Less car dependent cities
Planning for low carbon in Oslo

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Interesting times…

- Paradigm shifts – on a critical turning point
‘Automobile city’
Mobility

‘Sustainable city’
Accessibility
Interesting times…

- Paradigm shifts – on a critical turning point
- Norway: The zero-growth objective
- Planning for less car-dependent and transport demanding cities seems like the obvious solution:
  - Land use development as densification and transformation rather than sprawl, ‘right’ location
  - Improving public transport services, and conditions for walking and bicycling
  - Fiscal and physical restrictions on car-usage
Densification in nodal points
Effects of location in nodal points

Car shares to/from housing located here

- Rest of Oslo
- Nydalen-Storo
- Bryn-Helsfyr
- Oslo inner city
- Oslo city centre

Car shares to/from work-places located here

- Rest of Oslo
- Nydalen-Storo
- Bryn-Helsfyr
- Oslo inner city
- Oslo city centre
Car free city centre Oslo
Car free city centre

‘Car free city centre’ in Oslo:
- Remove on street parking
- Strong restrictions on through-fare
- Designated spaces for goods deliveries and utility cars
- Various measures for improving ‘urban life’

To achieve:
- More enjoyable and lively city centre
- Improved accessibility by other modes than car
- Reduced car-usage to, from an in city centre – and elsewhere
- Improve conditions for deliveries
- Reduce local pollution and CO2 emissions

Car shares to/from city centre are currently 7-10%
High expectations!

- Our research – ex ante data (May 2017)
- Commuters in Oslo (N=5400):
  - 43 percent believe more people will use the city centre, it will become more vibrant, 17 percent believe the opposite
  - 22 percent believe they will visit the city centre more often, 12 percent less often
- Truck drivers
  - 45 of 65 truck drivers are dissatisfied with the current goods delivery situation in the city centre
  - 35 of 64 truck drivers believe it will become better, 11 believe worse
Urban road capacity

- Plans for massively increasing urban motorway capacity
Experiences – capacity reduction

- Reduced capacity in 10 tunnels on urban main roads due to maintenance
- Bryns tunnel: AADT 70 000, capacity reduced from four to two lanes for six months
Capacity reduction: Effects on commute satisfaction

Tennøy et al. 2017
Transport quality

Insurance company relocated from nodal point to city centre - modal shares of car reduced from 48 to 9 per cent

Christiansen and Julsrud (2014)
Urban road capacity

- 2018: Reallocating one of three car lanes to a public transport lane (trial)
Planning for less car-dependent cities

- How and why do we still plan and develop car-dependent cities?
- What needs to *change* if we instead are to plan and develop less car-dependent cities?

- Planners (and others)
- Expert knowledge
  - *Including methods*
- Plan-making processes
In cases resulting in plans for increased road capacity:

- Other objectives were seen as competing to ‘reducing traffic volumes’, and prioritised
- Realistic ‘traffic reducing alternatives’ were never introduced or assessed – growth understood as inevitable
- Methods applied (transport models) could not handle traffic reducing measures
- In assessments, ‘time savings’ strongly affected the cost-benefit results
- Expanding road capacity was the only possible answer
IF planning for less car-dependent cities:

- We need to do things differently than before
- We need to reframe the problem - and potential solutions

Tennøy (2010)
Traffic volumes (vkm)

Quality of transport systems

Travel behaviour

Land use

Tennøy (2015)
IF planning for less car-dependent cities:

- We need to do things differently than before
- We need to reframe the problem - and potential solutions

We need to change how we think and act
Thank you!
References

▪ Christiansen, Petter and Tom Erik Julsrud (2014) Effects of relocation to a transport focal point TØI report 1344/2014


▪ Tennøy, A. (2012) How and why planners make plans which, if implemented, cause growth in traffic volumes. Explanations related to the expert knowledge, the planners and the plan-making processes. PhD thesis 2012:01 at Norwegian University of Life Sciences, Department of landscape architecture and spatial planning.


Incentives electric vehicles

- Exemption, registration tax 1996
- Free toll roads 1997
- Free parking 1998
- Exemption, value added tax 2001
- Access to bus lanes 2003
- Reduced annual tax 2005
- Reduced company car tax
- Reduced rate ferries 2009
Market shares sales new cars

New BEVs sold per month

- BEVs
- PHEVs
- HEVs
- Gasoline
- Diesel
105 800 BEVs (March-2017), 4% of total fleet, on Norwegian roads (passenger vehicles, M1)
In addition 37 450 PHEVs (1.4% of fleet)

BEV adoption areas: Started in cities and surrounding areas, and where free toll roads an advantage, now everywhere.
Experiences – capacity reduction

- Reduced capacity in 10 tunnels on urban main roads due to maintenance
- Bryns tunnel: AADT 70 000, capacity reduced from four to two lanes from February 2016 to April 2017
Findings – traffic and speed

Traffic volumes - E6 Manglerud - rush hours

Average speeds - Teisen-Ryen - afternoon rush

Tennøy et al. 2017
Rerouting as adaptation?

Lost about 3000 vehicles in morning rush and about 6000 in afternoon rush

Tennøy et al. 2017
Modal change?

![Bar chart showing changes in modal transport from 2015 to 2017.](chart)

- **Walking**: 2017 (N=625) = 6, 2016 (N=1029) = 6, 2016 (n=355) = 6
- **Bicycling**: 2017 (N=625) = 17, 2016 (N=1029) = 17, 2016 (n=355) = 17
- **Public transport**: 2017 (N=625) = 46, 2016 (N=1029) = 40, 2016 (n=355) = 40
- **Car - driver**: 2017 (N=625) = 29, 2016 (N=1029) = 29, 2016 (n=355) = 29
- **Car - passenger**: 2017 (N=625) = 3, 2016 (N=1029) = 2, 2016 (n=355) = 1
- **Other**: 2017 (N=625) = 2, 2016 (N=1029) = 2, 2016 (n=355) = 2

Tennøy et al. 2017