Copenhagen, Denmark

ICLEI Local Governments for Sustainability

The Nørrebrogade Project: revitalizing a major road corridor for enhanced public transport and urban life

The City of Copenhagen, where bicycles outnumber inhabitants, has established a reputation as a global forerunner in sustainable development. In 2012, the city finalized Stage One of the Nørrebrogade Project, thereby adding to its growing list of low-carbon accomplishments. This two-stage project to revitalize a major transportation corridor has increased cycling and public transportation ridership, while reducing private automobile use by 50 percent in the area.

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The Nørrebrogade Project: a two-staged project to revitalize an arterial road for low-carbon transport and attractive urban spaces

Copenhagen is a renowned cycling city: over half of the city's residents cycle as their daily means of transportation, and bicycles account for over 38 percent of the commuter traffic into the city center (European Commission, 2015). Yet despite its considerable cycling culture, as of less than a decade ago, major thoroughfares such as the Nørrebrogade road (in Danish "gade" means road) were heavily congested with traffic from private vehicles.

As of 2008, the two-kilometer Nørrebrogade road, which connects the center of Copenhagen to its suburban periphery, was used by an average of 30,345 cyclists, 15,120 cars, 30,000 bus passengers and 6,525 pedestrians per day (Grimar, n/a). The road's narrow design placed public transport users, cyclists, and pedestrians in direct competition with private vehicles, and this resulted in regular traffic jams and related safety issues.

Additionally, the limited sidewalk space had negative economic and social effects, as the lack of pedestrian space was not favorable for residents and tourists to enjoy Nørrebrogade's 300+ shops, restaurants and services.

In 2006, to address these challenges (and as part of its city-wide strategy to become carbon-neutral by 2025), the City of Copenhagen initiated the development of the Nørrebrogade Plan as part of its "Eco-Metropolis" program. The Plan was comprised of two stages. Stage 1 comprised a Traffic Trial from October 2008 - June 2010, followed by a Construction phase from 2010 – 2012, between the river bridge (Dronning Louises Bro) and Nørrebros Runddel. Stage 2 focused on an additional stretch, between Nørrebros Runddel and the Nørrebro train station (Borgmestervangen – Esromgade), with construction beginning in fall 2014 and due to be completed by Christmas 2015.

This Case Story examines the traffic trial measures, as a model of Travel Demand Management (TDM), to reduce the dependence on personal automobiles. In particular, it focuses on the application of an innovative multi-staged process designed to test the usability and public acceptance of a series of transport development interventions. These interventions were designed to reduce private vehicle use, and vitalize public transport, non-motorized modes, and the use of Nørrebrogade's public space.

Image: City of Copenhagen

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They represent solely the views of the authors and cannot in any circumstances be regarded as the official position of the European Union.

Stage One: Traffic Trial - setting a vision and concrete goals

Image: Ursula Bach, City of Copenhagen

Nørrebrogade Project phases and planning stages, designed to test various interventions to shift transit demand.

In the fall of 2007, the Technical and Environmental Administration, which is comprised of the departments for Building, Urban Design, Traffic, Cleaning, Parks and Nature, Urban Development, and the City of Copenhagen's Business Services division, determined the following goals for the Plan:

1. Increasing the attractiveness of urban space to improve urban quality of life;
2. Improving cycling conditions on congested sections of the road;
3. Strengthening public transportation by reducing journey times and improving the punctuality of services.

Using these goals for guidance, the City developed a Master Plan for Nørrebrogade: reducing private vehicle use by 50 percent and promoting Nørrebrogade as a shopping street and an arterial roadway for non-motorized (i.e. walking and cycling) and public transport. In order to accomplish this, the City employed a TDM strategy to expand the supply and availability of public and non-motorized transport, while utilizing policy tools to reduce private vehicle use.

Conducting traffic experiments for increased functionality and use of the Nørrebrogade road

The first phase of the Master Plan incorporated a series of temporary pilot initiatives that were applied to three sections of the road. These initiatives which included widening bicycle and pedestrian paths, and dedicating certain stretches of the road exclusively to bus transport, were trialed at the following road sections between October and December 2008:

Street design for exclusive bus, bicycle and pedestrian use.

Image: Klaus Grimar, City of Copenhagen

- Queen Louise's Bridge (*Dronning Louises Bro*): bicycle path and pedestrian sidewalk widened by 4m each.
- Fælledvej to Dosseringen: bicycle paths widened from 2.5m to 3.5m.
- Elmegade to Fælledvej: road expanded from 2.25m to 3.5m and dedicated exclusively to cycling and buses.
- Assistentens Cemetery and Elmegade: bicycle paths and pedestrian sidewalks widened from 3.25 to 6.5m; bicycle parking stations, plant guards and benches, and special loading zones for businesses were implemented.

Physical interventions to expand the supply and availability of public and non-motorized transport

were coupled with regulations such as restricted car access in bus lanes and lower speed limits. By implementing measures in small increments, the City and its residents were able to assess the success of its interventions and determine their suitability for inclusion in the Plan's second stage.

Image: City of Copenhagen

Bus stop by Assistentens Cemetery - January 2013

Traffic experiment assessment: traffic monitoring, opinion polls and public dialogue

A project monitoring group was created across various departments. The Traffic Department conducted counts of car and cycling traffic, number of pedestrians and time spent in the city center. From 2008 to 2009, the Technical and Environmental Administration carried out a series of opinion polls and provided a variety of opportunities for public participation and input, including from residents, local businesses, cyclists, and local stakeholder committees and associations, in order to assess the success of the pilot initiatives. Results of the traffic trial were positive: the majority of residents (67 percent of the respondents) supported making the City's changes to Nørrebrogade permanent.

Achievements to date

The first phase of the Nørrebrogade project elicited inspiring results, which reinforced further augments to traffic calming measures to be pursued through Stage 2, including:

An increase in public transportation efficiency and ridership. Bus travel time decreased by an average of 10 percent and bus services improved their punctuality. The Nørrebrogade stretch between Fælledvej and Elmegade was converted to a bus lane, with access only for buses, bicycles and emergency vehicles. It is utilized by 7,000 bus passengers daily.

Reduced automobile use and improved commuter safety. The changes to Nørrebrogade reduced car traffic by 45 percent. This decreased the ambient noise level by 50 percent, and also limited the CO_2 emissions produced by private car use. By extension, the design interventions

Image: Klaus Grimar, City of Copenhagen

Expanded sidewalks and cycle lanes on Dronning Louises Bro.

The Urban-LEDS Project

An Urban Low Emissions Development Strategy (Urban LEDS), or Low Emissions Urban Development Strategy, defines a pathway to transition a city to a low emission, green and inclusive urban economy, through its integration into city development plans and processes.

The Urban-LEDS project (2012 - 2016), funded by the European Commission, and implemented by UN-Habitat and ICLEI, has the objective of enhancing the transition to low emission urban development in emerging economy countries: Brazil, India, Indonesia, and South Africa.

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introduced to reduce private vehicle use, coupled with new lower speed limits (from 50 km/h to 40 km/h), reduced traffic-related accidents by 45 percent (within the span of 33 months).

The total number of cyclists increased. The combination of new bicycle parking areas, along with improved safety and less private vehicle traffic resulted in a 10 percent boost in bicycle ridership.

Social utility of the road was revitalized. The expanded sidewalks, coupled with the implementation of 25 new benches (bringing the total on the road to 56), ensured ample room for pedestrians to enjoy leisure time on the street; three times more residents spent time on Dronning Louises Bro in 2011 than in 2008. There was a marked **increase in employment and commercial revenue** between 2005 and 2010, as Nørrebrogade road added 27 new businesses. In addition, nine business-specific special loading zones increased delivery efficiency without disturbing the cycling paths and bus lanes.

The public bought in. In 2008, prior to embarking on the second phase of the project, the City solicited public opinion on the initiatives: opinions polls demonstrated that a clear majority of residents were in favor of the changes and 58 percent of interviewed pedestrians appreciated the experiment. Based on public acceptance, the City was able to push the project forward with the implementation of Stage 2 (Technical and Environmental Administration, City of Copenhagen, 2013).

Next steps

The monitoring and evaluation of the implementation of the Nørrebrogade Project – Stage 1, has resulted in several recommendations which will be used to further strengthen the Stage 2. Local stakeholder committees and associations were also invited to submit comments on the Stage 2 of the project.

References

- City of Copenhagen, Technical and Environmental Administration. (2013). EVALUATION OF THE NØRREBROGADE PROJECT - STAGE ONE. Copenhagen: City of Copenhagen.
- European Commission. (2015, February 20). European Green Capital Winning Cities 2014. Retrieved February 24, 2015 from European Green Capital: http://ec.europa.eu/environment/europeangreencapital/winning-cities/2014-copenhagen/
- Grimar, K. (n/a). More city life on Nørrebrogade. Copenhagen: City of Copenhagen.

City of Copenhagen

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Municipal Profile

Municipality of Copenhagen

Copenhagen is home to nearly 600,000 inhabitants. The Scandinavian city serves as the country's political and economic hub, and has set ambitious goals to become the first carbon-neutral capital in the world by 2025. To ensure Copenhagen achieves its goals, the City set targets to reduce carbon emissions by 20% by 2015.

Copenhagen has already elicited global recognition as a model in sustainable urban planning, mobility and design, and has been an ICLEI Member since 1992. In 2014, the City received the European Green Capital award for its achievments in sustainable development.

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