

EXPERIENCES FROM LONG-TERM SERVICE CONTRACTS FOR BITUMINOUS PAVEMENTS

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ABSTRACT RÉSUMÉ

The Finnish Transport Agency decided to develop a new approach to make road pavement management more efficient by involving the private sector in the management work. The objective is to pool the contractors' collective professional expertise into this work. We developed several different models for pilot projects with the idea of inviting the contractors to participate in helping to decide which pavement methods to apply on specific roads in the network.

We now have several years of experience of these pilots and can present some very promising results. It seems that engaging the contractors' professional expertise in this new decision making model gives the client better value for money than in the traditional management contracts. Even the contractors as the service providers have gained some notable benefits from the pilot projects.

L'Agence finlandaise des transports décidé de développer une nouvelle approche de gestion des chaussées en impliquant le secteur privé dans les travaux de gestion afin de la rendre plus efficace. L'objectif est de mettre en commun l'expertise collective des entrepreneurs professionnels dans ce travail. Nous avons développé plusieurs modèles différents pour les projets pilotes, susceptibles d'inviter les entrepreneurs à participer aux décisions sur les méthodes de revêtement devant être à appliquées aux routes spécifiques du le réseau.

Nous avons maintenant accumulé plusieurs années d'expérience grâce à ces projets pilotes, ce qui nous permet de présenter des résultats très prometteurs. Il semble que l'engagement de l'expertise professionnelle des entrepreneurs dans ce nouveau modèle de prise de décision prise offre au client un meilleur rapport qualité-prix que dans les contrats de gestion traditionnels. Notons aussi que entrepreneurs ont pu tirer en tant que prestataires de services des avantages notables de ces projets pilotes.

1. BACKGROUND

The goal of the Finnish Transport Agency's procurement strategy is to create conditions for improving the productivity of the service providers in the sector, and enhancing the Finnish Transport Agency's own procurement operations. At the same time, we need to ensure that the targeted service levels and quality attributes are met. In order to achieve these goals, we use agreement models, which support the service providers in providing good service to their customers, the road users. They also give a degree of freedom for the service providers to develop and use new technical solutions and products [1].

In line with the procurement strategy, service agreements are developed for procurement of maintenance. The duration of service agreements is several years, during which time the service provider provides the services specified in the agreement. Development of the

service agreement aims to provide a controlled increase in the service provider's responsibilities in pavement management throughout the entire life cycle of the agreement. This is done by extending the period of the agreement and giving the service providers more opportunities for planning activities and developing and using new technical solutions. The central aim of introducing maintenance service agreements is to create conditions for improving the productivity of the sector's service providers and the Finnish Transport Agency's own procurement operations. Improving the productivity of the Finnish Transport Agency's own operations requires the development of structures and operating models in order for fewer experts to be able to manage the agreements. Another goal is to maintain the capital value of the road network. The ultimate goal is to develop a network of cooperation between companies and actors within the sector, as well as operating models that promote development, and are based on trust [1].

The development work on the maintenance service agreements began in 2005 and the first contract for paved roads started in 2006 [1].

2. CONTENTS OF A SERVICE AGREEMENT

2.1. Difference between Service Agreement and Traditional Contract

The contents of the service agreements are more extensive than in the traditional maintenance contracts. In the Finnish Transport Agency's traditional maintenance contracts of 1-3 years, the contractor carries out the maintenance work specified in the contract within a set timetable. The work includes all preparatory and finishing works as well as quality assurance. The contract specifies the working methods and material requirements for the pavement of each road with the required quality level, and the contractor reports on the achieved quality. The contracts are mainly lump sum contracts, but they can also include works with a unit price. The warranty period for the work is usually two years [1].

In the service agreement the client transfers parts of its current role to the service provider. Pilot agreements are used to test which tasks can easily be transferred to be the responsibility of the service provider [1].

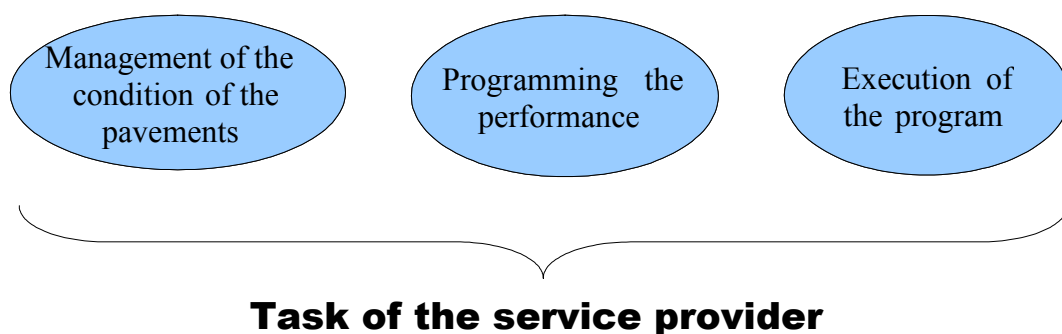


Figure 1 - The content of a service agreement

As shown in Figure 1, the service agreement transfers responsibility to the service provider for monitoring the pavements, managing and planning the maintenance for them, in addition to the execution of the work. The service provider is responsible for the specified condition of the paved network covered by the agreement, which requires monitoring and

controlling the objective measurements which relate to condition requirements and measurement techniques [1].

At present, it is only possible to use service agreements to manage the condition requirements of the main roads in the network, because they are not yet suitable for the management of the low-volume road network. This restricts the use of condition requirements in service agreements. Consequently, a partnership model to be used for a low-volume road network was developed as an alternative form [2].

2.2. Contents and Responsibilities of Service Agreements

2.2.1. *Model based on Condition Requirements*

In this model for maintenance of paved roads, the service provider is committed to maintaining the surface condition of the road network in at least the specified condition for the duration of the service agreement. The maintenance service for the surface condition of the paved road network includes paving and patching, road markings and repair of gravelled shoulders. The service agreement covers the preparation of an annual programme by the service provider, and reports on all implemented tasks. It also covers measuring the pavement condition at the end of the year and reporting the results to the client. A fixed annual service payment is paid to the service provider each year. In this model the service provider is not responsible for the structural condition of the road, which is why the model is best suited to the main road network, which is in rather a good condition in Finland [1].

2.2.2. *Partnership Model*

In the partnership model for the maintenance of paved roads, the client and the service provider work in close co-operation in selecting the roads to be paved, planning the actions to be taken and preparing timetables for the work. The service provider can suggest its own solutions and methods, which it believes to benefit both parties and give a better and more economic final result with regard to lifetime costs. The service provider is paid for the maintenance work according to the number of work units executed. The funding available for maintaining the paved road network included in the agreement is flexible and varies each year. The service provider is, however, guaranteed a minimum amount of work each year. The partnership model is best suited for the low-volume road network, for which it is not possible to establish comprehensive condition specifications [1].

2.2.3. *Hybrid Model*

The hybrid model for maintenance of paved roads is a combination of the two previously described agreement models. In the hybrid model, the condition specifications are set for the main road network, and the low-volume road network is maintained according to the principles presented in the partnership model. The advantage of this model is that the whole paved road network in an area can be included within the same service agreement. The service provider is paid a service charge that is partly fixed and partly based on the work units executed [1].

2.3. Examples of Service Agreement Pilots

2.3.1. *Helsinki-Tampere-Turku Pilot with Condition Requirements*

This service agreement includes the maintenance of part of this area's main roads: main road number 3 Helsinki – Tampere, main road 9 Aura – Toijala and main road 10 Lieto – Tuulos. The contract time is from 2007 to 2018. Four service providers took part in the

competitive tender and Lemminkäinen Infra Oy was awarded the contract. The road network covered by the agreement totals 1.271 lane kilometres of roads. The agreement covers maintenance of the carriageway, additional lanes, gravelled shoulders and road markings as well as patching and repairing cracks. The service provider is required to keep the road pavements in the specified condition. It is required to monitor the condition through measurements and inspections, and to plan necessary operations for maintaining the required condition level. The contractor receives annually the same amount service payment according to its offer [1].

2.3.2. *Vaasa-Turku-Tampere Partnership Pilot*

The aim of the paved roads maintenance service agreement covering the western co-operative area is to develop a partnership based agreement model that will be suitable as a service agreement for the maintenance of the low-volume road network. The service agreement opened to competitive tender in spring 2008. The contract time is from 2009 to 2014. The length of the road network is 1,465 kilometres in a geographically well connected area (Turku 605 kilometres, Tampere 230 kilometres, Vaasa 630 kilometres) and it only includes paved roads in the low-volume road network. The aim of the partnership model for the low-volume road network is to bring the client and the service provider together in active co-operation to select roads to repair, plan operations and seek new and more efficient solutions. The client is responsible for the management of the condition of the road network, and it is not necessary to maintain exactly the same annual level of funding throughout the duration of the agreement. The target level is 2.3 million euros/year. The minimum level (which the client is committed to) is 1.5 million euros/year and the maximum level (to which the contractor is committed through the competitive tender pricing agreement) is 3 million euros/year [1].

3. EXPERIENCE FROM SERVICE CONTRACT PILOTS

Experience shows that maintenance of paved roads can be procured using service agreements and that the Road Regions as clients have reacted positively to the development of this procurement model. There is now a consensus in Finland that the partnership model is most suitable for the low-volume road network, and specified condition requirements are suitable for main roads with traffic volumes over 5 000 vehicles/day [2].

For the maintenance of paved roads, the choice of which service agreement model to use is therefore a critical factor in the functioning of the service agreement and the risks involved. In the future it is worth using a condition requirement-based agreement model for the main roads and a partnership-based agreement model for the low-volume road network, or even a combination of these two models. But there should be enough flexibility for both managing changes in the operating environment and taking the customer needs into account [2].

The requirements specified in the condition requirement model have to be precise and the condition parameters unambiguously measurable and not based on a subjective evaluation [1]. It is also particularly important that the agreements are transparent and that they contain room for flexibility and rules for managing changes [2].

The long duration of service agreements will inevitably carry risks caused by changes in the operating environment, which neither party will be able to reliably predict. For example, a small increase in the volume of traffic will not result in the need to adjust the agreement,

but problems may arise if the volumes of traffic increase considerably in a part of the network included in the agreement. This will result in a round of negotiations with the service provider, which always costs the client money [1].

Because these contracts are index linked, it is important to ensure that there is enough future funding to pay for these contracts. If funding does not increase in parallel with the index, it will cause a problem [1]. If part of the paved road network is tied to a long-term service contract, the remaining part may not get its share of the maintenance funding if the total funding decreases. This leads to inequalities in the regional maintenance of the paved roads [2].

Maintaining a functioning tendering market and a sufficient level of competition is seen as an important goal. It is important to also use traditional contract models to avoid the situation, where only large companies succeed, and small and medium sized companies disappear from the market. The functioning of markets can also be safeguarded by creating contracts of different sizes and types, and opening them to competitive tender according to a coordinated timetable [2].

Service agreements demand a wide range of skills and they are not all available in just one company, but need to be acquired by networking with other companies in the sector. It may cause a problem and block the functioning of the market, if contractors wishing to participate are not able to find sufficiently skilled partners [1]. This is particularly true, if the number of service agreements grows rapidly. It is an additional reason for why it is important to also use traditional contract models [2].

A change in the operating culture towards working together is regarded as beneficial, because change usually results in positive development needs. Skills develop with demand, and the best companies always adapt to demands. Changes in the operating environment lead to major cultural changes and a need for adaptation by the client, too. Consequently, it is important that the client also has sufficient skills to adapt. A change of behaviour is considered as a major challenge for both parties [1].

All development concerning maintenance is extremely important and should support the working methods of the whole sector. Development activity should be driven by companies, but development also needs demands from the client's side [1]. It is now possible to show the benefits gained through the service agreements. There has been an increase in development work in the sector and a recognition of increased skills [2].

At first, it was feared that service agreements would lead to development activity that was not desired by the client. In other words, it was feared that the development activity would only focus on efficiency and would merely satisfy the client's demands by undertaking the fewest possible operations [1]. This fear proved to be unfounded. Especially in the agreements, which specified condition requirements and last over 10 years, the contractors have put significant effort in developing long-lasting pavement solutions [2].

If the condition requirements for service agreements are defined in accordance with the operational policies for road maintenance, the condition level achieved in line with the policies will be at least the same as the condition of the rest of the road network. The condition shown by measurable variables is probably better than the rest of the network because deficiencies in the pavement condition attract such strong sanctions that in practice the service provider has no other option than to complete the work [1].

If the contract has specified condition requirements and the contractor is in charge of the condition of the paved roads for a long time, the contractor tries especially hard to do its pavement work to a very high quality to achieve as long a lifetime as possible for the pavement. This gives also the client the benefit of high quality pavements [2].

The benefit from long-term contracts to service providers is that a long term order book ensures continuity and makes a better development possible as well as promoting networking between producers. A long-term assignment also enables sensible investment as well as increasing the number of employees and developing their skills [1].

4. FINAL CONCLUTIONS

Service agreements can be seen as one procurement model among others for road maintenance. If the service agreement model, the contents of the agreement and the scope are selected appropriately and the requirements are specified in accordance with the operational policies, then nothing significant should happen with the end result of road maintenance [1].

A service agreement that includes condition requirements should last at least ten years and be used only on main roads with a traffic volume over 5 000 vehicles/day. This traffic volume boundary is used in Finnish circumstances, where we use studded tyres in the winter. These tyres eat away at the surface of the pavements and this impacts upon when the pavement needs operations [2].

For paved roads with low traffic volumes it is recommended to use the partnership model. Here it is enough to have a duration of five to six years. The risks for the contractor are very small and he is guaranteed a minimum amount of work in the area. The client gets use of the contractor's skills in selecting the repair methods [2].

It is still important to keep using also the traditional contract models. In Finland there is no guarantee that the government gives funding enough to keep the whole paved road network in good condition. Therefore it is recommended that a maximum of 25 % of a Road Region's funding is tied to long-term service contracts. This provides an opportunity to keep the whole paved road network in a quite satisfying condition even if the funding decreases [2].

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