

# Green waves for cyclists in Copenhagen

Nicolai Ryding Hoegh - City of Copenhagen



# Traffic crossing daily (6 am - 6 pm)



## Traffic crossing the municipality border:

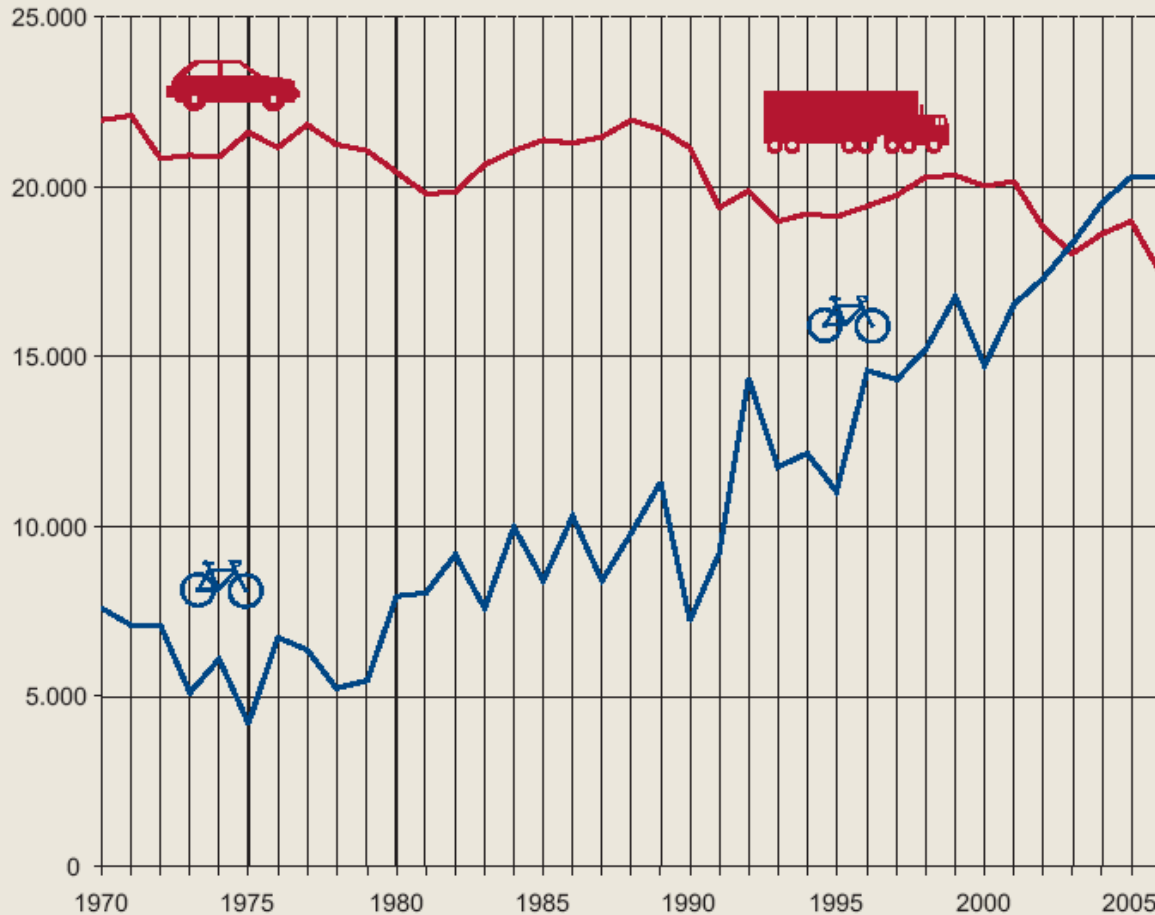
- 540,000 cars
- 63,000 cyclists

## Traffic crossing the border to inner city:

- 310,000 cars
- 180,000 cyclists



# Traffic, inner city (morning peak)



[www.kk.dk](http://www.kk.dk)

# Copenhagen Cycle Policy



**“Cycling travelling speed on trips of over 5 km shall increase by 10%”**

Target figure, Cycle policy 2002 - 2012



[www.kk.dk](http://www.kk.dk)

# Nørrebrogade



[www.kk.dk](http://www.kk.dk)

Københavns Kommune  
Teknik og Miljøforvaltningen  
Center for Trafik

Nordisk Trafiksignalkonference  
Stockholm 8. maj 2007

# Nørrebrogade - March 2007



# Nørrebrogade - normally



[www.kk.dk](http://www.kk.dk)

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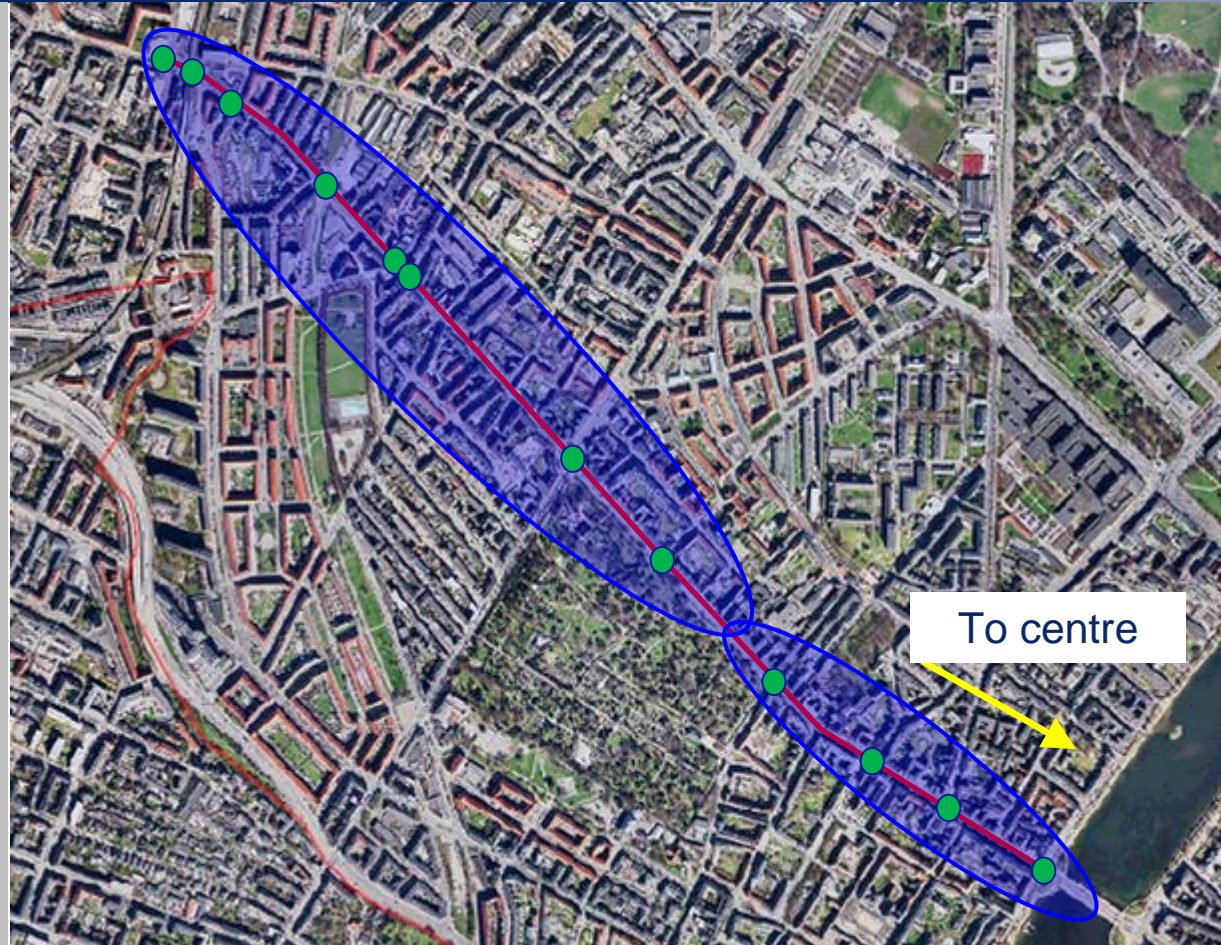
# Nørrebrogade - facts



- Distance: 2.2 km
- 12 traffic lights
- Traffic northern end:

Cars	16,000
Cyclists	15,000
- Traffic southern end:

Cars	17,000
Cyclists	30,000
- 1 bus every minute



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# Green wave on Nørrebrogade



- Green wave adjusted to a cyclist's speed of 20 km/h
- 6:30 am to 12 - green wave adjusted to cyclist towards city centre
- 12 to 6 pm - green wave adjusted to cyclist from city centre



# Travelling speed



Cyclists speed measured by GPS/PDA

- 20 km/h or “flowting bike”



Car speed measured by GPS/PDA

Bus speed measured by GPS

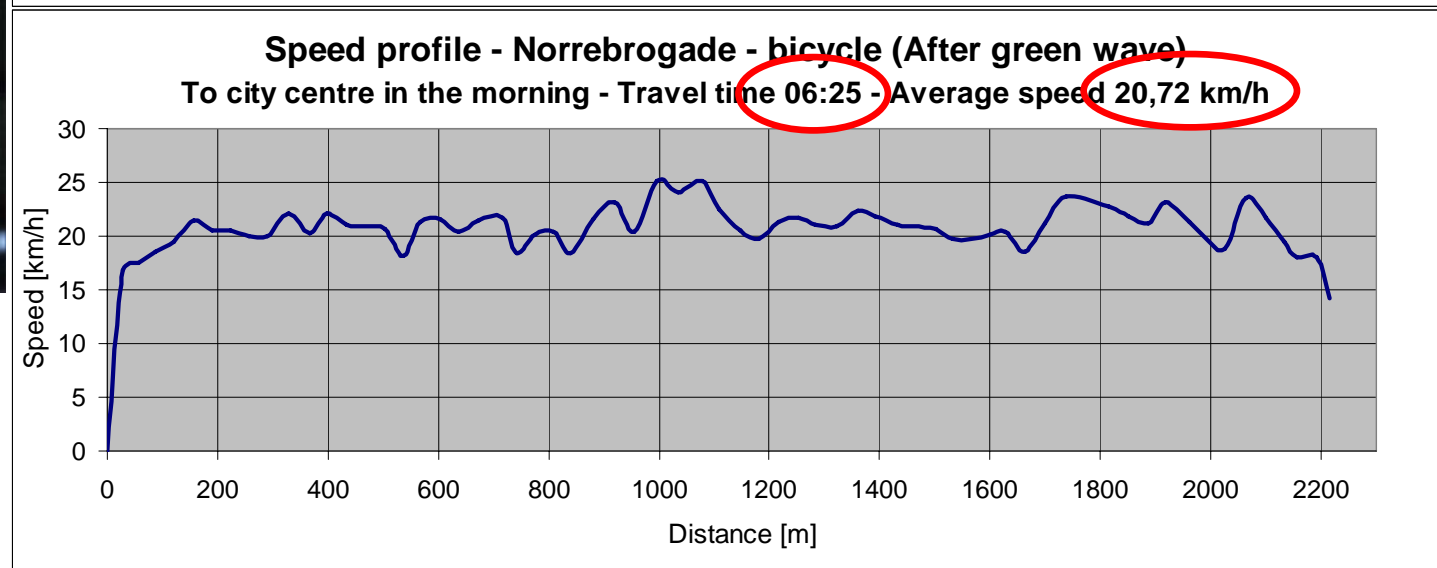
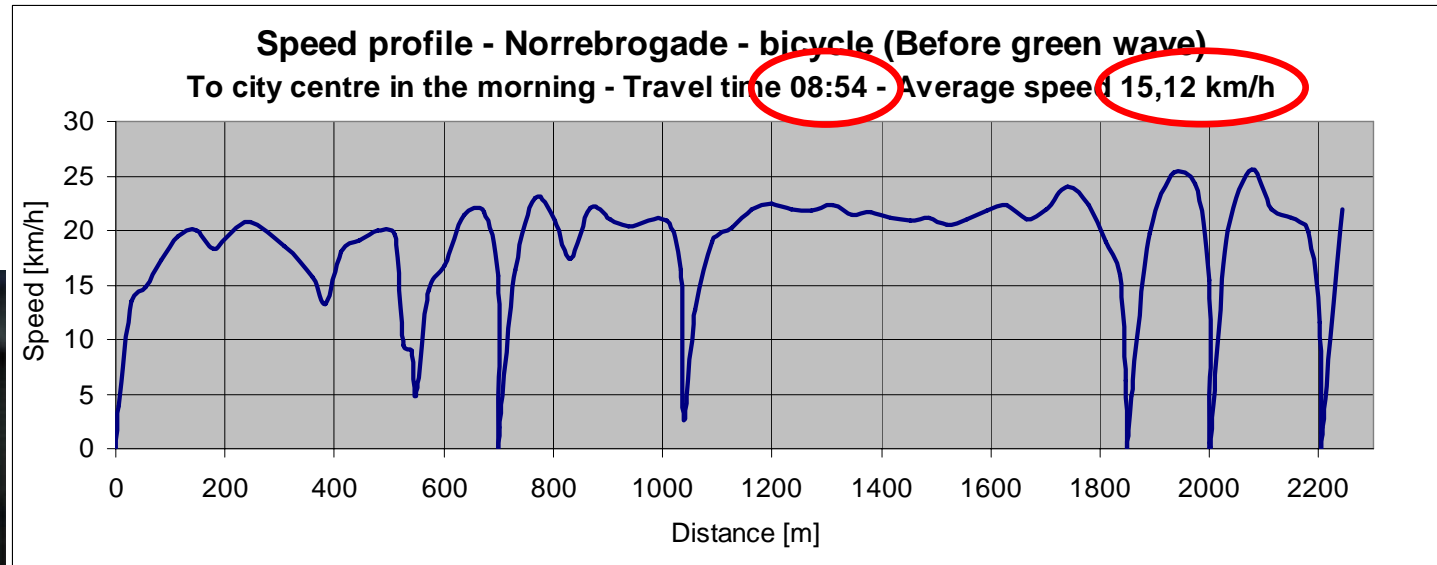


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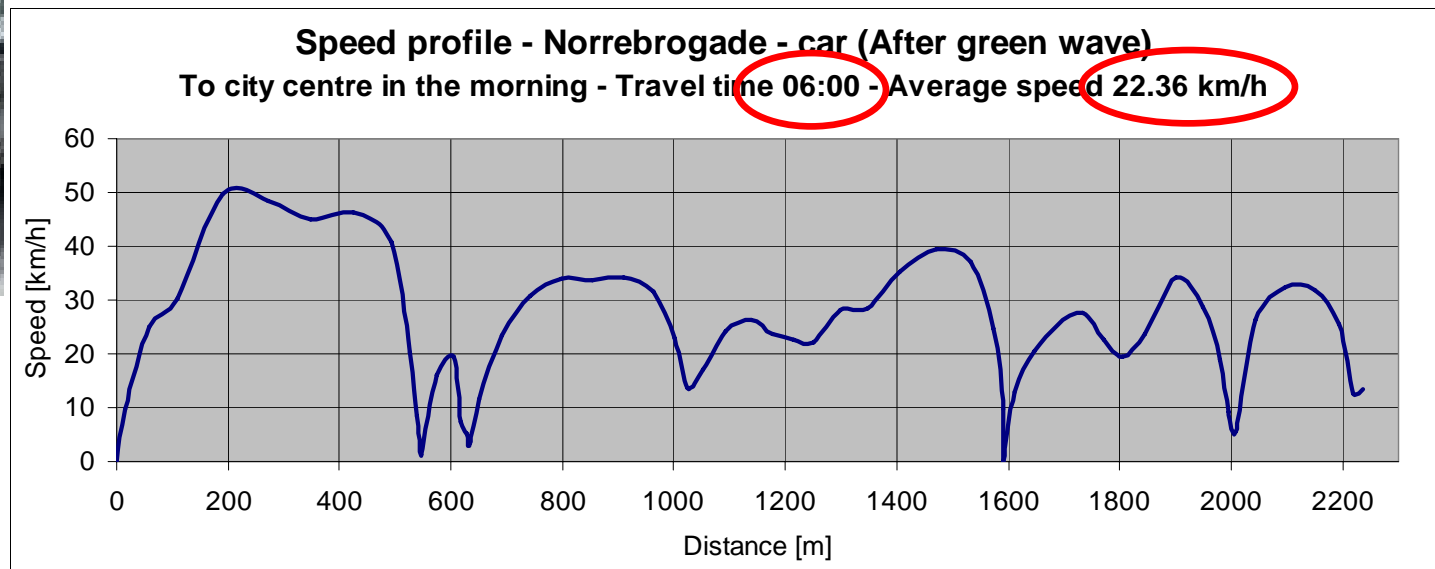
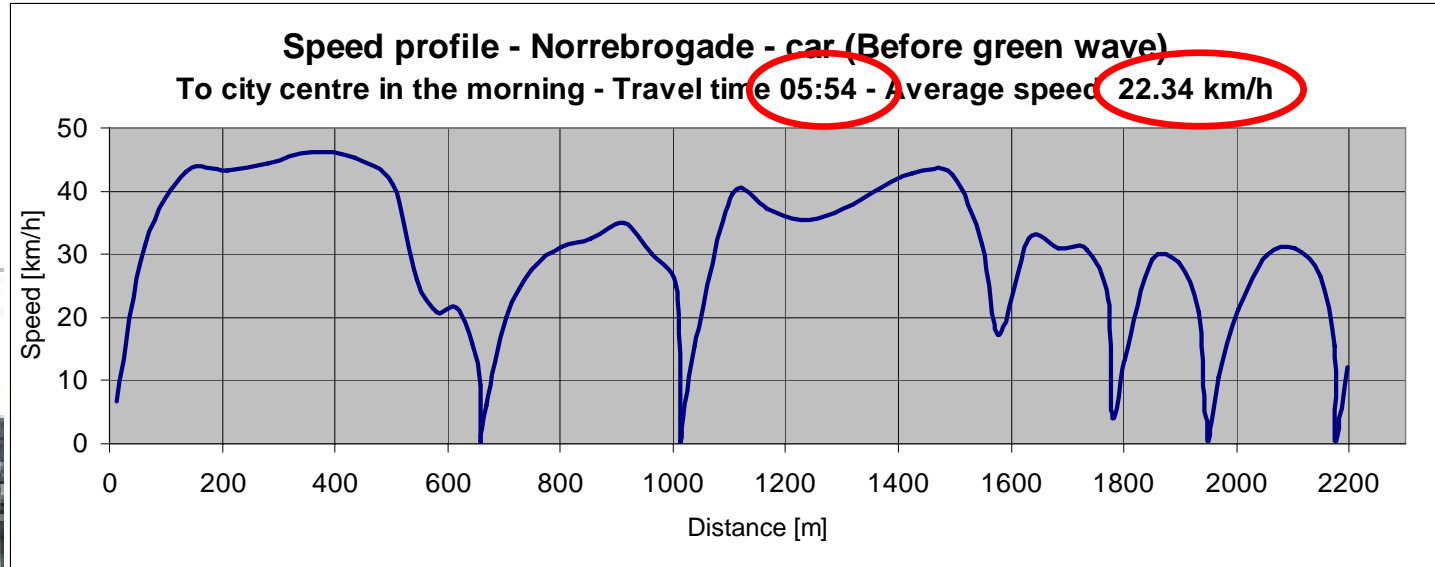
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# Results - bicycles (to centre, morning)



# Results - cars (to centre, morning)



# Results - buses (to centre, morning)



Data not completely processed

Results so far.....



Travel time before establishment of the green wave 8:55 min (18 tests)

Travel time after establishment of the green wave 8:45 min (9 tests)



# Results in general - bicycles





	Saved stops	Saved min./sec.
Green wave to centre in the morning	6	2:29 
From centre in the morning	1	0:35
Green wave from centre in the afternoon	3	1:13 
To centre in the afternoon	0	0:36



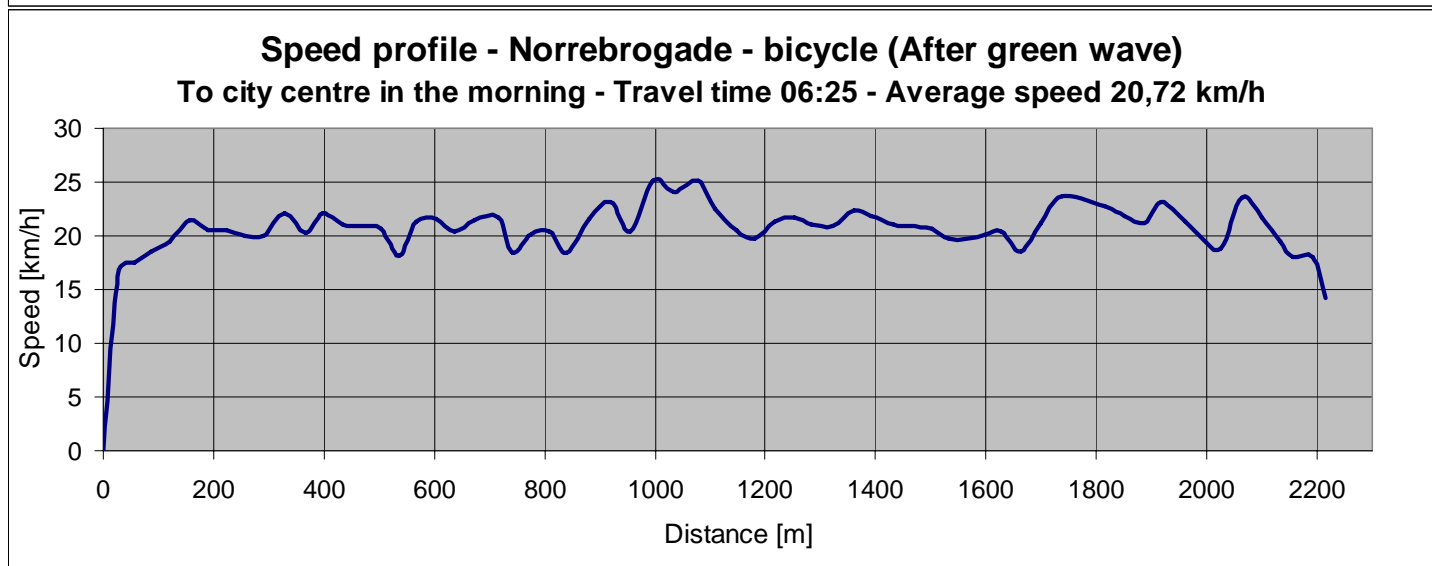
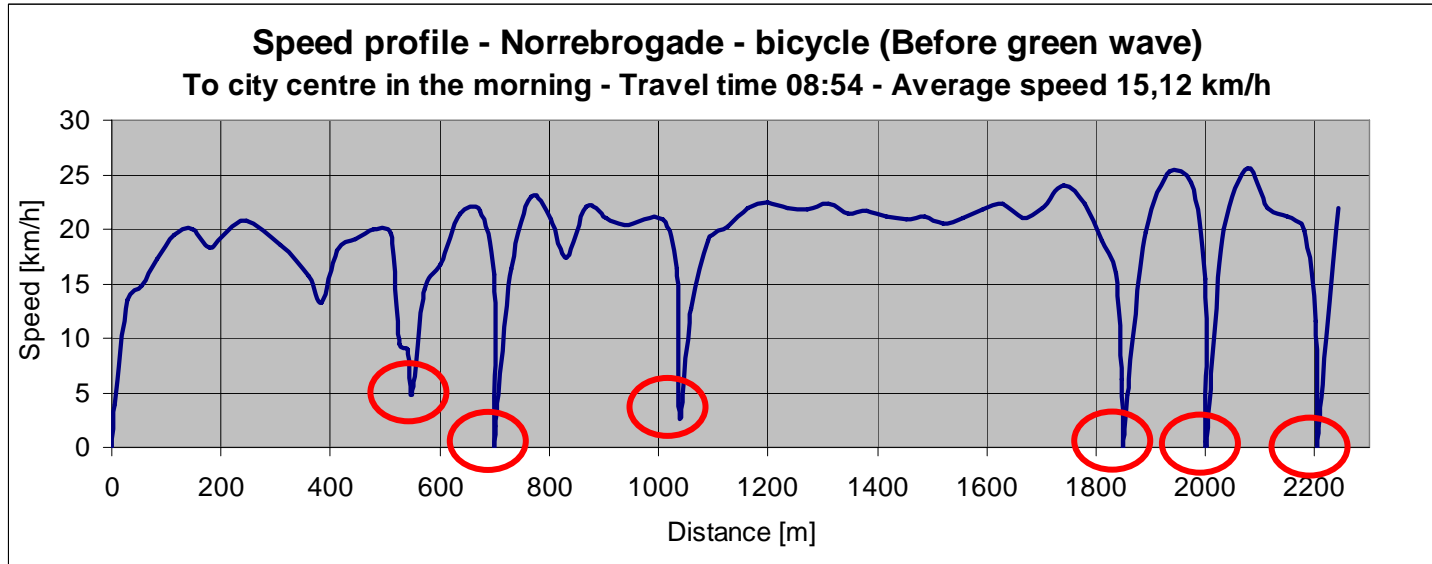
# Results in general - cars



	Saved stops	Saved min./sec.
Green wave to centre in the morning	1	0 
From centre in the morning	1	0:30
Green wave from centre in the afternoon	1	0:48 
To centre in the afternoon	0	0:30



# Results - bicycles (to centre, morning)



# Obstacles



Congestion on cycle track

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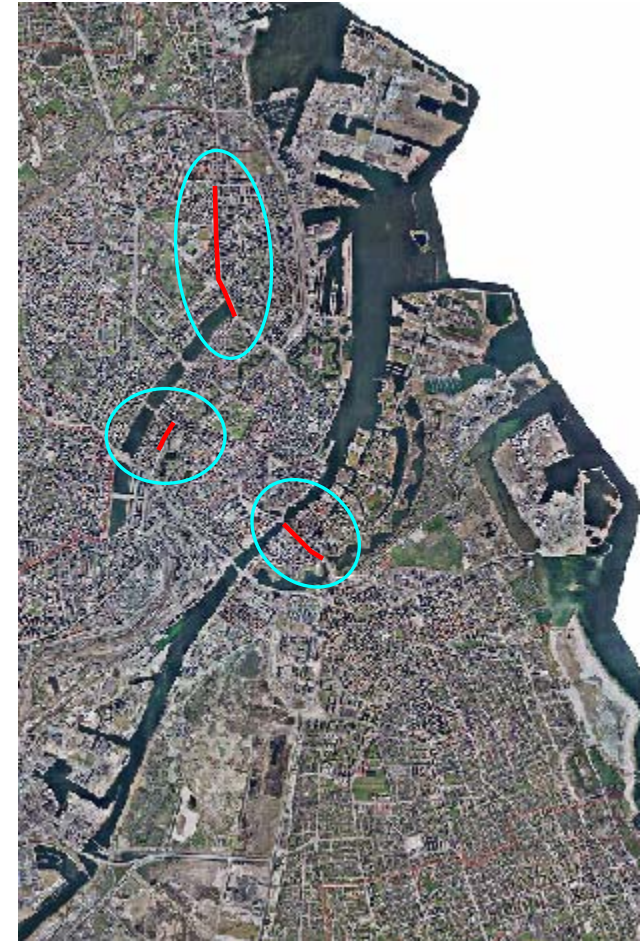
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Farimagsgade - 4 traffic lights

Planning 2 more green waves:

- Torvegade - 4 traffic lights
- Østerbrogade - 3/7 traffic lights



# Questions

