

Regional experiences of Electronic Fee Collection for Heavy Vehicles

Report from a study tour in May 2007



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East West TC

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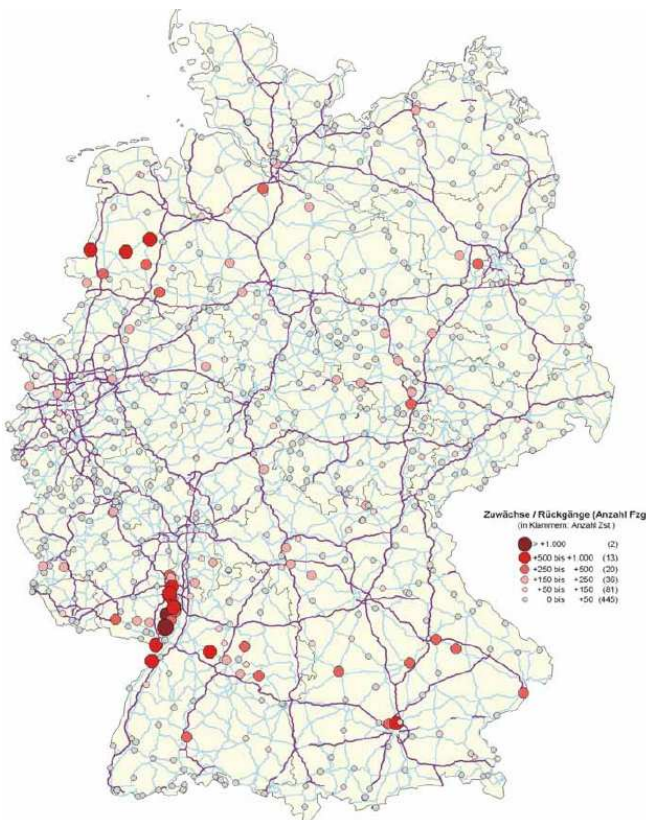
Regional experiences of Electronic Fee Collection for Heavy Vehicles - report from a study tour in May 2007

This is a report from a study tour to Germany and Switzerland undertaken as part of WP 2 ITS as a tool for innovative actions in the corridor with a focus on "Regional aspects on electronic fee collection for heavy vehicles" of the East –West project supported through the Interreg III B programme (www.eastwest-tc.org) . The aim of the tour was to study regional experiences of the introduction of electronic fee collection (EFC) for heavy vehicles in Germany and Switzerland. The focus is on regional impacts of for example changes in traffic volumes, modal split, speed levels, noise, pollution, deviations to the secondary system, reactions among the public, the opinions of the local road haulage industry, regional economics etc.

Thursday 24 May 2007

Jürgen Menge, Ministerialrat Verkehrssicherheit und Straßenbetrieb, Ministerium für Wirtschaft, Verkehr, Landwirtschaft und Weinbau, Stiftsstrasse 9, DE 55116 Mainz, Tel +49 6131 16 22 75,

The German "Maut" for heavy vehicles (>12 tonnes total weight) on the motorway network was introduced on 1 January 2005. During the first months the regional authorities responsible for the traffic management on the roads outside the motorway network received a substantial number of protests from the public due to trucks deviating from the motorways to parallel non-tolled roads. A nationwide survey identified a number of "hot spots" with a substantial increase in truck traffic between 2004 and 2005. Several of those spots were located in the Land of Rheinland-Pfalz. The black dots on the map to the left indicate an increase of more than 1000 trucks per day. The red dots show an increase of between 500-1000 trucks per day.



The documented increase together with the public pressure for counter measures caused the federal ministry of transport to initiate a review of the tolled network in order to find out if also non-motorway links should be included. Such an extension is possible according the "Autobahnmautgesetzes" (Maut-regulation), but only if it can be shown that traffic safety is jeopardized. Increase in noise or emissions are not valid reasons for adding a non-motorway link to the network.

Till the end of 2006 the Länder assessed the problems and evaluated different types countermeasures which basically were of three types:

- 1) Inclusion of the link or a part thereof in the Mautnetwork. However, such a measure could be considered as a discrimination of non-German trucks by the European Commission, because

the German truck tax was reduced when the Maut was introduced.

2) Prohibiting trucks with a total weight of more than 7,5 tonnes on the link during certain periods of the day or the night. Delivery traffic and residents excepted.



3) Prohibiting through traffic of trucks with a total weight of more than 12 tonnes where the transport distance from origin to destination is more than 75 km.

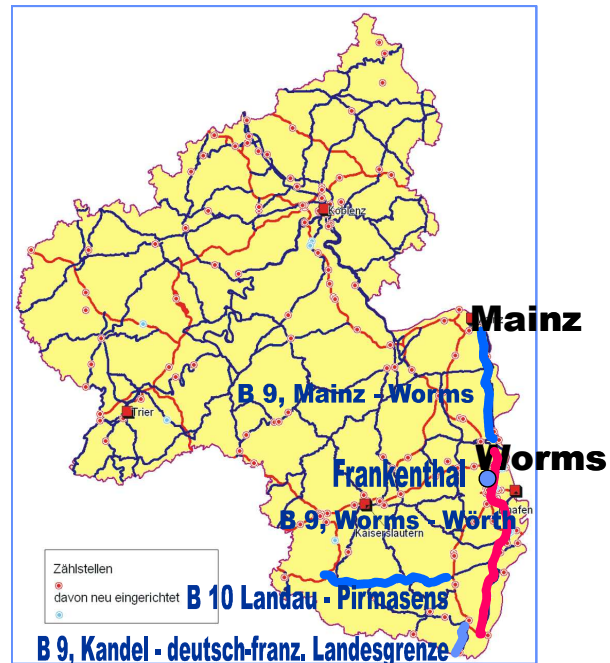


At the end of 2006 the review resulted in 3 new links being included in the Maut network. The decision was taken by the German government after consultation with the European Commission.

Three cases

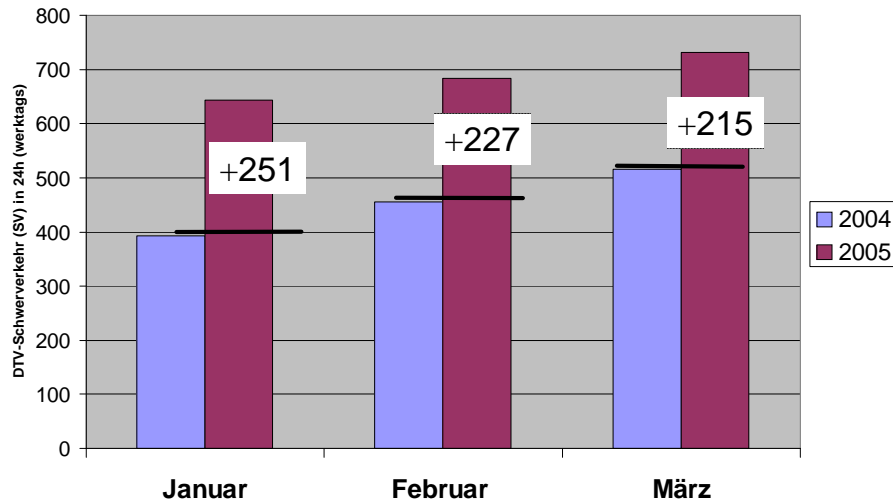
Jürgen Menge presented three cases demonstrating the use of each of the three types of countermeasures. The decisions were taken after several discussions with the stakeholders.

- 1) B9 Mainz-Worms
- 2) B10 Landau-Pirmasens
- 3) B9 Worms-Wörth and Kandel (French border)

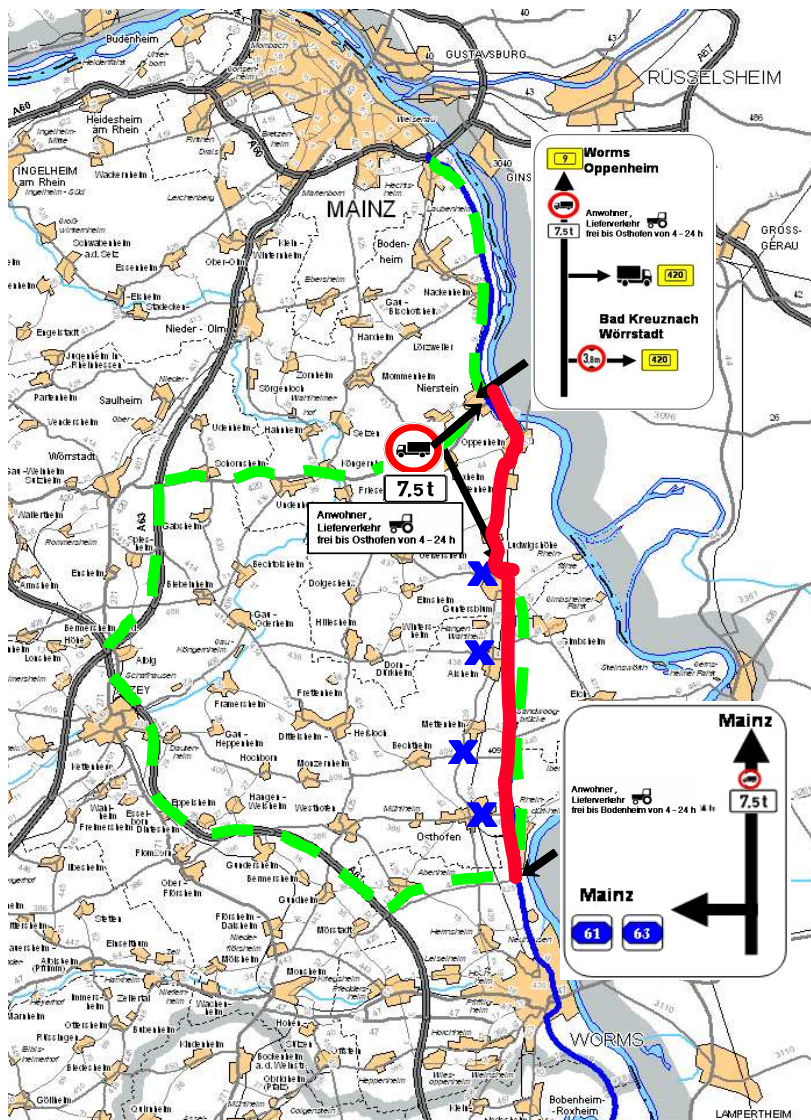


B9 Mainz-Worms

The road passes through a number of villages. It is a two lane road with approximately 20.000 vehicles per day. Traffic counts showed a high increase in truck traffic



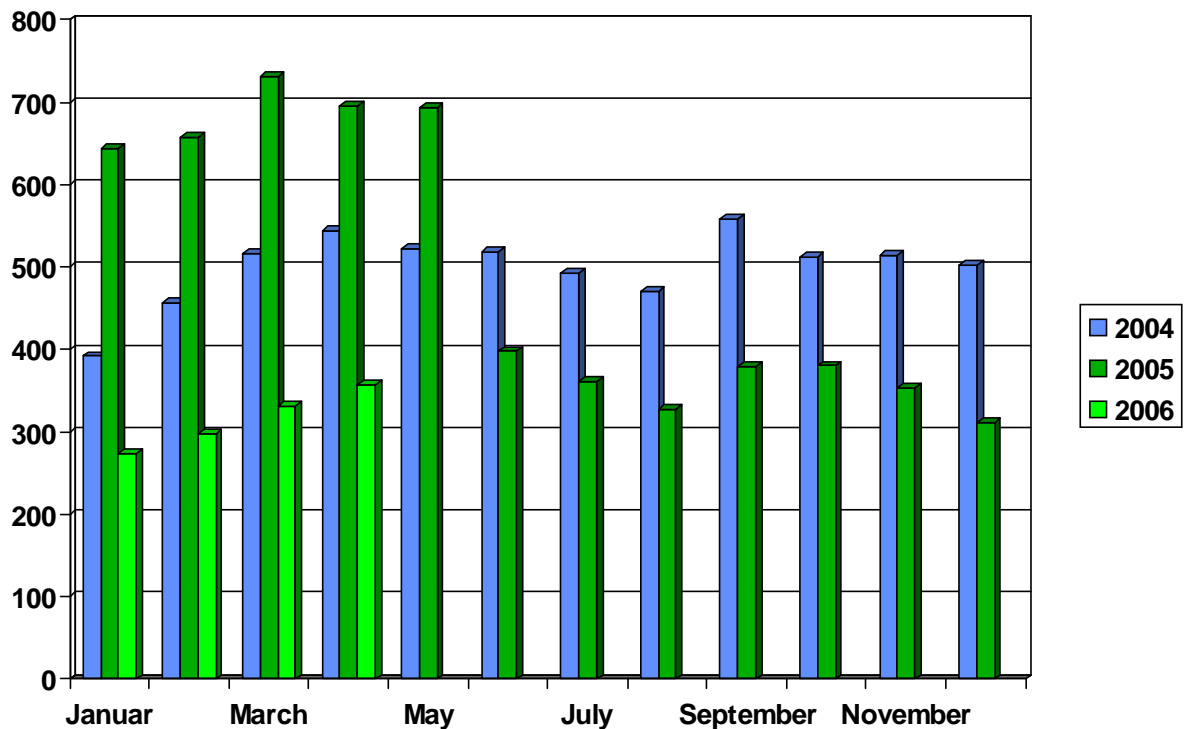
Development of Average Daily Traffic (ADT) of heavy vehicle traffic on federal highway No. 9 at Nierstein (monthly comparison 2005/2004).



The countermeasure for this case was to ban trucks (>7,5 tonnes) on the road where the traffic increase had caused the complaints (in red). The ban was total from 24 to 04 in the morning. During day time, delivery and residential traffic was allowed. In order to avoid further deviations, all the minor roads within the green perimeter were also include in the ban.

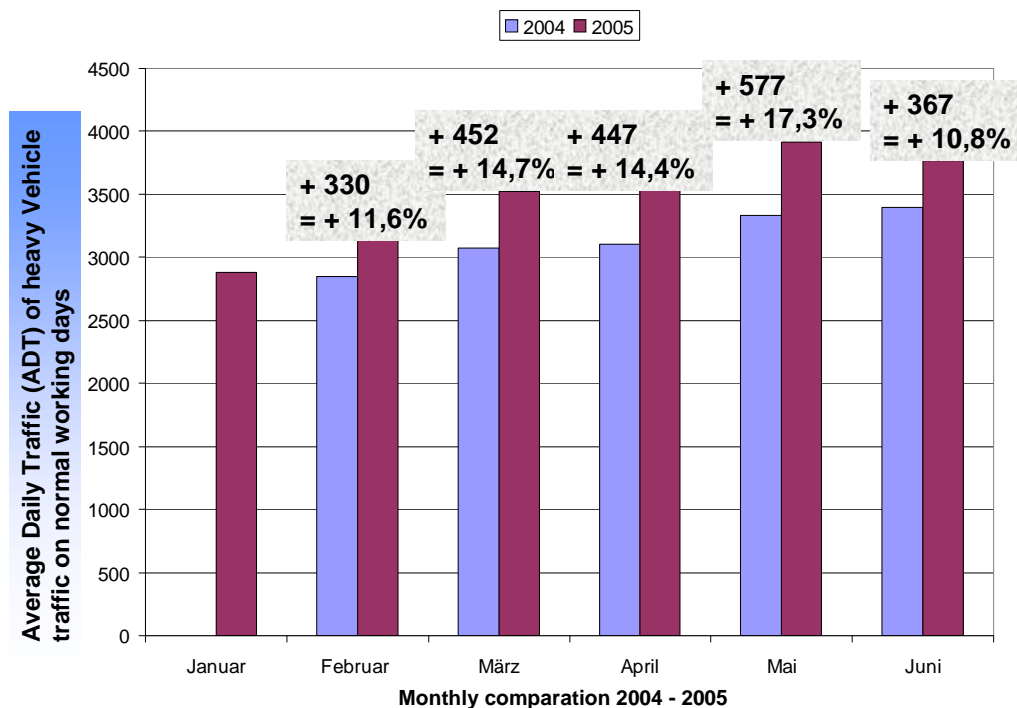
This measure reduced the HGV-traffic by 400 vehicles per day, resulting in even less HGVs than before the Maut-introduction.

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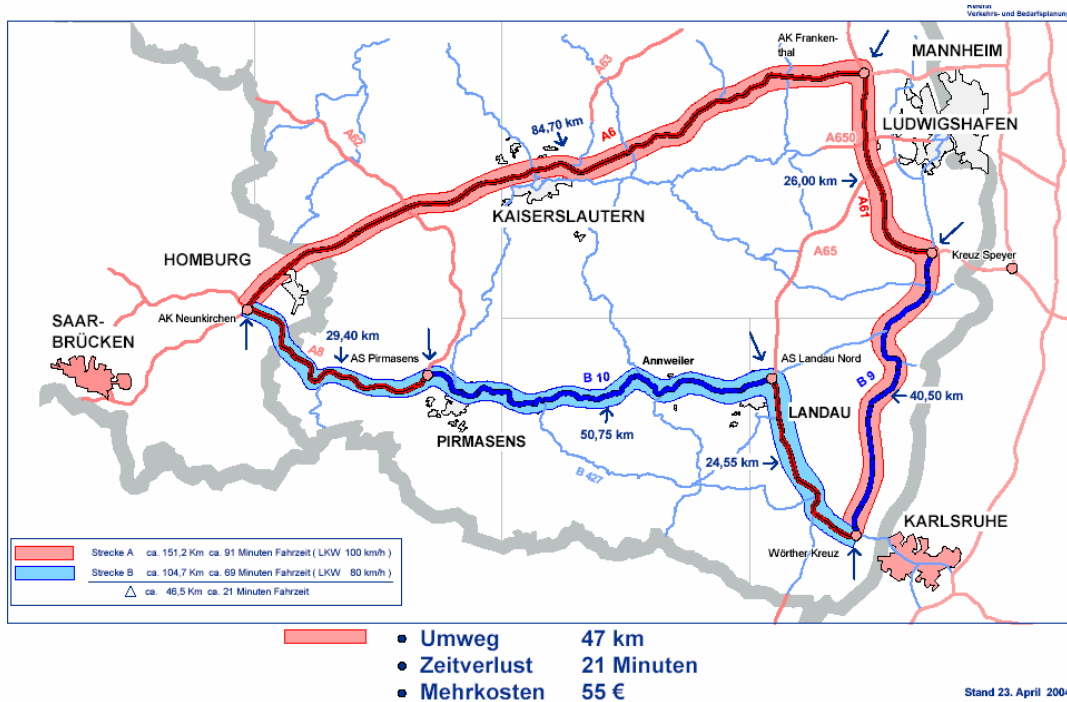


2) B10 Landau-Pirmasens

Also on this road there was a substantial increase of HGV-traffic



The distance on route "BLUE" Karlsruhe – Homburg is ca. 105 km. The detour in case of a via "RED" Karlsruhe – Mannheim-Homburg results in an additional driving distance of 47 km and an additional cost to the trucker of 55 €.

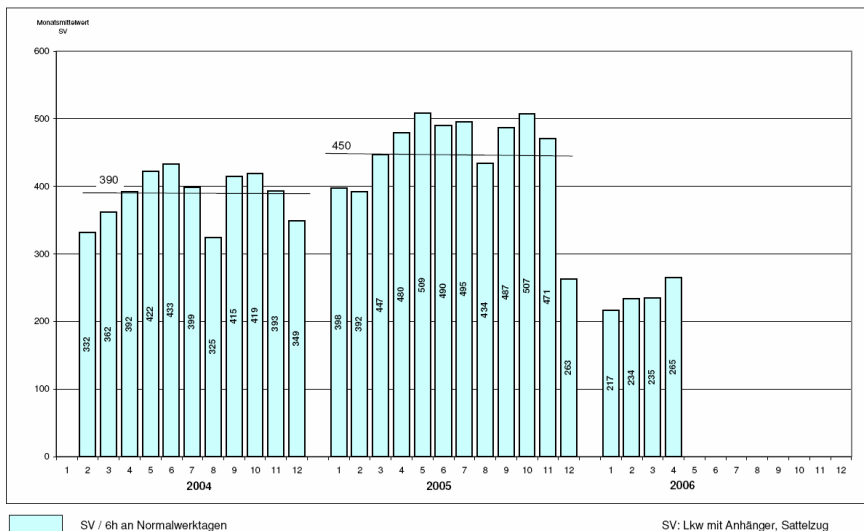


Measures introduced to prevent through traffic Karlsruhe-Homburg on the "BLUE" route were:

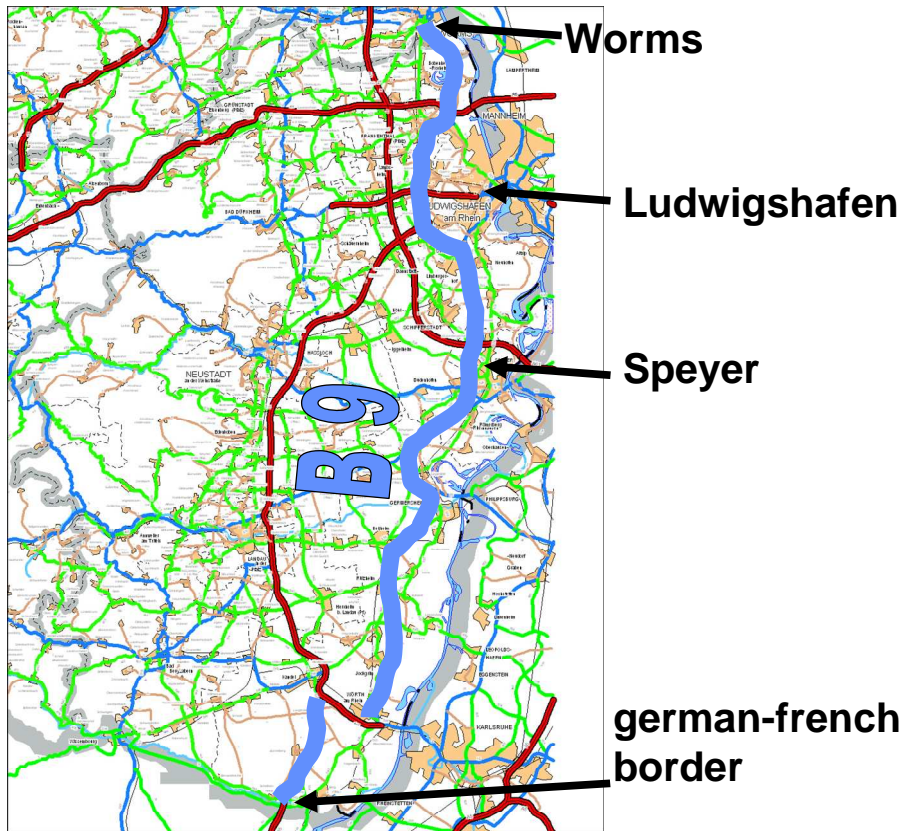
- Introducing a ban on night driving for HGVs between 23 and 5 in the morning. Delivery vehicles and residents free
- adaption of the signs on the motorways in the vicinity to facilitate early alternative route choice selections
- more controls of the ban on overtaking for vehicles (>7,5 tonnes)
- construction of a police control areas in the vicinity of Pirmasens

The result was a significant reduction of transit traffic to ca 50% of the levels before the introduction of the Maut.

B 10 Wilgartswiesen
 Nachtintervalle 0-5 Uhr/23-0 Uhr
 Absolute Zahlen SV

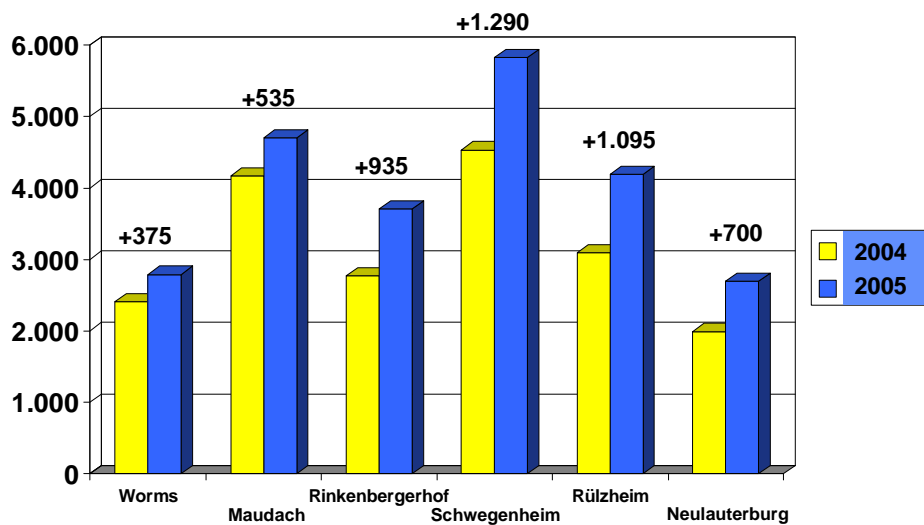


3) B9 Worms-Wörth and Kandel (French border)



The first section between Worms and A 65 in the south has motorway standard and a traffic of 40.000-60.000 vehicles per day.

The following diagram shows the increase of HGV traffic due to the Maut. In addition there was an additional 50% increase due to industrial development in the road corridor



Concluding remarks

The discussion following the case-presentation showed that the Land had not made any systematic analysis of the eventual economic effects of the Maut-introduction. It was felt that enough knowledge about the impacts was gained by working closely with the stakeholders. Such a co-operation also facilitated the finding of acceptable solutions to the problems of traffic deviation. More serious confrontations are reported from other Länder.

As a general remark it could be said that the introduction of the Maut has resulted in a public focus on the HGV-traffic and thus triggered a demand for a more systematic approach from the Ministry in dealing with the management of such traffic. Extending the Maut-network proved to be only one of several measures to be employed.

In fact, by combining the Maut on the motorway network with a reduction of the vehicle tax for German HGVs, it has turned out to be very complicated to extend the Maut network. Not only the Federal government in Berlin, but also the EU has to accept the change because of the risk for discrimination of foreign vehicles.

Friday 25 May 2007 - the Swiss LSVA system for HGV-charging

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Copies of the presentations made can be found in the appendix. The following pages contain a summary of some of the key issues presented and discussed during the visit.

A brief overview of the LSVA

- LSVA opened in 2001 following an agreement with the EU to allow trucks with a total gross weight of 40 tonnes on the Swiss roads. Public concerns about a rapid increase of transit truck traffic and lack of funding for increasing the capacity of the transalpine rail connections were the basis for the introduction of a distance based charging system for all vehicle combinations with total gross weight >3,5 tonnes. Initially the average charge for a 40 ton truck was 0,12 cent/tkm, which was increased to 0,16 cent per tkm in 2005. A further increase by 10 % is planned for 2008.
- The charge is considered as a tax and the system is operated by the Swiss customs on behalf of the Ministry of Finance. The distance driven is automatically registered by the OBU or based on manually registration of entry and exit made by the driver. The registrations are considered as a tax declaration and are submitted on a smart card to the tax authorities. The data can also be downloaded in the office and e-mailed to the authorities.
- The vehicle owner can use software provided by the authorities to review the declaration before sending it in (mostly by post). The OBU only communicates with the authority through the chip card. No GSM connection. The software of the OBU can be updated via the smart cards distributed by the authorities.
- The OBU is mandatory in all vehicles (>3,5 tonnes) registered in Switzerland. 55.000 vehicles are equipped with an OBU and 500.000 vehicles annually use the manual declaration at the border points. The OBU is free of charge for the users. The first batch cost 800 € /OBU. The price of the new generation will cost 60% less. The installation costs 200 € is paid by the vehicle owner and includes a connection to the tachograph. When a truck is sold, the OBU follows the truck. The new owner is registered at the same time as he is entered into the vehicle register. (The German OBU has to be demounted and the OBU of the new owner has to be installed, which is a costly operation)
- The DSRC-interface makes the Swiss OBU possible to use with the French, Spanish and Austrian systems (but not with the Italian TELEPASS).

Implications of the charge as a tax

- The vehicle owner submits a tax declaration, i.e. the information necessary to decide on the amount to be paid, but the tax is calculated by the authority

- By making the difference between the information on which to base the tax and the tax calculation itself makes it easier to change the tax levels.
- The normal control and sanction system for taxation can be applied.
- The Ministry of Finance is seen as the natural owner and implementer of the system
- It is considered important that the system operation is done by a public organisation. In this case the customs, which is regarded as an organisation with the best capacity and the routine to operate border controls and carry out inspections on behalf of the tax authorities. The police has a number of other priorities.

Enforcement aspects

- The basic assumption is that no road haulier will instruct his drivers to cheat. But fair competition requires that everybody should pay, i.e. fraud should be difficult.
- The Swiss OBU reads data from the tachograph and makes it possible to compare the registered distances with GPS position recordings. The OBU also has a sensor which can detect different types of vibrations. Such readings are also registered and the combination with the tachograph and the GPS readings makes non-detected tampering with the OBU very difficult.
- The tax authority decides the amount to be paid based on the tachograph recording, provided that the tachograph seems to be working properly. A maximum 4% deviation from the GPS-calculated values is accepted (demand on the tachograph manufacturer).
- The OBU has to be mounted on a certain section of the windshield and a series of lights makes it easy to see from the outside if the OBU is working (vertical row of lights) and if a trailer is registered (horizontal row of lights).
- Occasional/foreign users receive a smart card coupled to the vehicle identity on entry into Switzerland¹. At the same time the tachograph reading is registered and (if this is the first entry) the customs officer registers also the necessary vehicle data in the central system (Euro-class and gross total weight). On exit the driver registers his tachograph standing at the border and pays with a credit card. Foreign trucks are not allowed to carry out domestic transport.
- The police has a special tool for rapid and correct capturing of the tachograph standing.
- 10 gantries on the major routes are used for OCR of number plates.

Security

- High demands on data integrity. Substantial efforts to ensure that data is not manipulated. The smart card is considered to be a secure means for storing and communicating information. The tax declarations are stored centrally and saved for 10 years.
- Little problems with privacy due to:
 - the general openness in Switzerland
 - the system only handles trucks i.e. commercial undertakings
- Integrating the OBU with other applications is considered too risky. Using data from other applications as for example fleet management for calculating a tax will make every court case tricky.

¹ Switzerland can have border controls because it is not a member of the EU. In Austria the first check points had to be moved some km from the border in order to comply with the EU demand for free flow across the border.

Consequences of the LSV

- The LSV was never intended to be a traffic management tool
- 2/3 of the revenues (910 M€) come from Swiss vehicles
- The operation costs 7% of the revenues
- 50% of the profit goes to the public transport fund which is used to finance rail investments , mainly two tunnels one of which opens next year.
- Introducing a higher cost per vehicle km in combination with an increase of the maximum permissible gross weight to 40 tonnes have resulted in
 - A 20% reduction the vehicle km
 - 15-20% increase of the load factor (better utilisation of the vehicles)
 - Cleaner vehicles
 - Little impact on modal split

Keys to success

- A clear objective embedded in a national strategy based on a firm political commitment
- Clear charging principles – driving more means paying more and the same cost rate applies regardless of where you drive
- The system is perceived as fair²
- The authorities took the lead in defining and implementing a system which meets the objectives
- The system is operated by an authority (the customs)
- Basic information is declared to the central systems, which does the consistency checks and calculates the tax to be paid.
- Easy access for non-equipped users

² Everybody should be made to pay. Hence fraud should be kept to a minimum. The LSV has fraud rate of 0,05 % while the Italian Telepass has 12 %.

Participants

1	CILCIUS/ Gintaras , Chief specialist of Road maintenance, LRA
2	GRISKEVICIUTE/ Ausrinet , Consultant to LRA
3	KAPOCIUS/Justas , Consultant to LRA
4	DUDONIS/ Donatas / Deputy Director General of LRA
5	Forss/Michael / Netport Karlshamn
6	Gustavsson/Inger / BMT Transport Solutions
7	Hultén/ John /Swedish Road Administration, Skaane
8	IVINSKIS / Laurynas /Chief specialist of IT division, LRA
9	Källström/Lars / BMT Transport Solutions
10	LIPKEVICIUS/Remigijus / Head of Investment division, LRA
11	Nettelblad/ Per /Swedish Road Administration, Skaane
12	Örnfelt,/Lars /Swedish Road Administration, Skaane
13	Ringhagen/Leif / Swedish Road Administration, Region South East
14	Schelin/Eva / SWECO VBB AB
15	Sima/Sorin Swedish Road Administration, Skaane
16	TIMUKAS /Vytautas / Head of IT division, LRA

Appendices:

Copies of the presentations made can be found on the following pages:

Berhard Oehry, Rapp Consultants: Swiss Heavy Vehicles Fee (LSVA) - System Overview

Ulli Balmer, Deputy Head of Department for Transport Policy, Federal Office for Spatial Development, Switzerland: Swiss HVF - Distribution of Revenue

Heini Sommer, ECOPLAN: Swiss Heavy Vehicle Fee LSVA: Impacts on Traffic Volume, Road Transport Business and Regions



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Municipality of Karlshamn

Municipality of Karlskrona

Municipality of Klaipėda

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