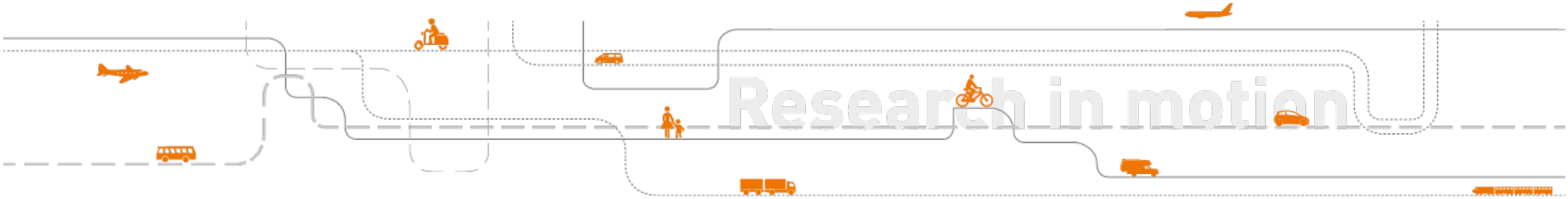
Reallocation of road and street space in Oslo: Input to discussions on measures for zero-growth

Aud Tennøy, PhD Urban and Regional Planning
Chief Researcher Sustainable Urban Development and Mobility
Institute of Transport Economics (TØI)

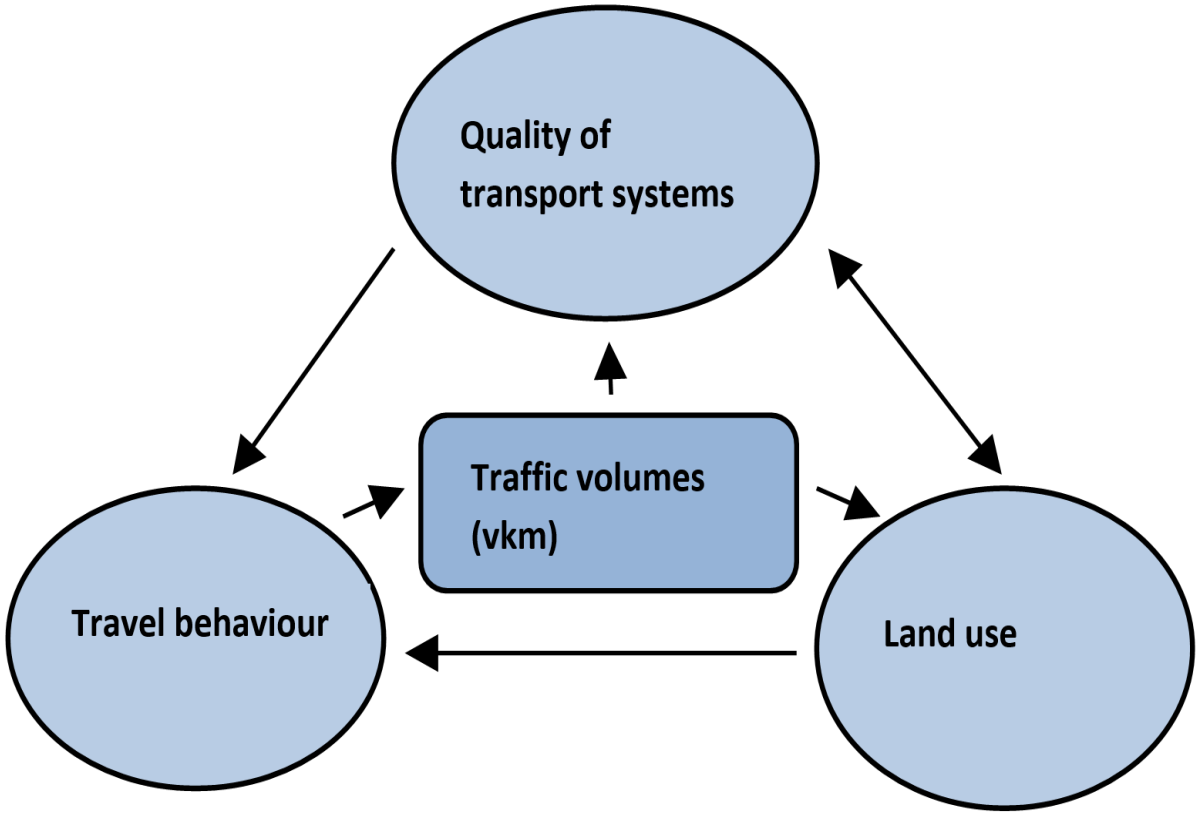


The Norwegian Zero-Growth Objective

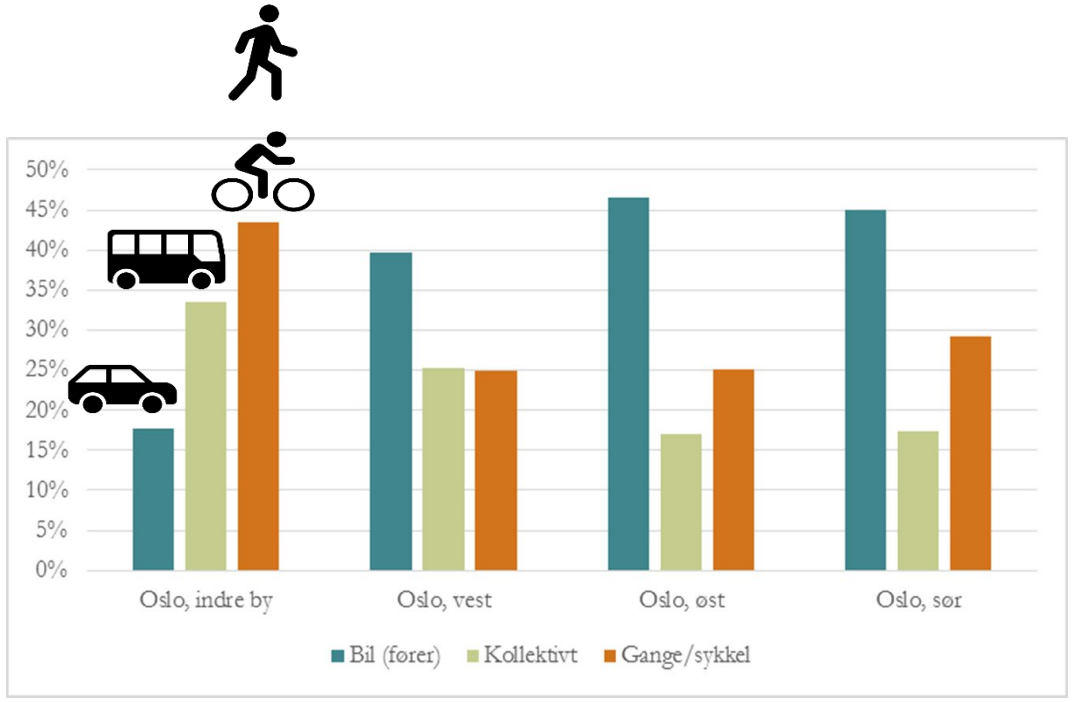
- *Zero-growth:* Increasing transport demand caused by rapid population growth in urban regions shall not cause growth in passenger road-traffic volumes (total VKT in the urban region)
- Ultimate aims (National Transport Plan, 2017):
  - more attractive and liveable cities and urban regions
  - vibrant and accessible city centres
  - efficient, safe and convenient mobility systems
  - more transport by active modes, improve public health
  - reduce local and GHG emissions from transport
- Requires that inhabitants reduce their daily car traffic volume (VKT) by making averagely fewer trips, shorter trips and/or lower shares of trips as car drivers

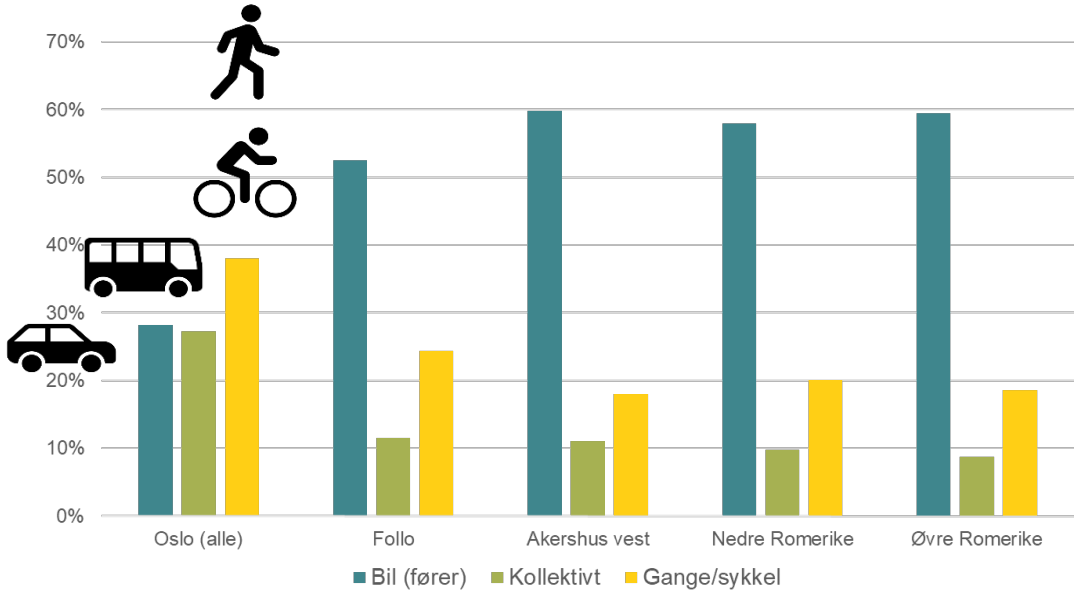
Strategies for achieving zero-growth or reduction

- Land use development as central densification and transformation rather than sprawl



Land use development matters!

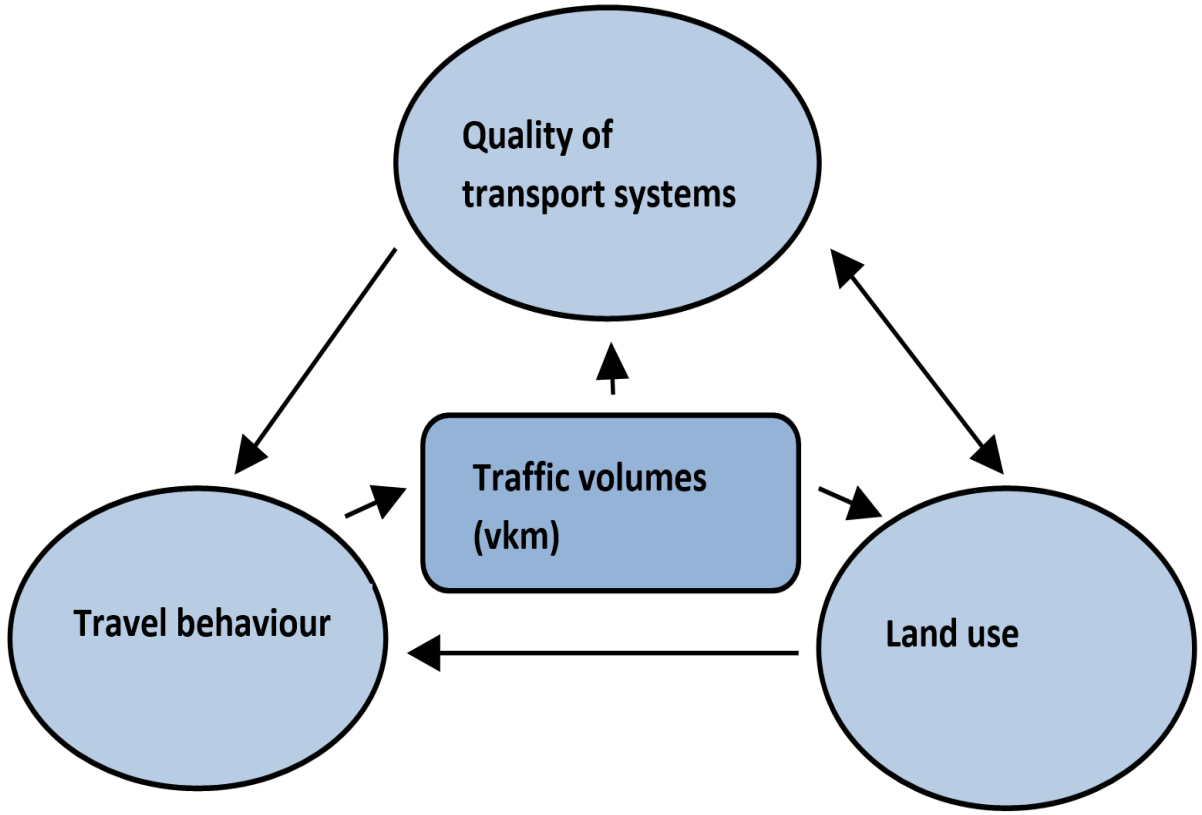




Source: National travel survey 2014/2014, Hjorthol et al. (2014)

Strategies for achieving zero-growth or reduction

- Land use development as central densification and transformation rather than sprawl
- Improving conditions for walking and bicycling
- Improving public transport services
- Restrictions on private car-usage
- Road tolling - as restrictive measure and for funding
- Requires multi-level, cross-sectoral cooperation and steering



Urban Growth Agreements – key tools

- Binding agreements between national, county and municipal authorities on how to develop land-use and transport systems towards zero-growth
- Suggesting and analysing alternatives, decisions made politically
- Funding: Toll rings, ordinary budgets, state grants 66% of investment costs for large infrastructure projects
- Different options:

Source: Norwegian Public Roads Administration

Reallocation of road and street space to other uses

- Obvious solution when aiming at shifting competitiveness between transport means
- Direct mechanisms: Sustainable modes become relatively more competitive than the private car (faster, more comfortable, etc.)
- Indirect mechanisms local: Living, staying and running businesses in inner city and city centre become more attractive – reducing transport demand and car-usage – and making walking and bicycling more pleasant
- Indirect mechanisms overall: Reducing road capacity in urban road systems resulting in less urban sprawl, lower transport demand and traffic volumes
- Hindered by fear of chaos and negative consequences

The BYTRANS Project

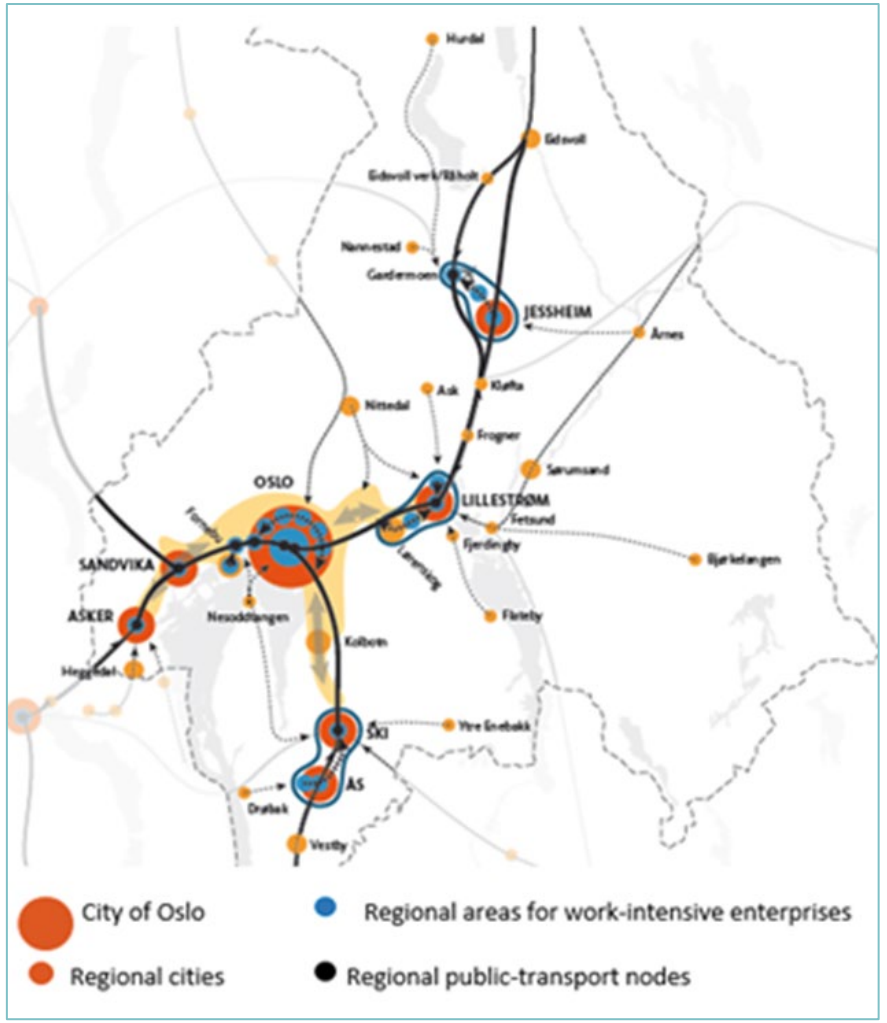
Substantial changes planned in the Oslo transport systems in 2015-2020

Natural experiments!

Great opportunity for research, knowledge production, learning and innovation

Oslo Urban Region

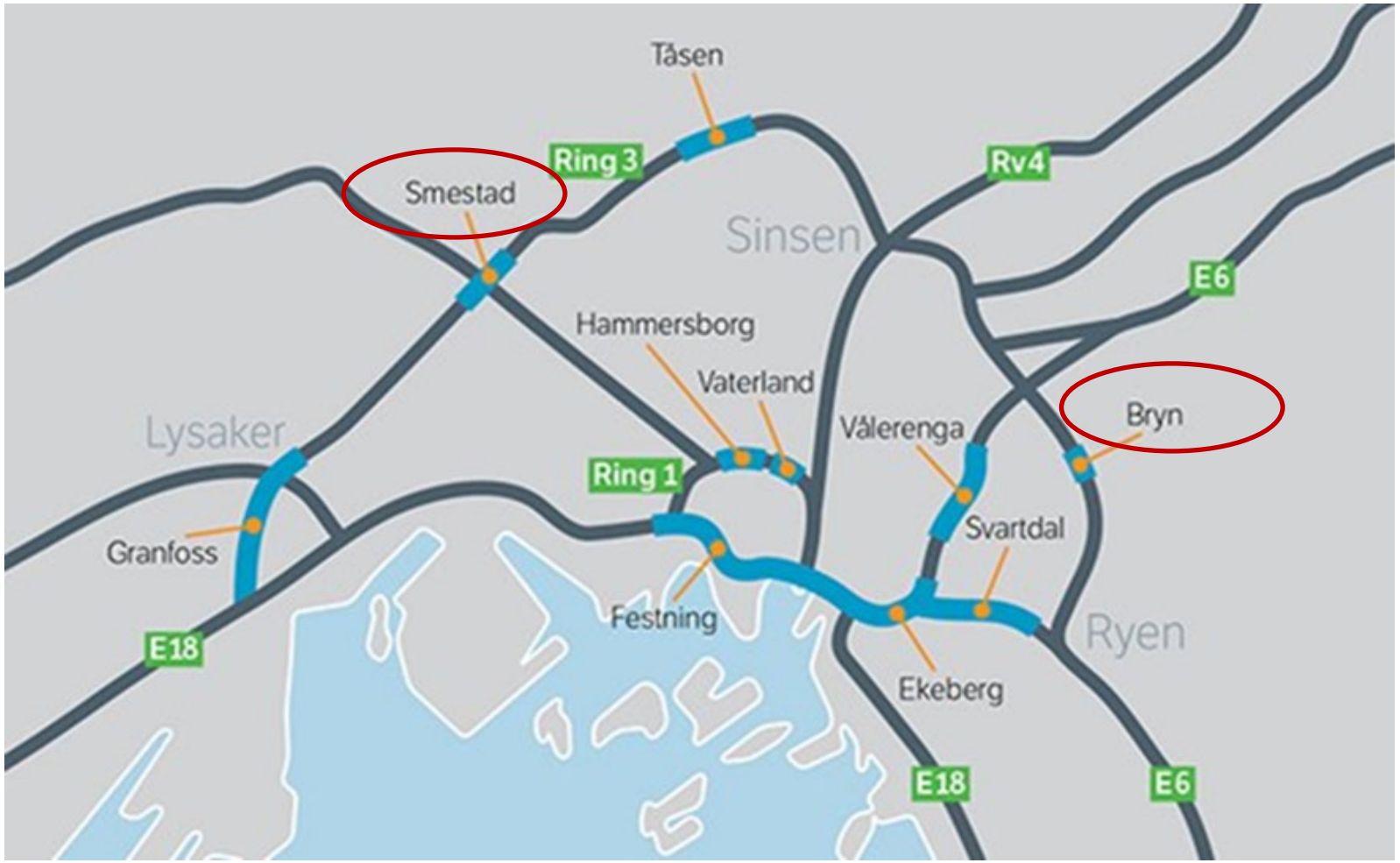
- One of four regions currently in the UGA-system
- Stated objective:
  - Halving CO2-emissions from 2015-2030
- Approximately 1,3 million inhabitants (2018)
- Strong population growth:
  - 20% from 2008-2018 in the region
  - By 60 000 in the region 2014-2019
  - By 30 000 in Oslo 2014-2019
- Regional plan (2015)
  - Stopping sprawl, densification in selected ‘regional towns’, much of the development in Oslo city
  - Rail, subway and road infrastructure projects



The BYTRANS project

- Studying adaptions to, and effects and consequences of, changes in urban transport systems – for the systems, the users and the environment
- Cases: Main road tunnels, city centre, subway-system, other, total
- Key data collection methods (referred to here):
  - Traffic data (volumes and speed) from local and national road authorities
  - Surveys to and interviews with commuters to businesses located in Oslo
  - Surveys to and interviews with truck drivers and taxi drivers

Capacity reduction in 10 main road tunnels
A ‘proxy’ for reallocating road space to other uses



Case Oslo city centre:
Reallocation of street and parking space to other uses

- 2018: 760 on-street parking spaces removed
- 2019: Through-driving barriers
- Bike-lanes
- Wider sidewalks, more pedestrian areas

Photos: Oddrun Helen Hagen, TØI

Results, three cases of reallocated road space

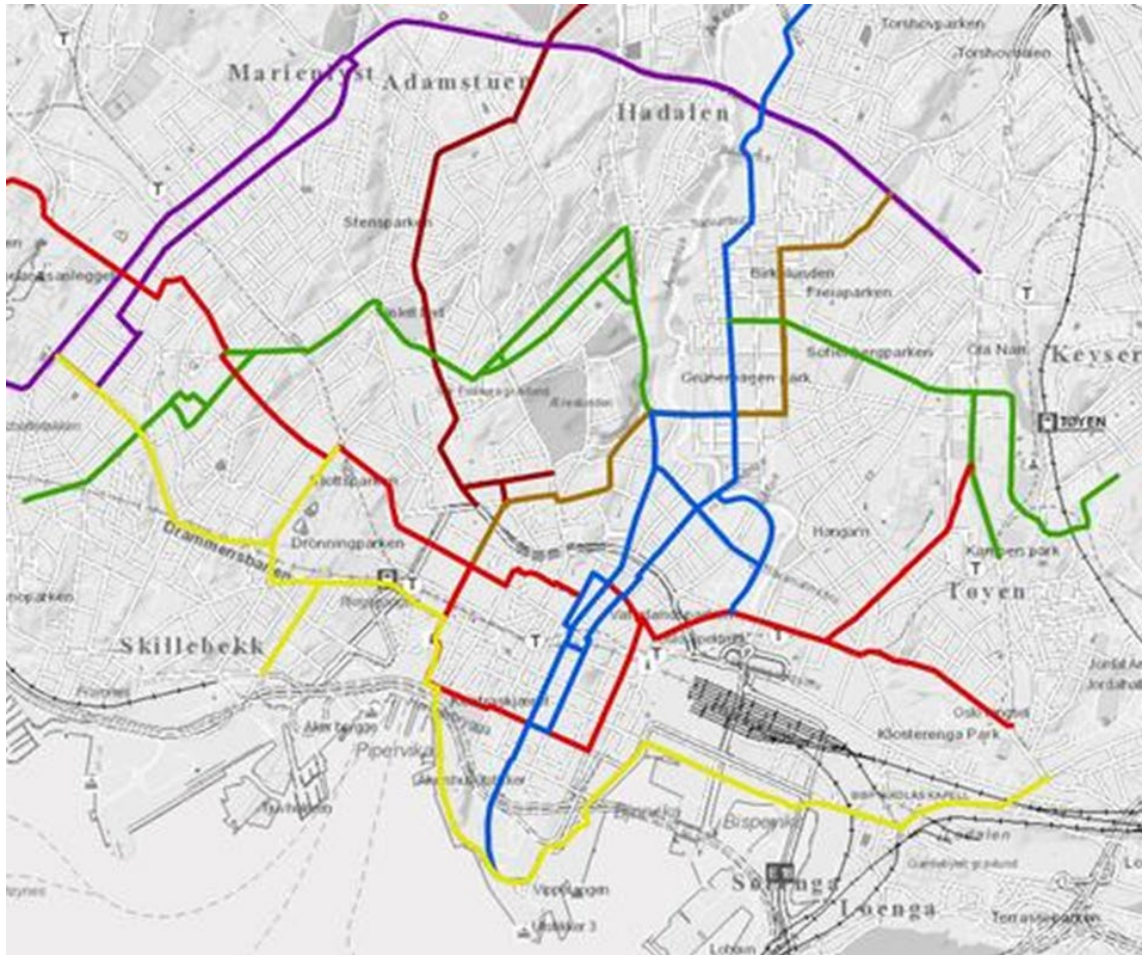
- Smestad tunnel: No adaptions, negligible effects, no consequences
  - Discussions about maximum capacity, other ways of increasing road capacity than increasing road space, if capacity can be reduced permanently and other places
- Bryn tunnel: Some adaptions, increased delays, no severe consequences
  - Discussions about whether these are ‘no severe consequences’, whether we have over-rated negative effects and consequences of (extra) congestion
- Oslo City Centre: Almost no adaptions, effects or consequences
  - Discussions about how the delivery situation for freight can be improved, whether changes in experiences when using various means of transport will affect future travel behaviour, if the changes are to the better or worse for retail and city centre users

Smestad morning rush hour traffic, 2 May 2015

Photo: Aud Tennøy

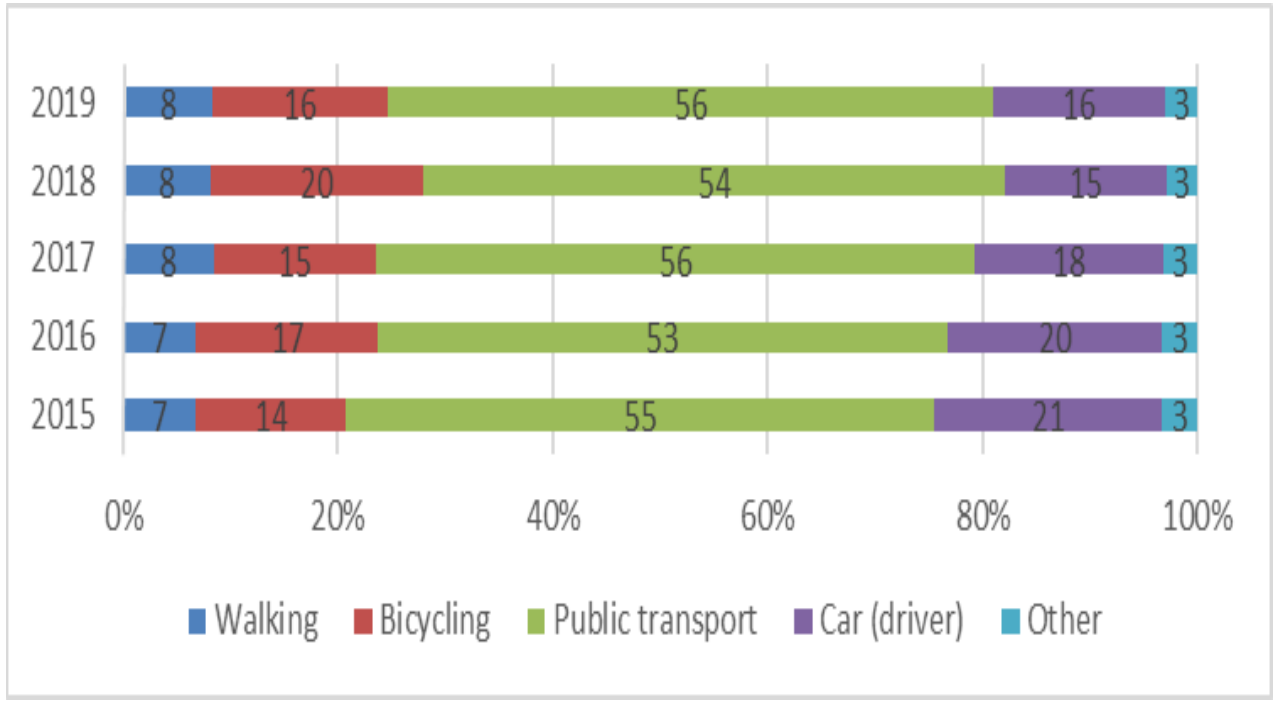
Photo: Norwegian Public Roads Administration

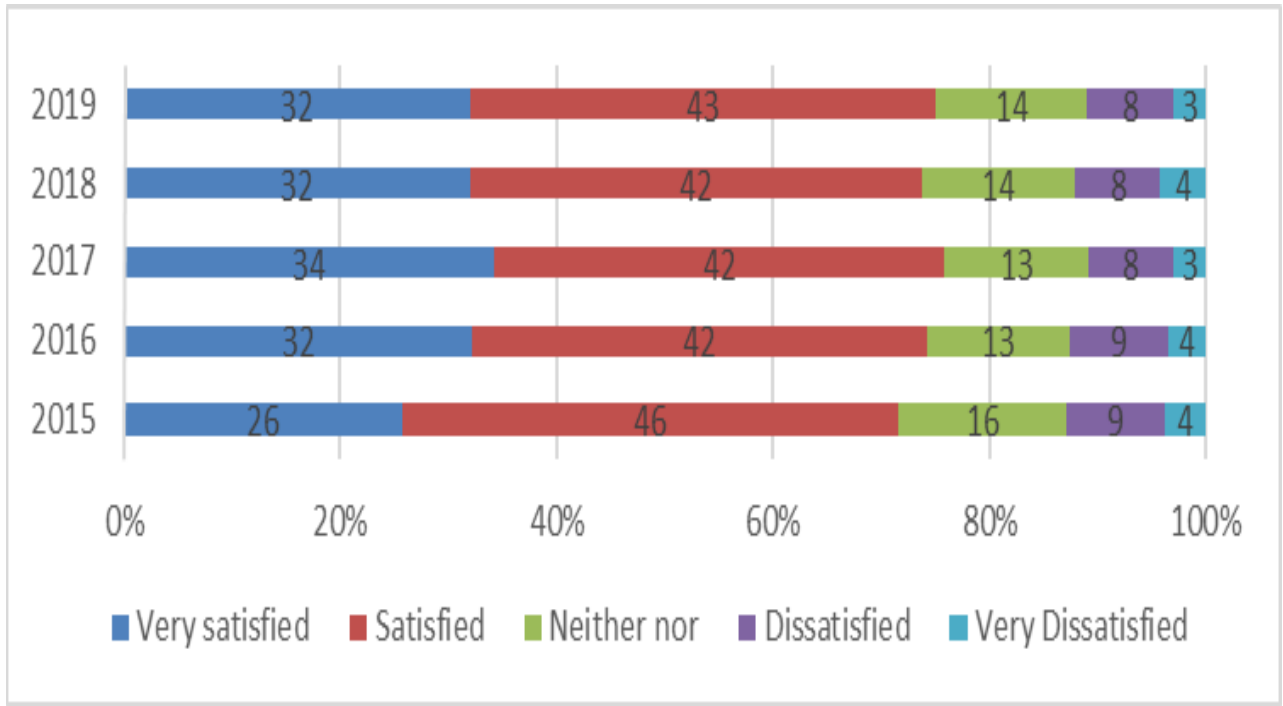
Other: Reallocating parking space to bicycle lanes



Totality of changes

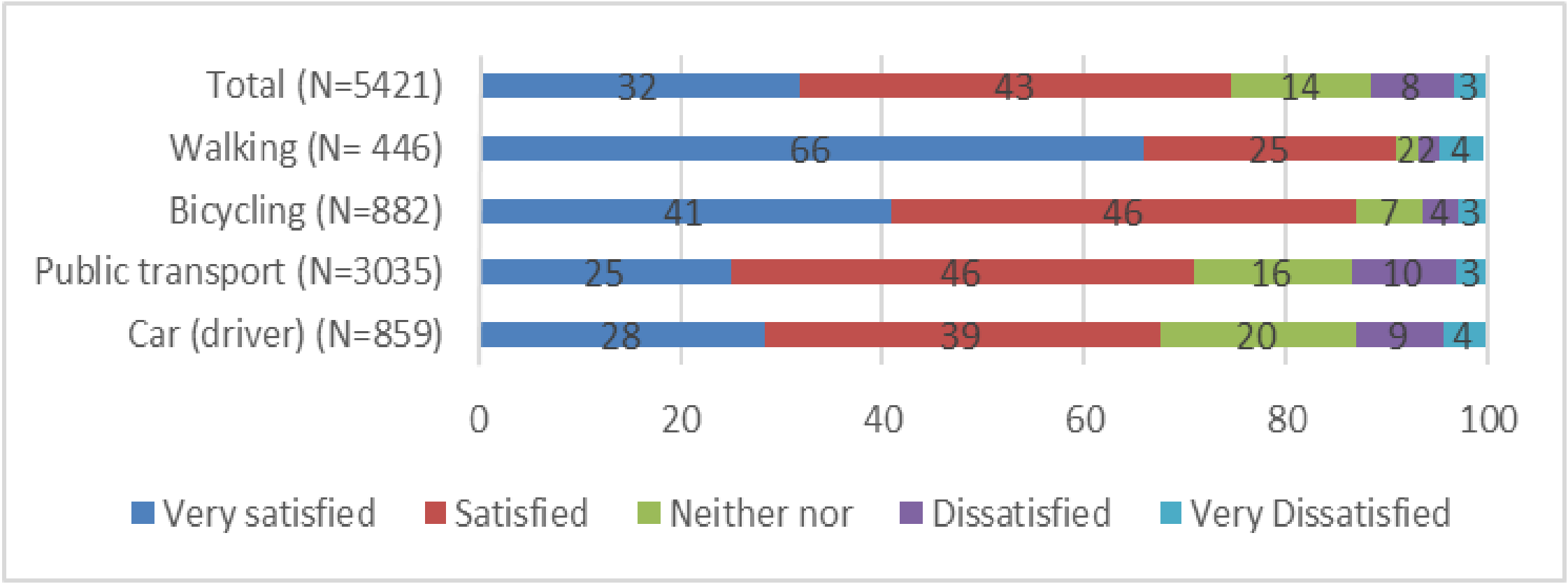
- Urban development (mostly) as densification within the city
- Reduced accessibility by car
- Improved accessibility by bike and by foot
- Improved public transport services
- Car-usage on commutes down from 21 to 16%
- Commute satisfaction stable and high, around 75% (very) satisfied





Happiest commuters by bike and by foot! Car-drivers also quite happy…

How satisfied are you with your commute at this time of the year? May 2019



So What?

Reallocating urban road and street space to other uses caused fewer and less negative effects and consequences than anticipated, meaning:

- Wider possibilities and more alternatives when planning for the future!
- Reallocation of road, street and parking space to other uses are feasible alternatives
- Cities, centres and urban transport systems can easier be developed in ways contributing to reducing traffic volumes and making cities more efficient, liveable, enjoyable, healthy, walkable, bikeable….
- Less need for (and benefit of) expanding road space and road capacity
- Space, planning capacity, investments, etc. can be used in ways more effectively contributing to goal achievement
- Or?

Towards zero-growth?

- Many politicians and professionals have embraced the zero-growth objective
- It works! It relates to the complexity of cities and urban transport systems
- In Oslo: City Government re-elected after really pushing sustainable mobility
- But - not all are happy, suburban areas are problematic
- Protests concerning restrictions on land use development and road tolls
- National authorities – building more roads, locating in car-dependent areas, not supporting authorities in formal complaints
- The zero-growth objective itself is questioned, but has received strong support
- Who wants more traffic in their city?
- Interesting times….

Thank you!

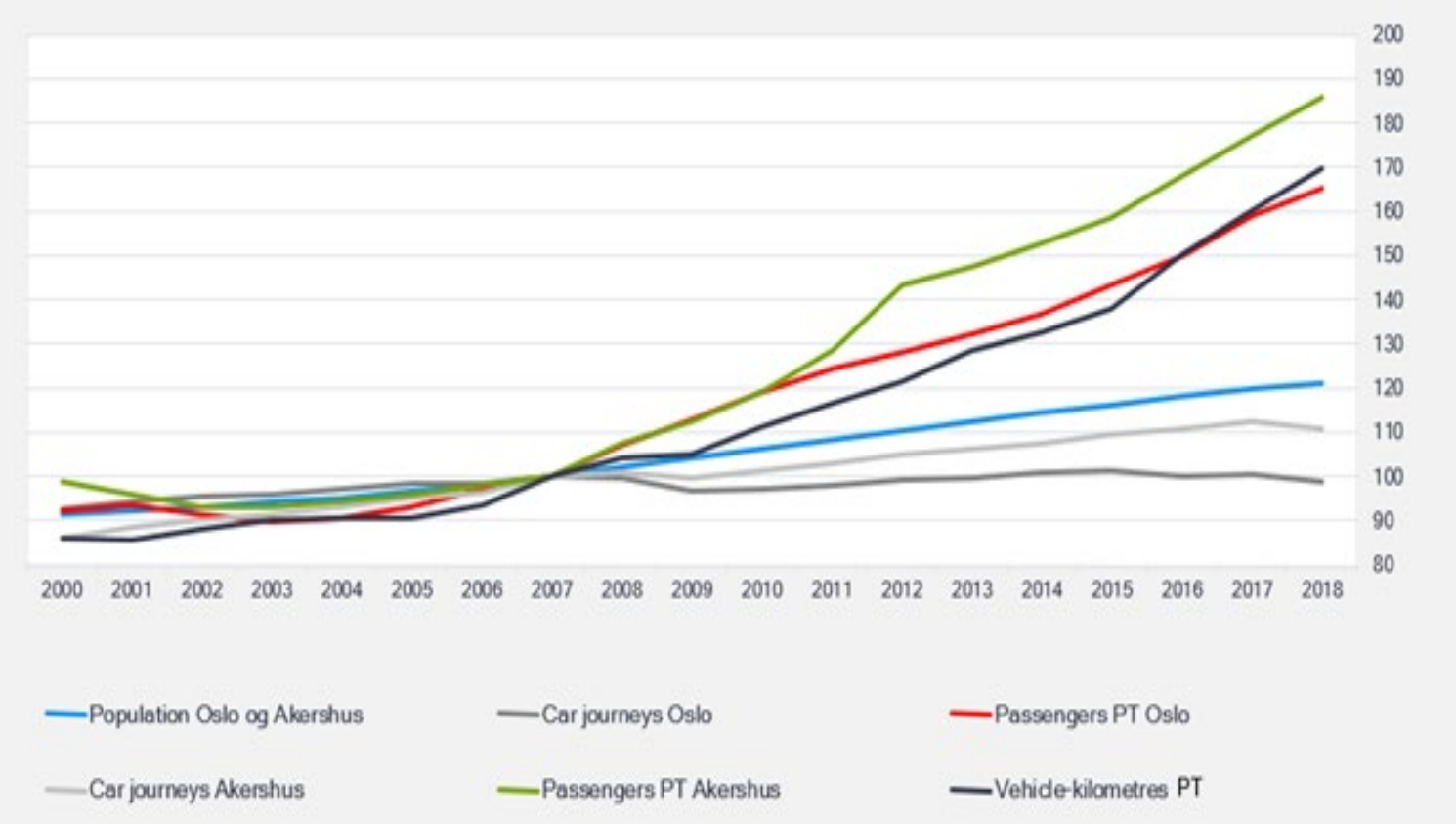
Photo: Oddrun Helen Hagen, TØI

Transportøkonomisk institutt
Stiftelsen Norsk senter for samferdselsforskning

Oslo Urban Region – development since 2007

- Strong growth in PT services
- Strong growth in PT passenger
- Population growth
- Weaker growth in car trips

(All is relative development)



Source: Ruter

Summary of your input data

The volume data you have entered corresponds to an increase of 1.0 min. per person and day.
Your assessed population is 460 000.

Summary of impacts for mortality and carbon emissions

As a result, 4.000 premature deaths are prevented per year.

Over the full assessment period of 10 years, 36.00 premature deaths are prevented.

Carbon emissions are increased by 4 006 tons of CO2 equivalents per year.
Over the full assessment period of 10 years, carbon emissions are increased by 40 062 tons of CO2 equivalents.

Economic value of impacts

Mortality is monetized using value of statistical life (VSL) of EUR 5 290 000 per premature death.
Carbon emissions are monetized using social costs of carbon (SCC) of EUR 89.6 per ton of CO2 equivalent. This corresponds to an economic value of EUR 18 700 000 per year.
Over the full assessment period of 10 years, the total economic impact is EUR 187 000 000.
Discounted to 2019 value at an annual discount rate of 5%, the total economic impact is EUR 132 000 000.

HEAT v4.2

Institute of Transport Economics
Norwegian Centre for Transport Research