

Road Tolling in Norway – a brief introduction



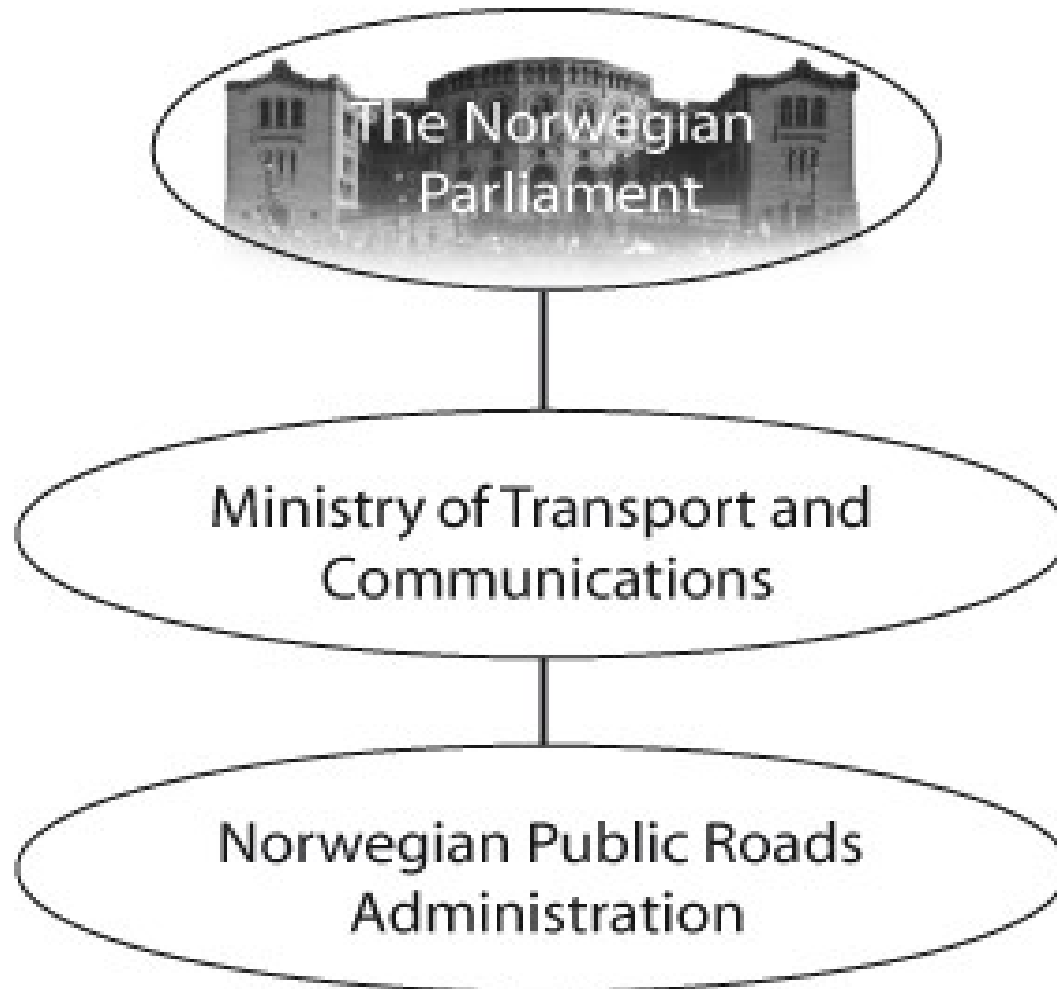
Oslo City Hall

Astrid Fortun

Chief Engineer

**Norwegian Public Roads Administration
(NPRA)**

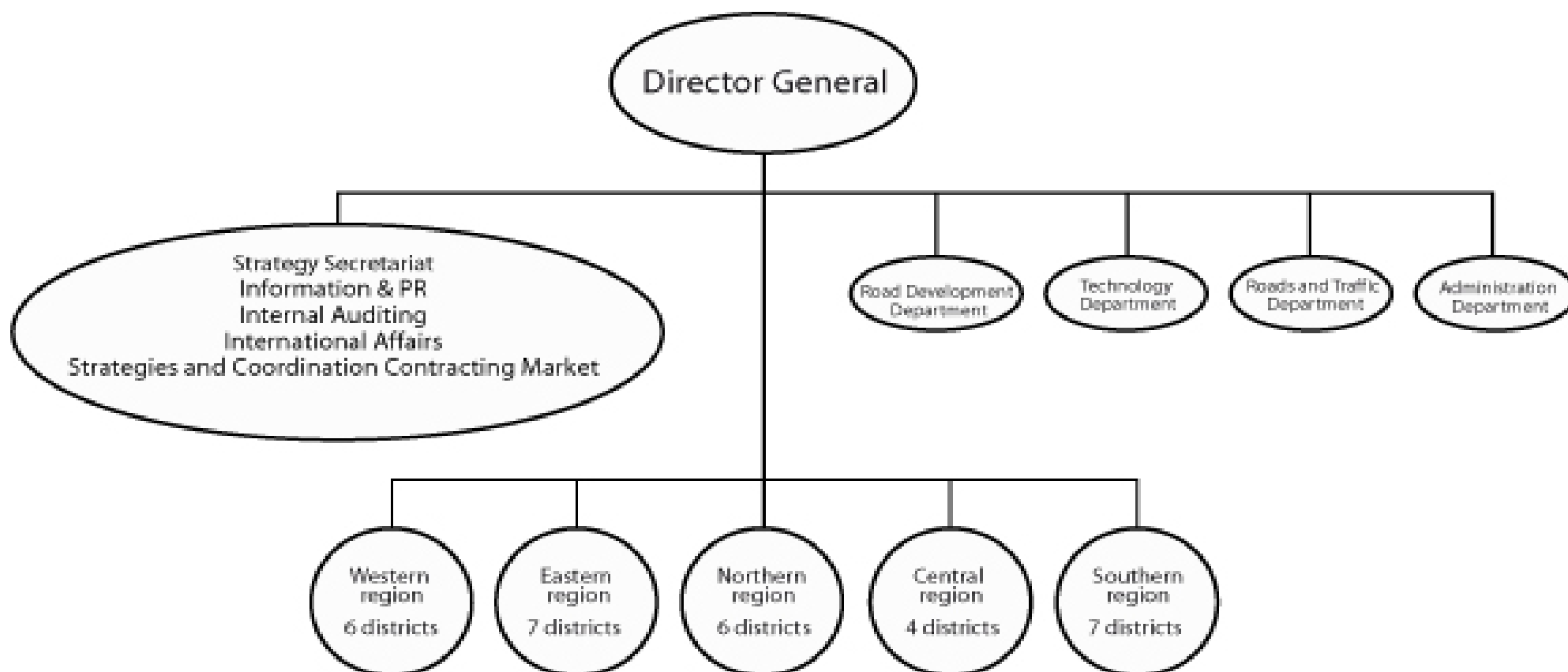
Governmental Organization



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NPRA Organization



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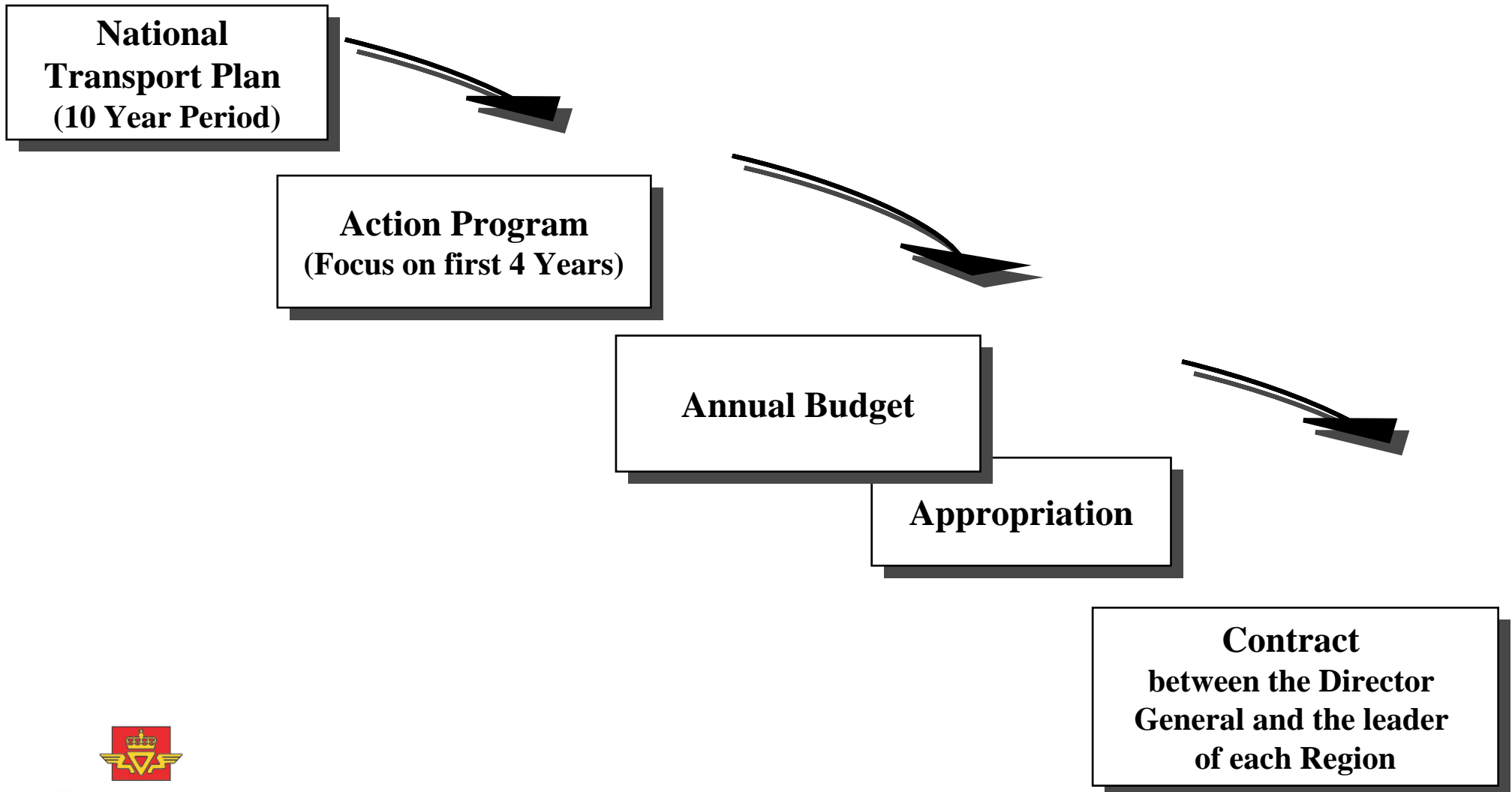
NPRA is divided into 5 regions



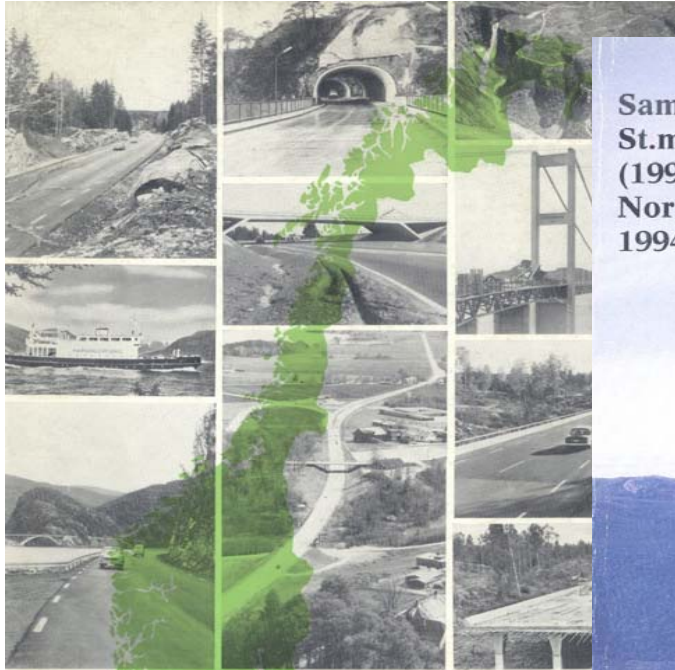
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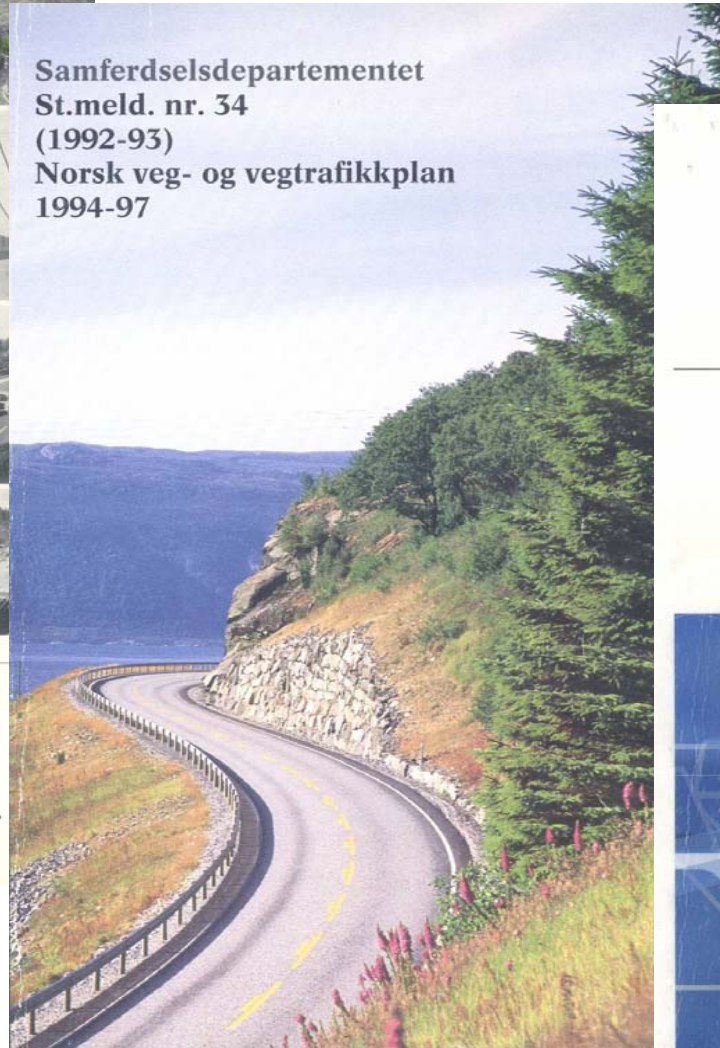
Official Management Documents



From Road Plan to Road Traffic Plan and Transport Plan



Samferdselsdepartementet
St.meld. nr. 34
(1992-93)
Norsk veg- og vegtrafikkplan
1994-97



NORSK VEGPLAN
THE NORWEGIAN NATIONAL ROAD PLAN
MAIN FEATURES OF THE FINAL REPORT
DECEMBER 1969



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St.meld. nr. 24
(2003-2004)

Nasjonal transportplan 2006-2015



Road tolling in Norway (1)

- Norway has **70 years** of road tolling experience to finance expensive infrastructure
- More than **100** road toll projects are **implemented**
- **44** road toll projects are in operation **today**, including **6** urban toll rings
- Norway has been a **pioneering** country in developing **cost efficient** road tolling



Road tolling in Norway (2)

- Up to the middle of the 1980's bridges (and tunnels) **in rural areas** dominated, and state funds constituted the main financing
- From the middle of the 1980's there has been a development of toll projects on the **main road network** as well as in **urban areas**



Road tolling in Norway (3)

- The main purpose of road tolling in Norway is to **raise funds** for infrastructure, not to regulate traffic
- Road tolls revenues have been growing rapidly during the last 20 years
 - Since the end of the 1980's road toll revenues have amounted to approximately **30 %** of the total funding for development of the national road network
 - In the action program for the period 2006-2009 road toll revenues is estimated to approximately **45%**



National Roads, Investments 2007

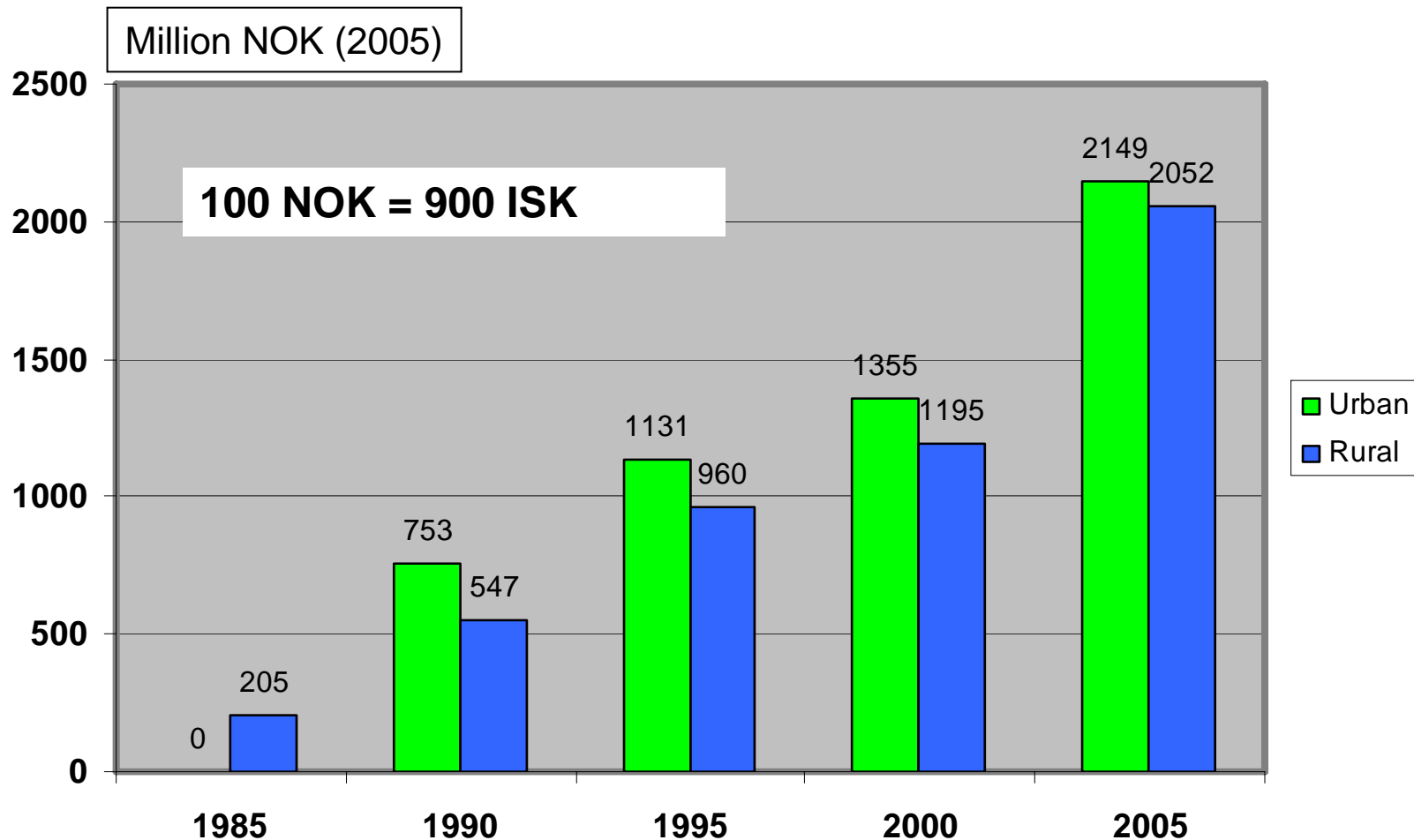
State funds: 6,6 bill. NOK

Toll financing: 4,8 bill. NOK (42 %)

Total: 11,4 bill. NOK



Road toll revenues have been growing rapidly during the last 20 years

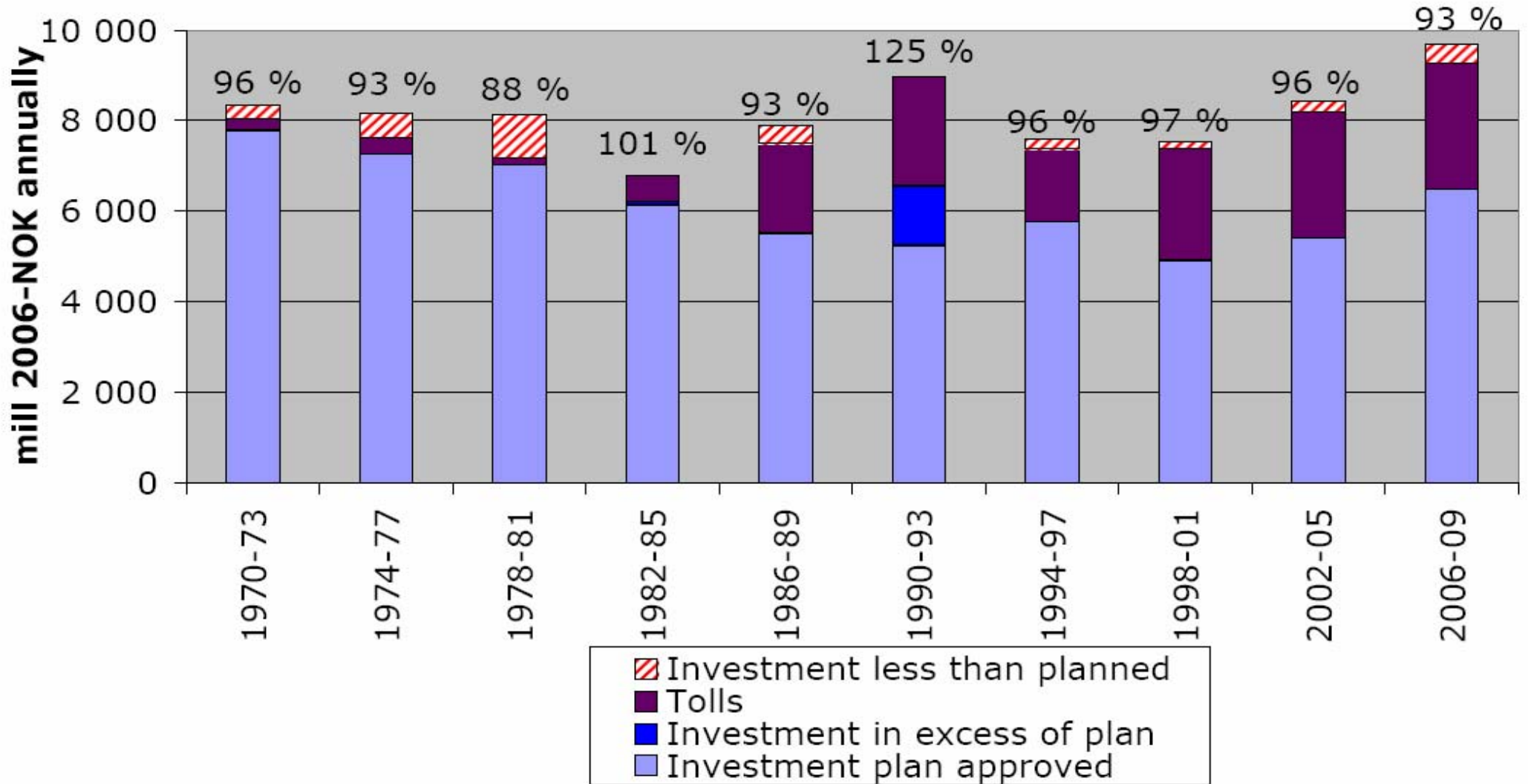


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Road investments 1970-2006

– planned and actual appropriations + tolls



Principles and national policies (1)

- All user charge projects are based on local initiative and **local approval**
 - All toll projects must be approved by The Parliament
- The **benefit principle**:
 - Those who pay shall benefit from the system (directly or indirectly)
 - Those who benefit shall pay
- Toll plazas on the parallel road network only in exceptional cases



Principles and national policies (2)

- The period of toll collection is normally limited to **15 years**, but may be increased to 20 years in particular cases
- Normally at least **50 %** of construction costs are to be financed by tolls
- Road toll projects must be viewed in connection with other projects when working out the **National Transport Plan** (must not jump the queue)



Principles and national policies (3)

- Collection of toll fees **after** the road is completed shall be the main rule
 - **Parallel** collection is acceptable in city packages
 - **Advance** collection current in ferry connection projects
- **Approved zone plan** for the project must be available
 - Exception for city areas/packages with several projects



Principles and national policies (4)

- Responsibility for **cost increases**
 - Single projects: The state has the responsibility for all cost increases above 10%
 - Packages: the contents of the package is adjusted to the financing programme
- Consequences of **insufficient toll revenue**
 - Increasing the toll period by up to 5 years
 - Increasing the toll fee by up to 20 %



Rate and discount system

- The fees should not exceed the **savings** for the road users
 - For ferry connection projects a 40 % increase in the ferry fee is acceptable
- The rate and discount system shall be **simple**:
 - Two groups of fees (light and heavy vehicles)
 - Exemption for motor cycles, el-vehicles, passengers, public transport etc.
 - Discounts of 30-50 %, depending on number of passes
- **Time differentiated fees** in city areas (rush hour fee)
- As a main rule the fees are adjusted in accordance with the **general price increase**



The Collection company

- Normally the company is organised as a **limited company** where the majority is owned by local authorities. The enterprise is controlled through **agreements** between the company and the state
- The company must raise the necessary funds to cover their obligations at the lowest possible cost (borrowing/toll collection).
- The company can not engage in other lines of business
- Separate toll collection companies for each project/scheme



Urban toll rings in Norway

City	Plazas	Start	End	Pop. in ar.	In op.*	AADT**	EFC %	Tags	NOK/Pcu
Bergen 1	8	1986	2004	300'	16/5	60'	-	-	5-10
Oslo	19	1990	2012	900'	24/7	250'	83	400'	10-20
Trondheim	12 17 23	1991 1998 2003	2005	250'	11/5 12/5	100'	95	150'	10 15
Kristiansand	5	1997	2007	100'	24/7	55'	84	30'	10
Stavanger	21	2001	2011	230'	12/5	150'	91	110'	<u>5/10</u>
Namsos	3	2003	2017	15'	12/5	7'	89	10'	13
Tønsberg	6	2004	2019	50'	24/7	50'	86	35'	15
Bergen 2	8	2004	2014	300'	24/6	100'	87	105'	15

' figure in thousands

* Hours a day and days a week

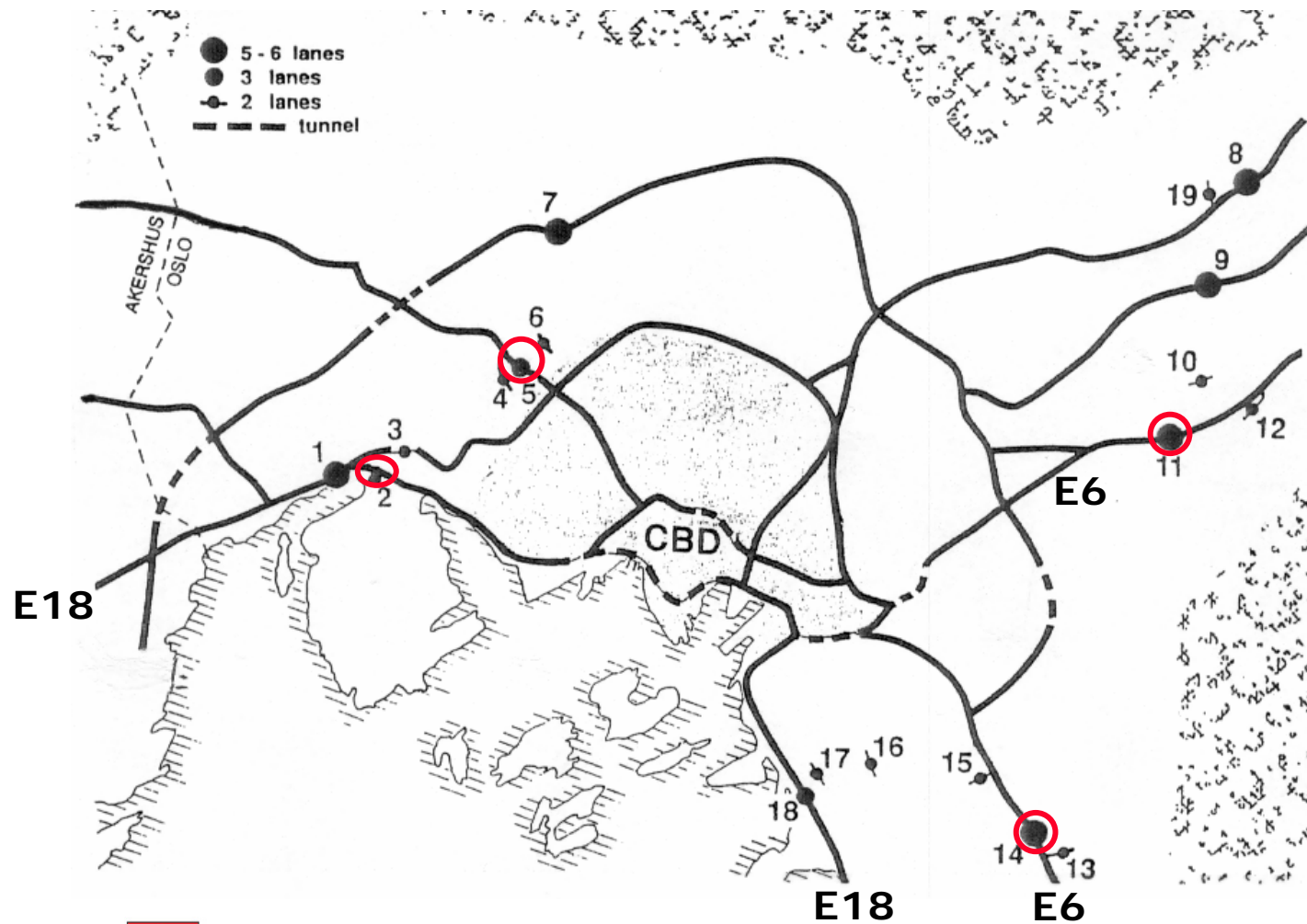
** During hours of operation



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Oslo Toll Ring



- **Why?: To build 50 pre-defined projects in 10 instead of 35 years with state funds only**
- **Users contribute with 55% of funding**
- **The toll ring covers all roads in three corridors**
- **50 % of Oslos population live outside the toll ring**



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What do we get?

The major projects in the Oslo Package 1 are urban road tunnels

The most important of those is Festnings-tunnelen (The Castle Tunnel) below City Hall Square: 6 lanes, 1,6 km long, cost 2 bill. NOK

It was important for the acceptance of the toll scheme that the Castle Tunnel opened 2 weeks before the toll collection started.



The City Hall Square is here → X



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The City Hall Square before opening The Castle Tunnel

Photo: Mari Kollandsrud, Riksantikvaren



The City Hall Square after opening The Castle Tunnel

- The AADT was reduced from 90 000 to 0 vehicles
- New tram line opened
- A new plaza for walking, festivals and exhibitions



Photo: Mari Kollandsrud, Riksantikvaren



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The City Hall Street before opening The Castle Tunnel



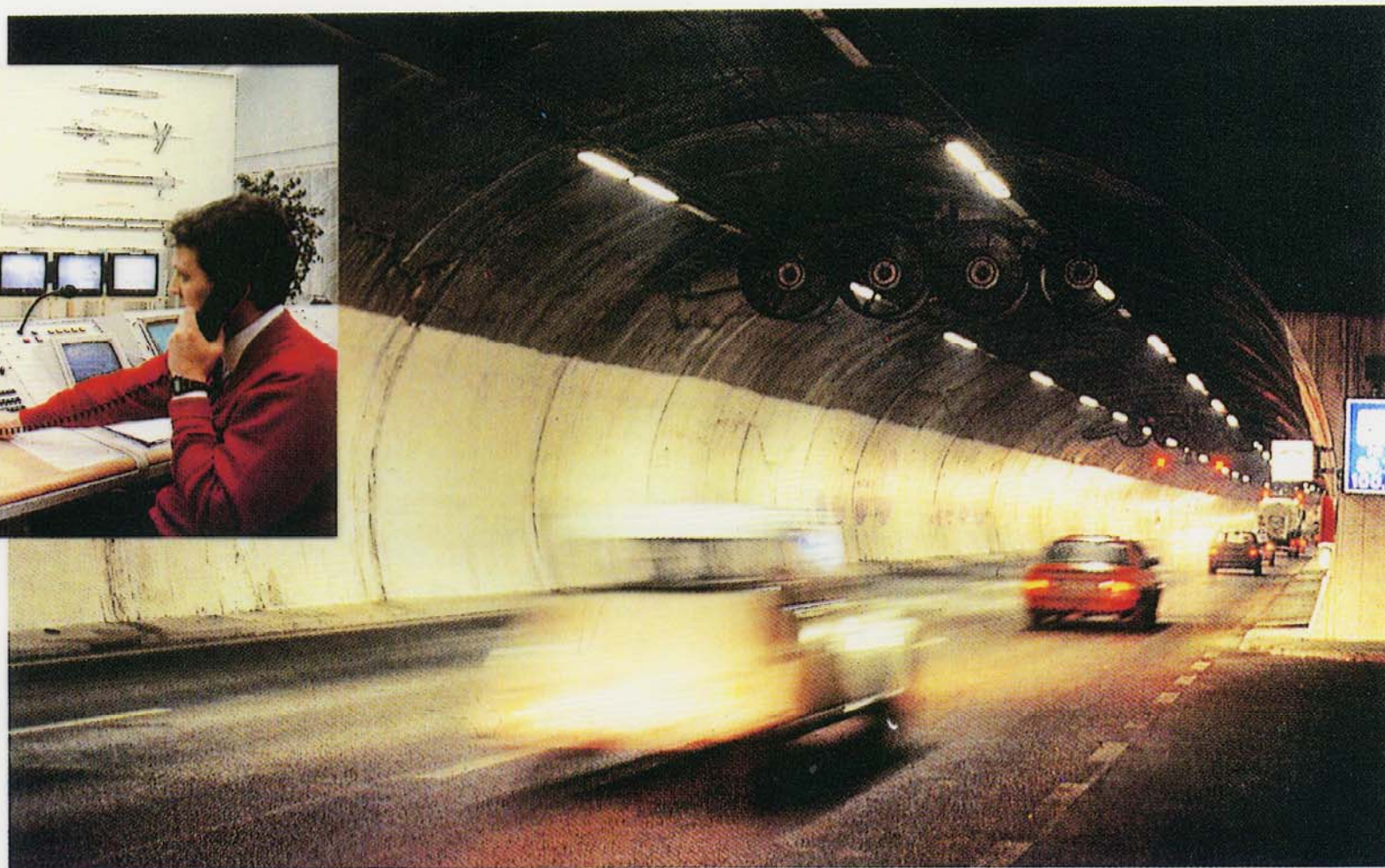
The City Hall Street after opening The Castle Tunnel



The traffic goes here (down to -45 m)



This traffic control centre for Oslo employs advanced systems for managing vehicle movement in the Oslo Tunnel and large parts of the main highway system around the capital.



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Oslo Toll Ring Experiences

- Reduced delay due to removal of bottlenecks
- Reduced overall traffic 3-5 %
- Increased public transport 6-9 %
- Road space above ground available for other uses
- Removed barrier effects from the surface street network
- Reduced noise from above ground traffic
- Less pollution (high chimneys, filtering)
- Improved traffic safety



AutoPASS



- A technical specification for electronic tags (EFC) owned by NPRA
- Independent of industry and open to all from 1999
- In full compliance with CEN and ETSI standards for DSRC
- 1,3 million tags in use
- National interoperability from Febr. 2004 and presently used in 25 toll projects
- Nordic interoperability from Febr. 2007



NorITS (Nordic Interoperability for Tolling Systems)



“No stop toll plazas” – the newest concept

- Drivers without AutoPASS will be videoed and billed monthly for the exact fee
- In Bergen and Tønsberg since February 2004
- The picture shows pilot station in Tønsberg



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Future toll financing on the trunk road network

- Development of the trunk road network to be viewed as a whole, and implemented more efficiently
 - **Continuous** development of the network over a **longer distance**
 - Automatic toll plazas on each road section – collection of toll for max 15 years in each plaza after the section is completed
 - To a larger extent **payment according to the length of road distance driven**



Rush hour fee/road pricing (1)

- We have **legal authority** to introduce road pricing for the purpose of traffic control
 - The objective is **traffic control** to reduce queue problems and improve local environmental conditions
 - As a main rule **local political support** is needed – the Parliament makes a binding resolution
 - The revenue is to be used for **transportation purposes** in the area
 - The funds are to be shared between the state and local authorities
 - It is not considered natural to give the arrangement a limited duration



Rush hour fee/road pricing (2)

- **Regulations** regarding establishing the size of fees, distribution of net revenue etc, have not been worked out
- No cities have taken the initiative to introduce the system, but
- locally there is a proposition of an **Oslo package 3** where part of the revenue is presumed to be used for public transport operation



Rush hour fee/road pricing (3)

- We have **toll rings** around most of the largest Norwegian cities (Oslo, Bergen, Stavanger)
- A considerable part of the revenue from the toll rings is used to finance infrastructure measures for **public transport**
- It is possible to introduce **time differentiated toll fees**



Public Private Partnership (PPP)

- In 2001 Stortinget approved the National Transport Plan 2002-2011 including **three** road projects as pilot projects to test the PPP-model
- Stortinget wanted to **test** whether the PPP-model is a more efficient way of developing road service than through traditional development
- Stortinget also wanted to test whether PPP allows political influence and public control



E39 Klett – Bårdshaug

- **Size:**
30 km (22 km new built road section, including 10 km tunnels)
- **Contract signed with Orkdalsvegen A/S**
(Skanska BOT and Laing Roads Ltd)
www.orkdalsvegen.no
- **Status:**
Operating
Opened 30 June 2005 - two months ahead schedule



E39 Klett - Bårdshaug



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E39 Lyngdal - Flekkefjord

- **Size:**
30 km (18 km new road, including 9 km tunnel and Feda suspension bridge 570 m)
- **Contract signed with Allfarveg AS**
(Veidekke AS and Sundt AS)
www.allfarveg.no
- **Status:**
Operating
Opened 30 August 2006 - on schedule



E18 Grimstad – Kristiansand

- **Size:**
38 km of new build four lane motorway
Investment element about 3.0 billion NOK
- **Contract signed with Agder OPS Vegselskap**
(BilfingerBerger, Sundt AS and Pihl & Son)
- **Status:**
Under Construction
Will open in 2008 and 2009



E18 Grimstad – Kristiansand



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The Norwegian PPP Road Program

- The selected PPP Company is given the full responsibility for **designing, constructing, building, financing and operating** a road section on behalf of the NPRA for 20-30 years.



PPP Model

- **Payments**
 - No payments before the road is open
 - A base annual payment linked to delivery of service. The Payment mechanism defines the actual payment
- **Risk transfer**
 - Delivery of service to agreed specifications
 - No transfer of traffic income risk
- **Hand back**
 - Hand back to the operation of NPRA after 25 years of operation at defined technical specification



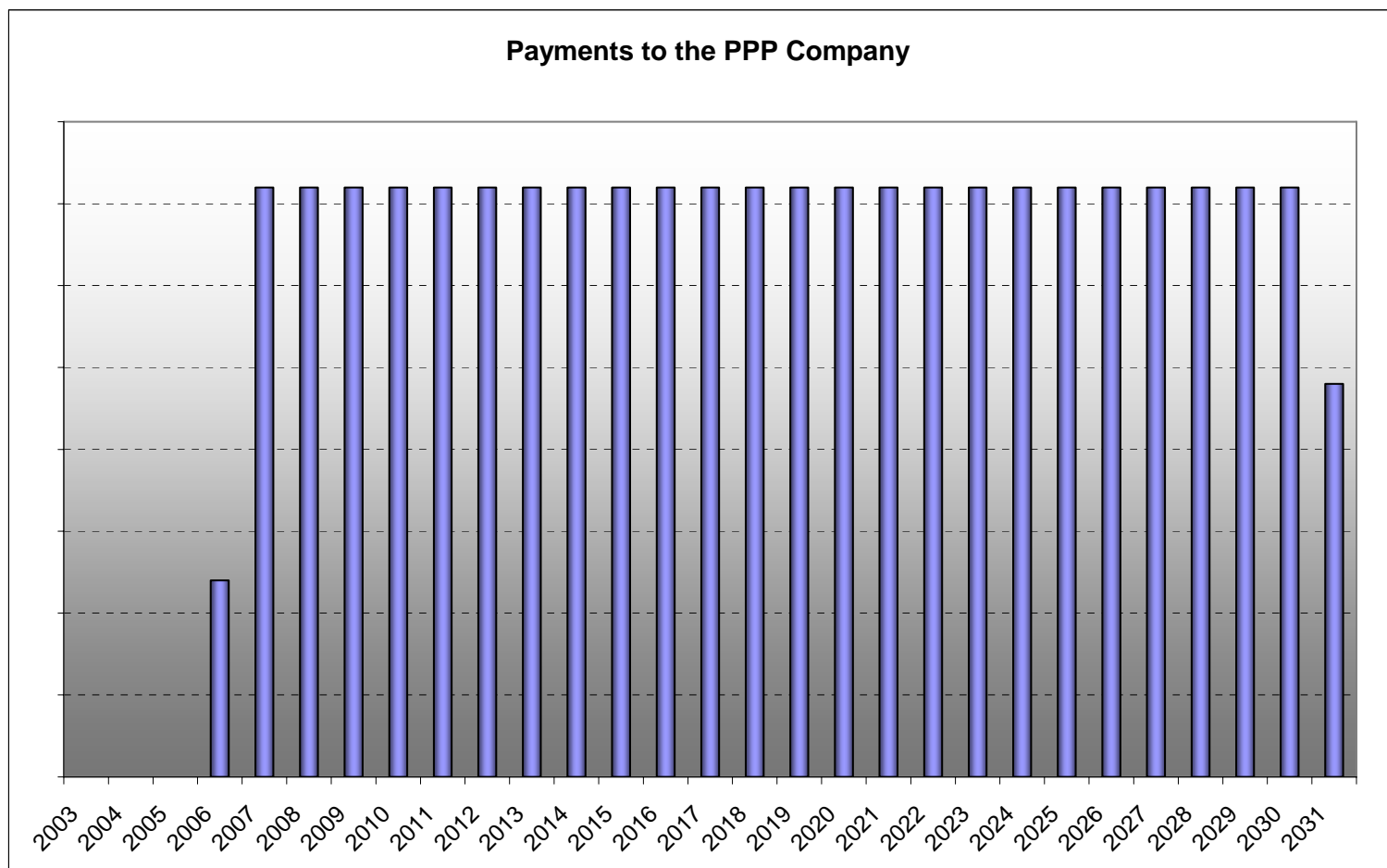
Payment mechanism

Linking payment to delivery:

- **Availability** Payment
 - Linked to the road being open and available
- **Maintenance Monitoring** Payment
 - Linked to the output specification of road delivery: friction, visibility of signposts, air quality in tunnels, winter maintenance etc.
- **Safety bonus** linked to the number and seriousness of accidents
- Compensation for **unexpected traffic volumes**



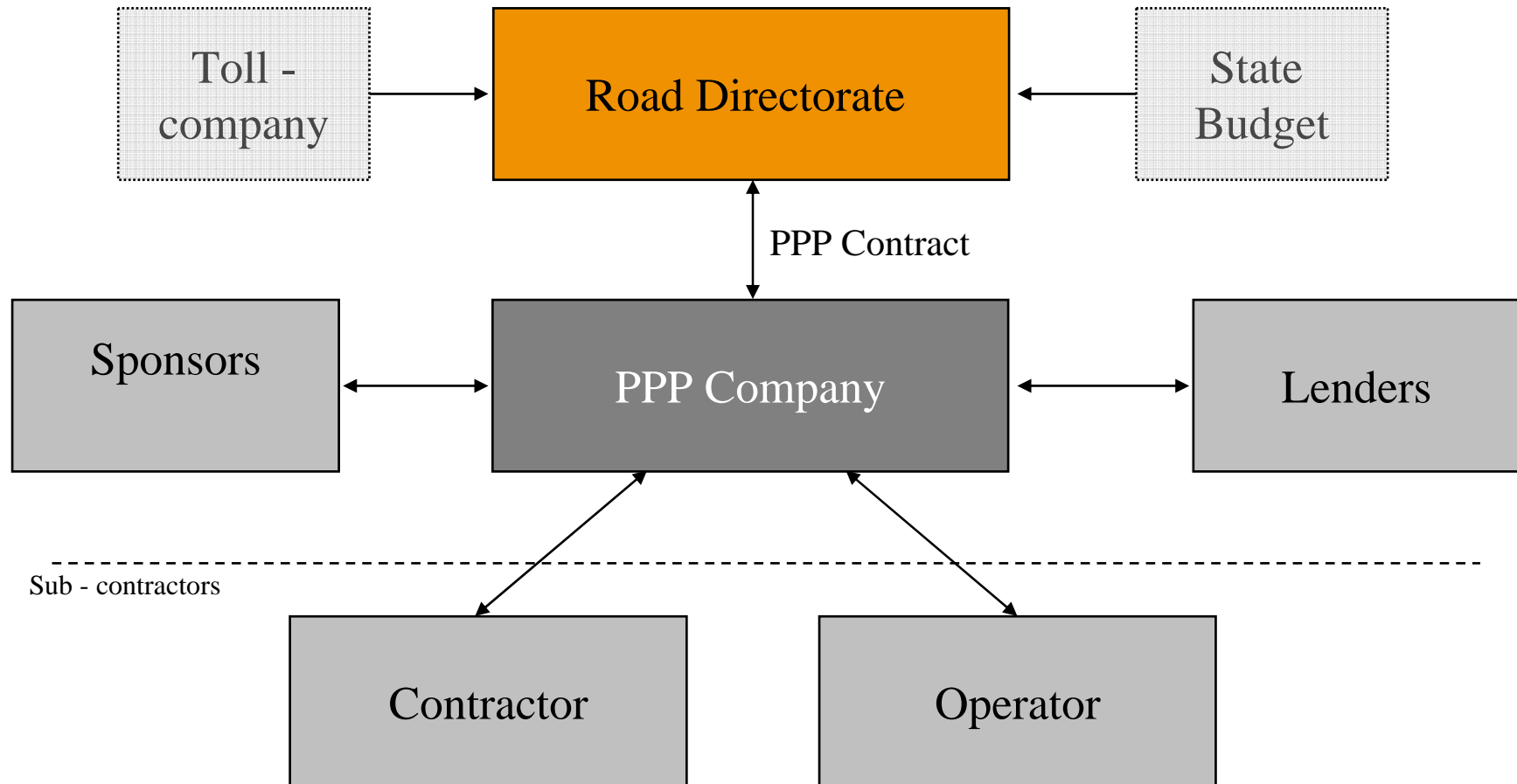
General Payment profile



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PPP Structure



Final approval by Stortinget

- **White Paper to Stortinget based on:**
 - **Approved development plan and EIA**
 - **Calculation of investments costs**
 - **Calculation of operation and maintenance costs**
 - **Estimates of annual payment to the PPP Company**
 - **Financing plan based on toll income and state budget funding**



Procurement process

Months
from OJEC

Advertisement OJEC	0
Open Day	1
Pre-qualification deadline	3
Appointment of pre-qualified bidders (short list)	4
Invitation to tender	4
Tender submission deadline	10
Appointment of bidders for BAFO	11 ½
BAFO tender documents	12 ½
BAFO submission deadline	14
Appointment of preferred bidder	15
Financial close	18



Thank you for your attention!

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