



**2050**  
**CliMobCity**  
Interreg Europe



European Union  
European Regional  
Development Fund

**2050 Climate-friendly Mobility in Cities.**  
**Urban mobility and climate mitigation**  
**on the long term**  
**in the four large Dutch cities**

**Ekki Kreutzberger**

Project coordinator

[e.kreutzberger@tudelft.nl](mailto:e.kreutzberger@tudelft.nl)

1 October 2019 Kick-off meeting, Delft

# About the G4

**Rand-  
 stad**

**Green**

**hart**

Haar-  
 lem

Amsterdam

Leiden

Den  
 Haag

Utrecht

Delft


Gou-  
 da

Rotterdam

Dor-  
 drecht

Data SIO, NOAA, U.S. Navy, NGA, GEBCO  
 Image Landsat/Copernicus

	Municipality
Amsterdam	850.000
Rotterdam	650.000
The Hague	550.000
Utrecht	350.000



# The climate aims of the G4

# Long-term reduction aims. Reference is 1990

- **Amsterdam**
  - Older aim: - 85% by 2040
  - Aim since 2018: - 95% by 2050
- **Rotterdam**
  - Very old aim: - 50% by 2025 (double as much as nationally)
  - 2015 and 2016: CO2 reduction no priority, but contribution to (inter)national goals will be made.  
EC: -60% by 2050
  - Aim since 2018: - 49% by 2030 (as national aim)

# Long-term reduction aims. Reference is 1990

- **The Hague**

- Very old aim: climate neutral by 2050
- Older aim: climate neutral by 2040
- Aim since 2018: climate neutral by 2030 (“provide contribution”)

- **Utrecht**

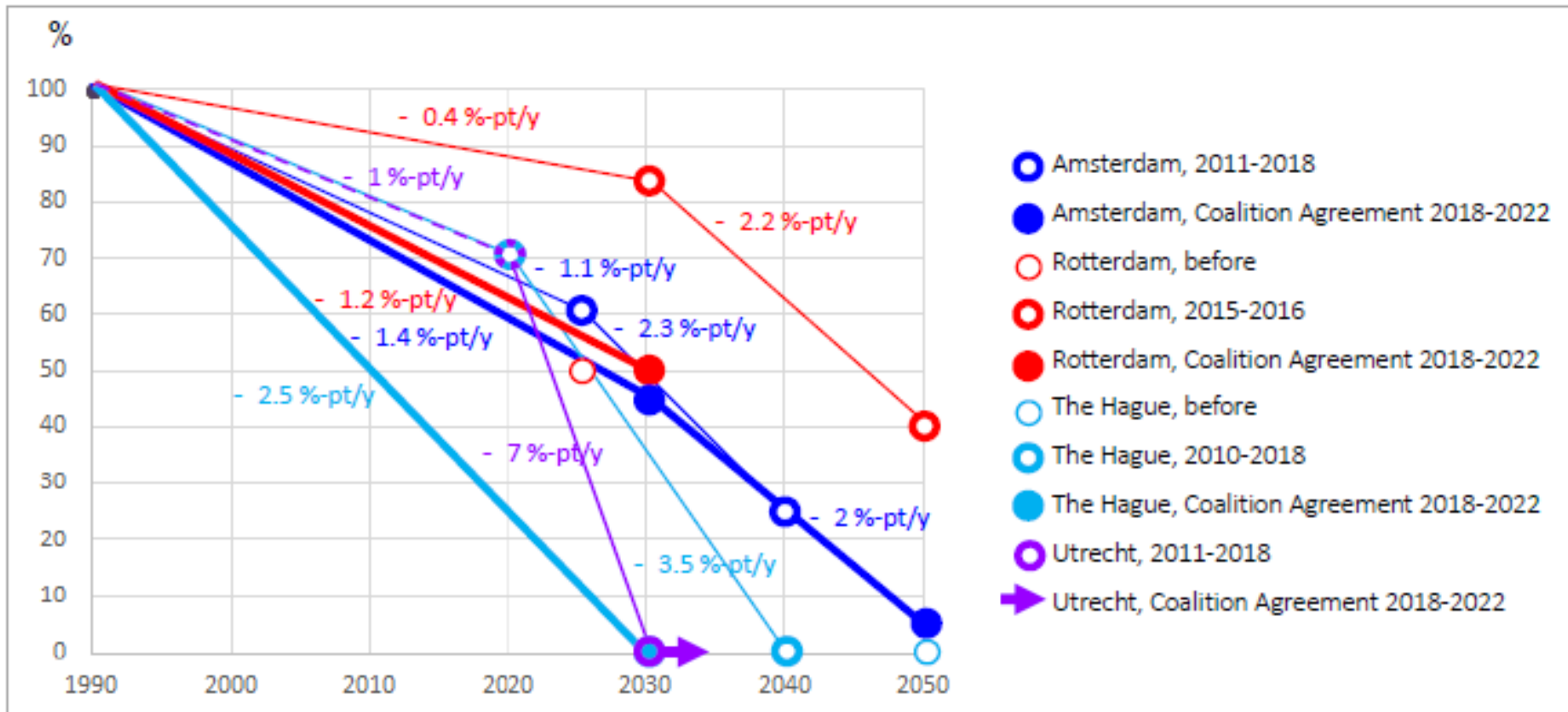
- Older aim: climate neutral by 2030
- Aim since 2018: climate neutral “as soon as possible”

# Much larger reduction rates in the second phase

- **Older aims:**
  - Amsterdam: 2 times more after 2030
  - Rotterdam: 5,5 times after 2030
  - The Hague: 3,5 times after 2020
  - Utrecht: 7 times after 2020
- **Aims since 2018:**
  - Amsterdam: Much smaller difference between phases
  - The Hague: No differences
  - Rotterdam: no long-term aim, but intermediate one implies smaller differences
  - The Hague and Amsterdam: based on CO2 budget approach

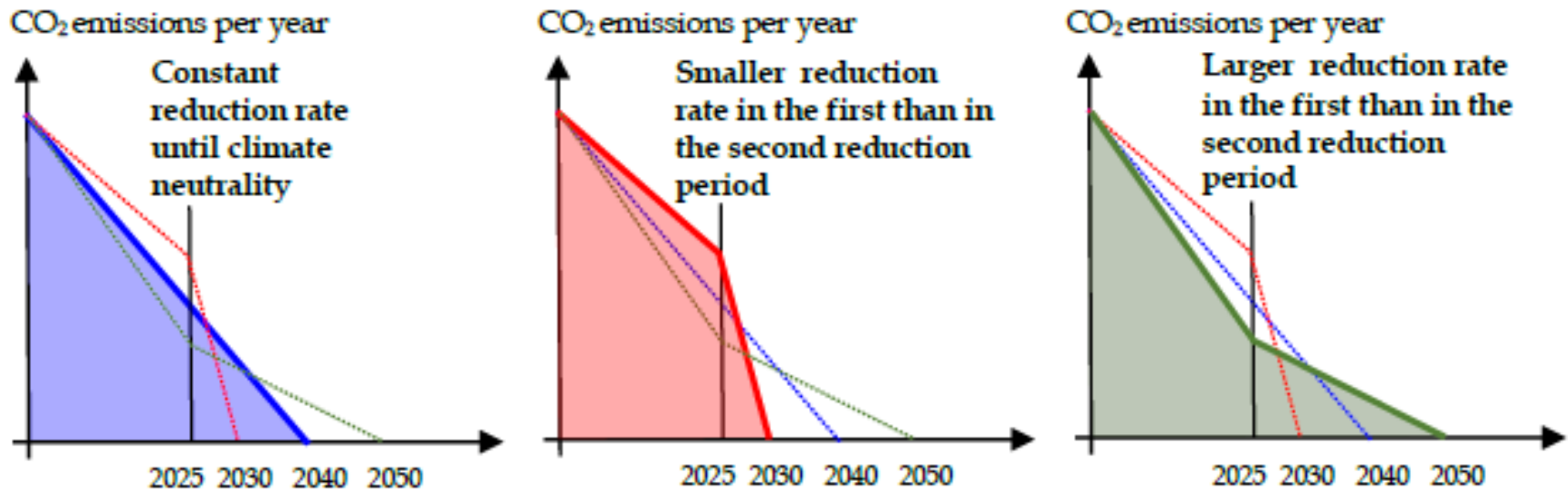


# CO2 reduction aims of the G4 and their changes





# The meaning of intermediate reduction aims for the CO<sub>2</sub> budget (independent of G4)



# Argumentation The Hague

- **2 degrees Celsius requires climate neutrality before 2040**
- **1,5 degrees Celsius requires climate neutrality before 2030**
- **Conclusion based on the following approach:**
  - Global CO2 budget is 6-10 times the emission in 2015, say 8 times
  - Factor 8 is also applied for The Hague
  - The approach leads to sharper aims than a distribution of the global budget by means of the population

# Measures in the G4

# CO<sub>2</sub> reduction measures applied the last 20 years (1)

- Commitment to **modal shift** from car to other mobility
- Expansion of **active travel** (enlargement pedestrian areas, new bicycle paths and garages) and PT (new PT lines and stations) and multimodal networks (e.g. construction of P+R facilities at strategic locations)
- **Upgrading of PT networks** (from bus to tram, from high-floor to low-floor trams, from heavy to light rail systems; increasing PT frequencies and the average speeds of ground level PT systems; the restructuring of station complexes and PT stops; the replacement of CO<sub>2</sub>-intensive with CO<sub>2</sub>-extensive buses)
- **New PT lines**

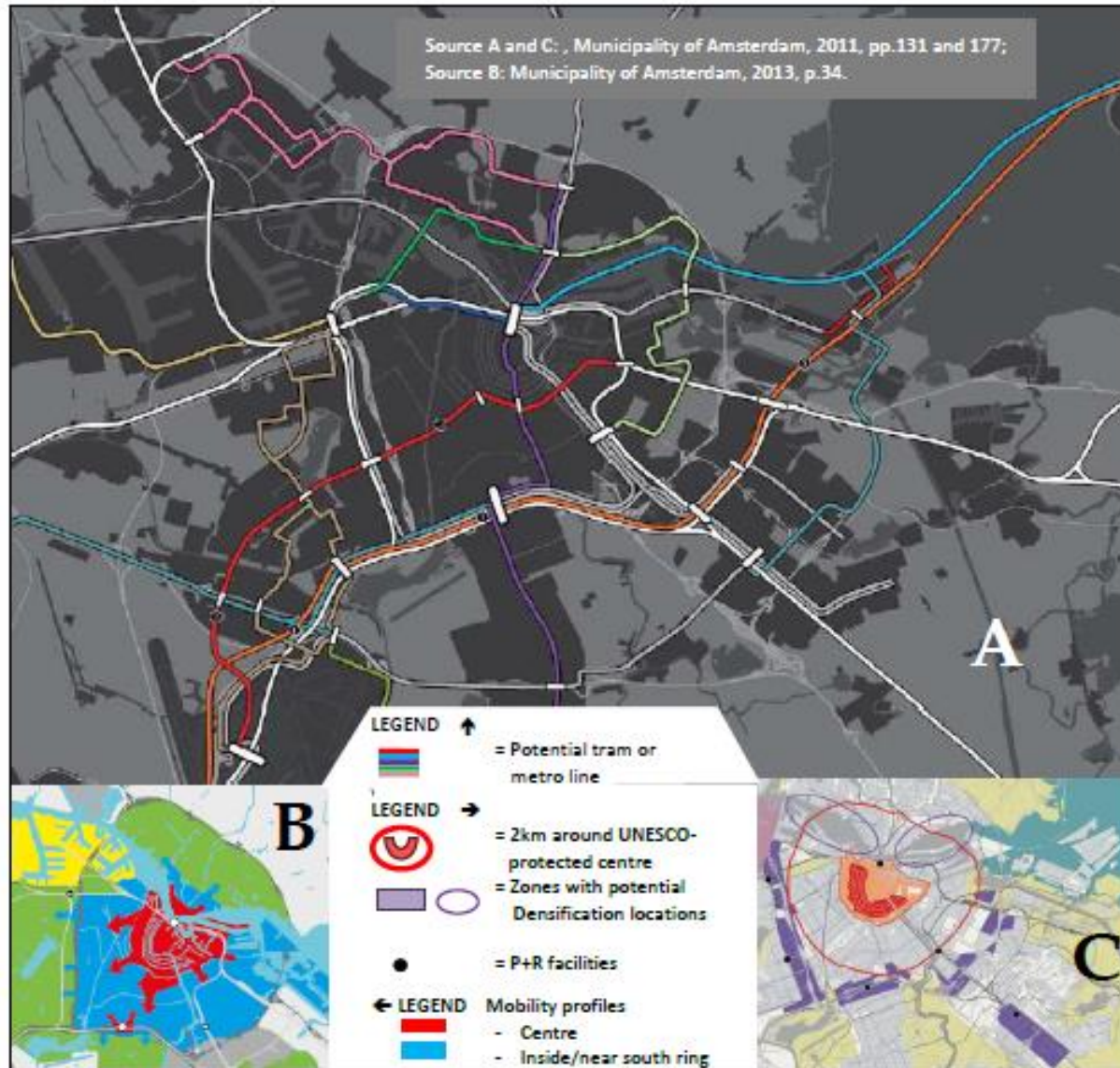
# CO2 reduction measures applied the last 20 years(2)

- **Urban densification** around regional and (inter)national train stations (e.g. in the project Stedenbaan)
- But also development of **peripheral areas** (more attached to central city and restructuring former industrial/port areas, **less satellites** on distance)
- Introduction of **car-free or low-emission zones** and restrictive urban distribution policy, as well as the extension of **restrictive car parking policy**, all contributing to modal shift
- Promotion of car sharing, and of sustainable mobility through **transport management**
- Innovative solutions for **urban distribution**

# CO2 reduction measures in current plans strategic mobility and spatial plans

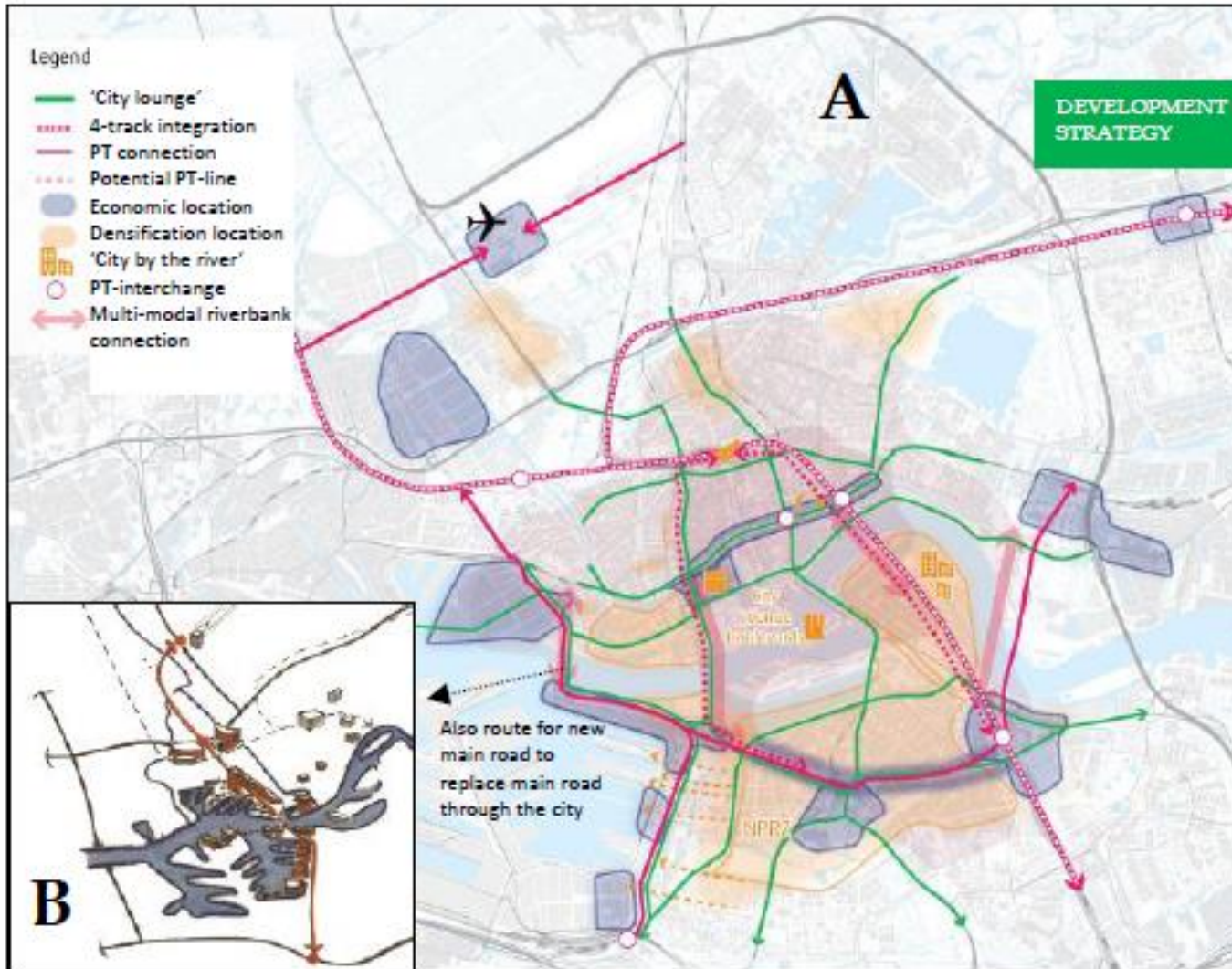
- **Similar types** of measures for new locations and network parts
- Strong focus on growth in OVN municipality and **urban infill (selective densification)** instead of expansion
- **Less priority for parking and moving car in public space**
- **Environmental zones** emerging as **mainstream configuration**

# Amsterdam (2011 and 2013)

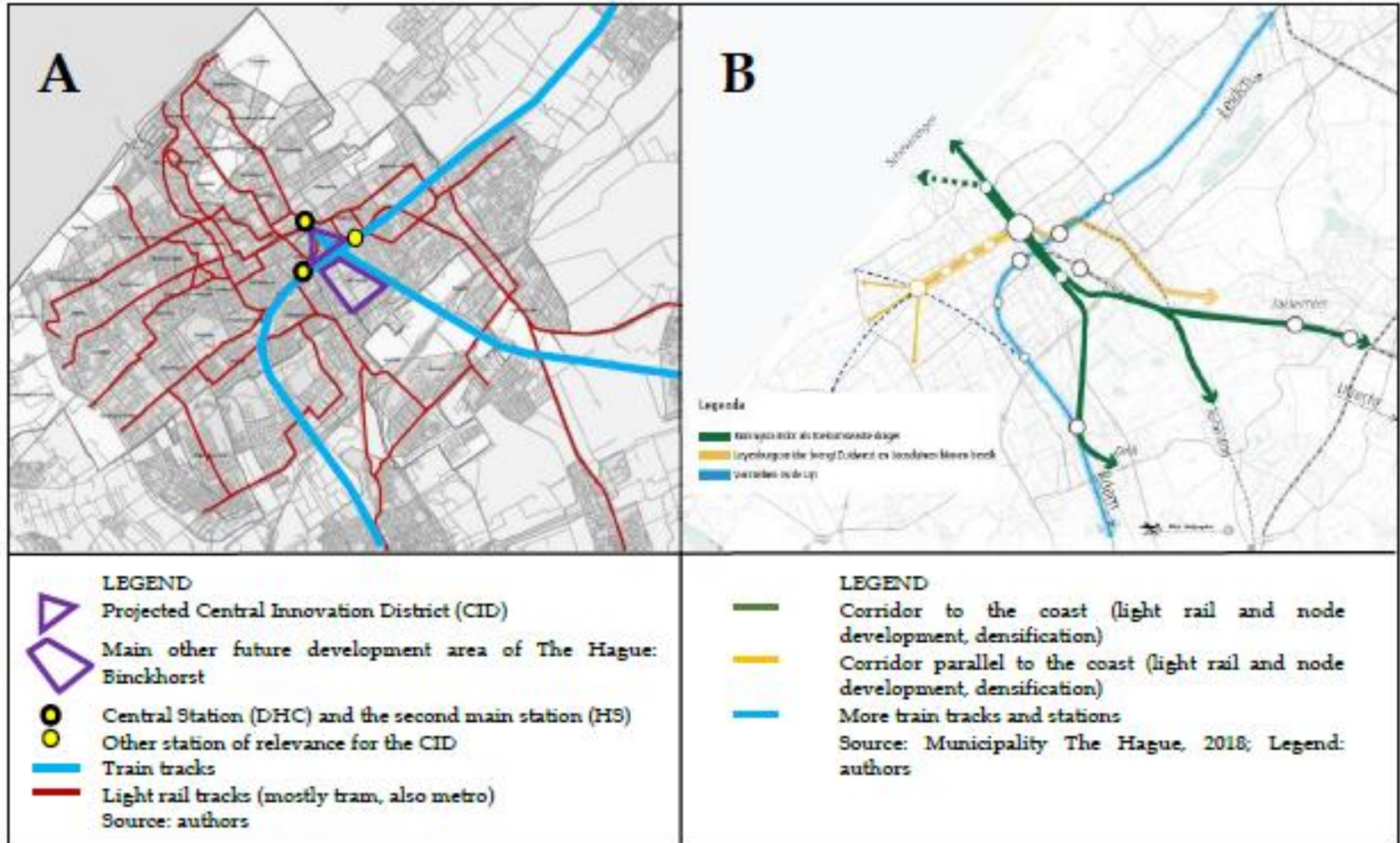




# Rotterdam (2016)

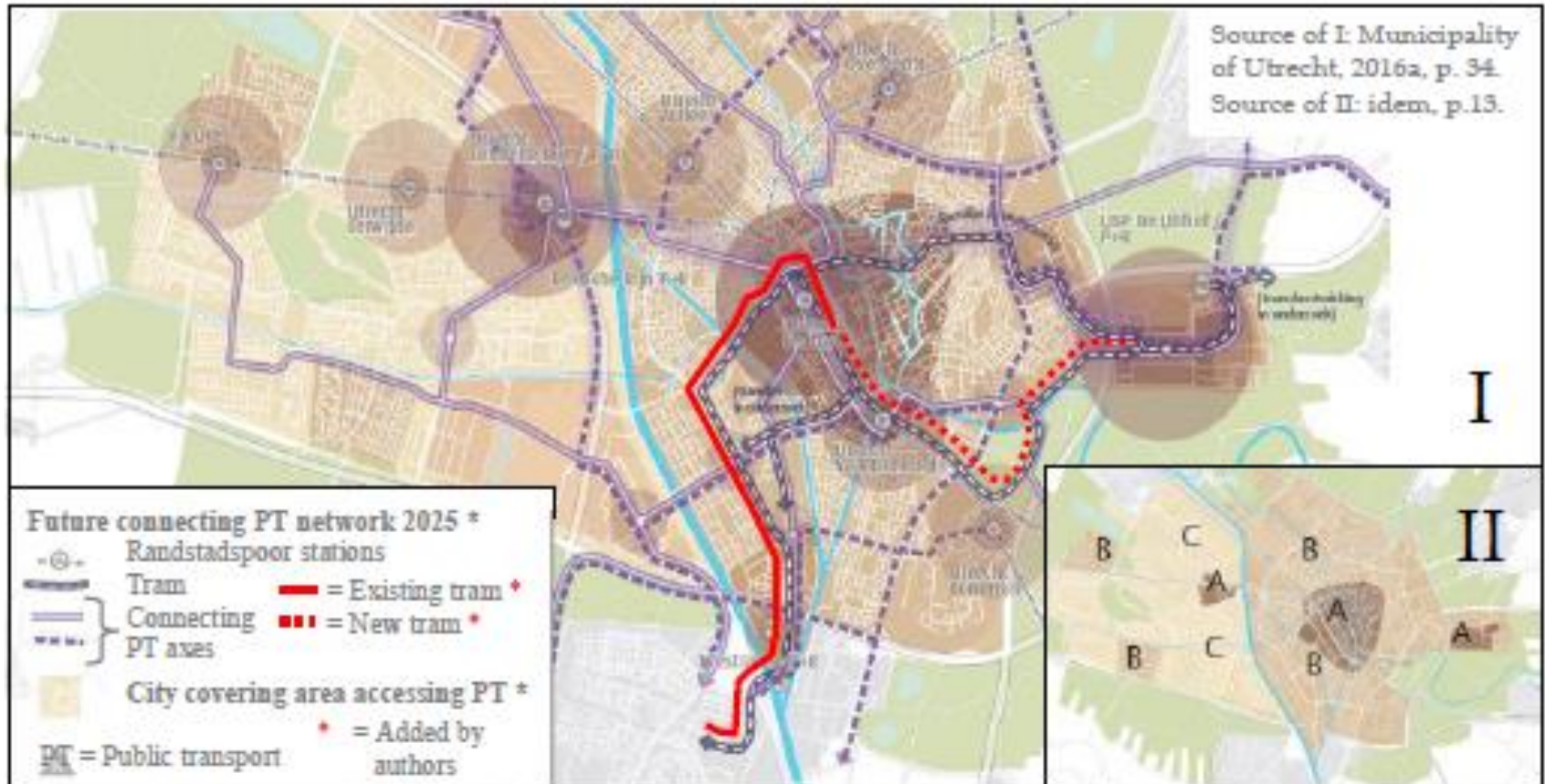


# The Hague (2018)





# Utrecht (2016)





# Measure packages in studies and policy documents

Successful  
contribution of  
cities/regions to CO2-reduction on  
the long term

5)  
Actualise (3) and (4) in the pace of strategic policy cycles

4)  
Embedment of (3) in strategic sectoral (mobility, urban development)  
or intersectoral plans and programmes

3)  
(2) plus  
defining measure packages to achieve the reduction aims  
under acceptable conditions (e.g. space saving, affordable)

2)  
(1) plus  
Exploring how much CO2 reduction all current  
and future reduction measures will provide

1)  
Working hard on the implementation  
of CO2 reducing measures

# Frame- work for CO2 reduction policies

# Knowing how to achieve CO2 reduction aims

- **Rotterdam: no explorations (e.g. backcasting study)**
- **Utrecht:**
  - exploration of the effects of changing ROAD mobility (2011)
  - No quantitative indications in strategic mobility or spatial plans

# Knowing how to achieve CO2 reduction aims. Amsterdam (2011, 1)

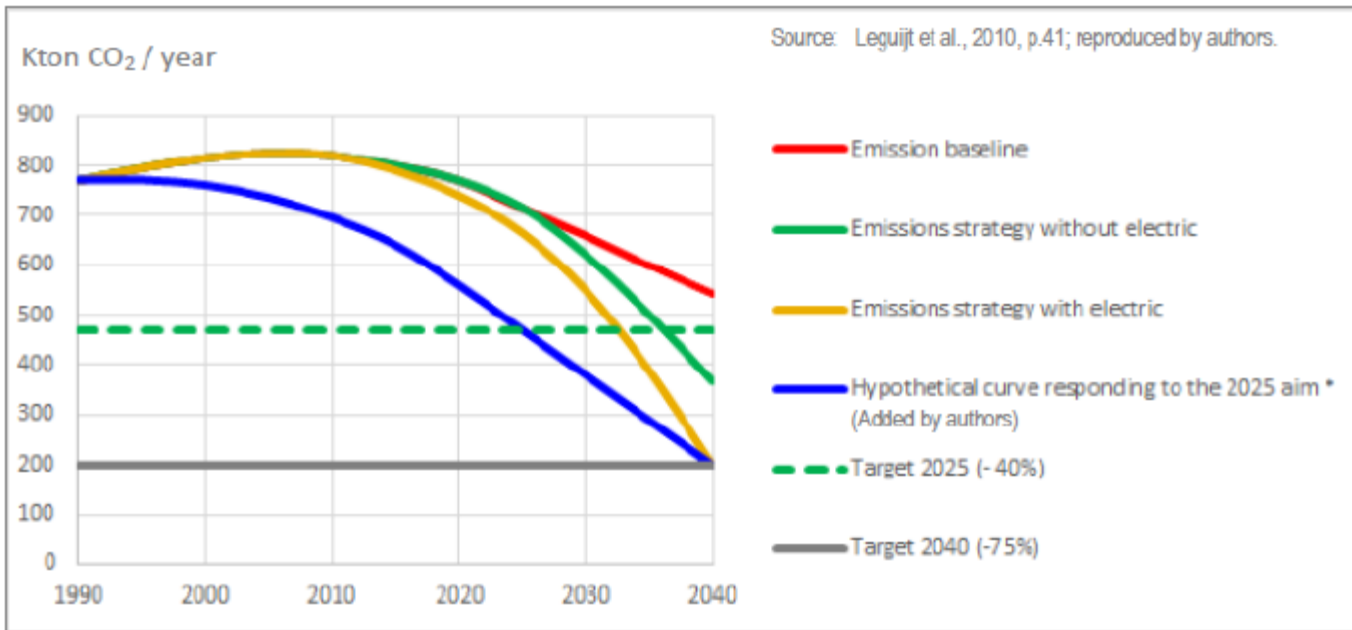
Measures	CO <sub>2</sub> -reduction		Place in following sheet
	kton	%	
<b>Focused on the short term (until 2015) *</b>	200	33	Reduction to the "baseline" and "strategic without electric"
• Car reduction policy			
• "Differentiation of parking fees", dependent on CO <sub>2</sub> -emissions of cars			
• Encouraging public transport and cycling			
• Bundling and concentrating goods flows			
• 80 kilometres/hour on national roads in Amsterdam			
• Integrating public transport policy in to spatial planning at new construction locations from the beginning	215	35	90% of the kilometres driven in the built-up area are electric in 2040 and 50% on the main roads
<b>Focused on the medium term (2015-2025) *</b>			
• Paying differently for mobility (in collaboration with central government)			
• Construction of more P+R locations			
• Use of hybrid buses			
• Energy optimisation of trams			
• Freight transport over water	50	8	"Strategic with electric"
<b>Focused on the long term (2025-2040 and beyond) *</b>			
• Carry out hydrogen roadmap for heavy transport			
• Bringing international shipping under EU ETS	150	24	
• Transition to electric transport			
<b>Total</b>	<b>615</b>	<b>100</b>	

\* The classification of measures in the short, medium or long term refers to the start of activities rather than the emergence of results and effects.

Source: The table is compiled on the basis of Leguijt et al., 2010, Table 4.



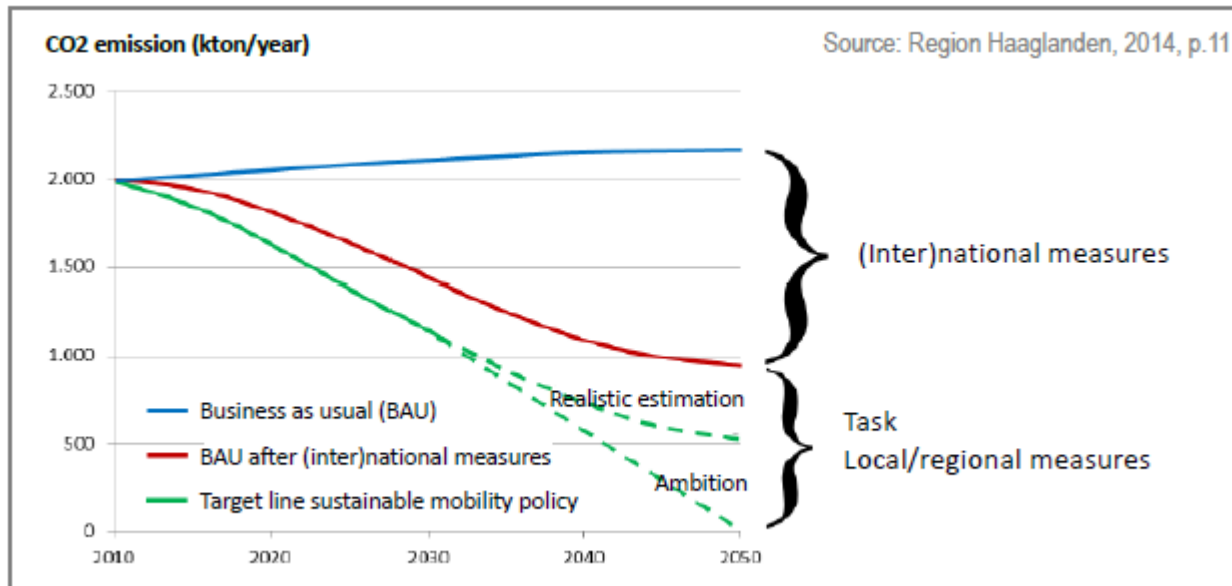
# Knowing how to achieve CO<sub>2</sub> reduction aims. Amsterdam (2011, 2)



# Knowing how to achieve CO<sub>2</sub> reduction aims. The Hague (2013)

	Type of measure	CO <sub>2</sub> (kton)	CO <sub>2</sub> (%)
1	Reduction through (inter)national measures	501	55
2	Reduction through 2 <sup>nd</sup> generation biofuels (also [inter]national)	77	8
3 = 1+2	<b>TOTAL REDUCTION THROUGH (INTER)NATIONAL MEASURES</b>	578	64
4	HNM * (without support such as road pricing, and until 2020)	24	3
5	Reduction through the HNM en HNM plus (local measures)	62	7
6	Reduction through task setting package (some very uncertain measures have been suggested)	246	27
7 = 4+5+6	<b>TOTAL REDUCTION THROUGH LOCAL MEASURES</b>	332	36
8 = 3+7	<b>TOTAL REDUCTION (result is zero emissions from mobility)</b>	910	100

# Knowing how to achieve CO2 reduction aims. Region The Hague (2014)



# Measure package in The Hague backcasting update (2018)

**Between 2015 and 2030:**

- **Green tenders (8.1 kton)**
- **Stimulating clean transport use by private individuals and businesses (8 kton)**
- **Steering modal shift with spatial policy and parking standards and parking fees (11.2 kton)**
- **Modal shift to bicycle and PT (45.9 kton)**
- **City logistics (2.9 kton)**
- **Environmental zone in the whole of The Hague (287.4 kton). This measure overlaps with the other ones**

# Measure package in The Hague backcasting update (2018)

Between 2015 and 2030:

- **Green tenders (8.1 kton)**
- **Stimulating clean transport use by private individuals and businesses (8 kton)**
- **Steering modal shift with spatial policy and parking standards and parking fees (11.2 kton)**
- **Modal shift to bicycle and PT (45.9 kton)**
- **City logistics (2.9 kton)**
- **Environmental zone in the whole of The Hague (287.4 kton). This measure overlaps with the other ones**

Only package varied in the study: climate neutrality requires doubling of rejuvenation speed of cars

# Measure package in The Hague after update

- **No adoption of backcasting findings in strategic mobility or spatial plans**

# Conclusions from G4 analysis



# Conclusions from G4 analysis (1)

- **Climate neutrality for 1,5° warming aim seems to be required by 2030**
- **Climate neutrality by 2030 seems to be an impossible mission**
- **But even with climate neutrality in 2050 there remain uncertainties:**
  - With which measures to achieve the last 25% of reduction ?
  - How to reduce the rejuvenation time of cars and accelerate share of electric cars ?
  - Is there sufficient modal shift to justify the expansion of environmental zones in the city ?
  - Can strengthening of the compact city sufficiently take place socially inclusive ?
  - How to finance the required investments and operational costs (especially PT) ?

# Conclusions from G4 analysis (2)

- **Amsterdam has started new strategic policy cycle, focussing on 2050 = step 5 of the policy framework**
- **The Hague currently refuses to carry out step 4 of the policy framework**
- **Rotterdam and Utrecht still have not published work responding to step 3 of the policy framework**
- **Study strengthens the ideas that working with only good intentions and no orientation is no option**



**2050**  
**CliMobCity**  
Interreg Europe



European Union  
European Regional  
Development Fund

**Thank you!**

Questions welcome



*Project smedia*