TECHNICAL NOTE Nº. 9

COMPARATIVE ANALYSIS OF TRANSPORT POLICY PROCESSES

COPENHAGEN AND ITS REGION

CREATE PROJECT

Congestion Reduction in Europe, Advancing Transport Efficiency

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THE CREATE PROJECT IN BRIEF

Transport and mobility issues have increased in relevance on political agendas in parallel with the growing share of EU population living in cities, urban sprawl and climate change. In view of the negative effects of car use, there is a renewed interest about the role that transport should play in the sustainable city.

The CREATE project explores the Transport Policy Evolution Cycle. This model is a useful starting point for understanding how this evolution took place, and the lessons that we can learn for the future. Within the CREATE project, the study coordinated by the Sciences Po, CEE team (WP4) explores the historical evolution of transport policies and processes – from 'car-oriented' to 'planning for city life' – in five European cities (Berlin, Copenhagen, London, Paris, Vienna). Paying attention to case-specific contextual factors, policy instruments and programmes and involved stakeholders, **this comparative analysis unveils the processes and the main drivers for change**. **This technical note concerns Copenhagen and its region.**

DID YOU KNOW?
COPENHAGEN'S TRANSPORT NETWORK IS:

ROADS

ROAD NETWORK
1.020 km

MOTORISATION
225 cars /1.000 inhabitants

CYCLE LANES AND PATHS
250 km

SUPER CYCLE HIGHWAY NETWORK
746 km, of which 167 already existing

PUBLIC TRANSPORT

RAILWAY (regional)
170 km, incl. S-trains and regional trains, 7 lines (6 lines going through CPH)

METRO
21 km, 2 lines (in CPH)

BUS
47 routes (9 lines in CPH)

PLANNED INFRASTRUCTURE PROJECTS

CITYRINGEN (metro)

6 ROAD PROJECTS

LIGHT RAIL SYSTEM

14 CYCLE SUPERHIGHWAYS

SUMMARY FINDINGS

Copenhagen is considered to be a 'gold standard' example of the liveable city. This mainly reflects the priority given to cycling as part of the city's climate agenda (2006) and to the hugely transformative role of sustainable urban transport in the city's reinvention, following several decades of deep socioeconomic decline. As such, Copenhagen is a source of inspiration for other cities worldwide wishing to "Copenhagenize" their streets through measures aimed at supporting public life and well-being.

When considered from a regional perspective, transport policy developments and the shift away from the car-oriented city are neither unidirectional nor are they evenly spread. Copenhagen city is relatively isolated in a wider region where diffuse urbanization, low levels of investments in non-motorized transportation and weak policy capacity have strengthened car dependency over time.

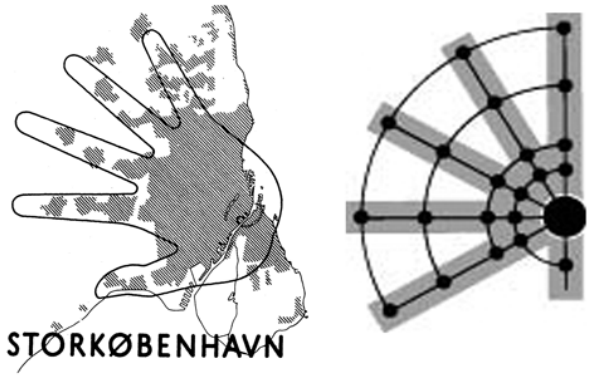
Three transport policy types compete with one another, very much reflecting different views on the Danish capital-city's role and function within the wider region. While the city promotes itself as the showcase for the "city for people" approach (stage 3), other stakeholders both within and outside the city (politicians, public authorities, transport companies, private actors) also promote car-oriented (stage 1) and/or traffic mitigation (stage 2) policies in the name of accessibility and congestion reduction.

Together, these policy developments account for **the persistence of strong differentiation dynamics** between the City of Copenhagen, the metropolitan area and the city-region.

The golden age of the car-oriented city (1954-1972)

Following WWII, the need to structure urban growth became a source of concern for public authorities. Spatial planning principles were introduced as part of **the 1947 Finger plan** in order to shape urbanization beyond the city's boarders. It was to be concentrated alongside five major axes corresponding to planned and existing regional train lines (S-train). Open spaces in between were to be preserved.

Øresund Bridge
Source : ShutterStock.com



Finger Plan 1947
Source: Danish Ministry of Environment, 2012

In practice, **the largest share of capacity investments benefited the road network**. The car-oriented city model was a preferred policy solution among policy-makers in order to make the "Danish Dream" come true and foster growth. In their attempt to attract wealthier income groups, municipalities outside Copenhagen promoted a way of living in which single-family houses were inextricably linked to car ownership. Low levels of coordination between public-owned municipal transport companies further reduced the attractiveness of public transport. At the national level, implementing the 'Big H' strategy (1962) progressively led to singling out road investments as a preferred solution to enhancing the capital-city's function as national hub. National transport systems were meant to connect with a network of urban motorways in Copenhagen's inner core.

Unless it increased connectivity to and from the region/country, transport capacity investments in Copenhagen were considered less of a priority. It had inherited a decent public transport network (tramways, buses and regional trains). Cycling and walking were commonly used means of transport. By contrast to the suburbs, **the city entered a period of deep socioeconomic decline** that lasted until the late 1980s. Wealthier income groups moved away from an ageing housing stock. Local politicians and technicians considered state-led road development projects **an opportunity for growth and renewal**. Additional road space was allocated to car use, investments in public transport decreased, the urban tramway was entirely dismantled.

Yet, the city's financial crisis in combination with social demonstrations put a temporary stop to both urban motorways and renewal projects. In the absence of a regional planning authority, demographic and socio-economic factors combined with municipal and national policies fuelled in **the growing disconnect** between the city and the region.

DID YOU KNOW?
MAIN TRANSPORT MEASURES IN COPENHAGEN 1954-1972

1947 Finger Plan

National arterial railway and motorway network - BIG H

S-train & road networks
especially in the inner and outer suburbs

Tramway dismantled
in the city of CPH 1962-1972

Partial reduction of bike lanes
in CPH, 1960s

Traffic regulation in CPH,
cheap and effective to make more space for car traffic

Proposed urban motorways
in conjunction with urban renewal
(City Plan Vest/Vesterbro area)

Social protest against the
Lake Ring project (Soeringen)
and the Bigspeengbuen express way

Pedestranisation of areas in CPH
for the 800 years jubilee of 1967

Transport planning in a context of spatially differentiated growth (1972-1991)

During the next two decades, administrative and fiscal reforms led to increased inter-municipal competition and a substantive reduction of State investments in the capital-city region. The trends initiated during the post-WWII era intensified: **in the suburbs**, continued demographic growth and low density urban development confirmed the dominant role of motorized transport. The largest share of capacity investments led to additional road projects and a new (and last) S-Train line. **In the city of Copenhagen**, demographic decline, an ageing housing supply and the dismantling of industrial workplaces further contributed to economic recession and fiscal debt.

Area types of the stage 3 city Copenhagen and main transport infrastructure 2016
Source: COWI, own GIS production.

Yet transport developments were also characterized by **a number of initiatives** that shaped later transformations. **At regional level**, the short-lived regional planning authority (HR) and public transport company (HT) laboriously developed joint public transport initiatives and services. Both organizations were dismantled towards the end of the period due to active lobbying at State level from municipal authorities and transport companies, including national railways (DSB), to maintain their autonomy.

In Copenhagen, **daily incoming commuting flows raised new concerns** among local residents and practitioners about the externalities of car use (e.g., safety, noise, congestion). In a context of low investment and continued political support for car use, some **traffic mitigation policies aimed at increasing road safety** were introduced. Being the only affordable transport alternative, cycling became **a rallying symbol for city life**. Within the planning community, J. Gehl's work highlighted the added value of small-scale initiatives as a way to enhance public spaces. Spreading across many sectors, his ideas encouraged transport planners **to explore new traffic and speed reduction measures that drew on urban design**.

Together with a reduction in car use and ownership, this initiated a shift away from traffic planning towards an integrated approach to mobility.

DID YOU KNOW?
MAIN TRANSPORT MEASURES
1972-1991

in the Region

Greater Region Copenhagen Council (HR)

Copenhagen Transport (HT)

Last S-train line
southwards, 1972-1982

Public transport initiatives
such as the common ticket, 1972

in the City of Copenhagen

Protest against car use externalities especially safety for cyclists

Car traffic mitigation
to increase road safety

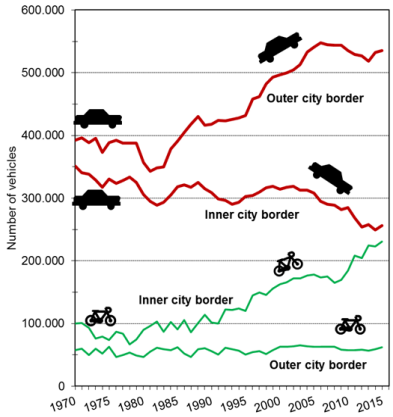
Construction of new cycle lanes

Jahn Gehl,
"Life between buildings"

Small-scale urban planning and design initiatives
drawn upon Gehl's ideas

Intensifying traffic mitigation policies in a context of regional growth (1991-2007)

Transport policies evolved rapidly in the context of the 1995 EU enlargement. The most remarkable change took place as a result of an unprecedented city-state alliance that was to last two decades. Developing a new understanding of the 1947 Finger plan, priority was given at State level to **strengthening the city (the Finger plan's palm)** through major infrastructure projects (e.g., airport extension) and the *de facto* opening of an additional corridor (finger) across the Øresund (e.g., road and rail tracks). In Copenhagen, the ruling majority pushed forward **a comprehensive urban growth agenda**, including large-scale housing renewal and urban development projects.



Average cross sectional road traffic volume (all motor vehicles) per workday between 07 and 18 hours. [Number of vehicles].
Source : City of Copenhagen, 2016

Single-purpose public-owned corporations were jointly created by the city and the State, with the explicit goal of regenerating large urban areas (docks), maximizing the value of public land (Ørestadt), and using the revenues to finance the new metro system. **Policy priorities were reshuffled according to sustainable urban planning goals**, administrative portfolios were reorganized accordingly.

Although not the most prominent issue on the political agenda, transport benefited from increased resources in this changed context. A comprehensive set of traffic mitigation measures were introduced in order to tackle congestion by containing incoming traffic (e.g. speed reduction, parking and traffic light management) and limiting its externalities. Initiatives aimed at enhancing city life through urban design were introduced in the vicinity of large transport corridors. In addition to the metro project, cycling benefited from dedicated resources. Relying on a diverse set of stakeholders, resources, tools, funding mechanisms, these initiatives accelerated the shift away from the car within the city. By contrast, **car-oriented planning remained dominant in the surrounding region**.

DID YOU KNOW?
MAIN TRANSPORT MEASURES
1991-2007

LARGE-SCALE INFRASTRUCTURE PLANNING

Øresund link to Malmö
4-lane highway, 2-tracks railway

Metro construction in CPH

TRAFFIC MITIGATION IN CPH

Traffic and Environmental Plan, 1997

Traffic Improvement Plan, 2000

Traffic Safety Plan, 2001

€ 8 million (DKK 60 million) for the road network
of which 1/3 in cycle lanes

INTEGRATED APPROACH AND FOCUS ON PUBLIC SPACE AND QUALITY OF LIFE

2005 Copenhagen Urban Space Action Plan (CUSAP)

ENHANCEMENT OF CYCLING

Cycling policy initiatives since 1991
2002-2012 Cycle Track Priority Plan

At national level...

Car traffic mitigation

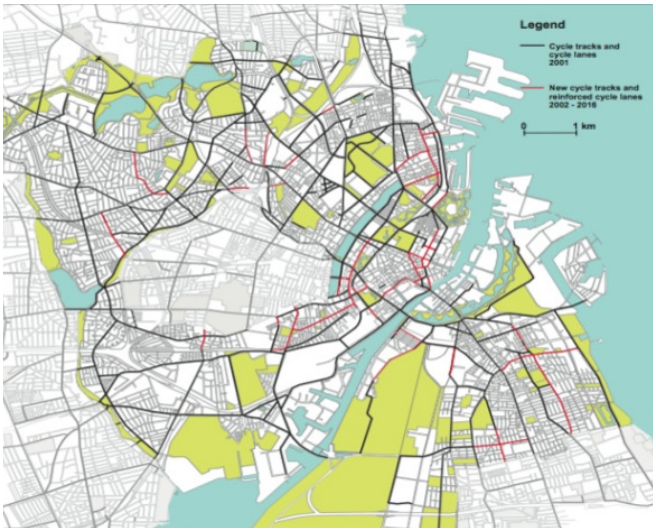
Regulation/Taxation on car ownership and fleet renewal

Compatible with pro-car approach

Some traffic mitigation initiatives were introduced at municipal level. At national level, the tax system on car use and ownership incentivized green vehicles. In political discourses, the city of Copenhagen was blamed for what was considered an insular strategy, and the State for the lack of capacity investments in the region, especially in railways. Together with the Danish Ministry of Environment, the newly-created Greater Copenhagen Authority (2001) aimed at overcoming institutional competition by fostering a regional debate on the revision of the Finger plan.

The triumph of the cycling city model (2007-2015): the tale of the city

The emergence of the "**Cycling city model**" results to some extent from the experience accumulated in Copenhagen since the 1970s. Yet it only developed into a full-fledged model when cycling was singled out as a major driver of change in the city's **climate change agenda** and place-making strategy. Since then, cycling has benefited from unprecedented levels of political support and visibility. As a model, "the cycling city" combines: a change in policy discourses and practices, which increasingly refer to streets (vs. roads), a diversity of users and to mobility (vs. transport); innovative forms of policy-making, grounded in story-telling, experimentations and continuous readjustments; a set of communications tools helps maintain the public's attention together; and flagship initiatives projects (e.g. in Norrebrogade, the Bicycle snake).



City track priority plan 2002-2016
Source : City of Copenhagen, 2009

The "Cycling city model" also relies on **a strong eco-system** of sympathetic civil society organizations, academics, urban planners, think-and-do-tanks, etc. who ensure its promotion worldwide. Together, these joint efforts account for Copenhagen becoming **a full-scale laboratory and showcase for innovative urban planning and mobility practices**. This also ensured the city's attractiveness after the 2008 crisis.

Nevertheless, the "cycling city model" only partly accounts for the changes taking place in transport and city planning in Copenhagen.

Other major transport initiatives were introduced at the same time, confirming the multi-dimensional nature of car reduction strategies. **In public transport**, a joint state-city-owned company, Metro, took over responsibility for operating the metro system and planning future extensions. The local bus network was reorganized. **Traffic mitigation policies** were strengthened together with urban design initiatives. A congestion charge project was also proposed in order to contain incoming traffic.

DID YOU KNOW?
MAIN TRANSPORT MEASURES IN THE CITY OF COPENHAGEN 2007-2015

Failed proposal: congestion charge

Development of the metro system

inner Cityringen project, expected in 2019, line 3, 17 stops;

Expansion planned in Nordhavn by 2020 and **Sydhavn** by 2023

Reorganisation of the bus network, 2005-2007

A-buses, primary bus service
S-buses, higher speed bus network

Restrictions on car traffic
Reduction in parking spaces, traffic lights management

Emblematic projects
Norrebrogade, car free zones (since 1962, env. 140 ha in 2016)

City Strategy and investments
Bicycle path prioritization plan 2017-2025

Flagship investments in cycling
Bicycle bridge
Cycle Superhighways project

Communication Strategy
(bicycle account, appraisal techniques, indicators, tools)

Over 30 awards between 2013-2017
Ex. European Green capital (2014)
World's most liveable city (2014)

Uncertain mobility futures (since 2009): the tale of the city-region

In spite of the "Cycling city model" 's fame, Copenhagen's insularity within a car-dominated region challenged the model's long-term viability. In the changed post-2008 crisis economic and political context, the state-city alliance weakened, and highlighted the need to reframe the city's sustainable transportation agenda in a regional context. National interests now prioritized carbon reduction strategies and green technologies (ex. green and electric vehicles, urban light rail solutions) as part of the government's pro-growth agenda. Some attention, and limited resources, were devoted to cycling. Following the rejection of the city's congestion charge project, a **national Commission on congestion and air pollution** was introduced in order to foster a consensus over mobility futures in the region. Advocating a "**holistic approach**" to congestion reduction, the commission laid the ground for a shift away from the automobile in the region, and for the reshuffling of transport policy priorities in Copenhagen.

Having lost most of its powers relating to transport after the 2007 administrative reform, the newly-created Capital Region of Denmark actively worked to promote **a sustainable transportation agenda in the region**. Up-to-date demographic growth estimates and travel demand forecasts highlighted the need to foster a polycentric approach to spatial planning, develop multi-modal travel solutions and direct connections between existing corridors and around urban cores.

The Commission on congestion reduction offered a major opportunity to push for joint initiatives. Together with 11 municipalities and the region, the State committed to develop **the Ring 3 light rail**, the largest public transport project in the region since WWII. A joint public-owned company was created in order to plan and develop the future system. **Transport companies are working to develop joint initiatives** aimed at strengthening public transport (ex. DOT platform) and mobility as a service (ex. the ECO system). The city-initiated cycle superhighways project is being extended in Greater Copenhagen. Electric mobility was singled out as the region's flagship traffic mitigation initiative.

In Copenhagen, **the search for new political alliances in the region** became a major priority. Significant financial and policy support is allocated to joint initiatives. Furthermore, as the city grows more attractive for wealthier residents and workers, transport policy priorities have been reshuffled towards public transport, smart technologies, and large-scale urban development (ex. Nordhavn). Copenhagen's Sustainable Urban Mobility Plan (2012) reflects growing contradictions between the need for mass-transit and, roads, to fuel in the urban growth model and the city's commitment to reduce car use as part of its climate agenda.

The choices made during the Commission on congestion reduction, including the decision to support the Harbour motorway and tunnel projects in exchange for continued State support in metro extensions, led to **growing social and political opposition**. Pro-cycling organizations are concerned that giving priority to multi-modal travel solutions and smart technologies should, in the end, weaken the amount of resources allocated to cycling to the benefit of investments in public transport, roads and motorized transport.

DID YOU KNOW?
MAIN TRANSPORT MEASURES
IN THE CITY-REGION, SINCE 2009

Capital Region of Denmark (2007)

Movia, regional public transport company (2007)

at the State level

2009 National Transport Priority Plan / Infrastructure 2030

Tax system

∨ Taxation on cars
∧ Taxation on electric cars

2013 Finger Plan
Still not adopted

1 billion Danish Krone cycling Plan

Commission on Congestion Reduction 2012-2013

"Holistic approach" : multimodal travels

Road investments in CPH harbor
Light rail & metro projects
Cycle Superhighways

Greater Copenhagen Light Rail, 2013
to supervise Ring 3 light Rail project

New mobility services at regional level

Greater CPH Mobility ECO system
DOT platform

Current and future challenges

Following three decades of uninterrupted expansion, Copenhagen's sustainable urban transportation model is again seeking to reinvent itself. Some 100.000 new residents are expected by 2025, together with a similar number of workplaces. In order to postpone a much-feared **"cycling peak" and maintain low levels of car ownership and use**, multi-modal travel solutions are being developed and new transport modes, such as walking, are being promoted. **At a regional level**, traffic congestion remains a major source of concern. Planning for city life type policies (Stage 3) are mostly developed in Copenhagen city itself and in a small number of adjacent municipalities. In the absence of strong region-wide interests, inter-institutional and inter-organizational competition has the effect of benefitting motorized and rapid-transit transportation.

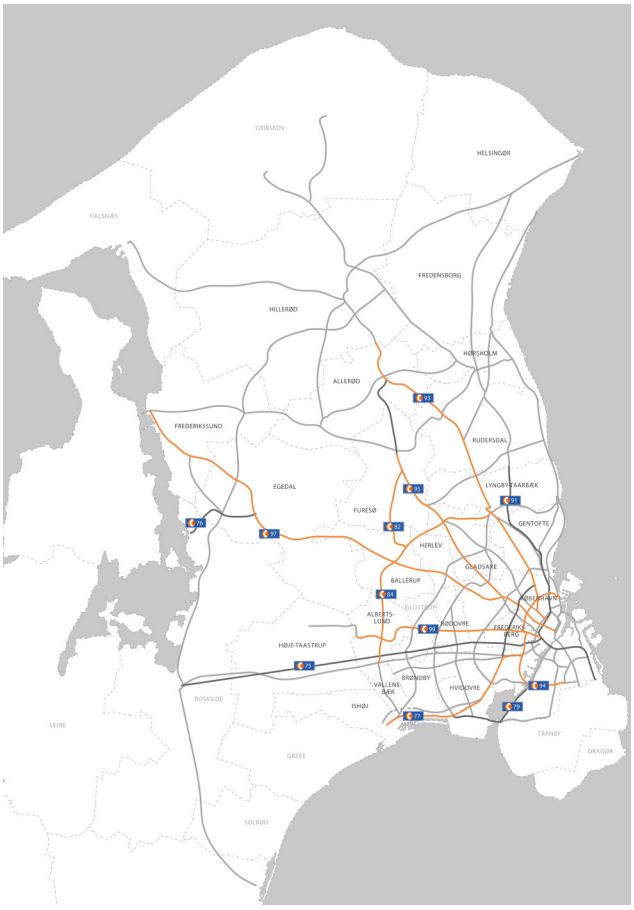
Yet a major challenge lies in the state's determining role in shaping transport policy preferences and capabilities in the region, and to a lesser extent, in Copenhagen city. Its continued 'divide and rule' strategy offers limited scope for capacity building at regional level. Local authorities very much depend on national subsidies for funding transport initiatives and capacity investments, in a context in which the State's commitment to sustainable transport remains ambiguous and a source of uncertainty. Since the 2008 crisis, the state's attention shifted towards secondary cities and, more recently, rural areas. Pro-car interest groups obtained a significant reduction of taxation levels on car ownership and use following the arrival of a conservative majority in 2015. Capacity investments in roads and rail have been pushed forward. Tax exemptions on electric vehicles were temporarily suspended, and so far, the proposed 2013 Finger plan has not received formal government approval. Differences between levels of government in transport policy preferences have never been so visible.

In the absence of institutionalized financial and cooperation mechanisms in the region, the collective ability to push forward the urban / regional sustainable transportation agenda requires identifying new drivers of change.

The Ring 3 Light rail route
Source: Ministry of Transport, 2016

Location	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)

Key figures about the Copenhagen region as of 2017 (source: Statistics Denmark)



The Super Cycle highway map
Source: Visionsplan, 2018

Light grey: planned highways
Dark grey: financed highways
Orange: existing highways

Cyclists in Copenhagen
Source : City of Copenhagen, 2016

INDICATIVE REFERENCES

NB. Technical note n°5 introduces the analytical framework and the methodology for this study.

- Fertner, C. et al. (2012), "Land use scenarios for greater Copenhagen", Journal of Settlements and Spatial Planning, 3(1), p. 1-10.
- Giersig, N. (2008), Multi-level governance and the European city, VS Verlag für Sozialwissenschaften, Springer, Wiesbaden.
- Gössling, S. (2013) « Urban transport transitions », Journal of Transport Geography 33, p.196–206.
- Illeris, S. (2004), How did the population in the Copenhagen Region change, 1960-2002?", Dela 2, p.405-421.
- Hansen A.R. et al. (2016), Copenhagen City report, Past and present changes in urban transport governance, CREATE city report, 19p.
- Kaiser A., et al. (2016), D3.2 technical report for Stage 3 city, Copenhagen. CREATE project.
- Knowles, R. (2012), « Transit Oriented Development in Copenhagen, Denmark », Journal of Transport Geography, 22, p.251-261.
- Næss, P. et al. (2009), « The challenge of sustainable mobility in urban planning and development in Copenhagen Metropolitan Area ». Aalborg: Institut for Samfundsudvikling og Planlægning, Aalborg Universitet.
- Thor Andersen, H., Winther, L. (2010), « Crisis in the Resurgent City? The Rise of Copenhagen », International Journal of Urban and Regional Research, 34(3), p.693-700.
- Valderrama Pineda A.F., Vogel N., (2014), « Transitioning to a Low Carbon Society? », Transfers 4(2), p.4–22

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