

## Operation and maintenance of railways

– extensive cost deviations

### Summary and recommendations

The Swedish National Audit Office has audited whether the Swedish Transport Administration ensures that the State receives as much railway maintenance as possible for available resources. In order to answer this question the Swedish NAO has examined whether:

- the cost deviations between tender prices and final costs are substantial
- there are systematic factors that are associated with the cost deviations
- the Transport Administration works effectively to minimise cost deviations.

The audit findings indicate that the procurement of railway maintenance does not work as efficiently as it should and that ultimately the State could get more maintenance for the resources spent. The cost increases are larger as compared with the Transport Administration's all contracts and also compared with the corresponding contract for road maintenance.

There are systematic differences in cost deviations between, for example, different regions, different contractors and different ways of designing contracts. The Transport Administration's knowledge of the facilities and its follow-up of performed work can be improved. In the long term, the Swedish Transport Administration can also design basic maintenance contracts in a better way, but for this to be possible, it is necessary to first develop the ability to estimate future maintenance needs.

### Audit findings

The cost deviations are large

Out of 31 contracts for base maintenance of railways studied, running between 2007 and 2019, 28 had a higher final cost compared with the tender amount. The average cost increase was 74 per cent, although the trend moved towards lower cost deviations at the end of the period studied. The cost deviations are considerably higher than for the Transport Administration's contracts as a whole. For them, the increase was 32 per cent for contracts that ended in 2017 and 21 per cent for contracts that ended in 2018. The cost deviations are also larger than

corresponding contracts for the maintenance of roads that the Swedish NAO audited in 2019, when the increase was 41 per cent. *Winter maintenance* makes up about one-tenth of the basic maintenance contract. The average cost increase was greater for this part of the contract; 91 per cent.

### There are systematic factors that are associated with the cost deviations

There are a number of systematic factors that are associated with the size of the cost deviations. The Transport Administration cannot resolve some of the factors, while it can influence others.

The characteristics of the contract area and the weather are examples of factors that the Transport Administration cannot influence. However, the authority needs to be able to handle them as effectively as possible when preparing tender documents and designing contracts.

There are also factors that the Transport Administration can influence. The cost deviations are less for *Operation and maintenance*, excluding *Winter maintenance*, when the Transport Administration procures the contract as an outcome-based contract. The choice of winter maintenance compensation model is also associated with the cost deviations. The cost deviations are smaller when the same project manager is responsible for the procurement and implementation of the entire contract. There are regional differences in cost deviations, which indicates that the progress made by the Transport Administration's maintenance districts to address efficiency shortcomings varies. There are also differences in cost deviation between some contractors. In addition, the cost deviation is greater when the same contractor is responsible for a contract area for two consecutive contract periods. This may indicate the presence of 'unbalanced bidding', aimed at maximising compensation in relation to the amount of work done. This suggests that there is great scope for applying different pricing strategies for contractors, especially in the *Winter maintenance* part of the contract.

### Knowledge of the facilities and follow-up of performed measures need improvement

The IT systems used by the Transport Administration do not meet the requirements that can be made of an efficient railway asset register. There is no system that can provide an aggregated picture of the condition of the facility, including historical condition and conceivable future condition. The results of inspections are not used to forecast the rate of deterioration and analyse future maintenance needs. Nor is there any systematic reporting of what the Transport Administration has purchased within a contract, so that purchased quantities can be linked to the costs at a sufficiently detailed level. There are errors in account coding of costs to varying degrees in all maintenance districts and contracts.

Without sufficient knowledge of the facilities and tools for appropriate analysis, more will be required of those responsible for individual contracts at the Transport Administration. Due to the difficulty of describing the contractor's commitment clearly and accurately, it is not always possible to design the contracts in the way that normally minimises the risk of cost increases and provides the best conditions for long-term efficient maintenance.

## Recommendations

In view of this, the Swedish NAO makes the following recommendations:

To the Government:

- Instruct the Transport Administration to analyse the scope and consequences of unbalanced bidding in basic railway maintenance contracts.

To the Swedish Transport Administration:

- Set up an IT system for information about facilities that enables more complete collection of information about the condition of the facility, which can be used to predict its future condition.
- Develop a procedure for systematic reporting of purchased quantities and their costs within a contract. This will enable follow-up at detailed level of maintenance measures purchased in both adjustable and non-adjustable quantities, and their costs. The aim is to make the maintenance measures searchable in the accounting system and producible in accordance with the structure of the list of quantities, so that the Transport Administration will be better able to produce qualitative tender documents when a new contract is to be procured.
- Improve analysis in order to better identify future maintenance needs and plan maintenance measures.