

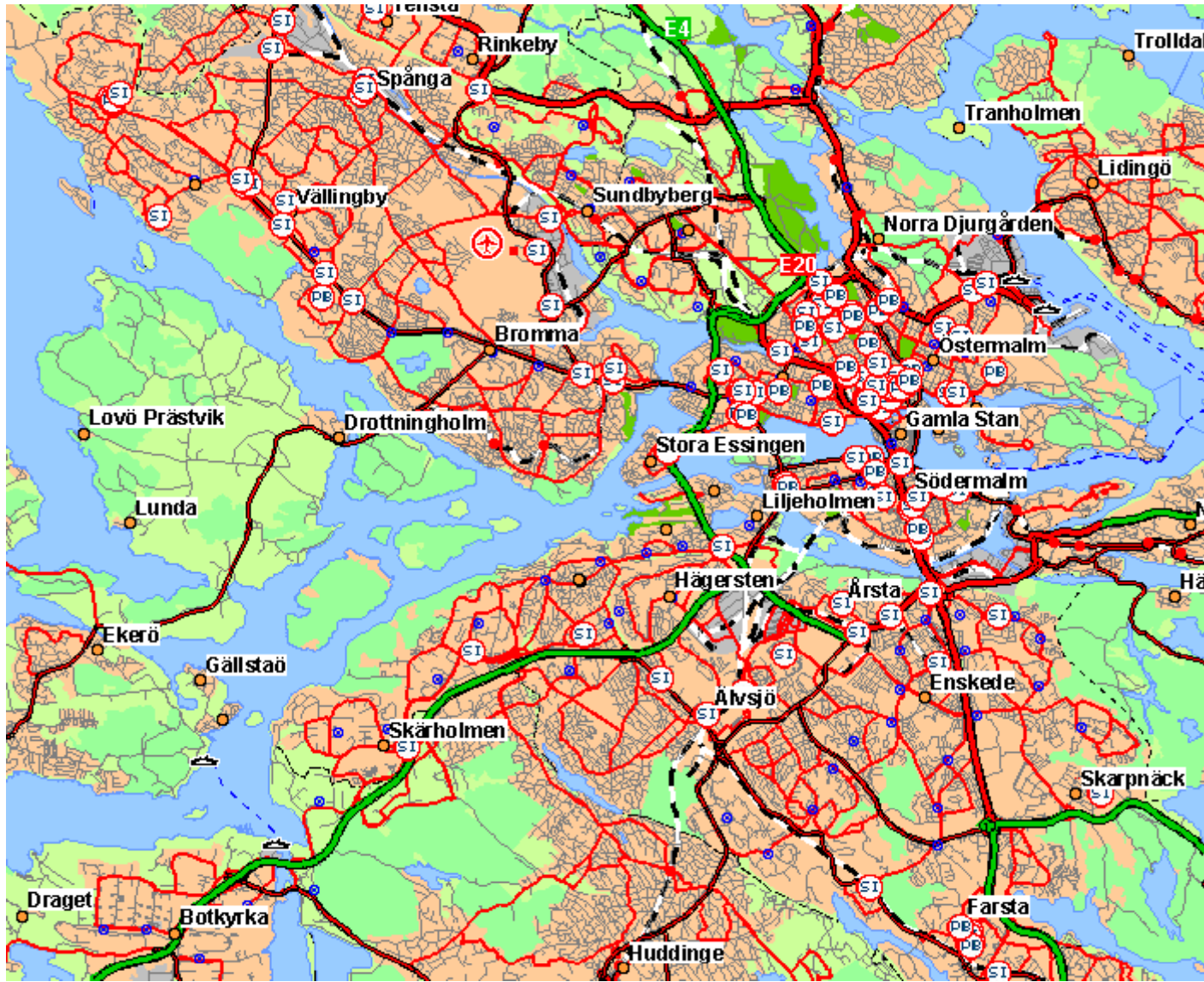
Bypass Stockholm

Marianne Klint

2010-10-21

UNITED
BY OUR
DIFFERENCE





Essingeleden

160 000 vehicles/day

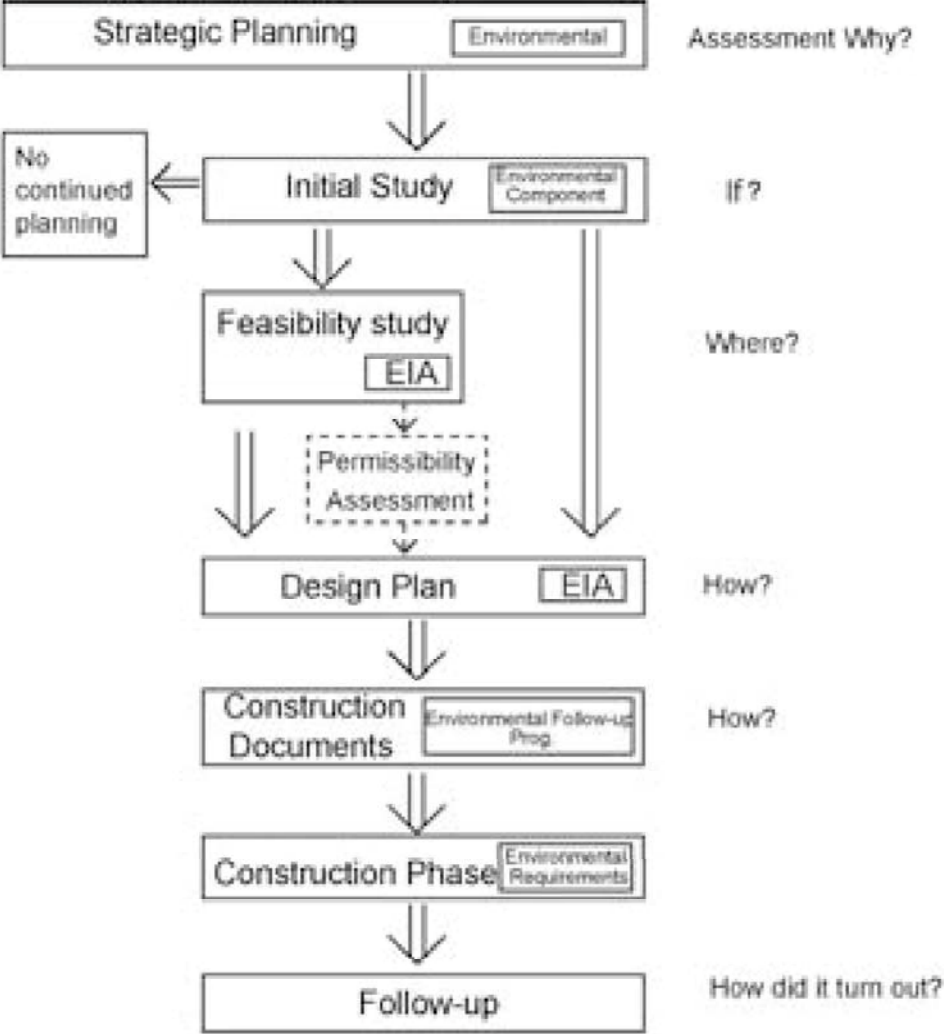




Bypass Stockholm

- **Total length:** 21 km
- **Tunnel:** 17 km
- 3 lanes in each direction
- Separate tunnels north and south
- 140 000 vehicles/day 2035

Road planning process in Sweden



EIA Guidelines for Road Planning

Assessment of the effects of CO₂-emissions, and the possibilities of contributing to “long-lasting sustainable development”, are more relevant at system level for a larger urban area or a region than for a single road project.

Initial study for Bypass Stockholm, 2001

- Growth of traffic of different alternatives: Bypass Stockholm 5 %, other alternatives: 1-2 %. This increases the emissions of CO₂.
- Less traffic jam leads to less emission of CO₂ on existing roads. The differences in CO₂-emission of the alternatives is therefore less than traffic growth
- Climate change is not mentioned
- Direction of EIA for Feasability study does not list CO₂ or Climate impact

Feasibility study, 2002-2006

- Result of the Early consultation of Initial study:

The County Administration Board used a special paragraph in the Environmental Code: "required an analysis of other comparable ways to reach the goal of the project"

- Alternative of combination
Combination of:
 1. Minor road constructions
 2. A new regional railway between the north and south of Stockholm
 3. Congestion charging tolls
 4. Cheaper public transport

Bypass Stockholm

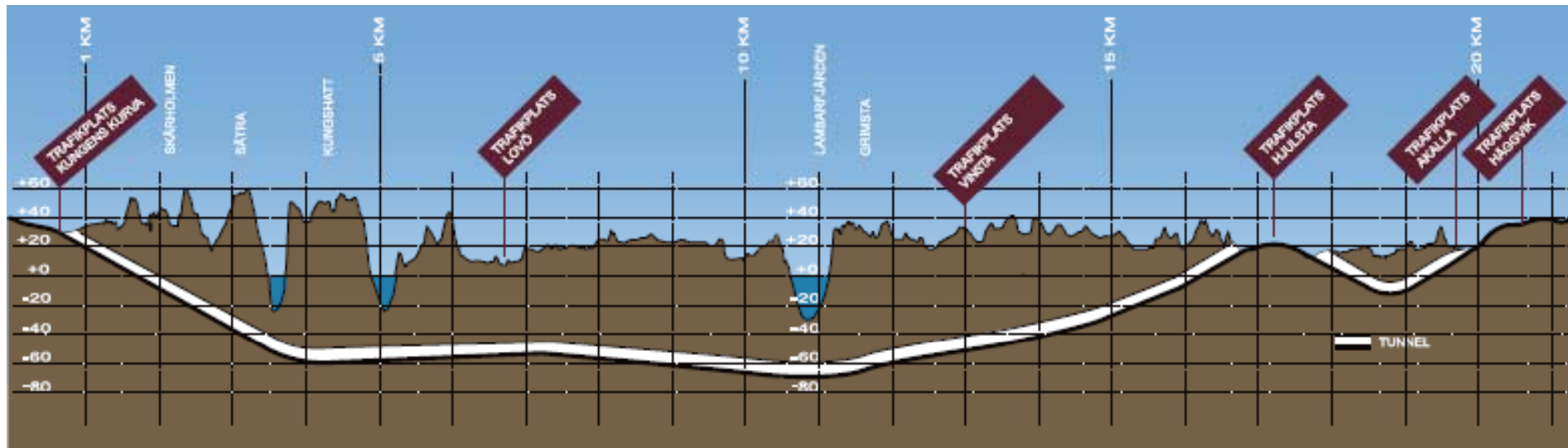


- Planned since 1960's

Conflicts:

1. Big impact on valuable cultural and natural environments
2. Big impact on green areas used for recreation
3. Conflict with housing environment

17 of 21 km in tunnel



Emissions of carbon dioxide, County of Stockholm

Alternative	Traffic, million km	Emission of CO ₂ , thousand tons	Difference from Do- nothing alternative, thousand tons
Year 2000	9 510	2 330	- 440
Do-nothing alternative, 2015	13 270	2 770	0
Bypass Stockholm, 2015	13 870	2 900	+ 130
Ulvsunda Diagonal, 2015	13 930	2 910	+ 140
Combination Alternative, 2015	12 500	2 600	- 160

Result of EIA of Feasibility study

- Longer parts in tunnel → more CO₂-emission for constructing, running and in maintaining the tunnel (ventilation, light etc)
- More focus on CO₂-emission and Climate impact
- States that Bypass Stockholm works against the Climate goal and that the Combination alternative supports the goal

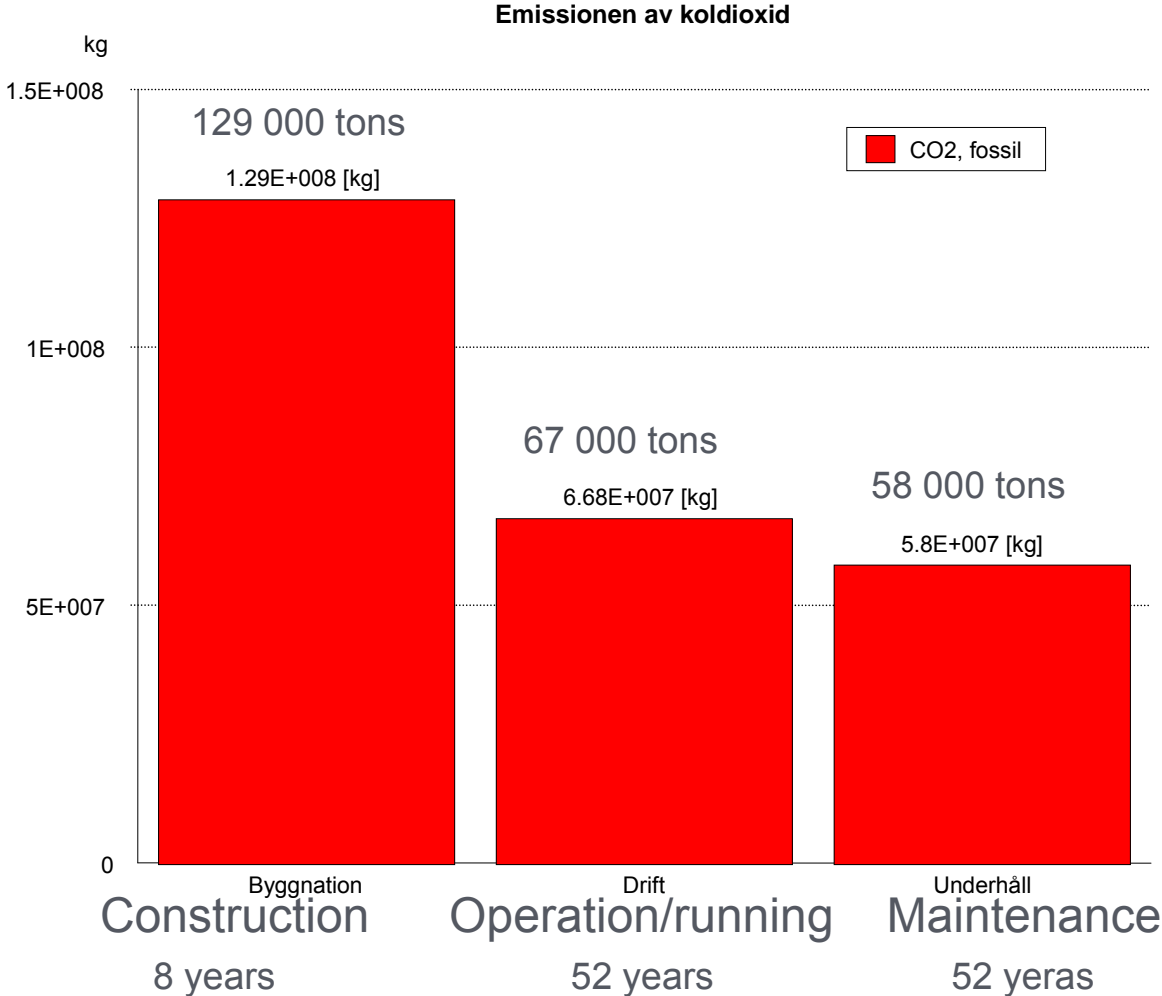
Permissibility Assessment

– requirements of more studies

An up-to-date description, including the environmental consequences, of calculated use of energy and emission of greenhouse gases. The study should include construction, running and maintenance of the tunnel.

It should be specified how the project affects the possibility to reach the national Goal of Climate.

Study of emissions from construction and maintenance



Total: 60 years:
254 000 tons CO2

With today's
Swedish production
of electricity

Study of CO2-emission from traffic

- New, more accurate, calculations
 1. Calculation from Feasibility study (2015): 130 000 tons more
 2. Economic Analysis (2015): 2 000 tons less CO2-emission
 3. General Planning of Transport System in Sweden (2020): 56 000 tons more
 4. Calculation in Road Design plan (2035): 12 000 tons more
- Bypass Stockholm works against the Climate Goal. Reaching the goal requires other measurements.

Analysis shows that it is possible to reach the climate goal with Bypass Stockholm, but only by using strong economic regulations in traffic

Permissibility Assessment

- Approvement of Bypass Stockholm in september 2009
- Bypass Stockholm is build for the vehicles of the future. In the future Sweden will have cars with no emission of CO2
- Bypass Stockholm is an environmental project

Road Design – Sensitivity Analysis

	Traffic in region, compared to 2007	Traffic in region, compared to main scenario	Traffic on Bypass Stockholm	CO2- emissions, million tons	CO2,less than 1990
2007				2,4	10 %
Do-nothing	+ 64 %	- 3 %		2,24	16 %
Do-nothing, area tolls, economic regulations	+ 40 %	- 17 %		1,86	31 %
Bypass St. main scenario	+ 70 %		140 000	2,26	16 %
Bypass St, fuel expensive	+ 59 %	- 7 %		2,13	20 %
Byp. St. area tolls	+ 52 %	- 10 %		2,03	24 %
Byp. St. area tolls, ec regulations	+ 43 %	- 20 %	110 000	1,89	29 %
Strong economic regulations	- 33 %	- 60 %	60-70 000	0,92	65 %

Climate Goals

	Year	Climate Goal
National goal	2020	- 27 %
Regional goal for traffic	2030	- 30 %
National vision	2050	No emission of green house gases
2-degree goal, ambition for industrial countries	2050	- 80 %

Road Design, 2008-2011

- Dealing with climate issues in the Road Design phase
 - Is it necessary with 3 lanes in each direction ?
 - Adaptation
- Too late to contribute to a sustainable transport system

Why wasn't the Combination Alternative successful?

1. Road Administration responsible, Railway Administration not involved
2. Goal of the project: Create a bypass for longdistance vehicles
3. Calculations of traffic did not capture the structural effect of a new motorway
 - same assumption of new settlements, no consideration of urban sprawl
 - no consideration of "free space in roads" makes people use the car more
4. No economic frame for new infrastructure
5. Comparison with global, national and regional CO₂-emission
→ small increase
6. Uncertainty of the development of vehicle, future emissions of CO₂
7. The Initial and Feasibility study were mainly carried out before the Climate issue reached the attention that it has now.

Has the climate issue had any impact on the project
Bypass Stockholm?

Thank you for your attention!