FINNISH ROAD ADMINISTRATION'S (FINNRA'S) NEW PROCUREMENT STRATEGY FOR THE ROAD SECTOR

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Abstract

The Finnish Road Administration (Finnra) recently developed a new procurement strategy for both capital investments and maintenance/improvements contracting. This is for the public road sector in Finland and is effective through 2006. This builds upon and complements our previous research study in 2001, which summarized innovative project delivery methods for infrastructure. The method for developing the procurement strategy was developed in cooperation with industry participation and many key stakeholders. Three working groups including capital investments, maintenance and upkeep, and market analysis, developed the concepts and strategic development. The main goal of the procurement strategy by Finnra attempts to solve some of the problems associated with development and integration of the road infrastructure sector. In Finland, the "*Infrastructure* sector" is lagging in development, such as little or no innovation, re-organization of the road administration, lack of customer focus, perceived low profile and image, little value added services towards the client, an ageing road administration, and poor contracting methods, especially for maintenance. Recently, there has been a focus to procure capital and maintenance projects that include cost accountability to society and attempt to focus on Life Cycle Costs (LCC). The new strategy also attempts to develop the contracting industry. Some key aspects are to provide an atmosphere for the potential to utilize innovation, and allow flexibility for the service providers so that it is possible to have effective and efficient processes. The aim of this paper is to present the results of the new procurement strategy that has been developed and used by Finnra, along with the key issues and driving forces, which includes the development of the road sector's innovation, better productivity, cost savings, increasing competence and know-how, and increased profitability for the service provider industry. Conclusions include moving towards longer term performance-based maintenance contracts, seeking "Life Cycle" or whole life solutions, and developing new models for capital investment projects. Other benefits include value added client services and better services for the real customer - "**the road user**". This paper can be a useful tool for road administrations, contracting industry, and other transportation officials.

Keywords: Procurement; Strategy; Innovation; Project delivery methods; Contracting; Maintenance; Performance-based specifications
Topic Area: H4 Strategic Changes in Transportation Organizations

1. Introduction

The Finnish Road Administration (Finnra) entered into a new paradigm beginning on January 1, 2001, when Finnra became more of a pure client organization and began the client-producer concept. This in practice means that Finnra must begin to procure capital investment projects, maintenance, upkeep and improvements, and design/engineering via public procurement processes. Subsequently, Finnra decided to study and develop modern

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and innovative procurement practices for capital investment projects, maintenance services, and upkeep and improvements. This paper includes the development of a procurement strategy and practical issues that need to be developed through 2006.

This paper highlights the procurement strategy of Finnra and attempts to address several issues that were encountered during its creation. Also, the procurement strategy sends a signal to the private sector to develop products and services that are desired during the transition. This procurement strategy also includes more customer services directed toward the road user to maintain a safe and reliable road network that is in harmony with the environment.

1.1 Background details of Finnra

The Finnish Road Administration (Finnra) is a governmental agency under the Ministry of Transport and Communications, which is responsible for public road management in Finland. Finnra is responsible for approximately 78000 kilometers of public roads in Finland. This consists mainly of main roads, rural roads, local roads, pedestrian and bicycle ways, and a small amount of motorways. About one-third of the network consists of gravel roads, which presents concerns during the freeze thaw cycles. (It should be noted that prior to 2001, the organization was called the Finnish National Road Administration).

On January 1, 2001, Finnra entered into a new paradigm, which began the client - producer concept for managing the public road network. This means that Finnra is more like a client type organization that has no production capability to perform maintenance, construction, upkeep and improvements, and design/engineering. The production portion personnel where transferred to a separate governmental entity, known as the Finnish Road Enterprise. The Finnish Road Enterprise is a state owned enterprise that must compete for services in an open public tendering process. This is by no means a trivial issue and Finnra must now begin to procure most services via open public competition. Therefore, it is essential to develop the public procurement delivery systems that deliver modern solutions. It should be noted that the procurement of services will be gradually phased in over a four year period to develop the necessary skills for both Finnra and the Finnish Road Enterprise. During this four year transition period (2001-2004), it is necessary to have some contracts that will still be negotiated with the Finnish Road Enterprise. In the beginning of 2005, basically all services will be procured via open public tendering. Finnra's core activities will then concentrate on road policy, strategies, safety, traffic management, road programs, procurement of all related capital investment schemes, and procurement of all periodic and routine maintenance.

1.2 Goal of the procurement strategy

Finnra’s vision is to utilize the best procurement practices in a developed and functional marketplace in Finland. One goal is to develop and begin using project delivery methods and practices that encourage the utilization of innovations and new product developments by designers/engineers and contractors (or service providers). Hopefully, this will provide the opportunity to improve operational productivity, efficiency, and even a profitable environment for the service providers.

The key issues and driving forces behind the procurement strategy are: how to develop the road sector's innovation; productivity; achieve cost savings; increasing competence and know-how; increase profitability by the service providers; and reduce traffic congestion during construction and maintenance activities. Based upon research results, and Finnra’s own expertise, and joint approval from the key stakeholders, these can be accomplished by implementing innovative project delivery methods and by improving the existing models.

1.3 Methodology and development of the strategy

In 2002, the goal of Finnra's procurement process was to create a procurement strategy. In other words, the management of Finnra initiated the objective and the "procurement team" was responsible for developing a strategy that was satisfactory. The procurement strategy was prepared and divided into three work groups. One working group was responsible for the procurement strategy for capital investments, another working group was responsible for upkeep, improvements, and maintenance, and the third working group was responsible for evaluating the competition and market. A steering group managed the overall process and guided the working groups as the strategy was being developed.

The basic principles included industrial seminars and a project plan for compiling the strategy. In the beginning, a key aspect of the strategy was to include the infrastructure industry responses that would be included into the strategy process. Three seminars were arranged with the infrastructure industry participants, where they had an opportunity to express their views on the policies regarding the new strategy. The infrastructure sector organizations were present at the seminars and many were allowed to prepare statements from their perspective.

The guidelines of the strategy were reviewed by Finnra's steering group and an implementation plan was developed. Later a draft of the procurement strategy was reviewed and commented by Finnra's management. The compiled procurement strategy includes and follows the general international development trends. A summary of the international developments demonstrated that procurement is shifting toward more integrated services, requiring broader know-how by the service providers, and activities previously procured by several agreements are being included under one inclusive agreement. Also, quality standards for agreements are shifting to utilize functional or performance-based specifications and more "outcome-based criteria".

The compiled strategy also includes a scheduled plan specifying when the developed methods will be tested and implemented. The governing board of Finnra evaluated the content of the strategy and recently approved the procurement strategy and allowed the implementation of the procurement strategy to go forward.

1.4 International procurement practices

Finnra decided to research some of the most innovative and progressive countries throughout the world, and evaluate some of the best practices and development issues. A report titled ***"Innovative Project Delivery Methods For Infrastructure - An International Perspective"*** (*1*) was generated that summarizes the results of the study. This study provides the framework and background for developing the "Procurement Strategy of the Finnish Road Administration (Finnra)" (*2*).

Many countries around the world are striving to answer the challenges in constructing and maintaining the transport infrastructure, which is important for the development of society. Based upon the results, the dominating trend seems to be the public sector's relinquishment of its own production activity and the privatization of production type activities. England and a few other countries have been forerunners in this development, and many "Anglo-Saxon countries" have followed the trends. This development has advanced the furthest in England, New Zealand, portions of Australia, and in some Canadian provinces. These models have also been tested elsewhere in the world.

The common characteristics of the development of procurement delivery methods have been a shift toward a longer contract duration, larger service network areas (or maintenance areas), broader content of services (bundling), and shifting responsibility for quality aspects toward the service providers. At the same time this has meant a change in the role of the client organization by procuring services previously procured via separate

contracts. *Figure 1* shows the different types of project delivery methods as well as the possible combination of periodic and routine maintenance.

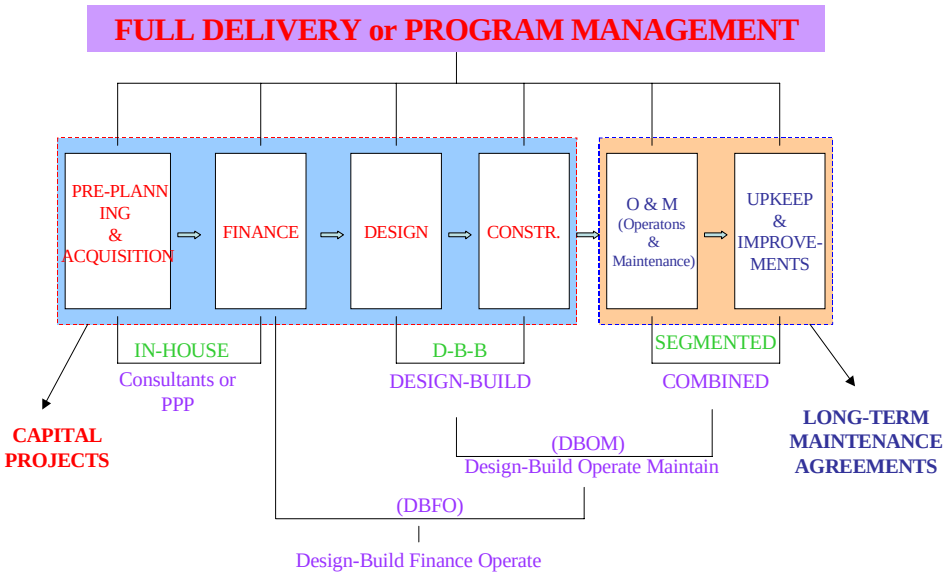

Figure 1. Depiction of Project Delivery Methods

On the basis of international experiences gained so far, cooperation and partnering have enabled the realization of the ”win-win principle”, meaning that both the clients and service providers have benefited. There are various estimates of the amount of cost savings realized by the client. Client organizations have stated cost savings ranging from 10-20% as compared with earlier practices. Service providers on the other hand, have stated larger cost savings in the range of 20-30%.

Many of these so called best practices and lessons learned have been adapted into the Finnish model for the procurement of products and services. The Finnish system and culture methods for performing services will probably remain and continue to utilize non-bureaucratic means.

2. Summary

2.1 Traditional practices in Finland

Finnra’s previous procurement practices for commissioning policies and competitive bidding practices for roads were already evaluated and tested prior to 2000. The main focus at that time was the gradual opening of competition prior to the transition period from 2001-2004, which was part of the road reform from the past administration (Finnish National Road Administration). This policy was a key element for developing competition and determining that a functional market was available.

2.1.1 Design/engineering services

Some Design/Engineering services were already open to public competition (prior to the phased-in transition period from 2001-2004), but selection was based upon the lowest bid with hourly rates. Procurement of other expert services (e.g., procurement of road and traffic information, follow-up studies and special studies) were via negotiated contracts on an as needed basis. Since the past administration (Finnish National Road Administration)

had its own design/engineering capability, outsourcing was used to balance the work load or when special expertise was needed.

2.1.2 Capital investments

Capital investment project delivery methods have been traditionally used and implemented, with Design-Bid Build (DBB) method being the most common form. DBB has been used for both competitive tendered projects and for those that were self-performed. There have been a few pilot projects utilizing the Design-Build (DB) project delivery method, but were not a common form of practice.

Contractor selection criteria for Design-Bid Build (DBB) contracts have been based mainly on price. Design-Build (DB) contracts used some element of quality (other criteria), which accounted for approximately 25% and the price amount was about 75%. However, most of the specifications were method-based specifications, and contractors were more of a “works” oriented profession.

2.1.3 Maintenance practices

Public procurement practices for routine maintenance services began as early as 1998, in the form of "routine area maintenance contracting" and continued through 1999. Finnra defines routine maintenance in these contracts as winter maintenance, minor gravel road repair, minor drainage cleaning and activities, cleaning and crack repair, vegetation control, cleaning (signs, bridges, roads), and trash removal. Historically, Finland has about 99 area maintenance networks that encompass the entire road network of about 78000 kilometers. These contracts were of one year duration and for routine maintenance services. Typically, maintenance contracts utilized and relied upon method-based specifications, which directs the workers with detailed instructions and types of equipment that can be used, especially for winter maintenance.

2.2 New procurement strategy for capital investments

The new procurement strategy for capital investment projects will require the development and implementation of new project delivery methods by the year 2007. These new project delivery methods for capital investment projects will complement the existing project delivery method portfolio, and attempts to integrate the processes. The new procurement methods include more inclusive agreements that will procure services for a longer period and have a broader and more inclusive content. Quality standards will be subjected to functional or performance-based specifications. Competitive bidding practices for Design & Engineering consultants and the existing procurement methods (DBB) will also be improved along with the development of new project delivery methods.

2.2.1 Design/engineering services

Beginning in 2005, all Design/Engineering services will be tendered in open public competition and there will no longer be any negotiated contracts with the Finnish Road Enterprise. Procurement for these as well as other expert services (e.g., procurement of road and traffic information, follow-up studies and feasibility studies) will be open to competition. Selection of Design/Engineering services will be based upon a best overall cost effective approach, in which selection is based upon a combination of price and quality.

2.2.2 Capital investments

Capital investment project delivery methods have been traditionally used and implemented, with the most common form being the Design-Bid Build (DBB) method.

Design-Bid Build accounted for approximately 75% of all projects by quantity and approximately 35% based upon the total expenditure. Contract development has since advanced toward more integrated methods such as the use of Design-Build (DB) project delivery method, which accounted for approximately 25% of all projects by quantity and approximately 65% based upon the total expenditure. Construction Management at-fee and at-risk (CM at-fee and at-risk) project delivery methods are seldom used. Finnra previously tested Construction Management at-fee and at-risk (CM at-fee and CM at-risk) methods to supplement the under-capacity or lack of know-how in its own organization. If Construction Management (CM) is utilized, then Construction Management at-risk will be the preferred choice. Typically, Construction Management at-fee will not be a standard form of practice.

Beginning in the year 2002, about 60% of the capital investment construction projects were based upon open competition and about 40% were negotiated agreements with the Finnish Road Enterprise. Based upon calculations by cost, the corresponding percentages were about 90% for competitively tendered contracts and about 10% for negotiated contracts. In the beginning of 2003, all capital investment contracts were tendered in open public competition.

Contractor selection criteria for Design-Bid Build (DBB) contracts have been based mainly on price. Design-Bid Build (DBB) contracts will include criteria other than price and incorporate more modern issues that focus upon traffic performance during construction periods. Design-Build (DB) contracts will use a best overall cost effective approach and selection is based upon a combination of price and quality.

The new strategy will result in the development, demonstration, and practical issues for the Design-Build-Operate-Maintain (DBOM) and Design-Build-Operate-Finance (DBFO) project delivery methods. In Finland we refer to the DBOM and DBFO project delivery methods as "*Life Cycle Model*". The idea of an *"overall encompassing agreement"* is that the same service provider manages and influences various phases of the implementing process. The scope of an overall encompassing agreement may vary, and it can include a combination of design/engineering services (overall consultant agreement), construction, maintenance services, and possibly upkeep and improvements. Even private financing is included in the DBFO method.

The main idea of the *"Life Cycle Model"* is the procurement of a service versus a product, taking into account a whole life perspective. The main difference between the "*Life Cycle Models"* is that the DBOM method uses public finance, while the DBFO method uses 100% private financing and typically has a longer contract length. Also, the DBFO method requires longer and more costly tendering periods. To date, the DBOM method has not been tested in Finland, but will be tested during the strategic plan. The DBOM method means that public funding is already secured and the contract duration may be 10-15 years.

The DBFO method means that the project delivery method includes design/engineering services, construction, upkeep and improvements (periodic maintenance), 100% private financing, usually requires legal and financial services, and maintenance services for specified period of time (the contract duration is typically 15-30 years). The client will pay a service fee based upon the payment mechanism in the contract agreement. At contract ratification, the client will receive a legally binding price for the cost of design, construction, maintenance and upkeep, and an assurance that the road assets will be kept at a specified residual value. The private financing portion basically provides some leverage and attempts to assure that risks and more effective construction process are realized or exceeded. The first DBFO road project was the Jarvenpaa-Lahti motorway.

The DBFO & DBOM methods will assist to make it possible to minimize the costs of investment and maintenance over a long service life, thus enhancing customer-oriented satisfaction and providing mechanisms that promote and maximize the potential for innovations. At its broadest scope these methods are seeking a life cycle approach and ensuring the adequate flow of daily traffic. Based upon international experiences, these methods bring benefits to the customer, the client, and also for the service provider. Customer-oriented services are enhanced when the payment mechanism is linked to the expectations of the road user and societal demands.

There have been many studies and experiences worldwide analyzing the Design-Build (DB) method for capital projects. The reported results are quite positive and urge a teaming or partnering type approach as opposed to the traditional adversarial roles. Time, cost savings, and reducing traffic congestion seem to be some of the major benefits.

Current implementation of these new procurement models will be via experimental or pilot projects. Functional or performance-based specifications will be tested and implemented at various phases in the process. The transparency of operation, trust and ethical rules are the most important issues in developing competitive bidding. The use of incentives and rewards for economical, high-quality solutions also serves as an important aspect in the contract. Also, disincentives such as penalties will be used when performance is inadequate. These new procurement methods require close and true cooperation within Finnra itself, and also all the service providers (Design/Engineering, Contractors, and other consultants). As these models are tested in an open and competitive tendering process through 2006, the results will be closely evaluated and analyzed. Based upon the results, certain models may or may not be continued as a standard of practice and others may need to be re-engineered.

In summary, these new project delivery methods will be developed in phases by pilot or experimental projects by 2007. Experimental or pilot projects will provide experience for the suitability and acceptance of each method. Based on the results and experience, the project delivery methods can be modified and tested in the marketplace, before they can be either rejected or accepted as part of the procurement strategy. The goal is to have a planned schedule and have all the new forms of procurement tested by 2007. *Figure 2* highlights this development process and shows the progression of the capital investment projects. (It should be noted that this picture is a figurative highlight for the development of the project delivery models and has no quantitative significance or the number of projects). One might draw a conclusion that we are developing the tools for projects delivery methods and then when a project is brought forward we can utilize the best tool or project delivery method for that application.

2.3 New procurement strategy for maintenance contracts

The new procurement strategy for maintenance services will shift to a more comprehensive and extensive content of services, longer term maintenance contracts, and larger area maintenance networks. The strategy for maintenance contracting is shown in *Figure 3*, which highlights the additional tasks added into the routine area maintenance contracts, the increase in the contract duration (typically 5-7 years), and the increase in road length within the area maintenance agreements. These new concepts will make it possible to benefit from contractors' innovations, new product developments, productivity, and cost savings for the client. The desired outcomes for the various levels of service are achieved by specifying conditional standards for end products requirements or ***"outcome-based criteria".*** Outcome-based criteria will be gradually phased-in from the older detailed or method based specifications.

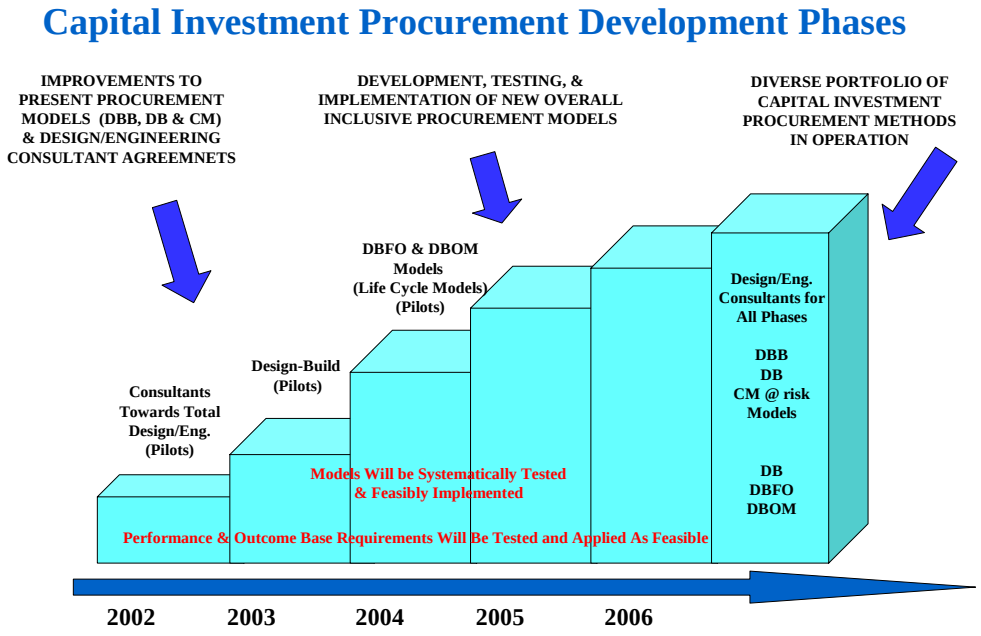

Figure 2. Capital Investment Procurement Development Phases

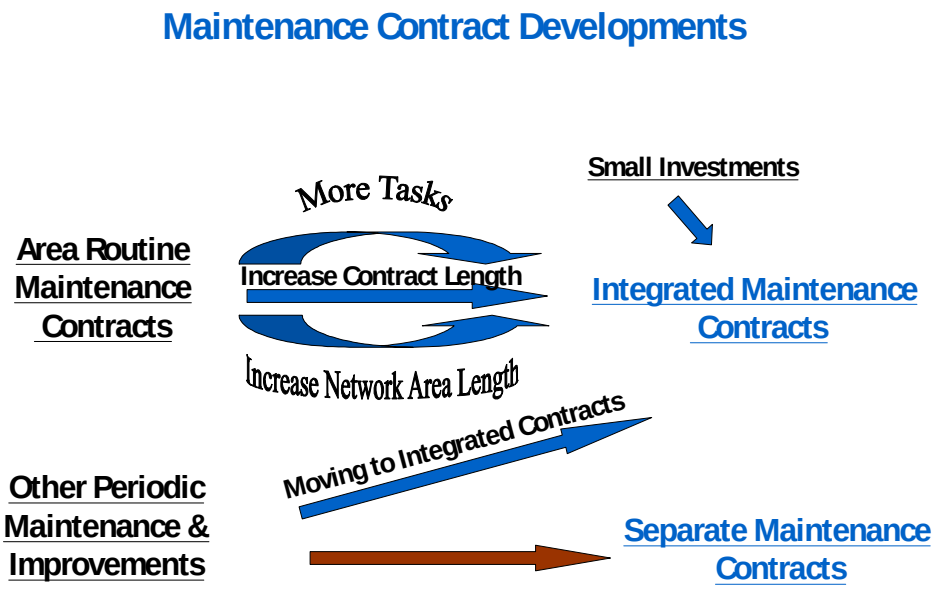

Figure 3. Maintenance Contract Developments.

We can vision two trends in the development of procurement of maintenance services. The first part includes a broader range of services into the "*Routine Area Maintenance Contracts*". These contracts emphasize the service nature of each activity rather than procuring activities and products, thus the contract agreements will be renamed/known as "*service agreements"*. The second trend of development is regarding the improvements of separate maintenance contracts, such as resurfacing contracts, bridge improvements, rehabilitation, and so on.

2.3.1 Routine area maintenance contracts

Presently, Finnra is in the last year of its four year transition period (2001-2004), with the final round of tendering prior to opening to public competition in 2005. During the first year of the transition period in 2001 there were 23 routine area maintenance contracts tendered. In the following year there were 26 contracts tendered and last year (2003) there were 28 contracts. The areas that were not tendered in the first three years were negotiated contracts with the Finnish Road Enterprise. Also, in 2004 the expiring routine area maintenance contracts tendered in 2001 will come up for re-bidding and will also be tendered in 2004. All the routine area maintenance contracts were for a term of three years. It needs to be mentioned again, that the routine area maintenance contracts include winter maintenance, minor gravel road repair, minor drainage cleaning and activities, cleaning and crack repair, vegetation control, cleaning (signs, bridges, roads), and trash removal.

Area maintenance contracts are mainly routine maintenance activities and do not include all aspects of maintenance attributes, as opposed to integrated or asset management contracts. Some of the most significant attributes that are not included in area contracts are road markings, road lighting, pump maintenance, and traffic signs and signals. Some resurfacing contracts have been expanded in the direction of road structure improvement and included into the maintenance contracts by including lower-class roads, such as gravel roads. Nowadays, the resurfacing contracts for low volume traffic roads or gravel roads usually include structural improvement in the form of specific site repairs, such as the repair to frost-heave damage, drainage improvements, and stabilization methods.

Routine area maintenance contracts are awarded on a lump sum contract basis. The payment in the contract is based upon a lump sum portion of 75%. The remaining portion (approximately 25%) is based upon unit prices for work performed. Unit pricing usually includes guard rail replacement, special type sign repair or renewal, larger road surface repairs, and renewal of gravel roads. Contractor selection criteria are based upon a price element of 75% and the quality (other) attributes account for 25%. Results from competitive bidding have significantly lowered the maintenance costs of public roads.

2.3.2 Progression of maintenance contracts

Until now, functional or performance-based specifications have mainly been tested in the negotiated contracts. Work that includes light structural improvement has also been tested with these two to three-year negotiated contracts, in which the contractor has been able to select their own innovative measures during the contract period. In the autumn of 2002, an experiment with four area maintenance contracts began, which included repairs to frost-heave damaged gravel road base structures, as an attempt to balance the contractor's resources over the whole year.

The strategy for these routine area maintenance contracts will be tested during 2003-2005, and will have a broad mixture of corresponding duration of 3, 5, and 7 years. The first 5 and 7 year long-term routine area maintenance contracts were already tendered in 2003. The 3 and 5 year contracts also include a two year additional option in these first few trials. Some frost-heave damage repairs previously tested have already been added to these area contracts beginning in 2003. Also, road markings have been included in some routine area maintenance contracts. This approach is necessary so that the shift to 7-year contracts can happen in such a way that it permits competition. *Figure 4* shows the development stages for area maintenance contracts from 2002-2006. (Again, this is a figurative highlight for the development of the area maintenance contracts and has no quantitative significance). This will also make it possible to transform the quality criteria of method based specifications toward outcome-based criteria.

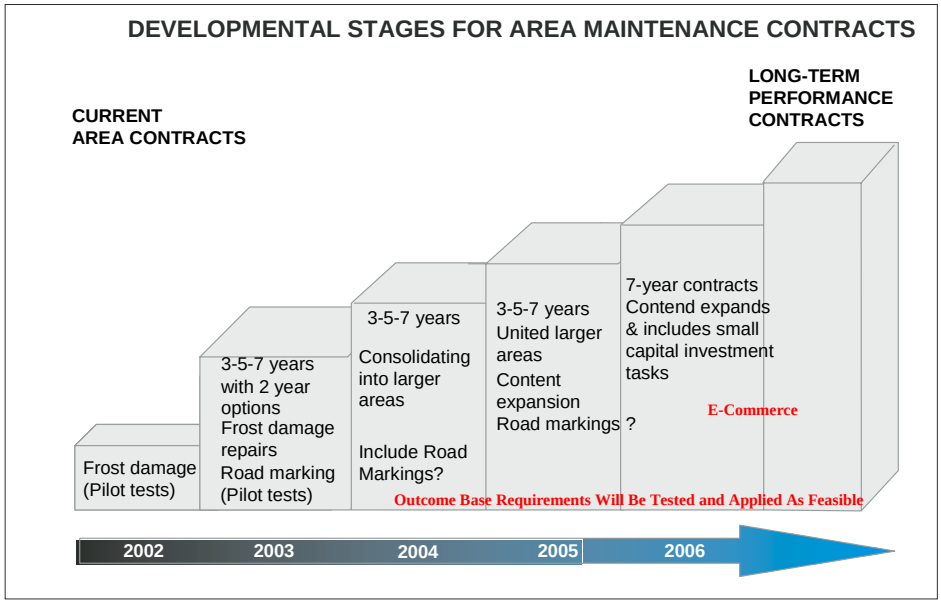

Figure 4. Future Development Stages of Maintenance Contracts

If the market responds favorably towards these new practices, then some of the contracts beginning in 2006 will have a term of 7 years (some 7 year contracts were already tendered in 2003). In developing these contracts there will be a system created that allows flexible changes to the content. This will allow possible alterations to the agreements and changes to the quality standards during the contract term. Toward the end of the transition period in early 2005, procurement for small capital investments and maintenance services may be combined into more encompassing and larger packages. For example, small capital improvements such as interchange improvements for traffic safety and congestion may be included in these maintenance contracts.

A seven-year contract period makes it possible to amortize capital equipment investments and utilize new equipment and innovations. Also, the geographical size of the contract areas will grow from the current 500–1500 km range to 1000–2000 km. For the largest urban areas with busy traffic volumes, the contract area of 500–1000 km may be sufficient. On the other hand, for the sake of competition in remote areas, it may be necessary to keep the contract areas to about 500 km.

2.3.3 Separate maintenance contracts

The content of the current contracts will expand and some of the maintenance work currently procured via separate contracts will be included into the routine area maintenance contracts. For example, maintenance of road markings and lighting may be included in routine area maintenance contracts. On the other hand, if this work can be justifiably beneficial via separate maintenance contracts, then those that demonstrate better value can be tendered separately. Over the long term, functional or performance-based specifications should be applied to these contracts possibly by adding extended warranties, especially for resurfacing. Repair to frost-heave damage and other minor repair investments can also be included into the routine area maintenance contracts. See *Figure 5* for the development stages of separate maintenance contracts in the future. (Again, this is a figurative highlight for the development of the area maintenance contracts and has no quantitative significance).

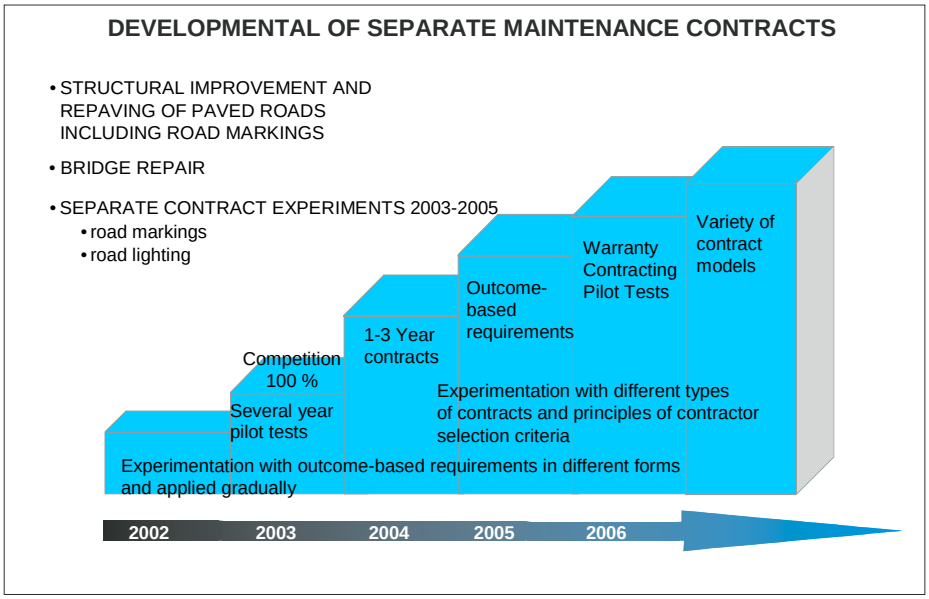

Figure 5. Development Steps In Separate Maintenance Contracts

During the development of separate maintenance contracts, the intent is to shift away from the lowest bid price contract towards models in which the tender award is made to the most economical service life costs. The contractor selection criteria and performance-based specifications for long-term performance type contracts will be tested in two-year experimental contracts during 2003-2004. When performance-based specifications and their measurements are fully developed, it will be possible to experiment with long-term, performance-based maintenance contracts.

Contracts may also include work packages from several areas and this can be called bundling or clustering. Also, Finnra is planning to include more services within the separate maintenance contracts. As a general rule these contracts are to be full service and lump sum type contracts, which also include some design/engineering elements. As an example, a resurfacing contract may include design/engineering as well as minor structural improvement and road markings. Some of these contracts may be pavement warranty contracts with a contract term from 5 to 15 years. It is important to distinguish between these contracts and those from the normal routine area maintenance contracts, because a certain section of roadway may conflict with the specifications in the area maintenance agreement.

In summary, Finnra will test these separate maintenance contracts and determine which ones prove to be not only economically viable, but will also provide better value and customer services. One good example that was actually tested was to take advantage of large volume purchases. Finnra accomplished this in 2002 by procuring the entire energy demand for lighting for all roads managed by Finnra.

2.4 Customer services

Finnra's values, vision and customer relations strategy assigns major goals for Finnra's customer-oriented operation. The customer's expectations and needs must be taken into consideration even more during the planning phase, procurement process and the implementation stage. While providing services that fulfill customer expectations, it is also necessary to ensure that the general objectives of society are realized. These objectives are

related to road safety, traffic management, (traffic congestion), environmental protection and by considering equal treatment in the regional areas.

The customer's viewpoint is not usually taken into consideration in actual end products. The biggest problems usually arise in the construction phase, when the customer meets the staff of the contractor or subcontractor and forms an image of Finnra on the basis of their behavior and actions of the service providers. Special attention must be observed to traffic safety, efficient traffic flow, and environmental aspects. More attention and actual implementation is needed for clear and specific traffic control and diversion patterns, proper display of traffic signs, information signs and other forms of communication aimed toward the road user. From the standpoint of a successful strategy it is important that service providers and suppliers practice principles according to Finnra's values and service pledges.

When customer services are seriously implemented and practiced, then there will be better road user satisfaction, because traffic congestion issues would be considered already in the tendering process. For example, there could be rewards and penalties during new construction projects or major capital improvements such as lane widening, bridge repairs, and resurfacing. These could be completed during evening hours and off peak periods. Bridges could use new innovations to complete the projects quicker and faster. When they are actually implemented into the tendering process, will there be less frustration noted by the real customer - the road users.

2.5 Critical success factors

A prerequisite for a functional procurement strategy, in addition to Finnra's own development, is that the market decides to follow and accept this strategy. The critical questions need to be answered and are as follows: Can a functional market be created? Is there a substantial and healthy market available? Will new cooperative operating methods be created between different parties in the market, whereby know-how can be combined and used effectively? Will it be possible to increase innovation and receive benefits from it? Can new methods be created to make it worthwhile for actors to invest in innovation and product development? After evaluating the results in the years to come, will these questions be answered?

Prior to the reorganization of Finnra in January of 2001, previous studies determined that a functional market was available in Finland. However, will this market be able to adjust to the new procurement strategy that is being developed? So far there is a competitive environment and the maintenance contracting results have been positive. However, is this sustainable over a long duration? This will also be seen in the future, but the same question would apply to the traditional approach.

Another objective is to guide the relationship between the design/engineer and the construction profession into the direction of authentic, healthy and close teaming effort. The desired objective is to increase innovation, but may not be realized unless the know-how and professional skill of both parties can be fully utilized. The strategy and its implementation plan will make possible and require a close teaming cooperation model between the design/engineer and the contractor so that an unhealthy, subordinating relationship between the design/engineer and the contractor is not created.

It is important to preserve the structure of the present supply chain (design/engineers, large contractors, subcontractors, and product and machine entrepreneurs). This way the parties will not feel they are being left in an insecure, subservient position, and the desire is that the sector will be preserved and all involved parties will be able to renew themselves and develop. It is also important to eliminate the risk of default. To make the entire implementation process flexible, especially the combination of various design/engineering

phases, it is necessary to ensure that actors participating in the process do not default during the later stages.

Changing towards long-term agreements also requires that project's funding must be committed when contracts are in the planning phase. The duration of routine area maintenance contracts requires a funding commitment for longer periods when the contracts are signed.

3. Conclusion

The Finnish Road Administration's (Finnra's) new procurement strategy attempts to solve some of the problem areas of road transport industry in Finland. Some of these includes the lack of innovation, lack of customer focus (traffic congestion), perceived poor image, little value added client services, and poor contracting methods. A past research study titled "Innovative Project Delivery Methods For Infrastructure - An International Perspective" (*1*) provides the framework and background for developing this procurement strategy. Results from this study and according to Finnra's other research history and expertise, show that this can be accomplished by developing and implementing innovative project delivery methods, comprehensive services over a longer duration, early contractor involvement, and utilizing performance-based specifications and outcome-based criteria.

For capital investments this means development of the following:

- Improving the public tendering practices for the appointment of consultants
- Improvements to the existing Design-Bid-Build (DBB) model
- Improving and updating the Design-Build (DB) model
- Development and testing the Design-Build-Operate-Maintain (DBOM) model
- New & improved Design-Build-Operate-Finance (DBFO) model
- Developing more "*performance-based specifications*"
- Determining and using the best "*Contractor Selection Criteria*"
- Including customer service & traffic congestion issues into the tendering phase
- Partnering is essential especially for the innovative project delivery methods

Maintenance contracts include the following:

- Longer term maintenance contracts
- Developing a competitive and functional market for performance-based maintenance contracts
- More tasks included in the maintenance contract (Goal: one inclusive contract)
- Increasing network area length
- Developing & utilizing outcome-based criteria
- Including warranties, larger volume purchases, and testing the bundling of services
- Partnering and trust are key issues

It is anticipated that this new procurement strategy will address some of the key issues and driving forces such as productivity, innovation, customer services, profitable and sustainable service provider industry, and cost savings for the client, which continues to have funding difficulties especially during these recent periods. Also, these attempt to address concerns and issues involving the real customer – "*the road user*".

References

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