



Trondheim, Norway

Trondheim is located in the middle part of Norway called Trøndelag, 500 km north of the capital city Oslo. With a population of 165,000, it is the third largest city in Norway, and the only major city in the Trøndelag region with its population of 412,000.

During the 1970s and early 1980s, Trondheim experienced a significant increase in traffic, accompanied by congestion and environmental problems. In particular, adverse effects resulting from through traffic in the city centre attracted much attention. The proper solution was envisaged to be a network of main roads that would move traffic away from the city centre and residential areas. The policy initiative concerning the toll ring originated in 1985, during the last stage of preparing a new transport plan for Trondheim. The first milestone was a unanimous declaration in the City Council, asking for a feasibility study of a local financial contribution to road construction, providing 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 additional financial grants. With ordinary State funds only, completion of the new road network would probably have taken 35-50 years. With the extraordinary financing plan, construction could be accomplished in 10-15 years.

Why was urban road user charging proposed in Trondheim?

The objective of road user charging was to raise private sector revenue to feed an urban transport investment package, initially intended to be financed 60% by user fees and 40% by government funds. The differentiated charges and the absence of seasonal passes had a secondary demand management objective.

Motorists had to pay per trip (with limits) and they paid more during peak periods. Still, the charging system was not intended to manage congestion, since the peak toll was set low, and the peak/off-peak differential was small.

What were the features of the Trondheim scheme?

The Trondheim scheme was unique in three respects when it was introduced in 1991:

- it was fully electronic with no stop toll lanes,
- it had time-differentiated charges, and
- only a payment per trip option was available.

Eleven new automatic toll stations were built, of which only one had additional manned operation. In addition,



one existing manned motorway toll station completed the ring. Twenty-one of the 35 lanes leading into the toll stations were no-stop lanes for electronic tag holders.

This scheme went through two major revisions. Firstly, in 1998 some charging points were relocated and six more were added, making it into a multi zonal system comprising 18 stations. A second revision of the scheme layout was made in November 2003 by adding an inner CBD (city centre) ring. This increased the number of stations to 24. The basic charge level was raised from NOK 12 (€ 1.30) to NOK 15 (€ 1.65) on 26 February 2001. On December 30, 2005 the concession period ended, and the urban tolling system in Trondheim was turned off and dismantled.

How was the Trondheim scheme developed?

During the period of preparing the toll ring and the investment package, shifting political preferences influenced the plans. Especially, the environmental upswing in the late 1980s/early 1990s was reflected in a demand-management element in the fee structure, as well as in the allocation of part of the revenue to public transport, safety and environmental upgrading.

A major planning challenge has been to secure sufficient

agreement on the toll ring through more than a decade of numerous minor decisions. The planners' abilities to gain continuing support rest on an understanding of the political climate, close co-operation with leading politicians, and responsiveness to public opinion.

Impacts of the Trondheim scheme

During 1992, the first year of operation of the Trondheim toll ring, inbound car traffic through the cordon decreased by 10% during both the high and low charged periods. This decrease in traffic was offset by increases in inbound car traffic in evenings and at weekends. Thus, over the week as a whole, total traffic volumes across the toll ring were virtually unaffected by the charging. For some trip purposes like inbound work-home and home-shopping, there were substantial shifts away from the charged afternoon period to the uncharged evening period. When charging was terminated at the end of 2005, traffic impacts were in many ways mirror images of the impacts when charging was introduced. Changes in departure times and route choices were the most visible responses to the annulment of charging by car drivers. In general, the Trondheim charge levels were modest, but traffic still displayed sensitivity to tolls.

It is not possible to conclude that the toll ring had an effect on air quality. Observed variations in PM10 levels are most likely due to changing weather conditions. In total the charging scheme brought in €215 million over the period 1991-2005. Annual operations costs were 10-11% of gross revenues throughout the period of operation. City centre trade did not seem to be negatively affected.

Opinion polls on the attitudes to the Trondheim toll ring indicated decreased opposition after implementation. Six months prior to implementation about 70% of the respondents objected to the toll ring. Two months after implementation the negative share had dropped to below 50% and during the summer of 1992 the negative share was 35%. During 2005, the last year of operation, the negative share was again slightly below 50%.

Conclusion

The history of the Trondheim scheme has shown that road user charging schemes can be linked to several interests and objectives which are likely to be negotiated and interpreted on several occasions throughout the long and messy policy process, even after implementation.

The often formulated ideal of one principal, unambiguous goal as the best way to implement road user charging or congestion pricing is not supported by the Trondheim case. Several objectives have been present, preparing some common ground for agreement and flexibility. Earmarking of revenues for specific purposes has been of major importance in securing local support.

