

# **TRONDHEIM**

## **Learning from road pricing experience - Introducing a second-generation road pricing system**

Tore Langmyhr

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### **Abstract**

The Norwegian cordon pricing schemes represent rare examples of urban-wide road user charging. In Trondheim, the toll ring established in 1991 was developed into a unique zonal system in 1998. This second-generation road pricing scheme divides the city into six zones, and traffic crossing the boundaries is charged. In this paper, the processes of developing the two generations of road pricing in Trondheim are described. The public and political acceptance of the two generations of road pricing systems is investigated, and the main pro and con arguments of the public debate are assessed.

### **1. Introduction**

Road pricing is currently proposed and heavily debated in several countries, due to congestion problems, environmental concerns and difficulties in financing new transport infrastructure. However, road pricing implementation stories are extremely few compared to the plans and feasibility studies, especially at the urban-wide level. This may be attributed to the problem of large loser groups among the motorists, the strong traditional conception of roads as a free common good, the fear of surveillance, and the complexity of implementing a charging system compared to other traffic restraint measures (Borins 1988, In 't Veld 1991, Banister 1994, Colgan and Quinlin 1997).

Apart from Singapore's Area Licensing Scheme, the Norwegian cordon pricing schemes in the cities of Bergen, Oslo and Trondheim are the only existing urban-wide road pricing systems. The implementation of the Norwegian schemes has indicated that tolling for infrastructure investments and environmental improvements is more acceptable to the general public than tolls for managing demand. Furthermore, it has been important to involve local policy entrepreneurs, and to revise the scheme features according to changing political preferences (Langmyhr 1999). The crude toll rings may be regarded as the first step towards more sophisticated charging systems (cf. Emmerink, Nijkamp and Rietveld 1995). In Trondheim, a second-generation road pricing scheme is now implemented. This city of 147 000 inhabitants established an electronically operated cordon pricing scheme in 1991. The second-generation scheme, a zonal charging system, became operational from 1998. This paper focuses on the process of introducing the revised road pricing system in Trondheim. As a necessary background, the history of the original scheme is outlined. The main purpose is to describe and analyse the public and political acceptance of the two generations of road pricing systems. The Trondheim experience should be relevant for planners and decision-makers that struggle to handle road pricing proposals in other cities.

The discussion is based on the author's own in-depth case study. The sources include analyses of planning documents and written material from the decision-making processes, a comprehensive survey of local newspaper writings, interviews with about 20 local actors, observation at City Council meetings and public hearings, and participation in a working group discussing the development of the original toll ring. This paper is organised in the following manner: Section 2 describes the main features of the two generations of road pricing schemes in Trondheim, as well as the institutional framework of road pricing in Norway. Section 3 tells the implementation story of the first-generation of road pricing in Trondheim, while the development of the revised scheme is the theme of Section 4. In Section 5, the pro and con arguments of the public debate on road pricing are investigated. Section 6 sums up some lessons learned.

## **2. Scheme features and institutional framework**

In this section, the characteristics of the original and the revised road pricing scheme in Trondheim is described. In addition, the legislative and planning framework of road pricing in Norway is briefly outlined.

### **2.1 Main features of the original Trondheim road pricing scheme**

The original toll ring included 11 toll stations surrounding the city centre, charging inbound traffic. Sixty per cent of the population lives outside the original cordon. In 1996, one station was added to charge a popular by-pass route through a dwelling area. In addition, a motorway toll station (with a specific pricing regime) charged traffic from the east. All the tolling booths could be passed without stop by cars equipped with electronic tags (about 80% used this from the start). Only two stations on the main roads were manned. The unattended booths also included the option of manual payment for cars without tags. The original pricing regime comprised time differentiated tolls (a slightly higher fee during the morning peak hours, free passage after 5 pm and in the week-ends), and there were no monthly passes. Hence, the motorists were levied for each inbound crossing (maximum 75 payments per month and 1 per hour for cars with a tag). The basic toll level amounted to NOK 10  $\approx$  £0,8 (or approximately 10% of the average hourly earnings for Norwegian industrial workers). Heavy cars (above 3 500 kilograms) were charged double price.

Following the implementation, there was a 10% decrease in traffic passing the ring both in the peak and non-peak charging hours. The traffic increase in the evenings and week-ends (with no fees) was slightly above 8% (Meland 1995). The revenues are earmarked for a transport investment package financed by 60% user fees and 40% state funds. From this, 80% is to be used for road building. (The major road investment projects are shown in Figure 1 and 2.) The rest is to be invested in public transport, safety and environmental improvement projects. The total "Trondheim package" amounts to more than NOK 2 billion (£154 million) over a 15 year period.

**Figure 1:** The Trondheim toll ring in operation from 1991

## 2.2 The revised scheme

In June 1996, the City Council approved of increasing the number of toll stations from 13 to 19 (including the Ranheim motorway toll station). Hence, a higher portion of the motorists is charged. This new system, dividing the city into 6 zones, was gradually implemented from early 1998. Traffic between zones is levied, mainly in one direction only. Besides, the revised scheme includes some minor changes in the pricing regime. The basic toll level is raised to NOK 12; the charging period is extended to 6 pm on weekdays, and the maximum of charged crossings per month is lowered from 75 to 60. There has been no proper study of the demand management effects of the second-generation scheme.

**Figure 2:** The revised Trondheim road pricing scheme in operation from 1998

## 2.3 Institutional framework of road pricing in Norway

All road projects involving user fees need to be approved by local and regional political bodies, and sanctioned by the National Parliament. For single projects, planning must have been carried out to a level indicating a cost uncertainty of maximum 10%. For transport investment packages, it is assumed a longer time-span of construction (maximum 15 years, but up to 20 years in extraordinary cases) and a need for some flexibility in the detailed planning. Consequently, assumptions of cost uncertainties up to 25% are allowed, according to the national guidelines. In case of increased costs, two possible strategies are pointed out. First, the period of collecting user fees may be prolonged with a maximum of 5 years. Second, charges are allowed to increase up to 20%.

Presently, revenues from user fees can be used for investments only (road projects, public transport infrastructure, facilities for pedestrians and cyclists, traffic safety and environmental upgrading). Furthermore, demand management is not supposed to be an official main rationale for the implementation or design of user fees. The possibility of time-differentiated fees represents a border-case, resting on the reasoning that rush-hour traffic is responsible for the need to expand road capacity and consequently should be charged extra.

A revision of the Norwegian Road Act is currently considered. If accepted according to the proposal, this revision will open up for developing the demand management side of the charging regimes (e.g., sharper time differentiation), as well as a wider range of revenue use in the transport sector (e.g., covering public transport operating costs).

### **3. The process of introducing the first-generation road pricing system**

This section describes the major features of the decision-making process leading to the Trondheim toll ring implementation in 1991. The main topics of the public debate are briefly outlined, as well as some important agenda-setting mechanisms. This first part of the road pricing story (drawing on Langmyhr and Sager 1997) provides a necessary background for understanding the development of the revised tolling system.

The process of toll ring implementation was initiated in 1985, during the last stage of preparing a new transportation plan for Trondheim. Actors from the County Roads Office and some leading politicians co-operated closely in the discussion on how to solve the ever more serious traffic problems, and in propagating the need for an extraordinary effort from the citizens. The first milestone was a unanimous declaration in the City Council, asking for a feasibility study of a local financial contribution to road construction, provided the State would allocate additional funds. The initiation phase was inspired by a recent agreement between the central authorities and the city of Bergen on a toll ring that released such an additional financial grant. Thus, the main actors in Trondheim assumed that user fees would give an impetus to road construction that could avert congestion and divert traffic to "suitable" routes. Furthermore, the mobility objective was clearly linked to some higher-order goals: By-pass roads alleviating the environmental degradation of the city centre were considered a prerequisite for urban renewal. Increased mobility was regarded as an asset that could help attract the flourishing oil industry to the region. In a broader context, the declaration should be seen as part of a larger trend introducing user fees in several public sectors.

A two-year period of planning, public debate, and negotiations with central authorities succeeded the 1985 initiative. The County Road Office played an important propagating role in this period, arguing for the necessity of the scheme through the media and in brochures to all households in Trondheim. Opposition mainly came from city centre commercial interests and motorists. The planning process included feasibility studies of different charging methods: Toll ring, local petrol fee and extra annual licence fee. The conclusion drawn was that a toll ring is the only measure legally acceptable, and that the other options would involve time-consuming lobbying for legislative dispensation. The location of the cordon received little attention in the political and public debate, partly due to time constraints. It was mainly defined and treated as a technical problem; the politicians felt that a "fair" solution was unobtainable in any case. However, the planning authorities indicated a possible future development of the ring with more tolling stations.

The opposition to the principle of local contribution to classified roads financing was clearly voiced in the City Council by one right wing and two left wing parties. The Labour Party provided sturdy scheme support. The Conservative Party was sceptical, but settled for a deal implying the construction of two major road projects before the charging of any fees. This solution received 75 out of 85 votes in the City Council in November 1987.

During the second half of the 80s there was an emerging environmental awareness in Norway, urged by the publication in 1987 of the Brundtland Commission report (named after the Norwegian prime minister) *Our Common Future*. Furthermore, the seemingly everlasting traffic increase turned to a slight decrease in 1988 and the next few years due to an economic recession. Environmental concerns influenced the earmarking of revenues. The local bus company successfully voiced its needs for infrastructure investment, and the Trondheim package was supplemented by funds for environmental improvements of streets that would be relieved of heavy through-traffic.

The environmental turn emerged even more clearly in the process of establishing the fee structure of the toll ring. Decisions not to allow any monthly passes and to charge up to 75 inbound crossings per month followed environmentalist argumentation. The slightly higher fees during the morning peak hours also contributed to this changing image of the toll ring scheme. In the City Council proposal concerning the fee structure in June 1990, a rationale including traffic demand management was stated: "*The following objectives underlie the establishment of the toll ring: - Fund raising to improve the transport system. - Traffic demand management, influencing mode choice and trip timing. - The avoidance of adverse secondary effects*" (the author's translation). In this issue, the local planning and political debates operated on or even beyond the border of the official, Central Government policy (cf. Sect. 2.3).

Political priorities towards demand management and minimisation of the operating costs spurred the development of electronic, automatic charging. The city of Trondheim boosts an image of "the capital of technology", and thus the advanced road pricing system probably helped to gain public acceptance. Furthermore, the tolling technology was developed in co-operation with a locally based company (the "Q-Free" electronic tag from Micro Design). The advanced electronic tolling has attracted much international interest, and Trondheim has participated in several EU research programmes.

The tags were offered for free to all motorists (accompanied by a two weeks free-of-charge-period and a certain permanent discount). An intensive information campaign explaining the system and emphasising the rationale behind the road pricing scheme preceded the opening in October 1991.

The Trondheim package was supposed to be revised regularly, and the new transport plan of 1992 offered an opportunity for evaluation and renegotiations. The "strongly opposed" share of total adult population had dropped from 46% six months prior to the opening to 26% shortly after (Tretvik 1994). Still, both sides of the political scene contested both the cordon pricing system and the investment package. The anti-road-pricing action group was not numerous, but they were actively using the local press. Their main contention was that the motorists already pay more than the state funds for road purposes. These opponents were granted a voice in the City Council through co-operation with a right-wing party. From the other side, the environmental movement criticised the road-supply-bias of the plans. In 1992, a joint effort by several "green" organisations and City Council parties resulted in a proposal for an alternative transport

plan. This plan called for the development of a more differentiated charging system to replace the toll ring, with revenues not earmarked for road investment purposes. In the summer of 1992, the balance of power in the City Council tipped in favour of the environmental side, resulting in a resolution to postpone all new major roads for at least three years. Accordingly, the original toll ring rationale lost local political backing already a few months after the opening, when only a fraction of the investment package was completed. Important agenda-forming topics that summer included the general decline in traffic and a financial crisis in the health sector. Hence, it became politically difficult to defend the necessity of road investment when more "worthy" causes seemed to suffer.

Following this postponement decision came a period of stagnation in the environmental movement. In 1995, a new transport plan was on the agenda, and the time was again ripe for a number of the contested road projects. These projects presupposed increased revenues and accentuated the problem of how to develop the charging system in a "fair" way. This is the theme of the next section.

#### **4. The second-generation of road pricing in Trondheim: The zonal system**

In this section, the planning and decision-making process of the revised road pricing system is described. As noted in Section 3, the idea of revising the system can be traced back to the planning and preparation period around 1988, when a future increase in charging points was envisaged by some actors at the County Roads Office. Furthermore, the initial loans (with high interest rates), escalating construction estimates and declining "ordinary" state funds increased the need for more revenues. In the evaluation report on the original ring, published in December 1993, the planning administration argued for an increase in the number of toll stations and a prolongation of opening hours.

*"... The profit of the toll ring is not sufficient. Taking into consideration the current debt of approx. NOK 460 millions, approx. half of the income is spent on paying interest. The profits can be increased by establishing more toll plazas and extending the opening hours. At the same time, this will even out the burden; a larger number of motorists will be charged for using the road system in the Trondheim area" (The Trondheim toll ring evaluation report 1993).*

Thus, the twin rationales of increased "fairness" and increased income have permeated the debate on the revised toll system. As should be expected, this coupling has induced the suspicion that "increased fairness" is a cover-up for revenue raising. This suspicion is strengthened by the fact that the authorities mostly have neglected other fairness concerns. Alternative or supplementary distributive principles could have included special treatment of low-income households or environmentally degraded dwelling areas, as well as marginal cost pricing. (For a thorough discussion of equity issues, see Langmyhr 1997.) One "fairness aspect" actually has been applied to some degree: The zones are designed to enable uncharged travel to most daily services like primary schools, local shops, banks and post offices.

When the local politicians accepted the Trondheim transport plan in 1995, the financing part of the plan was postponed, and the County Roads Office was asked to analyse several alternatives for developing the toll system. The political parties supporting the transport plan obviously had divergent preferences concerning the design of the new system. The Labour Party argued for "a more equitable system", i.e. more toll stations. The Conservative Party wished to secure the implementation of the proposed road projects, but objected to a charging system that would increase the demand management bias. The resulting compromise was carved out in the last days before the City Council meeting in June 1996. In fact, the zonal system is more suited for demand management than the original ring, but the political power constellation made it necessary to downplay this element. Therefore, one formulation of the City Council resolution included concessions to the conservatives: *"The tolling system will be terminated no later than in 2005. The City Council rejects a future demand management charging system in Trondheim"* (the author's translation).

It is worth noticing that citizen participation was lacking in the last stages of the process, and constraints on time made it difficult for anyone but the main political actors to influence the compromise. Obviously, the location of toll stations is an extremely difficult political issue. No party is likely to avoid opposition from their voters when the distribution of burdens and benefits is carried out. Consequently, it may appear tempting to avoid an open and possibly conflict-ridden process.

Implementation of the zonal system and the new pricing regime commenced in January 1998. A gradual initialisation became necessary because equipment from the terminated stations was moved and utilised in the new toll plazas. One specific, practical issue also complicated the implementation process, and raised heated debate. The zonal system implies that a substantial part of the motorists pass several stations in a day. Cars equipped with an electronic tag are only charged once an hour, but manual payment is still an option. For tourists and other motorists without tags, the new system became both unpractical and expensive. It took more than a year before the manual paying system was equipped to give out tickets that could be used in other stations within an hour. Still, the inconvenience of having to stop several times gives a strong incentive for the use of Q-Free tags. More practical paying methods for tourists, e.g. by the introduction of daily passes, are still being considered.

The revised toll system was evaluated by the planning authorities and politicians after some months of practice. The evaluation report of December 1998 acknowledges some of the negative public reactions, especially from motorists that paid once a day in the original toll ring, but now have to pay twice or more. Another major concern was the large zone encompassing the city centre and areas to the east of the centre. Here, it is estimated that 16% of the trips with origin and/or destination inside the zone will be charged. In the other zones, the share varies from 25% to 37%. However, commercial interests in the city centre have objected eagerly to a splitting of the central zone. The public debate following the revised scheme displayed a number of

(partly conflicting) fairness claims. Hence, no uncontroversial solution was available, and the least unpleasant choice was to avoid further changes in the scheme.

The local debate is still continuing, both in the media and in political bodies. As the year of termination of the toll ring is approaching (2005), the question of a possible continuation is likely to climb even higher on the local agenda. The established tolling infrastructure probably provides an important argument for prolongation. Trondheim is still an arena for international research on user charging, and this serves to highlight alternative ways of developing the road pricing scheme into a more explicit demand management tool.

## **5. Arguments and interest groups**

In this section, characteristics of the public debate on road pricing in Trondheim are assessed, and the development of arguments from the first to the second scheme debates is investigated.

The public debate in the local newspapers provides a source for assessing the main pro and con arguments concerning the two generations of road pricing schemes. Table 1 gives an overview of the arguments put forward in the major and minor local newspapers supporting the Conservative Party and the Labour Party, respectively. (The minor newspaper ceased to be published in 1996.) The table displays the ranking of arguments and the number of cases in three periods: First, prior to the opening of the original toll ring, second, the functioning period of the toll ring, and third, after the system revision commencing in January 1998. Naturally, the categorisations of different views in articles and letters to the editor may be debatable. Keeping this caveat in mind, the development in the ranking of arguments may still provide a basis for some conclusions.

When counting the number of times pro and con arguments appeared in the papers up to the end of 1999, one finds many cases of con arguments (443 cases) compared to the number of pro arguments (184 cases). It can be ascertained the papers contributed significantly to offset the power bias between the resourceful road building interests (distributing information material to all households), and the other groups affected by the toll ring. The overall picture also indicates that road pricing is likely to be an inherently unpopular policy measure, and/or that opponents are more likely to state their views in the public debate than the proponents are.

**Table 1:** Pro and con arguments concerning the Trondheim road pricing system

		Ranking of pro and con arguments (number of cases)			
		Jan. 1, 1987 – Oct. 14, 1991	Oct. 15, 1991 – Dec. 31, 1997	Jan. 1, 1998 – Dec. 31, 1999	Total
Pro	(a) The revenues pay for an improved network of main roads.	1 (25)	1 (27)	1 (11)	1 (63)
	(b) The scheme is a technically advanced and efficient charging measure.	2 (24)	2 (19)	4 (3)	2 (46)
	(c) Funds are built for investment in traffic safety, public transport, and environmental improvement.	4 (17)	3 (18)	2 (8)	3 (43)
	(d) The charging scheme regulates the traffic.	3 (18)	4 (9)	3 (5)	4 (32)
Con	(e) The charging system is not well designed. It strikes unjustly and arbitrarily.	2 (27)	1 (98)	1 (57)	1 (182)
	(f) Motorists pay enough already; classified roads are the responsibility of the State.	4 (14)	2 (75)	2 (25)	2 (114)
	(g) The road projects are not needed; the money should be used for other purposes.	3 (26)	3 (38)	4 (5)	3 (69)
	(h) The road pricing scheme will harm the city centre.	1 (34)	5 (6)	5 (0)	4 (40)
	(i) The motorists are charged for investments in traffic safety, public transport, and environmental improvement.	5 (2)	4 (27)	3 (9)	5 (38)

The preferences of several important interest groups are taken into account by the arguments in Table 1. Argument (a) reflects the main scheme rationale, and it is not surprising that this has been prominent in all periods of road pricing in Trondheim. Argument (a) accords with the interests of the motorists and the road authorities.

Argument (b) corresponds with the interests of both the road authorities and local industrial campaigners. This argument was especially important in the pre-tolling period, when it helped to raise scheme support. Furthermore, in the first years of operation, it was convenient for the scheme proponents to emphasise that the system was technically advanced, functioned smoothly, and attracted international interest. However, as time has passed, the aura of innovation has dwindled.

Argument (c) reflects the preferences of the environmental movement and those in favour of expanded supply of public transport. Opinions have differed significantly on whether or not 20% of the revenue is an acceptable deal (cf. comments on argument d). Argument (c) has also been used frequently by road building interests to emphasise the "balanced" package solution aimed for in Trondheim.

The argument that the charging system regulates traffic (d) corresponds with environmental interests, and helped securing some scheme support prior to the opening of the original toll ring. After the first period of operation, environmentalists urged the need for a more efficient demand management system, and the toll ring lost some credibility as a regulation tool. Even if some important changes in travel behaviour occurred (cf. Section 2), the effects were smaller than the environmental interests had hoped for. Furthermore, the construction of the new major roads served to underline the other, unappealing part of the scheme. From the mid 90s, environmental interests lost some agenda setting power, and the local election in 1995 favoured the road building interests in the City Council. Hence, the revised charging system has not been supported or influenced by important actors favouring demand management, and this rationale has faded.

The interests of large groups of motorists are expressed in con argument (e), which encompasses a variety of objections to biased regulation effects, unpractical manual payment methods (cf. Section 4), and inequitable charging principles. Argument (e) additionally serves the interest of inhabitants of nearby dwelling areas, objecting to re-routing that increased traffic. Especially after the charging began in 1991, opposing motorists raised their voices. The revised scheme was intended to placate some equity-based opposition, but it has only succeeded in making the debate more complex. The zonal boundaries made more motorists pay twice a day, and especially this group has objected vigorously. As discussed in Section 4, new revisions have been proposed, but planners and decision-makers have learned that no "perfectly equitable" solution exists.

The argument that motorists already pay too much (argument f) has been frequently voiced in the public debate, especially after the actual charging began. Keeping in mind that Norwegian motorists already high licence fees and are charged about £0.7 per litre of petrol, the reaction is understandable. This con argument is difficult to counteract because of the high degree of uncertainty in calculations of the social costs of car driving. The ameliorating responses from the authorities have focused mostly on the investment advantages to the users, underlining that the new main roads will improve mobility. The blessings of the investment package have been compared to the "probably 50 years" of waiting for ordinary state funds.

The con argument (g) serves environmental promoters, interests outside transport, as well as some motorists opposing the user fees. The high environmental awareness and the temporary decline in traffic in the late 80s and early 90s spurred the discussion on this topic (cf. Section 3). This type of argument is likely to fluctuate according to economic cycles and shifting political preferences, as well as media coverage on specific projects and cost overruns. The argument may very well increase in importance as construction of the last major project in the Trondheim package commences in a couple of years.

The claim that the toll ring will harm the city centre (argument h) was quite often set forward prior to the toll ring opening in 1991, especially by representatives of city centre

commercial interests. It should be noted that the opposition was not unanimous among these actors. The potential benefits of a less polluted and more pleasant CBD obviously carried some weight. The fear of city centre decline was ameliorated by announcing close monitoring of effects and the possibility for redesigning the fee system after six months. Actually, city centre commercial decline has been negligible, partly because shops adjusted to the ring by prolonging opening hours, and due to a shift in the timing of trips from working days to Saturdays. The revised scheme has levelled the difference between the CBD and the main competitive commercial centre in the southern part of the city. Presently, most customers visiting either of the two main shopping districts have to pay tolls.

Argument (i) reflects the interests of motorists opposed to paying for utilities enjoyed by other groups. These feelings were most clearly voiced around 1992, when the City Council majority postponed the construction of new major roads. Even after the "normalisation" of the plans for the Trondheim package, some advocates of the motorist organisations claim that too much of the revenues are used for other purposes than road building.

It is noteworthy that the guardians of personal freedom have played a modest role in the road pricing debate. The controlling potential of the tolling technology has been questioned in about a dozen articles. Generally, the strict rules from the Data Inspectorate seem to have reassured most motorists. Data concerning motorists passing in a regular way are deleted the following day when their accounts are debited.

The development of pro and con arguments reflects changes in the actual charging scheme, proposed revisions, and fluctuations in public and political preferences. Obviously, the actual burden of charges inflicted on the motorists has initiated the strongest opposition, both in the first-generation and in the second-generation road pricing systems. In addition, several other con arguments had to be dealt with throughout the years of minor and major revisions of the scheme. Hence, for planners and decision-makers, it is an important and difficult challenge to sustain the scheme rationale in a never-ending public debate.

## **6. Lessons and further developments**

The implementation and revision of the Trondheim road pricing scheme provides unique experience on urban-wide road user charging. The story displays how a road pricing rationale may grow, suffer or change in a shifting planning environment (cf. also Langmyhr 1999). The main lessons include:

- Urban road pricing schemes affect a number of goals and interested parties. Coalitions have to be built between several of these interests, and alliances may shift as the consecutive stages of planning, implementation, operation, and revision are reached. Interests overlap, so that several compromises are possible, especially if rules for disposal of revenue open up for flexibility and the compensation of losers.

- Even if opposition to the original toll ring was reduced after implementation, road user charging still is very controversial. The daily fees imposed on the motorists provoke irritation and opposition. For the planning authorities, it is important to inform on the scheme objectives, both before and after implementation, and to adjust the scheme design to accommodate unnecessary and unwanted side effects.
- Minor "irregularities" in a scheme may attract much attention in the media, and jeopardise the credibility of the system. In the second-generation road pricing system in Trondheim, much opposition and negative media coverage could be avoided if more practical arrangements were made for manual payment.
- The coupling of a "more equitable" scheme (charging a higher proportion of the motorists) with plans for increased revenue aroused the suspicion that equity is only a cover-up argument. The neglect of alternative distributive principles and the lack of citizen participation in the process of devising the revised scheme strengthened this suspicion. These process features may have reduced many citizens' thrust in the road pricing authorities.
- A comprehensive local political debate on future road pricing in Trondheim is likely to emerge as the termination year of the present system (2005) is approaching. This debate probably will be based on different interpretations of the local road pricing history. Opponents are likely to denounce the present system as a failure, because the different interest groups have achieved less than expected, because the charging principles are unfair, because demand management effects are insufficient, or because the state may have withdrawn ordinary funds in response to increased user revenues. Proponents are likely to emphasise the tokens of success: Infrastructure for different groups has been completed, the charging technology works efficiently and provides flexible opportunities for differentiating the charging principles. Thus, learning from road pricing cannot be a "neutral" undertaking. Interpretations will be biased in some way or another, establishing the ground for new political struggles and compromises.

### **Acknowledgements**

This research project was supported by The Local Transport Policy Research Program under the auspices of the Research Council of Norway.

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**Figure 1:** The Trondheim toll ring in operation from 1991

**Figure 2:** The revised Trondheim road pricing scheme in operation from 1998