocouncil.dk/>

Graph 3. Revenues from taxes on motor vehicles in Denmark (1997-2016)



Source: adapted from The Danish Statistical Bureau and Danish Ecological Council (2017).

Taking into account the role of national taxation and its impact over time suggests that **the role of cultural factors should not be overemphasized when it comes to explaining trends in car ownership in Denmark**. Despite the wish of a growing number of Danes to own a car, many of them cannot afford it: this, ultimately, accounts for lower levels of motorization. Moreover, recent debates at national level highlighted the limited capacity for local authorities, including the city of Copenhagen, to shape future changes in national

regulations through institutional channels and the need to rely upon political negotiations both within and between political parties⁸³.

Traffic mitigation through spatial planning in the capital-city region

In addition to tax-based restrictions on car ownership, **the promotion of non-motorized transport alternatives, including public transport outside urban areas, was encouraged through the improvement of facilities and service.** In the Copenhagen region, and in accordance with the Big H strategy, the report proposes strengthening rail and roads connections, and renewing the principles laid out in the Finger Plan as a way to reduce transport demand through spatial planning tools. These priorities echoed those mentioned in the 2005 Regional Plan. This document had expressed the need to strengthen “the economic locomotive of Denmark” through increased accessibility, and highlighted the need, following a decade of capacity investment in the City of Copenhagen, to increase transport infrastructure and facilities in the region as a whole, e.g., the expansion of highways, the development of Park-and-ride as well as an increase in public transport services. Some months later, in 2008, the Economic council, an advisory body of the Danish government, recommended increasing road infrastructure in combination with the introduction of a congestion charge in order to reduce congestion in the short term, while relying on spatial planning tools in order to gradually adjust traffic growth in the longer term (OECD, 2009).

Taking into account the developments taking place in national transport policy documents helps to shed a different light on the 2007 revision of the Finger Plan and the structural reform. In the 2007 revised Finger Plan, the Ministry had to do the splits in reconciling two irreconcilable positions: reduce traffic volumes without affecting mobility on the one hand and strengthen sustainable planning tools and objectives on the other hand. More precisely, it **recommended strengthening urban developments around S-train railway stations as a way to reduce transport demand in a context of rapid urban expansion.** The introduction, that same year, of the 2007 structural reform, contributed to this document’s limited effect (see section 3). To be sure, reverting to a two-tiers planning system nation-wide and designated the ministry of environment as leading on spatial planning objectives could have resulted in strengthening both cross-level and cross-sectoral coordination between transport and spatial planning. Considering the priorities highlighted in the 2005 Regional Plan, this reform was also considered a positive step towards a more sustainable transport agenda. Yet in weakening the regional level’s authority and dismantling policy capabilities, which could have been instrumental in fostering an agreement between stakeholders, this reform also reasserted both the state and the municipalities as the main regulatory and planning authorities, and as such, to led increased fragmentation.

Criticism regularly highlighted the revised plan’s inability to take into account the specificity of the capital-city region, the preference given to national priorities and last but not least, the Ministry of Environment’s leadership over the policy-making process. It was also considered inadequate in its scope, as it only concerned the metropolitan area – 34 municipalities – as opposed to the functional region, which now extended towards a wider territory. As they were now facing reduced growth in population and jobs, as well as the competition from both Copenhagen and the outer suburbs, municipal authorities in the inner suburbs sought to bypass the principle of “environmentally correct location”. This constitutes a first explanatory factor of this document’s limited effect on urban sprawl, together with the aggressive attraction strategies pursued by municipal authorities in the outer suburbs. Similarly, **the changes introduced by the 2007 structural reform gave way to renewed conflicts regarding the planning, the organization and the funding of public transport,** as observed during negotiations taking place in the context of Movia, the newly founded public transport company⁸⁴. In a context in which national transport policy objectives favoured the development of road infrastructures and regional policy resources had been significantly reduced, capacity investments in the capital city region favoured road infrastructure over rail – respectively 30 versus 11 projects during this third sequence.

⁸³ These findings, which highlight the strategic role of political parties in mediating local interests are consistent with the literature about sustainability transitions in Denmark in other policy domains such as energy (Evrard, 2013). Interview with Cycling activist, February 2016.

⁸⁴ See section 3, in particular discussions about bus services that cut across several municipalities.

4.3.4 Concluding remarks, Phase 3

Transport policy developments between 1991 and 2007 confirm the shift away from the car-oriented city in Copenhagen and to a lesser extent, in the region.

In Copenhagen, the municipality benefited from a large room for manoeuvre **to progressively develop and push forward a comprehensive sustainable transport and mobility strategy**: first with the support of the national government, and second, in a context of low policy capacities at the regional level. Much of the changes observed between 1991 and 2009 result from unprecedented levels of city-state cooperation as well as from an infrastructure led urban growth agenda. Both the Øresund link as well as the metro project contributed to enhancing the city's attractiveness and function as the main national hub, and less so to reducing car traffic. As new city planning models emerged, transport policy priorities were increasingly submitted to sustainable urban planning goals and rely increasingly upon urban design initiatives and cycling. A number of alternatives to car use were introduced as part of an integrated approach to urban mobility. Congestion reduction emerges as a major transport policy priority. **These policy developments were introduced gradually, and benefitted from increased organizational, political and knowledge resources within the municipality.** They were eventually brought together towards the end of the 2000s as part of the city's climate change agenda. Even though both types of transport policies rely upon a different set of stakeholders, policy resources and tools, and funding mechanisms, their combination contributed to the shift away from traffic mitigation policies towards car reduction strategies. By contrast, **car-oriented planning and policies remained dominant in the suburbs** throughout this time period. Unlike the situation observed in Copenhagen, no major transport policy initiative was introduced. Investments in railways decreased considerably up until the early 2000s.

As congestion increased in Copenhagen, **two different policy dynamics have been identified**. When considering transport policy developments in the City of Copenhagen, the 2007-2015 sequence can be characterized as the triumph of the Cycling city model and is strongly related to the urban climate change agenda. By contrast, when considering transport policy developments in a regional perspective, the city's insular position becomes increasingly difficult to maintain and accounts for a series of transport controversies between 2009 and 2015. Both narratives are successively examined.

4.4 The triumph of the cycling city model (Phase 4, 2007-2015): the tale of the city

In this section, we examine the tale of the Cycling City model. More precisely, we focus on transport policy developments within the city and the way through which cycling was confirmed as the transport system's backbone in the context of the urban climate change agenda. First the report highlights the pivotal role played by the pro-cycling coalition within and outside the municipality. It also discusses why and how cycling became instrumental in asserting Copenhagen's worldwide position as a liveable, green and attractive city. Second, analysing the choice and selection of policy tools, it shows how the city of Copenhagen developed an aggressive communication strategy aimed at promoting the Cycling City worldwide.

4.4.1 The emergence of the urban climate change agenda

As congestion increased in Copenhagen, transport gained unprecedented salience on the political agenda, and was particularly discussed during the 2005 political campaign. Building on the work achieved since 1997, the outgoing administration formally recognized the need to go beyond traffic mitigation as part of the 2005 Municipal plan. Transport policy goals now included a wider range of alternatives to car traffic:

- applying restrictions on car traffic in the inner city,
- developing non-motorized modes of transport as a major priority together with providing pedestrians with a better and safer environment,
- achieving an efficient public transport system in the Ørestad region,
- constructing parking lots near facilities in the harbour area

The Kramer Mikkelsen's administration was, however, criticized for not having sufficiently supported car traffic reduction and non-motorized transport alternatives.

Within the Social Democratic Party, Ritt Bjerregaard promoted **an ambitious climate change agenda and the reshuffling of all urban policies** (e.g., housing, transport and energy) as part of this overarching policy goal as well as the introduction of more constraining policy measures and tools. In the opposition, Klaus Bondam,

from Radikale Venstre⁸⁵, actively pushed cycling among one of the top priority political issues during his campaign. Following their election as, respectively, Lord Mayor and Mayor for Technical and Environmental affairs, the city's urban growth strategy was revised as part of the climate change agenda. By contrast to previous stages, car reduction policy objectives and cycling were addressed as prominent issues in both political discourses and policy documents. Drawing on the past experiences, the urban sustainable transport agenda as both continued and expanded, in combination with a shift in policy tools and resources.

Apart from being the first woman to have been elected as Lord Mayor (2006-2010), Mayor Bjerregaard devoted her entire political career to promoting environmental protection. She relied upon extensive political networks within the Social Democratic Party and the environmental movement at national and European levels in order to accelerate **the shift towards an ambitious urban climate change agenda and its mainstreaming throughout policy areas**. Under her leadership, a political vision - "The eco-metropolis: our vision for Copenhagen 2015" - was produced and adopted in 2007. It clearly highlighted climate change as a major political priority to be mainstreamed throughout policy domains. This was also done with the support of the national government and major economic interests during preparatory works for the 2009 Copenhagen summit⁸⁶ and in the context of the 2008 crisis. Green growth and zero-carbon strategies were considered major opportunities to boost economic recovery.

In line with Mayor Bjerregaard's wish to highlight the prominent role of cities and mayors in the climate change agenda, she convened a number of mayors to **an international conference on the role of cities** in Copenhagen in 2009. One of the rationales for convening this meeting was the recognition of the role played by cities due to demographic trends and inter-state politics at international level, as explained in more details by R. Bjerregaard in the following quote: *"It is the cities that are most aware of the consequences of excessive CO₂ emissions, and therefore, more ambitions can be expected from the cities than from the governments of the country. ... We will put pressure on the meeting [COP 15 in Copenhagen], so that a proper outcome will come from the climate conference. ... There is a huge difference between what New York mayor Bloomberg wants and what the United States President wants"*⁸⁷. As the city's involvement in climate change reduction objectives increased and following the introduction of a zero-carbon emission objective in the Climate Plan 2025, **urban transport was designated as a major driver for reducing carbon emissions, together with housing**. As mentioned during the CREATE Workshop (February 2016): *"Climate was all over in 2009 with the Copenhagen summit. We had this vision that Copenhagen should become the environmental capital of the world. We wanted to be the world's best cycling city. We wanted to be the world's most environmental friendly city. This also changed the way we organised our administration"*. This accelerated the reshuffling of policy priorities and resources citywide and across policy areas. Urban development close to public transport nodes, biking and sustainable energy solutions are identified as major drivers for achieving climate change reduction objectives.

From traffic to mobility, and from roads to streets

In transport, the changes observed at city level led to **a shift in policy discourses**. Roads were not conceived anymore as infrastructure, but policy documents now increasingly referred to streets, understood as urban and public spaces in which heterogeneity of uses is welcome. Second, what had been referred to as traffic policies and initiatives was now referred to as mobility policies. Several interviewees referred to the rapid changes observed during these years: *"the shift between 'traffic and environment' plans towards 'quality and liveability' plans was accomplished during these years. This change is considered 'more than just symbolic', but rather the sign of 'an actual shift in policies'"* (Copenhagen CREATE Workshop, February 2016). Another interviewee added: *"We also turned from talking about mobility instead of traffic. It turned around in the late 2000s. The streets are not only for traffic. Public places were turned into recreational areas"* (interview with cycling activist, February 2016).

In order to make this shift material, Mayor Bjerregaard strategically drew on **extensive political and organizational resources**. As head of the newly created "Technical and Environment Magistrate", Klaus Bondam played a pivotal role in this process, by constantly pushing for sustainable transport to remain high up on the

⁸⁵ Radikale Venstre is a Social Liberal Party.

⁸⁶ United Nations Climate Change Conference

⁸⁷ Berlingske, 9 April 2008.

political, the municipal and the public agenda. Climate change objectives were translated into 10 urban transport policy goals, each of eventually being developed into a proper strategy. From 2009 onwards, the following policy documents were introduced:

- The Cycling Strategy “From good to the world’s best cycling city 20011-2025”,
- The Strategy for heavy vehicles and goods,
- A Traffic Safety Plan,
- A Noise Action Plan,
- A Parking Strategy,
- A Traffic Management Plan,
- etc.

Pre-existing car reduction policy tools and resources were strengthened; namely the limitation of road capacity, the regulation of transport demand, the reduction of parking space and the increasing of parking fees (see also Naess et al., 2009). In 2007, the municipality took over the administration of the private common roads and was able to plan and develop policies throughout the roads network. Parking management was also extended to outer districts in 2007. Cycling infrastructure and initiatives were mainly developed by drawing on the resources provided for maintaining and upgrading the road network. Yet unlike the situation observed in other cities in WP4, few initiatives were specifically aimed at reducing road space available for cars (e.g., parking spaces).

Continued support for public transport

Even though cycling soon emerged as the new administration’s flagship project, the city’s interest in public transport was reconsidered and enhanced. **The bus network was reorganized between 2005 and 2007**, in combination with the newly opened metro network and in order to take into account of changes in transport demand. Bus lanes were further segregated from car traffic as part of the works done on the road network. The city of Copenhagen also actively sought to extend the metro network. The **creation of the Metro Company in 2007** formalized the agreement between the Ministry of transport and the cities of Copenhagen and Frederiksberg to jointly develop the metro network towards other parts of the city (e.g., Frederiksberg, Vanløse and Kastrup Airport). The Cityringen project, a circular metro line, was approved in 2007 and aims to replace bus lines in the city centre. Extensions were planned towards new areas under development in the former port area (e.g., Sydhavn and Nordhavn) and by 2025, the number of metro stations in Copenhagen is expected to double, thus allowing most residents to reach a metro station or an S-train station within a 600-metre walking distance⁸⁸.

Within 10 years, the development of the metro system confirmed the role of public transport as a major driver towards sustainable urban planning in Copenhagen. It is now considered a strategic tool – and necessary investment – in steering the development of new housing and workplaces. In areas such as Ørestad, it has contributed to making transit-oriented development possible. New urban developments in the city are primarily planned alongside existing metro lines and metro stations, and in return, any new urban development has required the planning of adequate transport services⁸⁹. Over time, the multidimensional role of the metro system has contributed to enhancing public transport in relation to car use: *“now people choose to live in a given place because of the high level of public transport offer. In this way, the Metro could become a real measure against congestion and a way to save the money otherwise allocated to car infrastructure and facilities, such as building roads and parking areas”*. (Interview Metro, February 2016).

Nevertheless, much of the current discussions regarding both the creation of Metro and the planning of the new line were less framed as a contribution to the reduction of car traffic, **but as a necessary contribution to strengthening Copenhagen’s function as the country’s main hub**, as mentioned in the following interview: *“This project managed to bring together different levels of government with common interests: if each line had to have some kind of interest for each city, the state had the interest to develop the metropolis, to confirm Copenhagen as a big hub at the national level and thus, to make the flows work better”* (Interview Metro, February 2016). In this respect, subsequent mayors repeatedly committed to the choices made by Mayor Krammer Mikkelsen in the early 1990s and sought to attract continued support from national governments.

⁸⁸ This was consistent with the principles introduced as part of the 2007 Finger plan.

⁸⁹ This is also true for other rail projects, such as the Ring 3 project, see below.

4.4.2 Prioritizing cycling in policy objectives

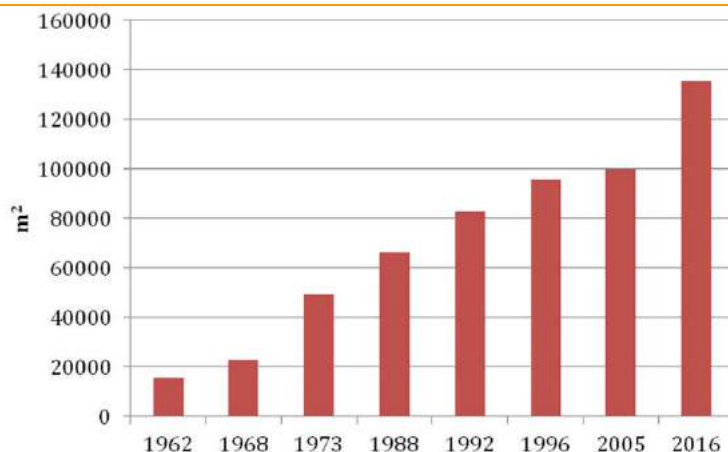
Copenhagen's world fame as the "cycling city" is recent. It draws on a shift in both policy objectives and policy-making. From 2006 onwards, **cycling was singled out as the new administration's flagship project**. This was confirmed after 2009 in subsequent planning documents and the number of cycling initiatives and measures promoting public space, sustainability and quality of life increased rapidly. Funding was made available in order to further develop existing facilities and infrastructure.

The reshuffling of policy priorities

In this context, cycling benefited from additional resources as part of the policy-making process. The Bjerregaard - Bondam tandem played a critical role in the shift towards the urban climate change agenda and the cycling city: *"the current situation is the result of a turn that took place in 2006-2007, with a very strong couple of mayors who really highlighted cycling. It became politically correct to say that Copenhagen was the first cycling-city in the world. Before, cycling was not something really hot. In 2005, during the election, the soon-to-be Lord Mayor campaigned by saying that cycling should be the first means of transport. She convinced everybody that this was the future. He is now the manager of the Danish Cycling federation* (interview with cycling expert, February 2016). By contrast to their predecessors, Bondam and Bjerregaard **publicly and repeatedly acknowledged the city's commitment to cycling**. Moreover, they advocated the need to go beyond political discourses and make these goals operational. As observed by a policy officer working with the City of Copenhagen: *"They were prominent people, well known and they liked biking. Their approach can be summarized as follows: 'if want to do something in Copenhagen about biking, we need a vision and we need strict goals'. We have been working on this ever since."* (CREATE workshop, March 2017). A bike strategy was developed since the 1990s, but the 2010 Cycling strategy took a decisive step towards a new policy-making approach: *"it is full of pictures and short stories, easy to look at and easy to understand"* (ibid.).

Second, unlike the situation observed in the pre-2007 period, cycling policy measures were no longer limited to small-scale interventions onto the road network (bike lanes, parking facilities), but **they increasingly relied upon symbolic, highly-visible initiatives**, including unpopular car traffic reduction initiatives that could antagonize number of stakeholders, including among the ruling majority's traditional electorates. The ban on cars in the busy Norrebrogade, a decision taken by K. Bondam with the support of Mayor Bjerregaard, led to major and unprecedented controversies about the allocation of road space. According to a participant at the workshop: *"there was a huge fight. Many believe they lost the elections because of this. It was a successful policy but a failure from a political point of view. I don't think a politician will ever dare take such a decision again and in the future, they will prefer consensus. But could consensus ever be achieved for such a measure? Sometimes it's also about symbolic gestures and this requires courage"* (CREATE workshop, February 2016). A cycling expert added that: *"The new traffic mayor said he wanted to try, to make a test. It started as a test. ... He was a mayor who actually dared to do stuff, going against the common opinion and trying to do something else. Traffic tests are part of the pragmatism."* (CREATE workshop, February 2016). In the opinion of interviewees, the provisory closing of the road demonstrated to reluctant shopkeepers that cyclists were also costumers. From then on, the development of car free zones increased in the inner-city area (see Graph 4).

Graph 4. Development of car free zones in KM² in the central part of the inner city of Copenhagen (1962-2016)



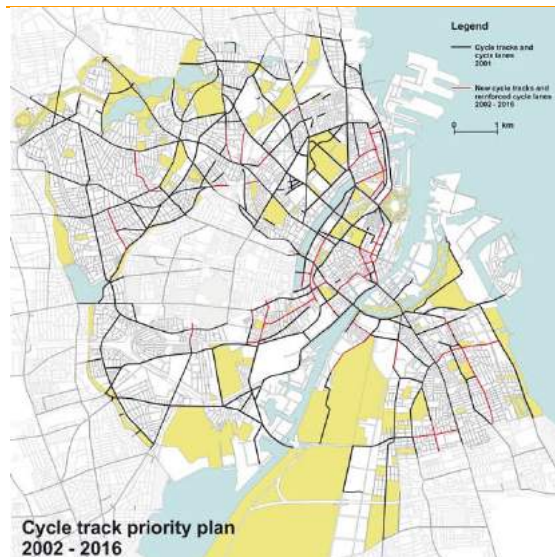
Source: Gehl, 2006, city of Copenhagen 2016; retrieved from D3.2 Copenhagen report.

Together, these initiatives led to revising the 2002-2012 Cycle Track Priority Plan in 2011 (see Map 6). It was introduced as part of the city's new cycling strategy by 2025: "Good, Better, Best: The city of Copenhagen's Bicycle strategy 2011-2025". This policy document seeks to improve cycling facilities through a series of measures, such as:

- smooth and safe surfaces,
- most straight paths possible in order to maintain a high and stable speed,
- a clear visual identification,
- safe and rapid crossing priority at the intersection with car transit,
- green waves systems through traffic signals (at 20 km/h),
- availability of service stations

Increased resources were allocated to its implementation, both in terms of funding and staff. A special municipal secretariat for cycling was created. From then on, policy documents systematically included targeted communication actions, including the regular publication of a bicycle account, in which the city accounts for progress made and introduces new short and long-term policy goals.

Map 6. Cycle track priority plan 2002-2016.



Source: City of Copenhagen, 2009.

Branding the Copenhagen model through communication-based resources and tools

The reshuffling of policy priorities also led to a shift in policy-making and a growing attention to communication, dissemination and innovation. The development of this unique and diverse set of policy resources and tools was borrowed from environmental activism in the context of preparatory works for the 2009 Copenhagen summit.

Some efforts were made in order to **create a narrative** that could "*tell the story of cycling in Copenhagen, get the tambourine started and keep it going*" (Paris workshop, March 2017)⁹⁰. On the one hand, it served internal purposes, in order to convince politicians, residents and a wide range of stakeholders that cycling could indeed be considered a reliable and strong alternative to car use; and on the other hand, the introduction of communication-based policy tools also contributed to branding the city's experience with cycling worldwide, thus contributing to secure additional symbolic resources. As observed by a policy officer working with the city of Copenhagen: "*we like this storytelling approach. But you need to have something to tell about. This is why we count, we measure and we use this data a lot. Without precise facts and proofs of achievements, there is no story.*" (Paris workshop, March 2017). A bike strategy was developed during the 1990s, but since the late 2000s,

⁹⁰ A similar process is underway about walking.

it is revised on a 5 years' basis and dedicated funding and human resources are made available. While senior policy officers drew on their experience with the cycling project, they also benefited from the arrival of new staff, with a larger diversity of skills including in communication, advocacy work and as of more recently, social media. The 2011 Cycling strategy highlights **this shift towards a new policy-making approach**: *"it is full of pictures and short stories, easy to look at and easy to understand"* (ibid.). This also included developing appraisal techniques that demonstrated the added socio-economic value of cycling measures as well as indicators that would allow assessment of its impact as well as to document precisely its increase. Reports are produced on a regular basis and include a large variety of facts and indicators aimed at preventing criticism and reassuring possible opponents to cycling projects. For example, figures and facts were included about cyclists' consumption habits in order to reassure shopkeepers: *"we needed to convince them that cyclists are not bad consumers. They just have different habits than car drivers or public transport users"* (Paris workshop, March 2017). Other sets of figures and indicators include issues related to health and safety, opinion polls and the distribution of road space.

Moreover, the image of a city that managed to reinvent itself after decades of decline was actively used in order to promote the Copenhagen model worldwide **through a large diversity of communication tools**. The local administration developed an ambitious communication strategy and increasingly drew on communication-based tools in order to maintain a high level of attention among politicians, technicians, and the wider public about what was increasingly labelled as the city's core identity. Transport policy documents now systematically include targeted communication actions, including the regular publication of a bicycle account, in which the city accounts for progress made and introduces new short and long-term policy goals. The attention given to communication-based policy tools and resources constitutes a decisive dimension of the Copenhagen model and plays a major role in "keeping the tambourine going" or "spreading the good word" worldwide as well as nationwide. It has indeed proven instrumental in promoting and demonstrating experiences attached with city life initiatives since 2009. As commented during a CREATE workshop: *"Our message is easy to follow: cycling is safe and fast, it supports the whole story of the liveable city. It's our brand"* (WP3 workshop, Paris, March 2017). Together with other policy priorities that are deeply rooted in culture and lifestyles (cleantechs, design, architecture, etc.), it contributes to fostering the city's attractiveness by promoting it as a trend and a brand.

In addition, the city's place-making strategy has also **benefited from the support of civil society organizations and that of the urban planning community** worldwide. Two organizations have played a pivotal role in this process by contributing to the diffusion of the Copenhagen model worldwide while at the same time maintaining pressure on public authorities in order to go beyond ambitious political discourses in implementing sustainable transport policies on the ground: Copenhagenize Design & co was created in 2009 as a consultancy firm whose main goal is *"to show the world how to learn from Copenhagen's many examples of success"*⁹¹; The Gehl Institute⁹², based in New York, was created as a think-and-do tank, with the aim of both creating new tools for promoting public life in cities (urban intervention research, tools and metrics) and acting as an exchange platform. Indeed, the city also relies – mostly indirectly – on a large range of stakeholders, including the urban planning community worldwide that collectively contributed to "keeping the tambourine going" and have transformed this "art de vivre" into a profitable source of knowledge. A number of experts with various professional backgrounds (urban planners, architects, transport planners, psychologists, engineers, activists etc.) contribute, as part of their positions in political parties, academia, NGOs, etc. to a world of non-state, consultancy organizations that actively promote the Copenhagen model, more recently, the Danish model, worldwide⁹³. The Gehl agency and Copenhagenize Design & Co have both opened offices outside Denmark. Their members are sought after experts and contribute, through master classes, led talks, and other forms of knowledge-based tools **to disseminating the Copenhagen model in both its hard and soft forms**.

As these professionals and activists gave greater visibility worldwide to the changes underway in Copenhagen, the municipality was regularly invited to contribute to professional events and cities' networks in order to share its knowledge in "planning for city life". And in return, such growing visibility offered increased opportunities to successive generations of professionals to use Copenhagen as a full-scale laboratory and a preferred location to develop and experiment with new planning theories and practices.

⁹¹ See the agency's website : <https://copenhagenize.eu/#home-body-section>

⁹² Its mission is to "Our mission is to transform the way cities are shaped by making public life an intentional driver for design, policy, and governance" (see Gehl Institute's website, <https://gehl.institute.org/> consulted on January 17, 2018).

⁹³ In 2018, M. Kabell, former Mayor for Technical and Environmental affairs (2014-2017 Red-green alliance) joined Copenhagenize Design & Co as chief operating officer.

4.4.3 Exporting the Copenhagen model worldwide and nationwide

As the cycling city model was promoted, it became instrumental in promoting Copenhagen as well as highly innovative in both sustainable mobility and governance. This proved particularly instrumental in order to **secure alternative funding sources**, and reach out to the private sector and those firms outside transport that were growing increasingly interested in developing new mobility solutions, e.g., smart city solutions, mobility management, digital infrastructures, etc. Such promotion is also achieved by applying and/or being nominated to a number of award-winning contests and actively contributing to cities' networks: in 2014, it received the European Green Capital award and the World's most liveable city award. Over time, this approach obtained impressive results, and between 2013 and 2017, the city received over 30 awards in a number of categories⁹⁴.

The state's "1 billion Danish Krone cycling plan"

The city's efforts to promote the cycling city model also contributed to securing additional resources at the National level for cycling infrastructure and projects in Copenhagen and the wider region. A first breakthrough was achieved in 2009 as part of the 2009 Danish Transport Strategy, with the introduction at the national level by the then Conservative government of the so-called "1 billion Danish Krone cycling plan". There again the 2009 Copenhagen summit, as well as Mayor Bjerregaard's ability to mobilize support across other Danish cities and at a National level, played a critical role in securing increased cycling policy resources.. Some €15 billion was made available for funding large capacity investments in railways, and some € 24 million (DKK 1 billion) for cycling projects in municipalities. This plan and the attached fund was considered **a major breakthrough in terms of promoting cycling at a national level**. It was implemented under the leadership of the Danish Road Directorate but in close combination with the National Urban Policy Agenda: for the first time, cities were targeted as the recipient of government subsidies for cycling initiatives and the co-called "cycling city concept" was developed in order to highlight the possibility for any city – meaning "not exclusively large cities" – to adopt it. The 2009-2014 Cycling Fund targeted urban areas nationwide and aimed at developing 3 types of cycling initiatives: cycling as a transport mode (cycling city projects), make it safer (traffic safety projects, including cycle commuting) and communicating about it (innovative projects). Out of more than 1100 applications, a total of 388 projects were funded through national subsidies (at between 40 per cent and 100 per cent subsidy rate) and fostered a number of cycling initiatives with other funding sources (municipalities, EU, etc.) elsewhere⁹⁵. In a number of cities, projects initiated with the support of the Cycle fund were implemented only recently and have contributed to maintain pressure upon the national government.

In Copenhagen, two major projects benefited from the National Cycle Fund:

- The Bicycle snake, opened in 2014, is a two-lane, 220 m long cycling bridge, which goes across the harbour area and
- The Cycle superhighways project aims at increasing speed and long-distance cycling, and led to revising and expanding the Cycle Track Priority Plan up until 2016 (see below)

A number of interviewees expressed **their scepticism towards the role played by the Cycle fund as part of national policy goals**. At first, a number of observers had characterized it as a "paradigm shift" and a profound turn in national policy goals. This optimistic view must be critically addressed in view of later developments. From an early stage on, sceptical voices were heard, and highlighted its marginal role when compared to capacity investments and policy goals in railways and motorways. In addition, political debates at national level since then have repeatedly questioned the state's legitimacy to finance cycling projects in municipalities. Even though some efforts were made during the selection process to fund initiatives in small municipalities, a number of them were located in the suburbs of regional capital cities, as highlighted in the evaluation of the 2009-2014 cycling fund. Similarly to the situation observed in other EU countries, the growing urban-rural political, social and economic divide led politicians to develop alternatives to national urban agendas. A new cycling fund was introduced only recently for 2017-2019, with a limited amount of funding.

⁹⁴ Check the "awards and accolades" section on the city's Convention Bureau's website: <https://www.copenhagencvb.com/copenhagen/awards-accolades-copenhagen> (last consulted, 17 January 2018).

⁹⁵ See the evaluation report published in 2014 by the Danish Road Directorate : <http://www.cycling-embassy.dk/wp-content/uploads/2015/12/Engelsk-Cykelpuljen-status-2014.pdf>

Nevertheless, the cycle fund's legacy can also be accounted for through less tangible resources, such as horizontal organizational and political leaning processes, increased attention across Danish cities and the search for alternative financing opportunities. Since the 2009 Copenhagen summit, increased pressure from civil society based organizations has been exerted upon national policy-makers. Similarly to the choices made in the 1970s as part of the white crosses demonstrations, their claims are not expressed in political and social terms, but in terms of culture and lifestyles, and sought to cut across political divisions and the rural-urban divide. This was the case with the newly created Danish Cycling Embassy. This think-and-do tank was created in 2009 with a permanent secretariat based in Copenhagen that actively promotes the Danish experience with cycling worldwide but also contributed to institutionalizing the use of communication-based strategy and tools in Copenhagen's transport policy. The Danish Cyclists' Federation constitutes another example of civil society organizations that seek to maintain pressure on the national political agenda and where a profound generational change took place in the mid-2000s, with the arrival of a new generation of urban planners, experts, activists and technicians from across Danish cities. They gained prominent positions within the Danish Cycling's Federation, which is now led by K. Bondam since 2014: **cycling has been promoted as a strong transport alternative** – and not only as a leisure activity. It also sought to renew its action repertoires in order to increase pressure on national institutions and channel the cyclists' interests across a wider range of policy-making arenas. Acting as consultants and experts, and drawing on their experience and knowledge from across Danish cities, including Copenhagen, these new generation of pro-cycling individuals advocated the added value of communication strategies and tools to the traditional transport policy instrumentation repertoire.

Exporting the Copenhagen model in the Capital city region: the Cycle superhighways project

Among those projects financed with the support of the National government, the Cycle superhighways project was instrumental in order to reopen discussions with municipalities in the region for developing joint mobility initiatives. Transport demand for daily commuting to and from the region was identified as a major challenge for the city of Copenhagen. Unlike the situation observed in Copenhagen, no major capacity investment had been introduced in spite of the changes brought to the organization and the governance of transport in the region, and investments in railways – apart from the connection with Malmö – had considerably reduced up until the early 2000s. Car-oriented planning and policies remained dominant in the suburbs, and in the absence of a strong state intervention, **the city of Copenhagen had few opportunities to influence the development of cycling initiatives beyond their borders**. As the number of residents and workplaces increased, and in view of future growth prospects and urban development projects underway, politicians and policy-makers grew increasingly concerned of the need to increase the role of cycling in commuting trips and modal share. Within Copenhagen itself, municipally led gentrification policies had, in return, led to increased transport demand within, to and from the city centre. As Copenhagen became more attractive for wealthier residents and workers, this growing transport demands grew contradictory in nature: walking, cycling and urban design initiatives had been instrumental in enhancing the city's attractiveness for these social groups, yet they were also more demanding in terms of being able to choose between a large range of transport alternatives, in particular car use. In a context in which the national tax system on car ownership was being redefined and new technologies promoted as part of national policies (e.g., electric vehicles), car ownership also started rising again in the city.

The Cycle Superhighway project was considered an opportunity to develop an alternative to car use and as a contribution to congestion reduction for daily commuters. It is the first attempt to spread the Copenhagen model towards adjacent municipalities by involving them in a jointly developed project that was formalized through a partnership between 23 municipalities, which agreed to voluntarily contribute to the development of this network⁹⁶. In addition to this framework agreement, each route requires that municipalities concerned sign a joint agreement in order to specify their level of commitment and the concrete ways through which they will ensure similar travel conditions alongside the route. To this end, the notion of cycle superhighways was defined – and later promoted EU-wide towards London, Paris and other large EU cities –, common quality, safety and user-oriented standards were jointly defined in order: lighting, number of and distance between repair stations, green wave technology, minimum width, etc.). In addition to common standards, some efforts were made to develop some services and communication materials in order **to promote this network as a proper regional-wide transport system**: an app, a logo (C-logo) to be introduced alongside those logos representing S trains, motorways and the Metro. According to the decisions made for each line, the network's completion is expected to cost a total of €55 and 117 million (DKK 413 and 875 million). In addition to the municipalities' involvement, the

⁹⁶ See Section 3 for a map.

project also benefited from direct funding support from the Capital Region of Denmark and that of the state. Its main goal is to confirm cycling as the “fastest, cheapest and most practical transport mode” and to extend its catchment area beyond the densest urban areas in the region. It also aims at offering daily commuters the possibility to use their bike for longer distance – beyond 5 and up to 30 kilometres – in order to reach a 30 per cent modal share by 2025 in bike commuting across the region. Seven routes have opened so far, amounting to a total length of 167 kilometres, and 14 routes are planned by 2020, including ring roads aimed at increasing existing connections between municipalities outside Copenhagen or creating new ones⁹⁷. The Cycle Superhighway project aimed at renewing forms of cooperation in the metropolitan area. Yet according to all interviewees, this project remains “rather unique and unlikely to be easily reproducible” (Copenhagen workshop, February 2016).

4.4.4 Concluding remarks, Phase 4: the tale of the city

When analysed at city level, this sequence clearly emerges as the triumph of the cycling city. It draws on pre-existing transport policy developments and benefits from the amount of resources invested in public transport and traffic mitigation policies. Yet by linking the development of sustainable mobility together with the urban climate change agenda, and strategically using communication tools and strategies, the cycling city model proved highly innovative and hugely transformative. Using cycling as the backbone of the city’s transport system, unprecedented levels of investment was made citywide in order to increase its share of daily travel. This was achieved under the municipality’s leadership through increased policy resources and in close relationship with the environmental movement. The pro-cycling community was considerably enhanced, and now draws on strong, multidisciplinary expertise and worldwide recognition that fuels the diffusion and strengthening of the cycling city model. These joint efforts also contributed to the model’s expansion within Denmark, and more specifically within the capital region as a transport solution to increased congestion.

Nevertheless, the focus on the urban scale is somewhat misleading when it comes to analysing transport policy developments in the capital-city region. In spite of its huge visibility, the cycling city model only accounts for some of the changes taking place in transport both in the city and the region. In addition to commuting traffic to and from Copenhagen, the regional road network’s structure meant that a wide share of within-region traffic flows passes through the city. Moreover, the pursuit of the urban growth agenda has also contributed to the city’s attractiveness, with some major impacts on real estate and housing prices, demographic growth and socio-economic changes, or to put in other words: “*One of the consequences of these policies has been to have more resourceful people coming to the city*” (interview cycling expert, February 2016). In this context, major transport controversies directly challenged the model’s long-term sustainability and offered renewed opportunities for pro-car interests and an emerging public transport coalition to develop alternative solutions.

4.5 Uncertain mobility futures (Phase 4, since 2009): the tale of the city-region

This section focuses on transport policy developments since 2009 from a regional perspective. Albeit lessened with the 2008 crisis, traffic congestion in Copenhagen remained a major political issue, which was only partly addressed by the urban climate change agenda. In spite of the city’s efforts to promote itself as the cycling city, this was done in a context of growing political debates about transport within the ruling majority. Political discourses during the 2010 municipal campaign highlighted the growing discrepancy between, on the one hand, the city’s image as the cycling city, which was mainly achievable within its own territory in the absence of a region-wide cooperation mechanisms, and on the other hand, the city’s function as a major hub, which heavily depended on large-scale infrastructures and economic growth in order to sustain its growth model. In this section, we examine how Copenhagen’s social-democratic elites progressively pushed the reframing of the debate about congestion in order to redefine state-city relationships and maintain high levels of public investments in the region. We discuss why this constitutes a threat to the cycling city model in a longer-term perspective.

Current challenges in transport partly result from effective and anticipated demographic and economic growth in the city and the region. In spite of the 2008 crisis, the continued arrival of new residents together with the development of new residential and commercial areas contributed to profound socioeconomic and urban changes. Some 100.000 additional residents are expected by 2025, to which one should add a similar number of

⁹⁷ When completed, it should amount to some 746 kilometres

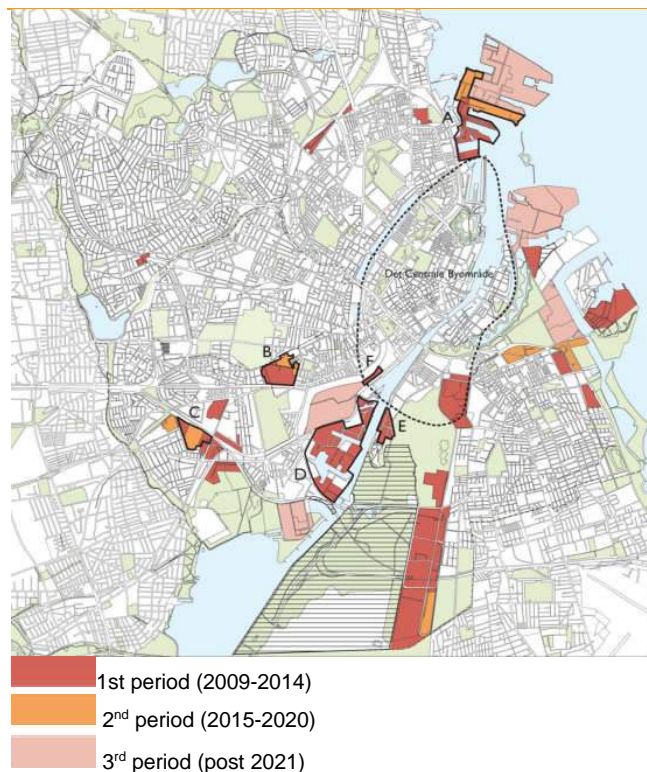
workplaces. In a context of rapidly evolving state-city relationships, a number of transport controversies highlighted the need for a new agreement across political parties and levels of government.

4.5.1 Decoupling urban growth from traffic demand?

The current Copenhagen urban growth model still draws on the principles laid out under Mayor Mikkelsen's successive mandates. Since the election of Mayor Jensen⁹⁸ (since 2010), innovation and new technologies have been added to urban development and infrastructure planning, which had dominated the local political agenda since the early 1990s. Urban regeneration and development remains the major driver for urban growth and have benefited, over time, from the accumulation of capacities at the urban level. The city was able to progressively plan the arrival of future residents and workplaces by taking advantage of with low levels of density and large spaces left vacant by deindustrialization (see Map 7). Similarly to the situation observed since the 1990s, it combined its role as shareholder with its regulatory powers as planning authority in order to keep the upper hand on the development of a vision and planning strategy for these future urban development areas. Urban planning goals were entirely revised as part of the 2010 Municipal Strategy for Copenhagen "Green growth and quality of life » in order to lay out the main principles for urban growth by 2030.

Following the development of the Ørestad and Docklands areas, **the Nordhavn area** is now considered the main urban development flagship project. Located in the northern part of the city, it totals some 34 hectares of land and is expected to accommodate one third of Copenhagen's future population growth by 2024, that is 40.000 residents and as many workplaces. Reproducing similar financing mechanisms than those generated in the case of the Ørestad area - maximizing the value of public land as part of large urban regeneration projects – the ruling majority hoped to generate sufficient revenues to finance the expansion of the metro system (expected in 2019). There again, he relied on a public-owned and privately managed corporation, namely CPH City & Port Development, who's CEO is former Mayor Kramer Mikkelsen.

Map 7. Planning for future growth in the city of Copenhagen

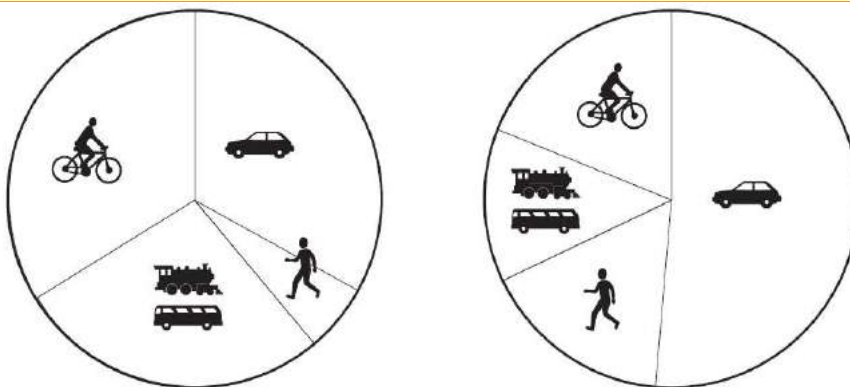


⁹⁸ Mayor Jensen was re-elected in November 2017. The ruling majority brings together Enhedslisten (EL), Socialistisk Folkeparti (SF) and Radikale (R).

Transport policy objectives were adapted in order to take into account these urban planning goals, as shown in the city's sustainable urban mobility plan (SUMP) in 2012, or so-called "Action plan green mobility". This policy document reflects growing debates within the ruling majority between the need for transport to fuel the urban growth model and or to support the urban climate change agenda through ambitious car traffic reduction goals. This policy document confirms the submission of transport policy goals to the urban climate change agenda as well as the concrete ways through which such mainstreaming would be achieved in transport. Yet **the 2012 Action Plan also puts greater focus on the complementarity between transport modes** and confirms the need to address increased transport demand. It also highlights the following paradox: as Copenhagen became more attractive for wealthier residents and workers, transport demands also grew contradictory in nature. Walking, cycling and urban design initiatives had been instrumental in enhancing the city's attractiveness for these social groups, yet they were also more demanding in terms of being able to choose between a large range of transport alternatives, including motorized transport. Moreover, a second source of concerns relates to incoming traffic from outside the city's borders.

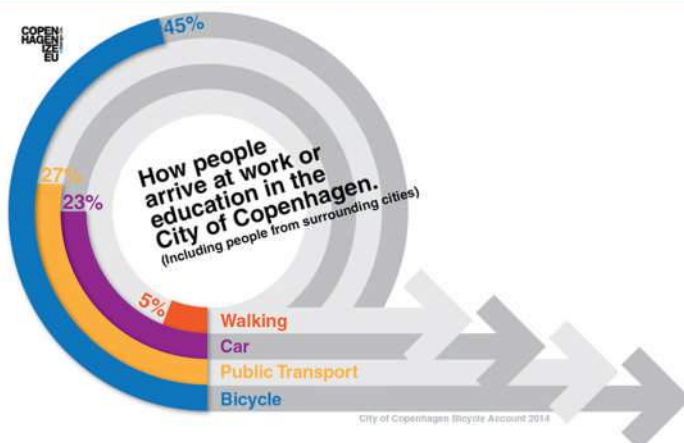
Even though the 2012 SUMP reiterated support for the urban climate change agenda in transport, evolving transport debates between 2008 and 2012 highlighted the growing role of alternative approaches. Subsequent transport policy documents increasingly draw on such conflicting preferences in order **to advocate the need to better integrate transport modes and combine different transport policy types with one another**. More precisely, the development of transport alternatives is no longer addressed in silo but in an integrated way, by mainstreaming transversal issues such as urban development, climate change and capacity extension. A particular attention is devoted to achieving multi-modal travels, in which cycling, walking, public transport and car use are to be considered as components of a single chain. Targets are redefined in a broader regional context, in order to change the modal split for non-work related transport demand in the city, as well as for commuting to and from the City of Copenhagen (see Figures 6a & 6b).

Figure 6a. Modal split to workplaces in the city of Copenhagen in 1999 (Bicycle account for 2000) and general modal split in the city of Copenhagen (Statistics Denmark).



Source: City of Copenhagen 2002.

Figure 6b. Modal split in Copenhagen's area - commuting trips as of 2014



Source: © Copenhagenize, City of Copenhagen Bicycle account 2014.

Transport was increasingly framed in economic terms. The publication of a study produced by the engineering firm COWI was regularly mentioned in press articles, political discourses and opinion papers by representatives from economic interest groups: findings showed that 29 million hours were lost every year in traffic jams with an economic cost of about 8.5 billion kroner (€1,1 billion) a year⁹⁹. Moreover, evolving transport debates showed that the cycling city model was considered less of a relevant transport solution than those that had been considered by the commission on Danish Transport infrastructures 2030. The main rationale was to address congestion by diverting commuting flows away from the city centre. Two major solutions were being discussed at city level: the introduction of a congestion zone, supported by left-wing politicians and pro-cycling organizations and the project for the harbour tunnel, initially supported by conservative parties and pro-car organizations, and now by the Social Democratic Party as part of a multi-dimension political agreement.

In parallel to the changes observed in transport debates in Copenhagen between 2008 and 2012, state interests were shifting away from Copenhagen, which threatens to weaken what was considered to be the main driver for the city's urban growth model. Aligning with a pro-business coalition in a context of economic recession, pro-car interest groups actively sought to further weaken the national tax system on car ownership and use (see above) and, more generally, an infrastructure-led policy agenda.

4.5.2 Transport controversies about mobility futures in the capital city region (2012-2017)

These contradictory dynamics led to a series of major transport controversies about mobility futures in the capital-city region between 2012 and 2017. Putting an end to a two-decades-long joint urban growth strategy in Copenhagen, these transport controversies highlighted the role of inter-institutional competition and party politics in shaping interests' mobilization.

The controversy about the Copenhagen congestion charge

The congestion charge initiative led to a national political controversy about transport in the capital-city region, during which political negotiations both within and between political parties across levels of government played a pivotal role in shaping evolving state-city relations. In the early 2010s, the Social Democratic Party exerted a leading role in Copenhagen (Mayor Jensen), the metropolitan area and at national level (Prime Minister Thorning-Schmidt), but in coalitions in which it had to work, among other political parties, with the Left-Green Party SF¹⁰⁰, which acts as both a challenger and an ally within these ruling coalitions. As part of its office-seeking strategy, SF repeatedly championed transport solutions favouring alternatives to car traffic. In Copenhagen, it pushed for the introduction of a congestion ring around Copenhagen.

The proposed congestion charge was introduced as an experiment in 2011. Drawing on London's experience, the aim was to tax incoming traffic from the region in order to reduce congestion (and air pollution) while financing increased public transport supply. This initiative raised a number of criticisms from right-wing parties, car owners' association and the Danish Industry Association, as well as from municipalities in the region, including social-democratic mayors. Following the formation of the centre-left Thorning-Schmidt government (2011-2014), the debate over the Copenhagen congestion charge both mirrored and increased divisions between SF and the Social Democratic Party¹⁰¹. Within the Danish fiscal system, municipalities depend on Parliament for introducing general taxes, including road charges: Copenhagen could not unilaterally decide to introduce a permanent charge and there was no consensus within the new parliamentary majority and the government to support this initiative. At the local level, it also led to some tensions with the Red-Green alliance, which had, so far, represented pro-cycling policy measures but was criticized for not promoting them in combination with more radical car reduction measures. By contrast, Mayor Jensen's main goal was to secure funding from the state for additional capacity investment in transport infrastructures. At the regional level, the debate about the congestion

⁹⁹ Interview at National Road Directorate, February 2016. See also press article published in CPH Post « Committee presents ideas for reducing Copenhagen's congestion », February 8, 2013.

¹⁰⁰ Socialistisk Folkeparti (SF)

¹⁰¹ The 3rd partner in the government coalition, Radikale Venstre, kept a more neutral position. The 2nd Thorning-Schmidt government (2014-2015) only included the Social Democratic Party and the Liberals.

ring confirmed the role of deeply rooted territorial differences in shaping transport policy preferences in the city and the rest of the region. The proposed congestion charge was eventually abandoned in 2012.

Seeking consensus as part of the Danish Commission on Congestion

In its search for a consensus, central government installed a national Commission on congestion and air pollution in Copenhagen. It included some 28 members: politicians, experts and interest groups. Its aim was to: *“reduce congestion, improve the environment, create modal change and look at road pricing »*. This commission first sought to reframe transport issues in a broader regional context¹⁰² in order to foster a broad political agreement across levels of government with the support of the Social Democratic Party.

By shifting the debate from the city towards the regional level, the discussion highlighted the growing disconnect between transport behaviours and policies in Copenhagen on the one hand, and the region on the other hand. For some Copenhagen representatives, such reframing was criticized from an early stage on for remaining predominantly car-oriented and driven by the need to mitigate the impact of car traffic, such as congestion and air pollution. Yet there also was a general agreement within the commission that some level of territorial differentiation would be needed in order to take into account existing differences within the region. This was particularly discussed during interviews: *“the commission aims at prioritizing cycling and walking anytime it is reasonable, then public transport, then cars. In the commission’s vision, developing car infrastructures in central Copenhagen didn’t make any sense. The idea was rather to make it less convenient to come by car. Representatives of cars’ organizations jumped on their seat. They were pushing for many projects that were in the pipeline in the national decision process and the commission did not support them. All in all, the green side was stronger than the black side. But some concessions had to be made”* (Interview cycling expert, February 2016). Considered less relevant for the regional context, **cycling and walking remained largely absent from the commission’s discussions**¹⁰³. In the context of the Commission on Congestion, the Capital region of Denmark was able, together with research input from DTU¹⁰⁴, to push forward **an ambitious public transport capacity investment project in the region with the support of the central government**. It also actively promoted the use of electric cars in order to reduce some negative externalities associated with car use. As mentioned during an interview: *“There is also a consciousness that, if it is easy to deal with sustainable mobility in the dense central area of Copenhagen, in the suburbs it is far more challenging. Cars are considered a sort of ‘necessary evil’. ... Politicians would say that we don’t want a region without cars. We would very much like that everyone to move by bicycle, but it is not possible. So, we will improve public transport too and as a third possibility, suggest they use their own car. But in this case, we work to promote electric cars”* (Interview Capital Region, November 2016). The commission’s final report, published in 2013, reflects this shift in promoting increased *“holistic solutions that strengthen infrastructure and mobility and improve the environment”*. More precisely, it recommends both short/medium term solutions as well as long-term solutions that would contribute to *“a network that better connects the different forms of public transport together with individual forms of transport such as cars, bikes and pedestrians”*. Yet no specific solutions were promoted, thus leaving some opportunities at the local and regional levels to prioritize between transport modes, with central government maintaining its role as referee through the allocation of funding and planning rights.

In parallel to the discussions taking place within the Commission, political negotiations were also underway between municipalities and central government. Two main negotiation channels were used: party politics, including within the Social Democratic Party, and institutional channels in a two-tiers administrative system. These negotiations eventually led to a compromise between levels of government and between political parties. Insofar as it offered an opportunity to secure state capacity investments in Copenhagen as well, Mayor Jensen supported regional claims for increased investments in public transport. This **public transport agenda** included the extension of S-trains towards Roskilde and Helsingør, the development of an entirely new light rail network (Ring 3, see below) as well as the extension of the metro towards Nordhavn. Preliminary discussions

¹⁰² One should add that it also addressed transport issues in the wider national context, with the introduction of an ambitious capacity investment plan for railways and urban transport.

¹⁰³ This criticism was made upon several occasions by members of the commission, including M. Kabell. He had been designated as spokesman for traffic, climate and urban planning for the red-green alliance in Copenhagen in 2006. He was a member of the Congestion Commission before being nominated as the Mayor for Technical and Environmental affairs (2014-2017).

¹⁰⁴ Technical University of Denmark, See above

were made regarding a second metro extension towards Sydhavn, which was eventually approved by Parliament in 2015. A number of criticism were also expressed on this occasion regarding the city's ambiguous position, with the red-green alliance (M. Kabell) and the social democrats (F. Jensen) eventually accepting massive investment in the road network in exchange for capacity investments in public transport and reducing traffic congestion in Central Copenhagen. Indeed, the final agreement also mentions **a number of road investment**, including new motorways, support for car-sharing networks, electric cars, park-and-ride facilities and the construction of the Nordhavn road and tunnel.

The debate was particularly vivid regarding the Nordhavn road and tunnel: the road itself was meant to divert some 15.000 cars per day away from residential areas in Copenhagen (Østerbro, Central Copenhagen) and the adjacent municipality of Gentofte¹⁰⁵. In addition, a double-track tunnel aimed at easing access towards the future Nordhavn residential district, the industrial port and cruise terminal, while at the same time diverting incoming traffic from the region (Amager) and across the Øresund link by opening a new north-south connection¹⁰⁶. This decision was considered a first step towards the completion of a new motorway project in the city – the “*biggest road infrastructure project in Copenhagen in the last 50 years*” (Copenhagen workshop, February 2016) and as a setback from continued efforts to actively reduce car traffic and space devoted to cars. More fundamentally, it reopened a debate regarding which transport mode should become the transport system's backbone.

The controversy about the Nordhavn tunnel in Copenhagen.

The Nordhavn road and tunnel projects sparked a new transport controversy in Copenhagen, this time among both professionals and among political parties, and in this case, within the pro-cycling organizations. Reaching out from transport-driven issues, the controversy also related to political and social debates about social, environmental and spatial justice in Copenhagen, thus linking back to a more Left-Green opposition to the Copenhagen urban growth model. The Nordhavn tunnel project did mean further reducing the green area of Amager Fælled, parts of which had already been destroyed during the 1990s in order to develop Ørestad and the first metro line (see above).

As the Social Democratic Party pushed for the formal approval of the government's plan both within Copenhagen's Municipal Council (2013) and among adjacent social-democratic-led municipalities around Copenhagen¹⁰⁷, this led to some opposition from this political party's allies, including the Mayor for Technical and Environmental affairs, Ayfer Baykal (SF), who eventually resigned. **The tunnel and the new road investment advocates highlighted the need to divert car traffic away from the city and reduce congestion.** Mayor Jensen sought alternative political support in favour of the proposed investment, first from the local Social Liberal Party (Venstre), also a member of the municipal ruling coalition, whose national leader would become prime minister and head of a Conservative coalition after the 2015 legislative elections, and second from M. Kabell, the new Technical and Environment Mayor (Red-Green alliance). Advocates for the tunnel project highlighted the need to divert car traffic away from the city and reduce congestion. The following quote from M. Kabell reflects this thinking: “*Nordhavns road will have a colossal impact on all those in the traffic in the area. The cars and heavy container traffic will be led underground and out of the city faster, while the cyclists and public transport will have more space above ground*” (CPH Post, 01/12/2017). Some organizations, such as Copenhagenize, grew less vindictive over time vis-à-vis the proposed infrastructure¹⁰⁸, and now considered it an opportunity to reduce the role of cars within the city and to strengthen non-motorized initiatives such as cycling and public transport.

By contrast, other political parties (SF), pro-cycling groups and environmental groups criticized this decision in the name of spatial justice and the need for Copenhagen not to behave as a car-free haven but to fully support the climate change agenda region wide. It was also criticized as another sign of the municipality's active gentrification policies in central Copenhagen as part of the work done by CPH Port and Development and Metro. Opponents also highlighted the city's ambivalence towards the role to be attributed to car use in the future and

¹⁰⁵ It links to the Helsingør Motorway by introducing a 1.6 km long connexion. It opened in December 2017.

¹⁰⁶ Its cost is estimated at DKK 27 billion (approx. € 3,6 billion) and should accommodate some 65.000 cars per day.

¹⁰⁷ Only 2 out of 16 mayors refused to support Mayor Jensen's initiative. All other municipalities (Herlev, Rødovre, Albertslund, Gladsaxe, Frederiksberg, Hvidovre, Vallensbæk, Høje-Taastrup, Lyngby-Taarbæk, Brøndby, Ishøj, Dragør and Glostrup).

¹⁰⁸ See blogposts devoted to the tunnel and their evolution over time: <http://www.copenhagenize.com/>

criticized the Nordhavn tunnel project as giving a wrong signal to new residents in the Nordhavn district and car users in the wider region in a context in which there were some growing attempts to develop non-motorized solutions for commuting travels (see below). The city also faced opposition to the development of the metro from residents in Central Copenhagen due to construction noise. Although the 2015 Municipal plan clearly prioritized the need to “develop the existing city”, by strengthening the relationship between urban development (residential and commercial units) and non-motorized transport supply for all future developments, the shift towards multi-modal travel solutions was confirmed.

Multimodal travel solutions: threat or opportunity for the cycling city model?

Transport policy objectives **increasingly reflect conflicting preferences between different urban growth models, thus highlighting the need to strengthen coordination between transport planning levels.** On the one hand, increased attention is given to regional cooperation, as a major driver for strengthening Greater Copenhagen’s role as an international hub. But on the other hand, cycling, walking, public transport and car use are to be considered as components of a single chain, with cycling being highlighted as most effective for covering the first and the last mile in a seamless travel perspective.

This approach somewhat contrasts with the choices made by past administrations, also raising some concerns among pro-cycling advocates regarding future allocation of budgets to cycling initiatives. It reflects growing discussions within the municipal majority and the transport planning community regarding the city’s ability to further promote cycling as a backbone for urban mobility in a context of sustained demographic growth. Increased congestion on bike lanes and the negative impact on other non-motorized modes of transport, such as walking, was strategically used in the media and political debates in order to justify a more integrated approach to mobility that would take into account the diversity of users’ needs – cyclists, pedestrians, car users and public transport users. The development of public transport alternatives and the growing role of Metro in promoting a public transport oriented urban planning model, somewhat competed with that of the cycling city.

Recent policy documents and initiatives also gave particular attention to cycling and sought to strengthen its role through dedicated measures and infrastructure. The opening of the circle line is expected to significantly reduce pressure on cycling infrastructure and to postpone a much-feared “cycling peak” in Copenhagen¹⁰⁹. This is particularly the case of the **Bicycle Path Prioritisation Plan 2017-2025**, which provides for investments between DKK 1.1 and 1.8 billion (€ 147 and 241 million)¹¹⁰. It advocates the mainstreaming of cycling, with a series of new, transversal policy objectives. It also addresses issues related to traffic congestion on the cycling network:

- Increase the share of cycling in commuting trips from 40 per cent to 50 per cent
- Capacity extension on existing lanes, with an increase from 25 per cent to 80 per cent of the number of bike lanes with 3 lanes
- Increase the quality of the journey: comfort, safety and speed

Nevertheless, pro-cycling advocates highlighted the lack of more restrictive actions towards car traffic reduction as the main driver for congestion on cycling infrastructures. Together with other opponents to the project, including Friends of the Earth, A. Baykal started the “*Nej til flere biler i København*” campaign (*No to more cars in Copenhagen*) and challenged Mayor Jensen during the 2017 municipal campaign, during which the protection of Amager Fælled emerged as a major political issue. For the first time, and in a context in which the state had drastically reduced its direct involvement future urban developments in Copenhagen, the CPH Port & Development company’s financing model was openly questioned in social and political debates.

¹⁰⁹ See article by Athlyn Cathcart-Keays, “Cycling downhill: has Copenhagen hit peak bike?”, *The Guardian*, 17 November 2017: <https://www.theguardian.com/cities/2017/nov/17/copenhagen-cycling-peak-bike>

¹¹⁰ CPH Post online, 24th February 2017. This article also mentions the following estimates for the division of space between road users: 7% for cyclists, 26% for pedestrians, 54% for cars and 12% for parking.

Figure. The “Nej til flere biler i København” campaign logo



Source: Campaign's Facebook page : <https://da-dk.facebook.com/NejTilFlereBilerIKBH/>

It is all together difficult to fully make sense of the recent controversy about the Nordhavn road and tunnel. Two major complementary explanations emerge from the work done in WP4. On the one hand, it can be understood as reflecting the city's ambivalence towards the role attributed to car use in the future as part of the urban growth model. Non-motorized transport has indeed been strengthened and considerably enhanced, but only some minor initiatives aiming at actively and systematically reducing road space and constraining car use have been introduced since the early 1990s. On the other hand, this controversy also fuels and results from increased political and institutional competition at National level. The state's evolving strategy in the capital-city region is examined in the following section.

4.5.3 The state's changed strategy in the capital-city region

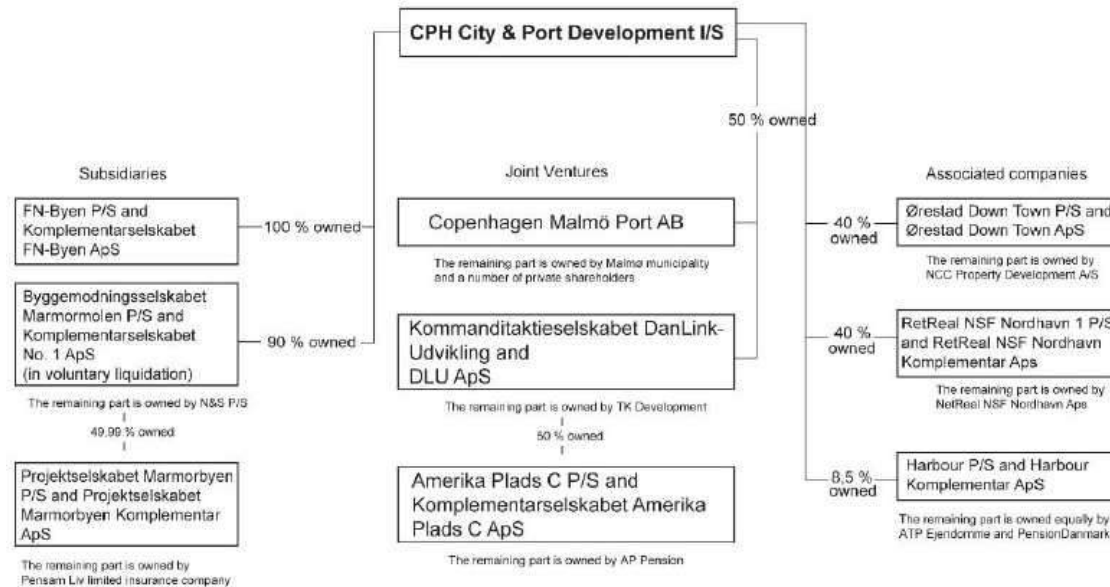
In the post 2008 crisis context, the Danish State has re-enacted with its classic “divide and rule” strategy, in which stakeholders are compelled to compete with one another in order to attract investments and resources made available at national level according to the State's own policy preferences. Following the Danish Commission on Congestion, the transport debate was reframed in a regional and a national context. Two different types of criticism justified the need to reduce state investment in Copenhagen: first, secondary cities in Denmark wishing to develop their own rail-based system – metro or urban tramways – advocated the introduction of a national urban transport framework as part of the urban agenda; second, sparsely populated areas outside major cities and in rural areas increasingly opposed such continued levels of state-led capacity investments in Copenhagen and required that new investments were made in roads and rail networks. This position was strengthened in political debates at national levels as a result of the 2008 financial and economic crisis and discussed as part of the agreement reached between the city, the region and the state during the Commission on Congestion. To be sure, the 2009 Danish Transport Strategy prioritized the need to increase non-motorized transport in Denmark, in middle-sized cities, through investments in public transport and cycling (e.g., Cycling Fund), and by developing rail infrastructures and services.

Reduced state investment in Copenhagen

Yet subsequent political changes at national level also led to redefining national transport priorities and had an impact on the selection of transport solutions in the region. As mentioned by an interviewee: “*The Harbour tunnel project was brought to many discussions. The Congestion Commission did not say that there should be the tunnel. Highway extension projects were developed as well. The government at the time, a social-democratic one, was more pro-public transport than it used to be. Now, it changed again ... and the solutions on the table have changed too*” (Interview with cycling expert, February 2016). Two main consequences have been identified so far: first, the respective interests of the state, the region and the city of Copenhagen are diverging; and second, apart for some common interest in rail-based transport, the city of Copenhagen will increasingly need to find alternative financing resources in the future. As the conservative opposition grew stronger at national level and after the Socialist Party had left the 2nd Thorning-Schmidt government (2014-2015), the state withdrew almost entirely from the CPH City and Port Development at the end of 2014. The company is now owned by the Danish state and the

city of Copenhagen with a share of, respectively, 5 per cent and 95 per cent. Following the state's withdrawal, it was profoundly reorganized under continued leadership from J. Kramer Mikkelsen (see Figure 5).

Figure 7. CPH City & Port Development current ownership structure



Source: CPH City & Port Development, Annual report 2014, p.18.

In the case of the Copenhagen Metro, much of the debates regarding the planning of the new line were less framed as a contribution to car traffic reduction, but as necessary contribution to strengthening Copenhagen's function as the country's main hub. This justified the state's support up until 2015, with the go ahead for the metro extension to Sydhavn and continued involvement in the Metro Company. Nevertheless, the city of Copenhagen will have to assume more financial responsibilities in the future, as illustrated in the following quote: *"The central government now feels the pressure from other parts of the country asking for the same transport facilities Copenhagen has. In addition, it is also argued that, in the future, the city of Copenhagen will have a much bigger part in the Metro projects"* (Interview Metro, February 2016). It was also understood among those favourable to the project at the local as well as the national levels that growing opposition was being heard in the rest of the country against high levels of state capacity investments in Copenhagen. Today's continued state support to rail-based solutions in the capital city region is consistent with "one-hour train model", which seeks to reduce travel distances by train between Danish cities in the name of economic growth. This was also mentioned during interviews: *"today the interest between the city and the state is a more fragmented. The state still has an interest in railways and in this sense, it could be interested in further developing the Metro system"* (Ibid.). Continued support to Metro is also explained as part of the Ring 3 Light Rail project (see below), whose development relies extensively on the resources and knowledge accumulated with planning and operating of the Copenhagen metro.

The reform of the national tax system on car ownership and electric vehicles as a threat to sustainable mobility goals in Copenhagen and the region

In addition to withdrawing from the CPH City and Port Development, the reform of the national tax system on car ownership and the reduction of subsidies for electric vehicles proved an additional source of concern for the city of Copenhagen. Between 2013 and 2015, a series of amendments were brought to the national fiscal policy on car ownership and electric vehicles. This was justified in the name of the government's strategy to reduce the general amount of taxation, and led, in effect, for a source of income to be reinstated at levels almost equivalent to those prior to 2008. The first move was made in 2013 under the Centre-Left Thorning-Schmidt government (2011-2014) and the second push after the Rasmussen government was elected in 2015. This decision also led to some mixed reactions in the region.

First the decision was made at national level to significantly reduce registration fees on new cars (see Table 5a above). The tax on new cars was reduced from 180 per cent to 150 per cent. This decision was also understood as the result of intense lobbying, at national level, from the automotive industry together with the Danish car consumer organization and the industry organization of car importers, from the early 2000s onwards.

Together, they sought to reduce – and eventually abolish – the current taxation system in order to target the car's safety and environmental properties on a yearly basis, rather than its value and weight at the time of registration. The Danish Ecological Council criticized this reform in regards to its impact on climate change and air quality: by calculating the tax on basis of kilometres per litre, rather than the number of grams of CO₂, the current tax system does not sufficiently seek to reduce CO₂ emissions (Danish Ecological Council, 2015; 2017). A number of proposed changes are currently being discussed at national level (see Table 5b), but there are increased concerns in Copenhagen, where car ownership and use started rising again in the city as of 2015.

Second, and in spite of the lack of political consensus, central government announced the dismantling of the generous tax exemption system on electric vehicles by 2015. This policy measure had rapid and visible impacts: electric car sales diminished rapidly and led to growing concerns against this measure's overall impact on car fleet renewal in a context in which the costs associated with car ownership and used were being reduced. This decision highlighted continued contradictions between transport policy objectives across levels of government, and in this case with the region's transport policy objectives. In this context, and in combination with some efforts to develop non-motorized alternatives (see below), the use of electric cars is actively promoted at regional level in order to reduce some negative externalities associated with car use. Prime Minister Rasmussen and his majority eventually agreed to a temporary political agreement to be reached with the Conservative People's party on the tax system reform, including taxes on motor vehicles. The electric vehicles market was not considered mature enough to pursue the phasing-out of tax exemptions by 2020 and a new calendar was set: car exemptions will resume when 5000 cars have been sold or by 2019, until it phases out completely by 2022¹¹¹. The forthcoming dismantling of SKAT, the Danish Tax Authority, after a series of scandals and the subsequent creation of 7 agencies, including a vehicle agency (*Motorstyrelsen*) is also expected to offer additional opportunities for micro-level adjustments (Politiken, 05/10/2016).

Table 5b. Proposed changes to be brought to current motor vehicles tax system

Proposed change	When?	By whom?	Main goal	When?	In replacement of what?
Proposed CO ₂ -based tax	2016	National Automotive Industry, Danish car consumer organization and Danish industry organization of car importers	Increase sale of CO ₂ efficient cars, younger car fleet and less import of used cars	Annual	Existing tax system
Replace the KM/liter tax basis by a CO ₂ g/km	2014	Danish Ecological Council	Align on other EU countries in order to better reflect reductions in least / most energy efficient vehicles.		Basis for Green owner tax
Introduce a dynamic tipping point across all existing taxes	2017	Danish Ecological Council	Better reflect technological changes and CO ₂ emissions from the best vehicles on the market.	Continuously	Adjustment to registration tax

Source: compiled by Halpern, Press review and Danish Ecological Council (2015 & 2017), both available at: <http://www.ecocouncil.dk/>

In this context of shifting national interests, renewed attempts were made in the capital-city region to develop new alliances and forms of cooperation at both metropolitan and regional level.

4.5.4 Completing the shift towards “Planning for people” policies (Stage 2) in the region

When considered beyond the city's borders, debates underway in the region as part of successive revisions of the Fingerplan, the 2007 administrative reform, and the commission on congestion have fostered increased support for project-based forms of cooperation in the capital-city region. These functional, *ad hoc* solutions primarily aim at increasing coordination in public transport. This shift also reflects the changes taking place in the region in terms of urbanization and demographic trends. While car use and low-density urban development remain dominant in the outer suburbs, a number of initiatives were developed in the metropolitan area in order to adapt and extend Copenhagen's transport policy initiatives. A number of public authorities in the region shared the state's and the city's interest in strengthening its role as major infrastructure hub, but in a regional context, which included a number of dynamic economic, health and knowledge centres outside Copenhagen.

¹¹¹ See Denmark Radio, April 2018: <https://www.dr.dk/%2Fnyheder/%2Fpolitik/%2Fny-aftale-om-elbiler-skal-saette-gang-i-bilsalg>

In this section, we argue that **this diverse set of factors offered unprecedented opportunities for the Capital region to structure a sustainable transport agenda.**

Infrastructure-led cooperation in the region: the Ring 3 light rail project

In its development plan, the first to be released after the 2007 reform, the Capital region of Denmark clarified the region's overall development strategy – to become an “international metropolitan region with high quality of life and growth” and the greenest capital in Europe (OECD, 2009). In order to do so, it suggested drawing on infrastructure, environmental protection and education. As part of the discussions led by the Ministry of Environment during the latest revision of the Finger Plan, Central government had been working together with a group of 11 municipalities in the inner and outer suburbs¹¹², and with the Capital region, in order **to produce a strong public transport alternative region-wide**. This solution was successfully promoted as part of the Commission on congestion. A joint vision (“LOOP city”) was produced in 2015, which highlights the challenges related to sustainable urban planning in a context of rapidly urbanizing suburban areas around Copenhagen, and this joint task force recommended the development of the so-called Ring 3 light railway project¹¹³. The formal decision to proceed with this large-scale infrastructure project was taken in Parliament (Act on the light rail in Ring 3) in 2016 and follows the state's decision made, in 2015, to withdraw from the CPH Port & Development company. Similarly to the choices made in the case of other light rail projects in Denmark (Aarhus and Odense), a dedicated joint public organization was created - Greater Copenhagen Light Rail in 2016 – in order to supervise the project's design and implementation. A mayors' forum was also introduced in order to formally represent local political interests in the new company's governance structure. In terms of organizational resources (personal, offices) and expertise (engineering design, procurement and contractual tasks), the newly founded company directly benefits from Metroselskabet's direct support.

This large-scale public transport capacity investment project represents **a major turning point in transport policy developments in the region since WWII**. First it is the largest public transport capacity investment planned in the region since the last S-train line in the 1970s and represents, as such, a decisive shift away from the car-oriented planning model. Second, by contrast with previous practice, it also results from effective integration between transport and regional spatial planning. The rigid and hierarchical territorial structure that had been established following the 1947 and 2007 Finger Plans, which only allowed infrastructural and urban development along some radial axes between Copenhagen and the suburbs, is being gradually reshaped into a more homogeneous spatial structure that takes into account evolving transport demand following 5 decades of rapid urbanization. In a similar way to the choices made as part of the Cycle superhighways, this project takes into account the need to develop rail-based public transport linkages between suburban centres in order to develop a strong alternative to car use and reduce congestion on public transport in the central area. Moreover, it also provides increased accessibility to existing S-train lines, and to major regional economic, education and health centres in the region, including DTU¹¹⁴ and large hospitals.

Nevertheless, the planning of the Ring 3 light rail project also highlights the challenges in transport governance. Designing integrated regional mobility plans has proven particularly difficult in the absence of a regional transport authority. Large-scale public transport initiatives remain largely dependent upon central-local relationships, and more importantly, on the state's support and active involvement¹¹⁵. In this context, the Capital region acts as a joint platform for inter-municipal and inter-organizational cooperation, and continuously sought to strengthen its relevance as the regional venue for developing transport initiatives. Partnerships are developed on an *ad-hoc* basis between municipalities and transport operators in order to jointly develop and implement mobility measures and services.

112 Lundtofte, Lyngby-Taarbæk, Gladsaxe, Herlev, Rødovre, Glostrup, Albertslund, Brøndby, Vallensbæk, Hvidovre, Høje-Taastrup and Ishøj in the south.

113 See Section 3.3

114 Technical University of Denmark, see above

115 Interviews with Movia, October 2016 and Capital region, November 2016.

Increased cooperation between public transport companies and transport modes

A number of initiatives have recently been introduced by **municipalities and transport companies** in order to facilitate seamless travel. The DOT initiative (Your public transport) constitutes the latest attempt at increasing coordination between public transport companies. Since 2014, DSB, Movia and Metroselskabet developed a joint initiative aimed at giving users / costumers a clearer vision of the public transport network at regional level (Zeeland and the surrounding islands). This is achieved by increasing inter-operability in terms of customer services, tariffs, traffic information, ticketing, communication and marketing¹¹⁶. As of 2017, it was decided to continue relying on a “cross-cutting solution”, that is, a partnership, rather than create a joint organization. A joint multi-annual strategy (2017-2020) was introduced in order to strengthen existing initiatives and improve interoperability and intermodality. More precisely “*DOT must ensure that public transport appears simple and easily accessible*”. Nevertheless, several interviewees highlighted the inability of the three companies to agree to a more ambitious and stable form of coordination. The DOT initiative is no more and no less than a “*common frame of reference*”,¹¹⁷ which remains dependent upon the resources and tools mobilized within each company in order to commit to these common goals. Once an activity has been completed, it is transferred to the DOT secretariat, which ensures daily-operations on behalf of the three companies.

Albeit seeking to increase public transport's modal share in the region, these user-oriented measures did not contribute to reducing the high level of fragmentation and competition between public transport companies and authorities. In a number of areas, such as developing inter-modal services, these companies also compete with one another and intervene unilaterally in order to promote their respective networks, sometimes in cooperation with municipalities. DSB took other stakeholders by surprise during the Autumn of 2016 when it decided to allow passengers to travel with their bikes on S-Trains¹¹⁸ thus putting pressure on Metroselskabet and Movia to adopt a similar policy. However, there is no agreement between DSB, Metro and Movia about tariffs and conditions: as of end 2017, it is free on S-trains but not on buses and the Metro, there are specific restrictions in rush hours, buses do not have capacity enough to take on several bikes etc. As observed by one of our interviewee: “*This type of behaviour poses some serious problems in terms of communication towards users and makes marketing policies more challenging for public transport companies*” (Interview with an expert, February, 2016). This initiative is now considered a success for increased coordination between cycling and S-train users in a wider regional context. As commented by interviewees in the CREATE workshop: “*People often have two bikes. One for the trip from home to the closest train station, and one for the trip from the city centre train station to work. And the train is faster than the car. All in all, there are some successful results in terms of bikes and trains*” (February 2016). This somewhat contrasts with the bus and metro networks, for which alternative services are being developed in order to encourage seamless travel experiences, such as bike & ride facilities at bus stops for example (Interview with Movia, October 2016) or the development of bike-sharing systems (Interview with mobility expert, February 2016).

Mobility as a service: Copenhagen Mobility ECO system

Other forms of cooperation were developed as part of ITS strategies and the search for smart cities solutions. There again, **in the absence of a strong governance reform at regional level, pragmatism and functional cooperation have motivated such small-scale experiments**: “*Even though there is no common public transport company or authority in the city or in the region, neither a regional strong physical planning authority, other ways to cooperate are found*” (Interview with an expert, February 2016). These projects are representative of a will to improve mobility by combining new infrastructure construction with the provision of new services. Yet they also confirm the necessary role of cars and only rely upon optimization strategies in combination with increased integration with other forms of transport.

As part of the city's climate change strategy, Copenhagen's Technical and Environmental administration had committed to developing an ITS Action plan (2015-2016). This policy document was eventually published

¹¹⁶ See for example the creation of a joint website : <http://www.dinoffentligetransport.dk>

¹¹⁷ The presentation of the DOT strategy stipulates that: “it should be noted that the goals set in the strategy are indicative, expressing an ambition for what can be achieved through cooperation. The goals set do not reflect the actual expectation for goal realization”. DOT website: <https://dinoffentligetransport.dk/service/om-os/strategi/> (last consulted 16 December 2017)

¹¹⁸ This service had been experimented since 2010, but was only formally introduced in 2016.

after the Danish commission on congestion published its report, and prioritized congestion reduction as a major policy priority. It puts a particular focus on innovation, both in procedures and in transport. First, it highlights the role of partnerships and tendering procedures as a preferred way to develop a first layer of information-based tools including traffic management systems and smart city solutions. This is considered a necessary condition for the future development of a more comprehensive policy strategy. Among other examples, this leads to increased cooperation with the Danish Road Directorate and municipalities in the metropolitan area in order to jointly develop a digital infrastructure, joint traffic information, signal optimisation and the coordination of road works. Second, the aim was to mainstream ITS solutions throughout existing transport policy goals – traffic safety, traffic management, parking management and public spaces – rather than introducing new ones. Eight new intelligent traffic solutions were introduced in order to monitor short-term parking, ensure better traffic flows in the streets for cars and bicycles, etc.

At a regional level, increased cooperation developed between Movia and the municipalities of Copenhagen and Malmö in order to reduce congestion in the EuroRegion. The so-called “Copenhagen mobility ECO system” takes the form of a mobility platform that provides users with information about public and private mobility services in exchange of a subscription. Movia was considered the most relevant organization to take leadership over this joint initiative, due to its regional dimension. The ECO system was introduced in 2017 and brings together some 20 public and private mobility providers: public transport providers, including the DOT platform, bicycle providers, cab services and car-sharing and -rental companies. This initiative confirms, in Copenhagen as well as in many other cities, the gradual shift towards the notion of “mobility as a service”. In this perspective, different modes of transport contribute to an integrated mobility system from which users may optimize the use of each mode. This user-driven approach thus puts greater emphasis on mobility management and services, as well as additional constraints on transport providers to develop fully integrated services. It also confirms the growing role played by non-transport actors, such as consultancy firms (KPMG) and smart engineering (Ramboll) in the provision of urban mobility services.

As observed in the case of other EU cities, such as Vienna for example, these initiatives also aim at reducing car use and traffic congestion by highlighting alternative transport modes. In the case of Copenhagen, where car ownership and use have been rising again since 2015, the aim is to maintain or reduce the number of driven kilometres despite increased car ownership levels. By providing clear information about the costs of each alternative, it also seeks to promote more affordable transport solutions: *“sharing a car, belonging to a social network becomes more important than owning a car”* (CREATE workshop, February 2016). Last but not least, the Mobility ECO system goes beyond transport demand for daily commuting, and allows targeting other activities (leisure, week-ends, etc.).

The Capital region as the weakest stakeholder

In spite of these recent achievements, all interviewees repeatedly lamented the lack of a regional authority as the main challenge for future transport developments in Copenhagen. These efforts did not lead to strengthening the regional level of government. Rather, they confirmed the critical role of state-local relations and in the case of transport service, much depend upon Movia, the company with the strongest regional interest. According to many observers, population growth contributes to increasing the urban core’s dependency to its hinterland in any attempt to reduce congestion and car use. This was explained in the following terms during an interview with a representative from the Capital city region: *“Copenhagen cannot stand alone, because there are other Copenhageners 40 km from Copenhagen. There are so many inhabitants in the region and they all commute into Copenhagen. Copenhagen and the suburbs are interdependent and mobility demand increases. At the regional level, one of the main challenges is to think about traffic and mobility in a comprehensive way, to control it at the regional level. The situation is very complex: there are many companies; different authorities are concerned, at the local and at the state level. The establishment of a regional transport authority is far from becoming reality”* (November 2016).

In other terms, the Capital region still counts as the weakest player. Transport and mobility are repeatedly addressed in successive regional plans, including the latest Regional Development and Growth Strategy (2014). These regional policy documents provide recommendations, finance campaigns in support of public transport in the media and work with municipalities and transport companies in order to find common solutions. However, as stated by one of our interviewees: *“This is only the beginning of a very, very long process”* (interview with representative from Capital region, November 2016). Regional strategies and policy documents often lack sufficient resources to be translated into a more concrete set of measures, and often fail to be implemented. The Action plan 2015 identifies six topics which are relevant for regional development, including

mobility and sustainability (Ibid.). Moreover, the Region's legitimacy to act in the field of transport is also regularly undermined due to the scale at which transport planning in the capital city region would now be considered relevant. Recently, the region supported the development of the Greater Copenhagen Charter, an interregional cooperation mechanism that goes far beyond the region's administrative borders: it includes the whole island of Zealand, composed by the Capital region and the Zealand region, together with the Swedish county of Skåne, across the Oresund link, where Malmö is located.

In this context, competition still predominates, thus confirming findings from section 3. In addition to above-mentioned growing differences between the state's, the region's and the city's main interests in transport, municipalities in the region are still characterized by profound social, economic and political differences. All of them, including the City of Copenhagen, are engaged in developing aggressive urban development policies in order to attract new residents, investment and commercial developments. In both cases, transport is referred to as a major contribution to quality of life. In the case of Copenhagen, sustainable, non-motorized mobility is now fully integrated in the city's place-making strategies and used in order to promote high levels of quality in public life. By contrast, other municipalities are more reluctant to implement ambitious sustainable mobility policies and primarily rely on motorized transport in areas that are less densely populated

4.5.5 Concluding remarks, Phase 4, the tale of the city-region

This last section confirms the need to go beyond the city's borders in order to make sense of transport policy developments in the region. This does not diminish the Cycling city model's effectiveness, yet it helps in understanding recent transport controversies and the subsequent reshuffling of transport policy priorities across levels of government. In Copenhagen, continued commitment to the cycling city model was achieved in combination with growing efforts to redefine the main principles of the integrated approach. By contrast to the principles laid out during the 1970s, in a context of urban decline, these adjustments aim at reconciling the cycling city model with the urban growth agenda. Since 2007, a growing discrepancy was observed between on the one hand, the promotion of cycling as a major flagship project in political discourses and communication campaigns, and on the other hand, massive investment in traffic mitigation and recurring debates about traffic congestion. As sustainable transport and public life played a key role in the city's competitiveness and comparative advantage vis-à-vis other metropolises worldwide, a large share of transport planning objectives and policy measures aim at maintaining and constantly improving its model through new projects and measures. Yet such competitiveness also relied upon the city's role as a major northern European hub and to its ability to extract resources available in its regional hinterland and the support from the state. Such discrepancy has been reflected in political discourses and led to recurring tensions within the ruling coalition. It became particularly visible in the context of transport controversies about mobility futures in the capital-city region.

In this context, the political agreement reached during the Danish Commission on Congestion fostered the introduction of a new political agreement about transport in the capital-city region. It was made material through new forms of inter-municipal and –organizational cooperation. These are mostly project-led and their scale varies accordingly: at metropolitan level, between 16 local authorities for the Cycle superhighways, on the fringes of the metropolitan area, with local authorities located both within and outside the metropolitan area for the Ring 3 Light Rail project, and at regional level for developing smart solutions in order to increase coordination between modes and ensure seamless travel. These efforts did not, however, contribute to strengthen the regional level of government and confirmed the critical role of state-local relations in this process. Until now, Movia appears to be the stakeholder with the strongest regional interest. Last but not least, the reframing of transport debates in a regional context also benefited from the reshuffling of national policy preferences in transport and beyond. This, however, remains limited to public transport, as shown by recent debates about changes in national tax incentives for electric mobility and their potential impact on mobility goals in the region.

All in all, when considering transport policy developments in both the city and the region, we observed a clear shift away from car dominant policies was observed at regional level, with large investments in traffic mitigation policies (Stage 2) and some efforts to introduce a regional sustainable transport agenda (Stage 3). A similar evolution was observed at National level as part as the economic growth agenda, with a strong interest in rail-based solutions throughout the country (Stage 2) and some very limited interest in cycling (Stage 3). Yet transport policy objectives at national level are more ambivalent, and strongly dependent upon political competition and change, as observed with evolving discussions on the national tax system on car ownership and electric vehicles. By shifting ownership over spatial planning away from the ministry of Environment, national policy priorities have been reshuffled towards a pro-business and growth agenda. In the case of Copenhagen, this last sequence is characterized, on the one hand, by the priority given to cycling and the aggressive promotion of

the Copenhagen model worldwide as part of the city's place-making strategy, and on the other hand, with a growing recognition of multi-modal travel solutions and some ambiguity regarding active car reduction strategies. Yet this finding also shows some convergence with transport policy developments in other WP4 cities, where the 3 policy types are combined with one another. Three strategies are pursued simultaneously: ensuring rapid-transit connections with national and European transport networks, achieving a greater level of accessibility to and from major regional economic and business centres, and finally, meeting the local population's needs and preferences for active modes in the city of Copenhagen.

5 Conclusion

Analysing transport policy developments in Copenhagen region in the last 60 years contributes to further highlighting major drivers for change as well as the main characteristics of this process. In the context of the comparative analysis undertaken in WP4, this helps to identify both the specificities of the Copenhagen case, as well as the converging dynamics. By contrast to the arguments often made in the literature, this report suggests that Copenhagen is not to be considered as an outlying case. First, the analysis done in WP4 confirms the overall transformation of transport policies in both Copenhagen and the surrounding region. Between 1960 and 2017, transport policies shifted progressively from planning for the automobile city (Stage 1) towards traffic mitigation policy objectives (Stage 2), which are still dominant in the region, and planning for city life policies (Stage 3), almost exclusively in the city of Copenhagen. Second, similarly to the situation observed in other WP4 cities, this evolution is not evenly spread throughout the region, with some strong differences between the core urban area, the inner and the outer suburbs. Third, the incremental nature of change in Copenhagen somewhat exacerbated the overlap between policy types – stages 1, 2 and 3 – as well as for the transition being neither unidirectional nor evenly spread in the region. Today, the three policy types coexist with one another in the region and the city, sometimes highlighting the need for new coordination mechanisms.

Assessing the relevance of the transport policy evolution approach in the Copenhagen case

In terms of transport policy developments, the shift observed in policy types can be summarized as follows. Until 1972, and in spite of the integrated approach advocated in the Finger Plan, there is a broad preference across levels of government for mass-transit transport. In practice, this leads to the rapid development of motorized transport and urban sprawl. While this approach remains dominant outside Copenhagen until the early 1990s, traffic mitigation policies are introduced into the city's initiatives from 1972 onwards in order to address opposition to proposed road projects. Drawing on the planning for city life approach under development in the planning community in a context of urban decline, traffic mitigation initiatives are combined together with urban regeneration initiatives. **The ability to consistently pursue and expand this highly innovative approach from the 1970s onwards appears all the more remarkable in relation to the limited policy resources it relied upon.** We argue that such continuity is explained, in the city of Copenhagen, due to the continued accumulation of policy resources on the one hand, and on the other hand, to the role of a strong community of professionals – transport and urban planners, architects, municipal civil servants, etc. – in selecting cycling as a major alternative to car use and urban design as a major urban regeneration tool. In a context of urban growth, they were able to successfully enrol politicians in order to expand and strengthen the Copenhagen model, and to promote their experience beyond the city's borders. Between 1991 and 2007, an ambitious sustainable transport agenda was introduced in a context of urban growth. This is mainly explained due to rapidly evolving forms of urban governance and the reframing of urban mobility as a multidimensional issue. A large share of resources is devoted to the development of large scale infrastructures and urban developments, including the metro system, while other alternatives, such as cycling and public transport also benefit from such developments. Since 2007, a shift towards planning for city life policies has taken place at city level. At the regional and the national level, traffic mitigation policy objectives and initiatives are being introduced. In Copenhagen, transport policy developments confirm the city's pioneering role in making the cycling city model come true and the ability to draw on innovative policy processes, in which the promotion of cycling relies on the accumulation of projects (new lanes, cycle facilities, ...) and an aggressive communication strategy. Yet successive transport controversies have also highlighted the limits of the cycling city model, as well as the challenges raised when considering transport policy developments in a regional context.

Therein lies the singularity of the Copenhagen case. Unlike all other cases in WP4, it is characterized by high levels of disconnect between both the developments underway in the city and in the region, and the factors accounting for policy shifts in the city on the one hand, and in the region and the national level on the other hand. Indeed, the Copenhagen case shows strong continued differentiation mechanisms, which are mainly accounted for by the lack of any form of institutionalized coordination across transport modes at the regional level, either through functional or political modes of governance. In the absence of a strong regional authority or of an integrated transport authority at metropolitan or regional level, no shared approach to traffic congestion and mobility futures could emerge. Over time, this contributed to further deepening strong differences within the region in terms of lifestyles, political behaviour and policy preferences in transport, housing and urban development. In spite of such remaining differences, some profound transformations are taking place in the inner and outer suburbs, in close relationship with demographic and socioeconomic changes. This has fuelled the development of

traffic mitigation policies on a large scale, including investments in public transport and cycling. This is particularly the case in the inner suburbs, where municipalities have increasingly referred to the Copenhagen model in order to further differentiate themselves from the outer-suburbs and cope with high levels of traffic congestion. As the city of Copenhagen reframes its transport policy objectives in a regional context and puts increasing focus on optimising and multi-modal transport solutions, some growing scope for cooperation at metropolitan level could be identified.

Accounting for drivers and forms of policy change in the Copenhagen case

In addition to confirming the shift underway in transport policy developments, **the report also provides some explanation as to how this shift has occurred over time. Two major dynamics of transport policy change were identified.** The first dynamic of change relates to the sustained role of institutional competition and evolving state-local relationships in shaping transport policy developments over time. More precisely, it confirms the need to consider inter-institutional relationships in order to make sense of transport policy developments in Copenhagen. In a context in which large capacity investments in both public transport and road networks are mainly funded through state subsidies, national transport policy objectives and the ability to rely upon a majority within Parliament have profoundly shaped both the rhythm and the scope for transport policy developments in Copenhagen and the wider region. Political debates at national level have oscillated between two different roles attributed to transport planning and policies: first a tool for implementing spatial planning objectives, and second a tool for promoting economic growth. In the former case, efforts were made to integrate transport and urban planning, reduce sprawl and strengthen the role of the regional level as the most relevant scale for transport planning in the capital-city region. In the latter case, motorized alternatives were favoured within the context of the national tax system on car ownership and use, with some increased efforts to support the efforts of municipalities and economic actors to promote growth. More recently, the country's newly gained experience in sustainable transport (e.g., Copenhagen metro, smart solutions in transport, the biking city concept, etc.) have been strategically used in the national government's efforts to promote the "Danish know-how" worldwide and as part of its foreign trade policy. In addition to the role attributed to transport in national policy priorities, the state's ambivalent approach to the role of the capital-city region – and within the region, that of Copenhagen – have also shaped the allocation of funding both within the region and between transport modes. In this context, the Copenhagen case shows some similarities with that of other cities under study in WP4, in which relationships between old European states and their capital cities remain highly ambiguous. In the case of Copenhagen and beyond political change in central government and Parliament, the state's support for transport policy developments in the capital city region has been intermittent and a driver for increased differentiation in transport between Copenhagen and the surrounding region on the one hand, and between the capital city region and the rest of Denmark on the other hand.

Over time, **the state's divide and rule strategy as well as the preference given to municipalities over regions** in successive administrative reforms offered limited scope for capacity building at regional level, either through functional, e.g., the creation of a regional transport authority, or political, e.g., additional transfer of power to the region in the field of transport, forms of governance. This is particularly the case for public transport, where the respective interests of the state and those of municipalities are deeply embedded in every transport company. Each transport network is developed and operated by a different company, and only recently, the development of the Ring 3 light rail project led to the creation of a new transport company. Inter-organizational competition thus adds up to inter-institutional competition, with some constraining effects on the ability to develop a comprehensive transport policy agenda at regional level or institutionalized mechanisms of coordination that would ensure some level of stability beyond political change and competition. This does not, however, prevent the development of project-based forms of cooperation, which emerged opportunistically as part of municipalities' or transport companies' aggressive resource-seeking strategies. Indeed, in those moments in time during which some state-local political agreement could be fostered and embedded into a medium-term policy horizon – spatial planning objectives (Finger Plan), urban growth model, and the congestion commission on congestion – large-scale investments were introduced across transport policy modes and contributed to transport policy change at regional level. By contrast, pragmatism and *ad hoc* coordination mechanisms offer some opportunities to develop small-scale transport initiatives and measures. This, however, does not add up to a comprehensive framework at metropolitan or regional level, and contributes to further fragmenting the existing system and highlighting the need for coordination.

Evolving relationships with the state have indeed been essential in determining the city of Copenhagen's transport policy preferences and capabilities. This is the second key finding highlighted in this report that shows some similarities with other cities in WP4. Until the early 1990s, as the priority was given to

developments outside Copenhagen, urban authorities drafted ambitious, yet unrealistic, visions for transport futures and capacity investment projects, while policymakers were left with planning and developing transport initiatives with limited resources. In their attempt to manage decline while at the same time mitigating the negative impact of commuting car traffic, these professionals relied on the ideas and methods being developed at the same time within the urban planning community around the city for life planning model. During those years, planning for city life initiatives remained small-scale and invisible in political discourses but resulted from social and professional resistance against car dominant approaches in the region. Following the shift in national policy priorities and the joint development of a strong and sustained urban growth model in Copenhagen, the city cultivated its insular tendencies in transport as part of its place-making strategy. The prevalence was given within the social-democratic majority to traffic mitigation policies (Stage 2), with a massive support for the development of public transport in close connection with large-scale urban developments and housing. This approach is being further developed today as part of the prevalence given in political discourses to smart city solutions and the need to reduce congestion. In parallel to traffic mitigation policies, major policy resources have been devoted to building strong alternatives to car use, with the biking city model being developed as part of the city's urban climate change agenda. Drawing on pre-existing experiences, a city-planning model in which cycling is considered the backbone for the city's transport system emerged and benefited from unprecedented political momentum. It offers a strong alternative to the automobile city approach and is being actively promoted worldwide. Cycling has a prominent place in the city's transport agenda, and growing attention is now devoted to walking. Symbolic, large scale initiatives were developed as part of an aggressive place-making strategy that reached far beyond the European context. Increased attention fuelled the development of an ambitious cycling strategy citywide, as well as the allocation of dedicated budgets, human resources and policy tools, which have contributed over time to the rapid increase of cycling in modal shares and daily trips. By paying unprecedented attention to communication strategies and evidence-based policy tools, this approach has been highlighted as highly innovative and contributed to profoundly transforming the way through which non-motorized transport is planned and developed across cities worldwide. All in all, the reinvention of Copenhagen as the ultimate green city is strongly embedded into continued organizational, political and institutional capacity building, a large share of which was devoted to sustainable transport.

Recent transport controversies in Copenhagen have, nevertheless, shown the limits of the city's strategy. By cultivating its insular position within the capital-city region, traffic congestion remains an urgent priority for its authorities. Part of the answer lies in the highly-centralized transport system inherited from the 1947 Finger Plan and the need to develop radial transport axis in order to address regional transport demand outside Copenhagen. The development of a more polycentric form of regional development as well as the opening of the Oresund link has contributed to reframing part of the debate in the regional context and shifting responsibility away from the city's insular tendencies. In the absence of strong metropolitan- and region-wide interests, mass-transit solutions – motorized and rail – are being developed in order to accommodate current and future transport demand, whereas planning for city life types of policies remain marginal outside Copenhagen or limited to a small number of municipalities. While such tendencies are more than often strategically used by the conservative opposition, pro-car organizations and municipalities outside Copenhagen, the justification for the Nordhavn way and tunnel have often been promoted within Copenhagen and pro-cycling organizations as a way to both shift traffic away from the city and make room available for non-motorized transport. Yet socioeconomic changes, demographic growth, and largescale urban developments also contribute to changing mobility patterns, with increasing demand for multi-modal travel solutions, including motorized transport. Together with the reduction of taxes on car ownership and use at national level and the promotion of electric vehicles, car use and ownership might continue increasing again in the city of Copenhagen, as observed since 2015. This justifies the municipality's interest for walking as well as continued efforts to increase and develop cycling initiatives in order to reduce congestion on cycling lanes. Smart city solutions and technologies are also being explored in order to achieve more optimisation, but there might be a need for a more comprehensive re-appraisal of priorities for the road network. Until now, the fear of breaking the political and social consensus around the city's urban growth model has, almost without interruption, justified the prevalence given to developing alternatives and optimising solutions by contrast with effectively reducing car use and reallocating road space through constraining tools. In this respect too, the Copenhagen case shows some similarities with other cities in WP4 in different pathways towards the next stage in transport policies.

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6.1 Primary sources: interviews and other contributions

During the first stage of the work undertaken in WP4, partners were asked to fill-in a “City questionnaire”. This document constitutes a first, general and descriptive narrative of transport development processes in their city (see CREATE WP4, D4.1 report). It served as a basis for organising the Copenhagen WP4 workshop and the 1st series of qualitative, face-to-face interviews (February 2016). The Paris WP3 workshop (March 2017) and the London scenario-planning workshop (February 2018) also provided an opportunity to further identify major drivers for change in transport behaviours and policies.

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