

NEW APPROACHES TO OWNERSHIP, ADMINISTRATION AND MANAGEMENT OF LOW VOLUME ROADS

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Abstract

Low volume roads comprise about 80 percent of the total road network, but serve only 20% of the traffic, or less. This causes a difficult problem for owning, administering, managing and financing this large road and important network. The paper explores various options for approaching these issues. The private sector is the presumed supplier for maintenance, rehabilitation, or construction.

In the Scandinavian countries the (very) low volume roads are privately owned by the beneficiaries. Because the traffic volumes are low, the beneficiaries can be easily identified and organize themselves as a Private Road Association (PRA), a legal entity, and responsible for maintaining the road with or without state subsidies. Studies show that PRAs maintain their roads at half the cost of the corresponding public roads. .

The paper is based on an assignment from the Finnish Ministry of Transport and Communications. Its starting point was the PRA legislation, forty years old and no longer synchronous with the developments in society, road management and economics. The paper presents three concepts for owning private low volume roads: public, association, co-operative, and corporative ownership. Each of these legal ways have advantages and disadvantages.

The paper discusses, evaluates and compares the different concepts from several points of view, including: responsibility and liability; administration and decision-making; voice of users and other affected interests; user charges and payments; financial management and audits; taxation; government subsidies; costs of road maintenance; beneficiary attractiveness; training requirements; and, legal development.

Keywords: Low volume roads; Road ownership; Road administration; Road management; private roads

Topic area: H4 Strategic Changes in Transportation Organisations

1. Introduction

In the Scandinavian countries the (very) low volume roads are privately owned, by the users and beneficiaries. Because the traffic volumes are low, the users/beneficiaries can be easily identified. The beneficiaries form a Private Road Association (PRA), a legal entity, and are responsible for maintaining the road, but also can receive state subsidies. Studies show that PRAs maintain their roads at half the cost of equivalent public roads. In addition to the efficiency, private roads obviously reduce the size of the country's (public) road administration. Recently, PRAs have evoked much interest and the concept

has been adopted in the Baltic countries and is under consideration in many developing countries.

This paper is based on a consulting assignment from the Finnish Ministry of Transport and Communications (FMOTC). Its starting point was the extant situation in Finland where a large part of the low volume road network is owned by the PRAs or by the landowners whom the road serves. However, this legislation is already forty years old and is no longer synchronous with the developments in road management technology and its economics. An important factor also is the desire of the affected interests to have a direct voice in decision-making.

The paper discusses the following issues regarding the low volume roads, which were also the objectives in the Terms of Reference FMOTC gave to the consultant work.

- Alternative goals for administering and managing low volume roads
- Alternative models for owning, administering and managing these roads
- The role of the government, the civil society, and the private sector
- Clarity and functionality of the governance structure
- Road users' participation in decision-making
- Economic feasibility and viability vs. "desirable" road condition
- Transparency of financing
- Juridical and legislative aspects in the interface of the private and public roads
- Taxation, especially with regard to VAT, in managing low volume private roads.

The paper addresses these issues. It proposes that the goal—the good things desired—is to serve the citizens' goals and objectives and to help make their daily lives better, and support state governance. The former are pursued individually and the latter articulated by democratically elected general purpose government. For example in Finland, with regard to low volume roads, the good things comprise (i) recognition of the value of the (current practice and) concept of private road associations; (ii) (regional) equity in road access; (iii) preservation of "everyman's rights"¹; (iv) good, well-timed maintenance of roads; (v) reasonable costs; and (vi) stakeholder voice in decision-making.

2. The current situation and driving forces for change

The low volume road network in Finland consists of mostly private roads. There are over 100 000 km private roads serving farms and rural residential areas. The 50 000 km of 'connecting' roads from the public road network belong roughly to the same class as the private roads². In addition, there are 120 000 km engineered forest roads, and 130 000 km minor forest roads, field roads and other real estate roads. The total amount of low volume roads amounts to 400 000 km. It can be roughly estimated that half of this network needs continuous maintenance. The need for maintenance on the other half is seasonal or occasional. The concepts in this paper apply primarily to the first two or three classes of roads.

¹ The right granted in the Finnish Law to every citizen for occasional use of private roads or land (occasional but not regular use private roads, or to pick berries or mushrooms in privately owned forests; however, for example, hunting requires a permit and payment to the owners).

² There are four functional classes of the public roads in Finland: Major Arterial, Minor Arterial, Regional, and Connecting (Local) Roads. In addition the cities and municipalities have (and own) streets.

These low volume roads have many administrators and managers. The Finnish Road Administration (FinnRA) is responsible for public roads. Municipalities are responsible for the streets and in some cases, through maintenance contracts, for the most important private roads. PRA's and individual road owners are responsible for the other private roads. Each PRA has usually only a few kilometers of roads. Landowners own and share the maintenance of short access, forest and field roads informally.

This disconnectedness has resulted that in some regions there is a shortfall of contractors and road maintenance equipment. Small contracts are not attractive because they cannot support equipment investments. Also, demographic changes, urbanization, and relocation of young adults to seek better opportunities, are causing that many PRAs have either "absent landlords" or only elderly members who cannot take care of the roads they need for access to social services, and to visit or receive friends and relatives. The absent landlords and the elderly, mostly rural residents, often have a diminished interest, capacity and know-how in road management and pose a particularly vexing problem.

The countryside's low volume road network is a remarkable entity from which only 13 % belongs to the public road network managed by FinnRA. Appropriate and affordable condition of low volume roads requires actions at the right time. These actions, serving the dual objectives of service to road users and preservation of the road structures, call for know-how, good organization of works, and sustainable funding. In the past the PRAs served these functions well, but the model is becoming obsolete for the reasons noted.

There are other concurrent pressures for change. The traditional source of funding, subsidies from the state, which supplemented the PRA's own funds dropped dramatically in the 90's. Although the municipalities increased their subsidies, the total outside funds dropped from the level of Euro45 million to the level of Euro30 million. This sudden and large change has had repercussions to the condition of roads and to the users' interest and ability to maintain their roads. If the apparent neglect persists there will be extra costs in the future.

Greater farm size and more efficient farming and forestry have caused increased traffic and the consequent bigger farming and forest equipment has increased loading on the roads. Both these changes have lead to higher maintenance and rehabilitation costs.

Today the subsidies to the private road network are 5% of the state and municipalities' road budgets for the public roads. The law assigns the Road Administration the task of developing the concepts to manage, maintain and develop in the country's public roads, and observe their traffic conditions and services as a part of the entire transport system. This task is intended to be performed in cost-effective and economically efficient manner while observing such social goals as sustainable and equitable regional development and other political objectives that may change from time to time. The Public Road Administration also has an extension service responsibility for the low volume road network although it does not administer or manage to ensure its professional care.

Though the private roads do not belong to the public roads managed by the state they are an essential part of the road transport system and its functioning. Therefore also the private road network must be sustained and developed in a way which is economic, supports the functioning of the transport system, and preserves regional equity and sustainable regional development.

The law of private roads is nearly 40 years old with only minor changes in the intervening years without a change in the law's main principles. There is a perception

now, however, that the law of private roads is no longer fit to the society's needs and requires fundamental changes. For this reason the FMOTC has initiated consultant studies to evaluate the private road system and its functioning and to develop alternative models and forms of functioning for the PRAs or their successor organizations. Experiment projects are proposed to evaluate the new kinds of organizations to provide test material for the new legislation.

3. General framework for the study

Figure1 shows the key elements for the proposed change process. The details of the present situation are investigated first and concurrently the desired characteristics of the end state are articulated giving due weight to perceptions about current realities. To reach the end state requires a change process, which, informed by the experiments, evaluates and attends to the various impacts, and using process consulting techniques brings about the desired changes in legislation for the low volume roads and governance of the private roads.

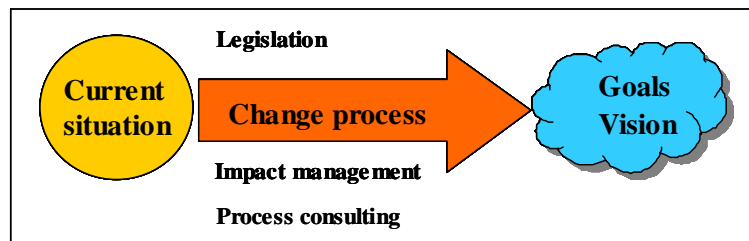


Figure 1: The elements of change process

3.1. Current situation

Analysis of the current situation and the perceived problem areas are the starting points for investigating the needs for changes. In the past 40 years, the age of the private road law, there has been great changes in Finland that have also impacted the private roads.

Changes in the operating environment of the private roads include the following:

- Substantial decrease in rural population and substantial increase in the elderly people in the rural areas
- Substantial increase in per capita income
- Emergence of “absent landlords”, and vacation and second homes
- Changes in the structures of trade and industry and the economic environment in general
- Change in farming and forestry practices, and transport equipment and machinery
- Changes in the concepts to administer and manage the public roads; e.g. separation of client and supplier functions (public entity to administer and manage roads; outsourcing, commercialization and privatization of civil works and services)
- Decrease in state subsidies to private road associations

Road network is one of the basic infrastructures together with electricity, water, waste disposal, and telephone. People expect and are willing to pay for a certain minimum

standard and availability of these services. There also is an ethos and sense of equity within the Finnish society that these services are a part of social security and, indeed, national security. Changes in the operating environment propel willingness to change, to innovate and develop new governance structures for roads; common to all these structures is the use of private sector for supply of road sector services.

3.2. Stakeholders

Figure 2 shows that all the partners in the road sector, including the private roads are interconnected. The need for partnering between all the stakeholders was also recognized in administering and managing the main roads after the separation of the client and supplier functions.

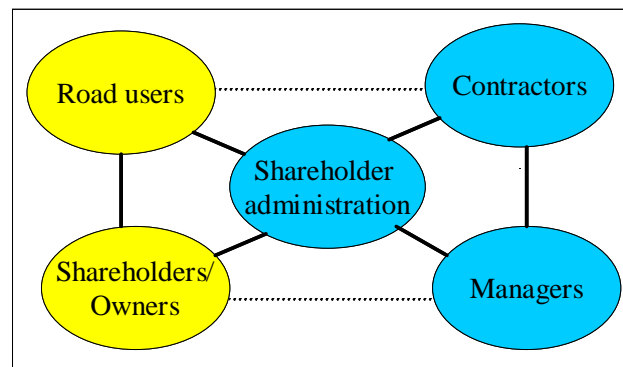


Figure 2: Partners of road business

The partner responsibilities must be defined before the system can function well because:

- Road users are in key position. They are the customers whom the system serves; customers must be consulted, heard and understood.
- The owners' responsibility, together with the state, is to create a governance framework and to articulate the policies that are sustainable and economical and effect services that satisfy the users goals and expectations. Obviously this cannot happen without consulting the owners and users.
- The management has the responsibility to translate the policies, wishes and needs of the owners and road users into plans and programs
- The contractors deliver the services, ideally these would be written performance based agreements that define 'exactly enough' the contractors' responsibilities for payments.

3.3. The current actors

There are four actors in the current model: owner, road user, manager and supplier. They are discussed next.

3.3.1. Owners

The current private road law states that the right of way, shareholding and establishment of right of way are related to landholding. This means that the owners of private roads are the landowners who establish a (private) road maintenance association for mutual benefit. The PRA is the owner of the road. It can give the right of way, the right to use the road, to others when they are or become shareholders of the road.

The principle of ownership is clear. The problem today is that the private roads are short on average. Thus, there are many private road associations and due to the declining rural population and changes in demography and life styles there is less interest and capacity to manage the associations. The law does give the possibility for associations to group or merge, but this is not common.

3.3.2. Road users

The regular users of private roads are naturally the shareholders of association. Also others can periodically use the road, but a regular use requires a permit and agreement about compensation.

Occasional users like people picking berries or mushrooms or going to hunt can use the road without permit if the state or municipality has participated in financing the construction or maintenance of the road. If there have been no subsidies from the society the association can restrict the use of the road.

Fair and objective division of expenses from the use of road requires that the principles are clear and simple. Each shareholder has a certain amount of road units, defined and agreed in the shareholder meeting, based to his transport needs and functions. The unit price is the needed annual funding divided by the shareholder's total number of units. Occasional users will pay a separate road fee.

For users, the condition of road surface is the most important issue both in summer and in winter. In winter the removal of snow and ice control are the most critical tasks to satisfy users. It is important to define clearly the condition level in which the road will be kept.

3.3.3. Management

The shareholder meeting is the highest authority in the PRA. It selects the executors who will be vested with the responsibility to discharge all managerial matters behalf of the owner. Normally the following tasks belong to management:

- Road maintenance
- Calculating and collecting the shareholder payments
- Proposing and making amendments to the payments
- Negotiating with the authorities
- Preparing of budget of association
- Issuing driving restrictions and weight limits
- Granting temporary rights of road use

The application and practical experience with the current law have established a set of rules for good, unproblematic road management. The problem today is that there are not enough willing, resident members to act as executors.

In the future, it seems desirable that the PRAs engage professional executors, a process that has already started. Professional managers can handle many private road associations and can have an important role in preparing the ground for permanent changes.

3.3.4. Contractors

Shareholders themselves or contractors are implementing the works, like planning, snow removal, sanding, and so on. Traditionally, there has been equipment in the farms to do these works and a shareholder has been able to carry out the works without materially investing for extra equipment.

For reasons stated there are now fewer people available do the work as the farmers concentrate their efforts on their core business and have less interest in outside income.

A possible future is that the professional managers are also contractors—a kind of design build way of managing the private roads. This requires that contracts are over a long period and big enough to attract entrepreneurial interest and investment in equipment. Undoubtedly, there also are issues for development, such as the contract documents, quality requirements, quality control, sanctions, and so on.

3.4. Vision

The vision for the private road system is charted in broad, partly unquantifiable terms. It expresses a conceptual consensus of the Finnish society for the goals the private road network should serve and reach in the next 5 to 10 years. The following elements are a first estimation for this vision:

- Private roads are recognized as an essential part of the transport system, which supports the general welfare and equity of people and regions.
- The government agrees to participate in finding sustainable financing mechanisms, including moderate subsidies when necessary, to secure appropriate condition of the roads
- The actions and functions associated the operation of the private road system are road user oriented, assure that actions are taken at “right time”, and result in moderate total costs of the system.

The vision, embodying the “good things” requires a change process and a model. These are discussed next.

3.5. Change process

Experience with the private road associations in Finland underscores the fact that any change process needs state support and from the society at large. The state support is in terms of legislation and a (moderate) subsidy policy. The change process from the present to the future models should be well managed and well understood. From experience in the road sector, from the various models and practice in other sectors, and from interested stakeholders, it is possible to anticipate what issues and impacts will be of the greatest interest. These are enumerated next.

1. Society

- Preservation of the road network
- Cost to the society (subsidies)

- Equity among people and regions
- Private sector development and entrepreneurship
- 2. Road users
 - The quality and service level of the road network
 - Daily trafficability (passability)
 - Right to use the road
 - Road and user payments
- 3. Road owners
 - Economic efficiency and cost-effectiveness of actions
 - Responsibility and liability issues
 - Shareholder voice
 - Maintenance and rehabilitation costs and payments
- 4. Management
 - Changes and expectations in management knowhow and expertise
 - Taxation issues
 - Development and training needs
- 5. Legislation
 - Development and change needs to legislation

The change process should be based on the owners' free will and understanding of positive and negative impacts. The guidance from higher authorities usually causes resistance; "carrot" would possibly be the best guidance strategy. In any case, care must be taken that changes that will be made are not only for the short-term but have positive impacts on long-term that will benefit everyone. Necessarily, this implementation of the change process—using process consulting with the effective involvement of the affected interests—can only start after there is "green light" from the

4. Alternative models

The private road network, at the state level, is both an entity in itself and a part in the country's road network. Several models can be envisaged for the private road network, which recognize its entity and part of entity characteristic. A useful point of departure for the models is the development and changes in the structure of the public road administration in the 1990's. Based on the deliberations about options for FinnRA's organization, the following vision model alternatives are evaluated:

1. Community based model
2. Shareholder or owner based model
3. Enterprise based model

4.1. Community based model

In this model, the government builds up an administration and management system that blankets the country, but includes only those private roads it wants to influence, principally through a subsidy policy. A possible structure for this system could be Regional Road Association, RRA, whose members are the owners of the current PRAs.

RRA would be patterned after the Forest Association in Finland's forestry sector. The FA represents its members' forest interests and also offers services to them for

compensation. It has the right to collect payments from its members. This has guaranteed sustainable development and management of the Finnish forest property.

In the community based model the state and municipalities take an active role to define the network and secure performance targets for its good functioning. These targets might include: road condition level, rights for road use, and regional equity. The advantage of this model is the small change to status quo, the formalization of the governance structure, and the gaining of economies of scale because the extant PRAs usually have only a few kilometres of roads. Its disadvantage is a reduction in user/owner voice.

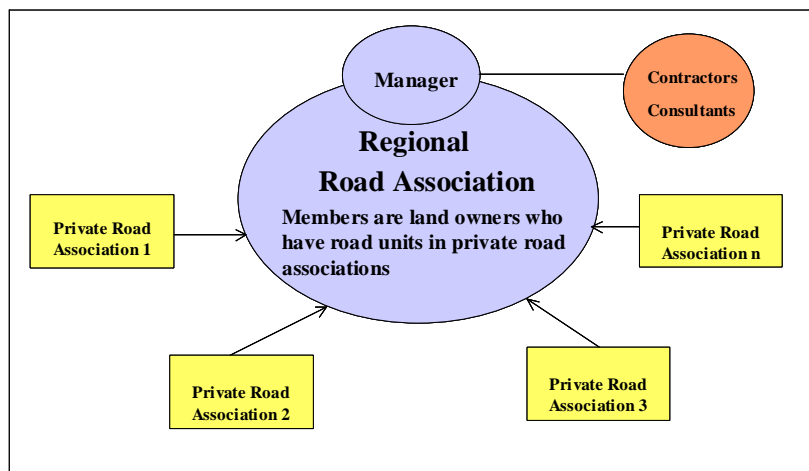


Figure 3: Regional Road Association

4.2. Shareholder or owner based model

In this model the current separate PRAs, owners of the roads, will be legally transformed into commercial corporations, which will then merge to form regional corporations. The other possibility is that the PRAs will first become an RRA, which will then transform to a regional road co-operative. Both these models already exist in the Finnish law, the corporation in housing (condominiums), and the co-operative in water supply. The advantages of this model are the economies of scale and scope, and user voice to define the level of service desired (and, implicitly, the cost). A potentially important advantage is a possible extension to public road network, including network development, and competition between road corporations or co-operatives. In this extension the municipalities and the state would become a shareholder in the corporation or co-operative. A potential disadvantage is the relatively large change to status quo.

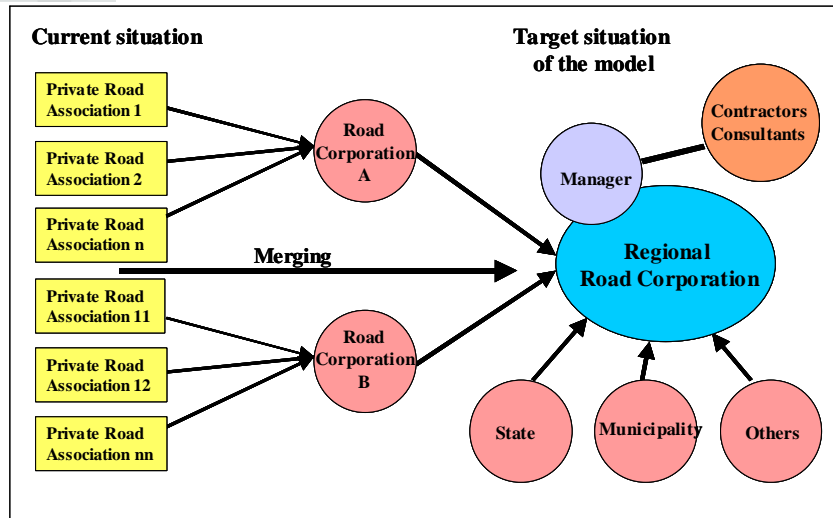


Figure 4: Regional Road Corporation

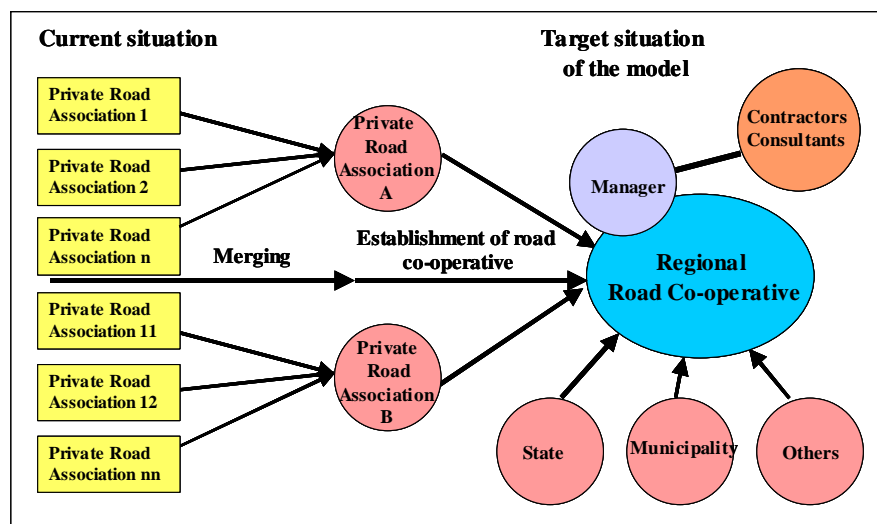


Figure 5: Regional Road Co-operative

4.3. Enterprise based model

In the enterprise based model a management company will contract competitively with several regional road associations to manage road maintenance on their behalf. Municipalities, and even the state (FinnRA), can competitively choose the same road management company to take full advantage of possible economies of scale and scope. The model is market-oriented and requires that the company sees profitable possibilities for this business and then begins to develop it.

The management company implements the works either using its own equipment or purchases the services from other companies. The vision in this model is that the road maintenance operating companies earn their contracts competitively. There is a legal precedent for this model as FinnRA already uses it on public roads. Examples from other sectors are tele-operators and electricity companies.

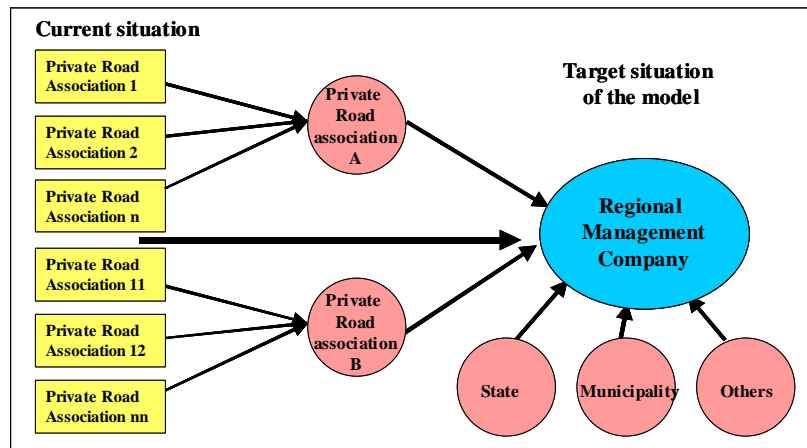


Figure 6: Regional road management company

The advantage of this model is a moderate change to the status quo and experience and legal precedent in managing the maintenance of the public roads. There is a potential loss in user voice.

5. Forms of association

The following forms of association were studied:

- Group → **Road Group**
- Association → **(Private) Road Association**
- Co-operative society → **Road Co-operative society**
- Corporation → **Road Corporation**

All these forms are in general use and can probably be used for the private roads.

The starting point is that the private roads are a certain asset. The management and implementation of the tasks must be carried so that the users receive the service level they desire and the owners' assets are managed economically.

5.1. Road group

Road group is a form in which two or more road associations agree to undertake certain tasks together. The agreement is terminable and it is made only for the purpose of implementing certain task(s). The group will normally dissolve after its task has been implemented. This association form is easy to start because it doesn't need long-term commitments, and does not need structural changes in the organizations.

5.2. Road association

According to the Finnish law an association can be established to advance a common purpose or idea. The purpose may not, however, be against acceptable public manners. The law does not apply to an association whose purpose is to make profit or other direct economical benefits.

If the sole purpose of PRAs is the economic management of their road assets the association form should not be used. However, if the PRA espouses also other values

which serve other needs of the community the association form is possible (a non-profit organization).

5.3. Road co-operative

According to the Finnish law a co-operative is a coalition whose members and share capital have not been determined in advance. The purpose of the co-operative is to carry out such economic activities, which support the member's means of livelihood. The co-operatives can arrange or provide services that attract members. The current private road associations are in essence similar to co-operatives.

The co-operative form is also in use in activities where the purpose is only a profitable business. The problem is that the legislation for the co-operatives is not as well developed as for corporate legislation.

5.4. Road corporation

The corporation is the most common form to conduct business for profit. It can be used by small and big companies. Corporation is also usable for owning and managing of assets. The legislation on corporations has been continually developed to keep pace with the changes in the operation environment. One example of this form is Housing Corporation (Condominiums), which is very well developed in Finland.

In the long-term, corporation model could be the best solution also for the private roads because the business principles are clear. On the other hand, most people in the rural areas are not familiar with it and it will take time to adopt it. Unlike PRA, or even a Road Co-operative, a Road Corporation needs professionals do the "paper work".

6. Comparison of various forms of association

The key issue emerging from the above that economies of scale, technology, and demographic and life style changes are the driving forces behind forcing the private road associations to merge or otherwise become bigger. The impacts of such development are evaluated next. As indicated, one approach, perhaps the simplest one at the first glance, could be that the current road associations are the basic units and the owners, and would simply associate further to a bigger entity. This would mean that the bigger units would entail one more level in organization, and could therefore be a short-sighted solution. It doesn't appear realistic because it would increase bureaucracy and cost.

6.1. Liability

The liabilities for the Association, Co-operative and Corporation are in principle clear. Members and shareholders are not personally responsible. The cost responsibilities of the members are defined in the articles of association. The group is different because it is a loose coalition based on the agreement. At least the cost responsibilities must be defined in this agreement.

6.2. Administration

There are following bodies for decision-making in various forms of association:

Road group	Road association	Road co-operative	Road corporation
<ul style="list-style-type: none"> • Manager • Board of the Group • Meeting of the PRAs in the Group 	<ul style="list-style-type: none"> • Chairman • Board • Association meeting 	<ul style="list-style-type: none"> • Manager • Board • Co-operative meeting 	<ul style="list-style-type: none"> • Manager • Board • Shareholders' meeting

The collection of administration fees from the shareholders occurs in Group according to the agreement, in Association by the membership fee and in Co-operative and Corporation by service charges.

6.3. Voice

Voice and influence are an important part in all the possible models. It is necessary for the administrators and managers to develop skills and techniques to interact, hear, and consult large numbers of people. The following list s the minimum venues for voice.

- In the Road Group a shareholder has similar influence possibilities as today, which is via the participating associations.
- In the (Private) Road Association the decision-making power belongs to the members and the views and influences are voiced in the association meeting.
- The Co-operative has similar meetings where every member has the right to voice his views and opinions and his case or matter is dealt with in the meeting.
- The Corporation has shareholder meetings where matters are voiced and discussed if there is substantial support (as defined in the law) to place the matter on the agenda.

The petitioning possibility exists in all the alternatives. In Group the authority is the Board of the municipality, and in the other alternatives the petitioning requires action through the court of justice.

The same petitioning procedures are also available to the people who are not shareholders in the coalitions.

6.4. Road and use payments

The shareholder payment for road and its use is determined differently in the various coalitions:

Road Group	Road Association	Road Co-operative	Road Corporation
Agreement of the Group/ Road units	Articles of association / Membership fees	Articles of association / Membership fees, Additional and extra fees	Articles of association / Service charges

There is a generally accepted principle in Finland for the use of any road that payments must be based on the kind of traffic and volume. Other systems would not be

realistic and fair. A fixed minimum payment is used and can be justified for some roads, services, or functions.

6.5. Financial management

Financial management and associated decision-making is organized as follows:

Road group	Road association	Road co-operative	Road corporation
<ul style="list-style-type: none"> • According to the group agreement • Not a juridical person • No own assets 	<ul style="list-style-type: none"> • Bookkeeping • Profit and loss account • Balance sheet • Financial statement • Discharge from liability 	<ul style="list-style-type: none"> • Bookkeeping • Profit and loss account • Balance sheet • Financial statement • Discharge from liability 	<ul style="list-style-type: none"> • Bookkeeping • Profit and loss account • Balance sheet • Financial statement • Discharge from liability

In all coalitions except Group general rules of bookkeeping and financial management are followed. In the Road Groups the financial management procedures are by agreement.

6.6. Taxation issues

Road Group is not a taxpayer if it has no other business. If it has taxable business the income is divided to the shareholders and they are taxed.

The other coalitions are taxpayers, but in practise the exemption from or liability for taxation can be effected in the similar manner as in the housing corporations (condominiums).

Road Group cannot be a taxpayer for value added tax. The other coalitions may or may not pay VAT; if they do, they can deduct the VAT of their expenses.

6.7. Subsidies from state and municipality

The different forms of association do not have direct impacts to the subsidy principles. The current PRAs having short roads cause much bureaucracy and prevent, in long-term, efficient road management. For this reason bigger entities will also be helpful in improving the subsidy system.

The current subsidy system needs improvement in the following respects:

- Clear principles and roles between state and municipalities so that the people are treated equitably depending on their economic situation of the ability of the municipality
- Uniform, country-wide criteria for subsidies in maintenance, rehabilitation and construction
- Stability in the subsidy level to enable sound long-term planning

There is a general perception that the distribution and control of subsidies would be much easier if the road associations were bigger.

6.8. Road maintenance and its costs

Enlarging the current (private) road associations or improving co-operation between them will result in more efficient and cost-effective practical arrangements of maintenance. There would be positive effects in several dimensions, because:

- The road manager can manage comprehensively: counting the shareholders' payments, applying for subsidies and distributing them, preparing tender documents, supervision of the work, and etc.
- The contractor is selected for a longer period and doing his work according to contract documents
- The actions, whether maintenance or rehabilitation, or even development, can be made professionally, methodically, and observing life cycle costs.

The role of the municipality or community could change, and include:

- Support the establishment of associations (any desirable model)
- Be involved in the distribution of subsidies
- Define subsidy strategy and criteria
- In individual cases, focus efforts to road matters of those persons who are in difficult situation, e.g. elderly persons living alone and far from the centre

There would be effects on maintenance practices and costs, because:

- The maintenance level can be matched with the needs of the road users and their willingness to pay
- A more active participation from the community (for example, as a member in a Co-operative or shareholder in a Corporation) can support activities, which prevent greater costs in the future
- Bigger contract volumes yield economies of scale and scope, competition among suppliers, and keep the costs maintenance under control. If there is an increase, it most often is a conscious choice for better quality level

Effects on the roads' structural condition and daily maintenance:

- Stable finance, professional application of engineering principles and life-cycle cost analysis of actions, will result in "right time" periodic maintenance works and avoidance of expensive rehabilitation investments
- Level of service will be defined by the owners and users and these requirements are written in tender and contract documents.

In general, it is anticipated that the use of life cycle costing—which enables estimation of both short- and long-term costs and road conditions—will lead to an increase in rehabilitation and periodic maintenance expenses. This occurs because some roads have deteriorated due to the lack of inadequate financing in the past. However, after some years the "optimum" level will be reached and the financing needs will level off.

6.9. Private sector development and entrepreneurship

The differences between the types of coalition for private sector development and for entrepreneurship are estimated as follows:

Road group	Road association	Road co-operative	Road corporation
+	--	++	++

Corporation and Co-operative coalitions have been appraised to have equal effects on the basis of historical evidence in Finland where they are commonly used in asset

management in the housing sector. Also the Group is found to have positive effects, but due to rather “loose union” it has not been as good over the long-term. Association type coalition is not intended for asset management, but there may be other reasons for its use and also this alternative is possible.

6.10. Development and training needs

To promote the co-operation and development of coalitions it is necessary to understand better following matters:

- Roles of road user, owner, manager and contractor
- Road management can be a business as any other activity so that the owners themselves do not necessarily need to carry out the works
- Experts and professionals can best deal with the needs of both the customers and the roads and translate these into cost-effective actions
- Manager-service can assure equal service to everyone even in bigger coalitions

Every effort is made to glean from past experience in the road and other sectors the possible and likely positive and negative effects of the concepts put forward here. Nonetheless, it would be desirable to conduct experiments to learn more how the new models would work out in practice, before a legislation is enacted for country-wide application.

In addition, there is a need to develop model documents for:

- Tender documents
- Contract documents
- Models to establish coalitions like
 - Models for articles of several types of association (Corporation, Co-operative, Regional Road Association)
 - Models for payment determination
 - Other

7. Recommendations for change process

To reach the vision and target requires that:

- Decision makers express themselves clearly about the role of private roads
- Development of governance structures of the private roads is necessary to preserve them and the services they provide
- Real world evidence is acquired that road networks can be managed and maintained in bigger corporate or co-operative type entities.

It is improbable that the entire road system can be based on one model. Among other things that would require that the society would assume a strong role for at least some parts of the private roads in terms of subsidy policy and organisation. Because it is unlikely that the decision-makers would take clear and bold positions in absence of credible evidence, the most prudent course of action toward a vision is by following an action list, which can begin to solve the present problems. The following six:

1. Legislation and other actions are taken to support the current road associations to form bigger entities either institutionally or by agreement.
2. All forms for association are allowed, but the legislative actions should provide particular support for the target vision that the most appropriate association forms are the Co-operative and Corporation
3. The Association form is the main alternative only if the government wants to take greater responsibility for the private roads than at present, and this should be clearly expressed in the legislation
4. The government defines clear criteria for subsidy policy and will commit to this in long-term
5. The subsidy policy will be connected with the establishment of cost-effective governance structure, which means forming of bigger coalitions
6. Studies will be conducted how the low volume public roads can be included in the plans to improve governance of the (low volume) private roads

8. Conclusions: A probable path toward the vision

Both authors were integrally involved in the change process at FinnRA when it was evolved into a modern road administration and corporatized or privatized supplier organizations. This has been reported by the second author (Talvitie 1996).

The present work, principally an intellectual product of the first author, follows the same four-stage process as used in FinnRA. It is useful to put the present work into that context.

- First, there was a “contract for change”. The roots of this contract are many: there was a perception among professionals and concerned societies familiar with the PRAs that they no longer were fit for purpose. Papers were delivered on the matter in meetings and there was modest political lobbying. A consensus about the need for change emerged.
- Second, several organizations undertook or supported “object oriented studies”, which explored and highlighted problem areas and proposed solutions. Lobbying for greater subsidies for PRAs increased as the ability of its membership decreased. There also were other professional papers (Malmberg Calvo 1998, Hamalainen 2002)—from persons and entities that speak and lobby for private roads—that clearly saw that increased subsidies were not the only or the best solution and argued for institutional changes. It bears to mention that the affected interest are by no means unanimous; benefits and costs are not the same for every group.
- Third, after a time, there was sufficient evidence and consensus about the need for change that FMOTC felt it necessary to support and “agency oriented study”, the present one, of what models were available to evolve the PRA as a legal institution. As reflected in the TOR, the Ministry wanted that not only the alternative models were investigated but also the purposes, the “good things” the new institution(s) should serve, and how these would be best achieved. It is clear from the consultations made during the present work, and from the work of others, formal and informal, that the “good things” have a much wider aperture than material well-being or economic efficiency. The affected interests, in a variety of settings, often the isolated elderly or their urban off-springs, or the poor, were concerned with emotional needs—as reflected in

improved possibilities to visit and receive friends, serve family, and free time sport or relaxation—and the possibilities for intellectual or family-related pursuits of those who remain served by the low volume private roads. (Malmberg Calvo 1994, Talvitie 1999).

- The fourth stage, institutionalization of the concept, is not completed; it has barely begun. The present study proposes that experiments, pilot projects, are desirable to know more about the pros and cons of the models. It is further proposed that technique of “process consulting”, as discussed in Talvitie (2004), continues to be followed.

In summary, the probable development path is schematically shown in figure 7. It is anticipated that through the experiment projects and road management training, information, new attitudes and experiences are gained to improve the governance of the (private) roads. It is important that the extant PRAs start voluntary co-operation with each other and that the effects of these experiments are monitored. It would be best that established management firms are employed in this process.

At the same time the managers should proceed to undertake interviews and preparatory work toward the vision that the (enlarged) regional road associations would incorporate as co-operatives or corporations. The PRAs and other affected interests must be fully involved so that solutions are genuinely relevant to the problems. This would also require that the legislation work has advanced that it would not be a road block in the experiments. This legislative work should start concurrently or prior to reaching the decision about the experiments.

It is appropriate to conclude this paper with a larger and longer-term vision, as indicated in fig 7. It was mentioned earlier that a possible advantage of road corporations or co-operatives is the inclusion of public roads. In that extension the municipalities and the state would become a shareholder in the road corporation or co-operative. This could introduce competition between (regional) road corporations or co-operatives and spur services to users that are, perhaps, unheard of today. But, clearly, this would require modern means and concepts of charging for roads and their use—inevitability in any case. This kind of institutional development could be, somewhat surprisingly, the sixth phase in the continuum of evolution of road ownership, administration and management.

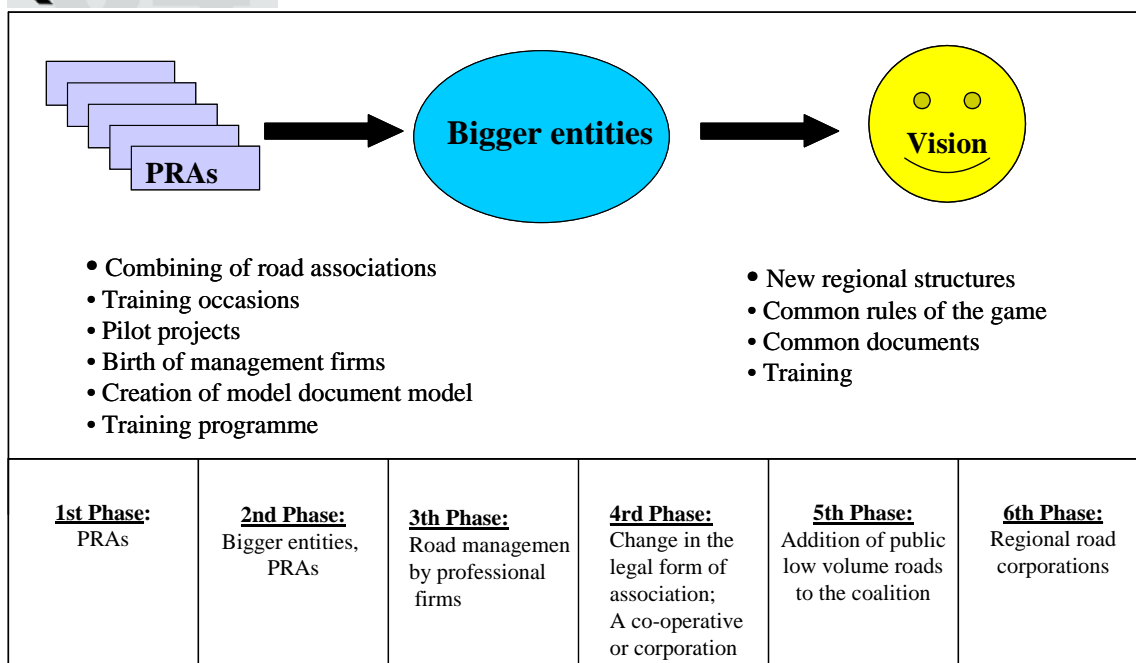


Figure 7: Principle of the development path

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