

**INSTITUTIONAL OPTIONS FOR
VMT DATA AND FEE COLLECTION CENTERS**

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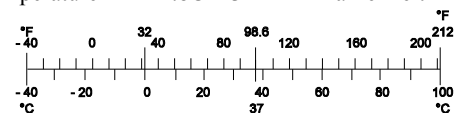
SI* (MODERN METRIC) CONVERSION FACTORS

APPROXIMATE CONVERSIONS TO SI UNITS

Symbol	When You Know	Multiply By	To Find	Symbol
<u>LENGTH</u>				
in	inches	25.4	millimeters	mm
ft	feet	0.305	meters	m
yd	yards	0.914	meters	m
mi	miles	1.61	kilometers	km
<u>AREA</u>				
in ²	square inches	645.2	millimeters squared	mm ²
ft ²	square feet	0.093	meters squared	m ²
yd ²	square yards	0.836	meters squared	m ²
ac	acres	0.405	hectares	ha
mi ²	square miles	2.59	kilometers squared	km ²
<u>VOLUME</u>				
fl oz	fluid ounces	29.57	milliliters	mL
gal	gallons	3.785	liters	L
ft ³	cubic feet	0.028	meters cubed	m ³
yd ³	cubic yards	0.765	meters cubed	m ³
NOTE: Volumes greater than 1000 L shall be shown in m ³ .				
<u>MASS</u>				
oz	ounces	28.35	grams	g
lb	pounds	0.454	kilograms	kg
T	short tons (2000 lb)	0.907	megagrams	Mg
<u>TEMPERATURE (exact)</u>				
°F	Fahrenheit temperature	5(F-32)/9	Celsius temperature	°C

APPROXIMATE CONVERSIONS FROM SI UNITS

Symbol	When You Know	Multiply By	To Find	Symbol
<u>LENGTH</u>				
mm	millimeters	0.039	inches	in
m	meters	3.28	feet	ft
m	meters	1.09	yards	yd
km	kilometers	0.621	miles	mi
<u>AREA</u>				
mm ²	millimeters squared	0.0016	square inches	in ²
m ²	meters squared	10.764	square feet	ft ²
ha	hectares	2.47	acres	ac
km ²	kilometers squared	0.386	square miles	mi ²
<u>VOLUME</u>				
mL	milliliters	0.034	fluid ounces	fl oz
L	liters	0.264	gallons	gal
m ³	meters cubed	35.315	cubic feet	ft ³
m ³	meters cubed	1.308	cubic yards	yd ³
<u>MASS</u>				
g	grams	0.035	ounces	oz
kg	kilograms	2.205	pounds	lb
Mg	megagrams	1.102	short tons (2000 lb)	T
<u>TEMPERATURE (exact)</u>				
°C	Celsius temperature	1.8C + 32	Fahrenheit	°F



* SI is the symbol for the International System of Measurement

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EXECUTIVE SUMMARY

The objective of this report is an analysis of public vs. private data and fee collection centers for vehicle miles traveled (VMT) fees. This includes the identification and evaluation of issues that will affect the relative desirability of the two forms of ownership and operation. These issues include cost, enforcement, debt collection, flexibility, and public perception.

There are a variety of issues that must be addressed in evaluating public or private provision of a government service. In general, competitive private provision of a service is likely to be less costly and more innovative than direct government provision; but direct provision provides more continuity and avoids some potential problems with contract incentives and changes in service providers. It is also important to separate the source of differences in cost between direct government provision and contracted private provision of a service.

An additional consideration is whether the government is choosing a single provider or is setting up a system that allows for multiple possible private providers, competing with each other for customers. For example, in trash collection some governments provide direct service, some contract with a single provider for the service, and some allow multiple private providers to compete to provide the service. The choice between the latter two forms of private provision is likely to be affected by issues such as economies of scale, privacy concerns, and enforcement.

Cost

Virtually all studies find that competitive provision leads to lower costs. The key item is the competitive provision. It is possible to have public provision of a competitively contracted service that is the low-cost provider and it is possible to allow a privately contracted firm to obtain a monopoly position that leads to high cost.

Cost comparisons between the public and private sectors must be careful to include all relevant costs. These include the cost of writing and enforcing the contract if the private sector is chosen and the full costs of all services if the public sector is chosen. In addition, there should be a careful separation of true economic cost differences and certain financial differences that do not reflect economic cost. For example, government units are not subject to taxation, so this would give government provision an apparent cost advantage that is not actually due to differences in resources used.

Enforcement

All taxes suffer from evasion, avoidance, and delinquency. Avoidance is legal action taken to reduce the tax burden, evasion is illegal action for the same purpose, and delinquency is late payment or default on acknowledged obligations.

Avoidance only becomes an issue if it creates undesirable effects, such as diversion of traffic from priced roads to un-priced roads. Evasion falls into two categories: complete failure to pay fees and failure to pay fees in particular uses. The former requires that the state enforce enrollment if it is a mandatory system. The latter may be a state issue, but is more likely to be an issue for the collectors, especially if enforcement is directly addressed in whatever contracts are written.

Revenue and Debt Collection

Delinquency can occur for specific taxpayers or for intermediaries collecting revenue for the state. Use of private tax collectors typically raises concerns about potential collection problems, especially when the private firm has financial problems. Specification of responsibility for enforcement can affect both cost and revenue collection. For toll and fee collection, a key question becomes who is responsible for uncollected revenue? If the state has all enforcement obligations, then a private contractor may have little incentive to collect delinquent payments or to minimize evasion. However, the state typically has greater power to enforce collections than would a private contractor. If private contractors or competitors are involved, the state will also have to enforce payments due to the state. This would typically involve an audit function.

Flexibility

It seems reasonably clear that private competition would allow for the greatest amount of flexibility, followed by private contract, and public provision. Some may view the low flexibility of the public sector in adopting changing technology as a benefit, since consumers may be reluctant to adopt changes as well. In general, flexibility will be beneficial to the operation in terms of cost but care must be taken to not impose undue compliance costs on road users who would also have to adopt the changes.

Public Perception

Public perception of the collection center is not likely to be dependent on whether the public or the private sector provides the service. Perception will most likely be affected by the way data is collected, by the safeguards created for the data, and by the quality of service that customers receive when dealing with the collection center. Experience with existing toll systems and the Progress Insurance experiment in Texas indicate that concerns over privacy may be somewhat exaggerated, especially if consumers have some option for privacy or for not participating in the system. Further, service providers could monitor many of the cars currently equipped with GPS systems, but consumers seem comfortable that this is not a problem.

1.0 GENERAL INTRODUCTION

1.1 PROBLEM STATEMENT

The Oregon Road User Fee Task Force (RUFTF) is charged with developing a design for revenue collection for Oregon's roads and highways that will replace the current system of revenue collection for all light vehicles in the state. The Task Force has issued a set of problem statements that call for development of additional information to assist the task force. This report documents the results of a research project aimed at providing responses to one of these questions related to a data and fee collection center.

Some potential new systems of revenue collection would depend upon a functioning data and fee collection center. Outside of the transportation field, such centers are common (e.g., the data processing and billing activities of telecommunications firms).

In the transportation field, data and fee collection centers exist to serve automatic vehicle identification (AVI) based toll systems on limited access highways. However, suggested new systems of revenue collection involve data collection from in-vehicle databases, statewide applicability (not just a specific highway segment), and collection from all light-vehicle owners in the state.

Data and fee collection centers may be publicly or privately owned and operated. Many different factors affect whether such centers should be publicly owned or privately owned. In order for ODOT and the Oregon Legislature to evaluate the relative merits of public and private ownership, these factors need to be identified. In turn, for each of these factors, the advantages and disadvantages of public or private data and fee collection also need to be identified and evaluated to indicate degree of importance.

1.2 BACKGROUND

During the 2001 regular session of the Oregon Legislature, the Legislative Assembly approved House Bill 3946. This bill created the Road User Fee Task Force. The purpose of the task force is to develop a design for revenue collection for Oregon's roads and highways that will replace the current system for revenue collection. The primary concern of the Legislature is that fuel taxes are becoming a less and less effective mechanism for meeting long-term highway revenue needs.

This concern stems from two sources. One is the perception that fuel taxpayers do not understand the linkage between the amounts they pay and their use of roads and highways. The other is that fuel taxes will generate less revenue as vehicles become more fuel efficient, particularly with the advent of hybrid-electric vehicles.

Finally, House Bill 3946 requires the Oregon Department of Transportation (ODOT) to begin implementation of pilot programs by July 1, 2003. The pilot programs are to be designed to test alternatives to the current system of taxing highway use through fuel taxes.

NCHRP Report 377, *Alternatives to Motor Fuel Taxes for Financing Surface Transportation Improvements* (Reno and Stowers, 1995) identified and evaluated alternatives to the traditional fuel tax. The report concluded that a desirable replacement for motor fuel taxes would be a fee or tax based on vehicle miles traveled (VMT). It also concluded that fuel tax revenue would continue to be an important revenue source for surface transportation programs well into the future – for at least the next three decades.

Since the research was completed for NCHRP 377, major breakthroughs in automotive technology have occurred (e.g., hybrid-electric vehicles, compressed natural gas vehicles, fuel cell vehicles). These breakthroughs have come about much sooner than expected. The Partnership for a New Generation of Vehicles (PNGV) has made significant progress in reaching its goal to develop 80-mpg midsize cars by around 2005 without sacrificing affordability, performance or safety. Consequently, revenues from fuel taxes may decline sooner than projected in the NCHRP report, and one or more alternative approaches for financing the highway transportation system will need to be developed. In addition, a variety of projects have been funded by FHWA's Value Pricing Pilot Program to test various pricing approaches, and there have been significant improvements in the technology for implementing pricing systems.

In early 2001, ODOT funded a research project designed to build on NCHRP 377 and consider what has been learned since the NCHRP report was published. This report is titled, *Alternatives to the Motor Fuel Tax*, and was published in December 2001. The report identifies issues, provides an overview of various potential fee collection technologies, and draws many relevant conclusions.

The Minnesota Department of Transportation is coordinating a project titled, *A New Approach to Assessing Road User Charges*. The project is financed by a group of states that have combined together (or "pooled") relatively small amounts of federal transportation research funds. Oregon is a participant.

1.3 OBJECTIVES

The objective of this report is an analysis of public vs. private vehicle miles traveled (VMT) fee collection centers. This includes the identification and evaluation of issues that will affect the relative desirability of the two forms of ownership and operation. These issues include cost, enforcement, debt collection, flexibility, and public perception.

This project identifies issues associated with the development of a statewide data and fee collection center. Trade-offs have been identified and the issues related to the trade-offs have been addressed as fully as possible within the scope of the project.

1.4 CENTER OPTIONS

In a separate report, the data and fee collection facility options are discussed in detail. Three main center alternatives are considered—first, a wide area system which requires determination of VMT at the center itself; second a wide area system wherein the VMT is calculated on-board the vehicles; and third, a data hub option where the VMT is calculated on-board the vehicles or at a hub (service station, DMV or field location of an RF tag reader). These different types of facilities have different potential for private provision of service, so a wide range of options is considered in evaluating alternative types of provision.

2.0 LITERATURE REVIEW

There are a variety of issues that must be addressed in evaluating public or private provision of a government service. In general, competitive private provision of a service is likely to be less costly and more innovative than direct government provision; but direct provision provides more continuity and avoids some potential problems with contract incentives and changes in service providers. It is also important to separate the source of differences in cost between direct government provision and contracted private provision of a service.

An additional consideration is whether the government is choosing a single provider or is setting up a system that allows for multiple possible private providers, competing with each other for customers. For example, in trash collection some governments provide direct service, some contract with a single provider for the service, and some allow multiple private providers to compete to provide the service. The choice between the latter two forms of private provision is likely to be affected by issues such as economies of scale, privacy concerns, and enforcement.

2.1 COST

Private provision of a service is typically less costly than direct government provision. There is a large and growing literature on the savings and benefits from private provision. Domberger, Meadowcraft, and Thompson (1993) performed an empirical study widely referenced in the literature suggesting that, in general, cost savings to privatization were on the order of 20 percent. In a study of 3,500 privatization competitions for Department of Defense contracts, Synder, Trost, and Trunkey (2001) found that contracting out of defense projects resulted in \$1.46 billion in savings, and that future savings could exceed \$5.74 billion if privatization competitions were completed for all functions currently on the DOD list of potential contracted projects. Poole and Fixler (1987) found that contracting out services led almost uniformly to cost savings for governments. In areas of solid waste management, water system management, school bus service, fire-protection, mass-transit bus service, department of defense contracting, and data processing, significant cost savings were observed. As another example, Indianapolis privatized two wastewater facilities, and in doing so, saved \$12 million in 1994 alone (American City and County, May 1994).

Nevertheless, there has been relatively little movement toward contracting of government services in the United States. Hirsch (1995) found that Los Angeles, which instituted a major campaign to increase privatization of public functions, contracted a mere 1.5% of its annual budget, gaining a savings of just 0.5% in the late 1980s. In a later article (Hirsch and Osbourne, 2000), contracting out in Oregon, Washington, and Idaho was found to be less prevalent than expected in judging, zoning, policing, and fire fighting. Contracting out of vehicle maintenance and repair was 29 percent, management and operation 18 percent, parks 13 percent, and day-care service 0 percent. Hirsch and Osbourne (2000) indicated that unionist objections to privatization combined with commonly inadequate “service transparency” (that is, the relative ability for a

voter to determine quality and cost of the service as well as the tax burden) has further impeded the realization of efficiency gains through privatization in the United States. Hence it is important to look in more detail at the cost differences and the sources of these differences. Donahue (1989) attributed cost savings of privatization to utilization of scale economies (increasing returns), more effective monitoring derived through a greater ability to determine accountability and a wider set of incentives from which to choose, and less inflexible production rules.

Economies of scale are cited several times throughout the literature (Poole, 1983, Ferris, 1986, Poole and Fixler, 1987, Benton and Menzel, 1992, Hirsch, 1995, Olds, 1995, Pogodzinski, 1996, Bingham and Pitsvada, 1997, Seidenstat, 1999, Savas, 2000, Hodge, 2000). The primary rationale behind this argument is that certain services and functions currently provided by government benefit from large-scale production, where increasing returns are possible. Smaller municipalities are often too small to reap the benefits of economies of scale. Therefore, private provision by larger companies operating in several geographic areas can offer cost savings in contracting with local government.

Several scholars argue that private firms offer more effective monitoring as well (Poole, 1983, Vickers and Yarrow, 1988, Hirsch, 1995, Pogodzinski, 1996, and Hodge, 2000). Hirsch indicates that private firms can more effectively monitor production, and therefore better control productivity in production. Vickers and Yarrow support this claim, arguing that both shareholders (who implement the management contracts) and creditors (who require changes to the firm's contracts in the case that debt reorganization is requested) monitor the performance of a private firm. Poole claims that adaptability of entrepreneurs, who are not plagued by bureaucratic incentives of local governments, enables and encourages private producers to monitor production to ensure efficiency and realize profits.

The flexibility of private firms to adapt to change has been addressed by a number of authors (Poole, 1983, Domberger, Meadowcroft, and Thompson, 1986, Johnson and Walzer, 2000, Lamdin, 2001). In general, the argument is linked to the more universal approval of competition. Competition, primarily through the bidding and re-bidding process, induces innovation as well as creating incentives to utilize and seek out new and more productive technologies and organizational methods. However, Benton and Menzel (1992) caution that to achieve these cost savings, there must be a sufficient number of private firms that are willing to supply a service. They write, "the larger number of private firms vying for government contracts and franchises, the greater the potential for competition, and hence, the ability to achieve cost savings" (438). They cite the example of municipalities in sparsely populated areas, which may have insufficient access to a number of competitive private firms.

2.2 INCOME AND PAYMENT TRANSFERS

Nonetheless, after instituting an empirical comparison study, Donahue (1989) finds that the primary source of increased cost savings is not in increased productive efficiency, but rather from lower labor costs. Economists make a distinction between cost differences due to actual differences in productivity and cost differences due to payment differences that do not affect production. The latter are typically viewed as transfers between entities rather than as actual

economic costs. For a variety of reasons, governments may pay workers a wage that is above the market wage for a job. Donahue argues that public sector employees are more likely to be unionized, have older workers with longer tenure, offer more vacation time, spare workers the chore of maintaining their own equipment, and have institutional “due process” protections before disciplinary action can be taken. This argument is made several times throughout the literature (Hirsch 1995, Benton and Menzel, 1992, Ferris, 1986, Bingham and Pitsvada, 1997). Further, government may use relatively more labor for a function than would the private sector. In the case of Indianapolis’ privatization of wastewater facilities, primarily cost savings were achieved by cutting employment from 328 workers to a mere 206. While the city government absorbed two thirds of these employees, the remaining third were left to find new jobs in private industry (American City and County, May 1994).

Hence, it is clear that at least some of the savings documented in the literature linked to privatization and contracting out can be attributed to lower labor costs at market wages below often-unionized government costs. To the extent that similar workers perform the job, the difference is a transfer between the workers and the taxpayers. While workers and their unions favor the higher payments, market advocates question why government workers should be singled out for bonus payments and receive special “fringe benefits.” To the extent that fewer workers are needed to achieve the same output, there is an improvement in efficiency.

2.3 RESOURCE ALLOCATION AND MANAGEMENT EFFICIENCY

Most studies conclude that the private sector is more efficient in providing a service than government is in directly providing the same service. While competition is often cited as a main cause for cost savings in privatization, some authors see competitive bidding as the primary source of efficiency gains in contracting out. In general, a competitive firm has greater incentives to organize efficiently (Poole, 1983, Hodge, 2000, Savas, 2000, Johnson, 2000). Moreover, experience with privatization of state-owned enterprises in other countries tends to confirm these findings (Gupta, 2000, Samii, Van Wassenhove, and Bhattacharya, 2002).

Pogodzinski (1996) argues that the effectiveness of privatization lies in the degree of choice and competition involved in the bidding and re-bidding process. While public provision is a form of monopolization, private provision could also lead to monopoly power. This primarily can be prevented through competitive re-bidding, whereby the largest possible number of potential suppliers is included in the bidding process. Poole (1983) also makes this point, and provides some examples.

However, the more specific conclusion is that competition in the provision of the good or service is the source of efficiency. Goldsmith (1997) argues that public provision under competitive pressure can be as efficient as private provision, and he provides some examples. Hodge (2000) supports this claim, indicating that savings appear to have been found for contracting irrespective of whether the contract arrangement is from the public or private sector. In fact, similar efficiency gains have been noted with private firms outsourcing to other private companies (Ambrioso, 1992, Slater, 1992, and Pack, 1992). Hodge (2000) further makes the point that the contracting process itself pre-determines that successful contracts will be at a lower cost. Presumably, winning bids were submitted at lower cost, otherwise the public entity would have

not chosen to accept the bid and outsource, but rather would have maintained the in-house function. Moreover, Savas (1993) makes the point that even the threat of competition induces efficiency savings in in-house public provision, citing savings of 37 percent in the US Department of Defense. Many studies have further established the argument (Hodge, 2000, McDavid and Schnick, 1987, and Domberger, Meadowcraft, and Thompson, 1987).

Rapidly changing technology would tend to favor a private provider, since they appear to be more responsive to such changes. Poole (1983) suggests that profit incentives encourage the search for and utilization of new technological advances to increase efficiency. New technologies are also cited in the Indianapolis wastewater privatization, where computerization contributed to lower utility bills, and engineering advances streamlined the operation. Other studies and books have indicated that private firms, through incentives wrought out of competition, utilize technology better than public firms (Poole and Fixler, 1987, Allen 1989, and Johnson and Walzer, 2000). Also, in the adoption of new technology, experience that a private firm has gained in other applications may enhance its ability to provide the service in a cost-effective manner. Alternatively, if the public sector has experience with the system, direct provision may be more cost effective.

A number of recent studies have tested empirically the degree to which privatization affects efficiency in service provision by looking at case studies in industry privatization. Laurin and Bozec (2001) use measures of productivity to compare the public versus private provision of rail service in Canada. They find that private provision was not only more cost-effective, but more efficient as well. Megginson and Netter (2001) perform a review of 22 different case studies in privatization, and in general find that there is at least limited support for the proposition that privatization is associated with significant improvements in financial and operating performances in service and goods provision. However, they do cite a study that, after adjusting for business cycle effects, finds that previously suggested efficiency gains in privatization of British firms have been overstated.

2.4 TAXES

Private firms pay a variety of taxes that governments do not. Hence, private firms will be at a disadvantage relative to direct government provision in many cases. For example, government-owned buildings are typically exempt from property taxes, while a private owner would have to pay such taxes. Similarly, private entities pay income taxes that public providers do not. Perhaps of greater significance, when borrowing is involved, is the ability of governments to borrow at favorable rates because the interest that they pay is not subject to taxation. Hence, faced with similar capital expenditures, a government agent may have considerably lower interest payments than a private provider. This issue can sometimes be addressed by having the government borrow on behalf of the private provider of a service.

Holcombe (1990) supports this assessment, concluding that private provision is not necessarily attractive because, while public providers operate outside the tax system, private providers do not. He concludes that privatization will only be financially viable if efficiency gains offset these tax costs. He specifically addresses tax changes in 1986, which reduced private tax incentives such as accelerated depreciation, the investment tax credit, and the use of tax-free

financing, increasing tax costs to privatization by as much as 30 percent of capital costs in capital intensive industries such as wastewater treatment and civic centers. He concludes that, "This distinction is rarely discussed, it is probably the most significant public policy issue with regard to privatization."

Hirsch and Rufolo (1994) further develop this argument, using a model of privatization choice to find that the tax bias amounts to at least ten to fifteen percent of operating costs for a sample of electric utilities and waste collectors. Hence, in many cases the money savings from contracting may be substantially less than the true cost reduction, especially if the taxes paid by the private firm are paid to governments other than the one contracting for the service.

2.5 HIDDEN COSTS

Within a government there tend to be specialized services that are often provided to all government agencies without direct charge. For example, legal services might be provided by a government-employed attorney or underwriting services by a treasurer. To the extent that these services are provided without explicit billing, government provision may appear to be less costly than it actually is. Similarly, a government may require a private provider to have insurance or to be bonded while self-insuring for direct provision. The government cost for insurance may be hidden in a different section of the budget or in increased risk bearing.

Another issue is accounting for the full cost of personnel who only work part-time on a particular activity. For example, if workers spend much of their time on other government activities and part on the activity that is being evaluated, there is a tendency to consider only the labor cost of their activity. However, a correct comparison would allocate such items as training cost and vacation proportionately. Similarly, the cost of office space and operation should be appropriately apportioned.

2.6 CONTRACTING COSTS AND THE NATURE OF COMPETITION

When contracting for a service, a government must put some resources into writing and enforcing an appropriate contract. In making a comparison between public and private provision, this cost should be included as part of the comparison. Part of this cost would be for the regular re-negotiation or competition for the contract.

Poole and Fixler (1987), in presenting and answering the potential problems with privatization, address both the existence and need for contracting costs to ensure competition. First, they indicate that a private firm may have an incentive to under-bid in the initial contracting phase, and after receiving the contract and allowing the public agency and public to become dependent upon their private provision, proceed to raise the price to recover the initial losses and maintain a monopoly position, leading to potentially both allocative and productive efficiency losses. The solution to the problem is to have open-bidding contracting for fixed term contracts, whereby these companies must continue to underbid competitors to maintain service provision. Another potential pitfall is corruption in granting contracts (see also Eggers, 1994, and Allen, 1989). Should potential private providers of services have connections to local government officials,

there exists both the incentive and power to either pay-off local officials or use connections to convince local officials to accept sub-optimal bids. Here, the answer is simple: the government should maintain an open and rigorous competitive bidding procedure, whereby the RFP clearly specifies service requirements evaluation criteria, public access to meetings, and written records of the selection process.

Another potential problem is service quality (see also Eggers, 1994 and Allen, 1989). In order to achieve cost savings, there is the incentive, potentially, to reduce service quality. Three safeguards are suggested: develop comprehensive and detailed specifications in the contract, include penalties for under-performance, and perhaps issue a post-performance bond against unacceptable underperformance.

A final concern is with service to the poor, wherein they suggest including provisions through contract negotiation for the inclusion of publicly or privately subsidized services to the poor. Although Eggers (1994) references a 1985 study by the Joint Center for Political Studies at the Department of Housing and Urban Development underplaying this problem, Hirsch (1995) relies on more recent literature and his own 1991 study to conclude that effect on minorities and women from privatization can be significant. He concludes that in order to achieve efficiency gains, competitive bidding, with fixed term contracts, and re-bidding is necessary.

Allen et al. (1989) reference several case studies of contracting out of public services to private providers. In their assessment, they underscore the need for effective contract writing. While in several instances, privatization led to cost savings, they also reference several examples where badly written contracts resulted in higher costs.

These examples involve contracting costs that should be factored in the privatization decision. However, contracting costs can be avoided if the government chooses to have direct competition among a variety of producers rather than competition for a single contract. If consumers have a variety of service providers to choose from, then there is no need for the contracting process, although government would still have to set standards for the providers.

2.7 ENFORCEMENT

There are several potential pitfalls related to the enforcement issue in privatization. First and foremost, as addressed in part earlier, is the need for monitoring to maintain service quality. Hodge (2000), Poole and Fixler (1987), Eggers (1994), and Allen et al. (1989) cite effective use of monitoring as a means to ensure expected implementation of service provision. The general discussion of the literature documents the importance of effective drafting of the initial contract, use of limited-term contracting and re-bidding to ensure compliance, as well as instituting penalty fees for insufficient performance.

However, perhaps more importantly, enforcement issues related to fee collection are also cited as a potential pitfall to effective service provision through contracting out. In the case of delinquent evaded payments from customers, who bears the responsibility and authority for enforcement? In general, the literature suggests that the government in many cases is better suited for ensuring against delinquency and evasion (O'Looney, 1998, and Hatry, 1983). However, if the

government is responsible for enforcement obligations, the private contractor may have little incentive to collect delinquent payments or minimize evasion. In this case, Eggers (1994) implies that fee collection/enforcement responsibility should rest with the privatized firm responsible for service delivery, with contractual obligations written into the contract. Nonetheless, he suggests that a loss of government control is not necessarily serious, identifying several methods to ensure compliance. First, in the RFP process, identify government control as a critically important criterion in the privatization process. Second, state the desired level of control in the RFP. Next, document performance standards, addressing issues of service quality, timeliness of service and repairs, actual vs. expected savings, and availability/access to government. Finally, he addresses the use of performance bonds, and monitoring techniques (onsite inspections, user surveys, complaint monitoring, and cost comparisons).

Finally, when private contractors or competitors are involved, the government will also have to enforce payments due to the state. This will require an audit function. Due and Mikesell (1994) find that states use a variety of audit approaches in enforcing the sales tax. Some integrate the audit function with those for the income tax while others have specialized audits. Hence, an audit function, and perhaps legal costs, should be evaluated in the decision to privatize.

3.0 ANALYSIS OF PUBLIC VERSUS PRIVATE COLLECTION CENTERS

In deciding whether to have public or private operation of a collection center for road user fees, there is actually a fairly large range of possible combinations. This review will focus on three broad categories: direct public provision, a single contract with a private provider, or open competition among private providers. While the first two options are the ones most likely to be considered, the third should not be ruled out. In essence, the third option would require that owners of registered vehicles make arrangements for the collection of road user fees, but the choice of collection services would be open to the consumer and entry into the provision of such services would be open subject to meeting government standards. For example, provision for open competition would allow existing providers of GPS-based automobile services to make arrangements with their customers for road user fee collection if GPS-based fees are implemented. Hence, to some extent, certain types of road users fee systems will be more or less suitable to the different types of provision.

Each possible organization for a fee collection center has advantages and disadvantages. It must be recognized that there are a broad range of possible operating characteristics. Hence, in many cases it is possible to identify the issues that must be addressed in making a comparison, but it is not possible to draw definitive conclusions. For example, most studies of contracted services find cost savings, but there are examples of poorly drawn contracts that lead to higher costs or other problems. Thus, for the next section, we will try to offer broad conclusions on which type of organization is likely to score best on the criterion, but also offer some discussion of the potential problems.

3.1 COST

Virtually all studies find that competitive provision leads to lower costs. The key item is the competitive provision. It is possible to have public provision of a competitively contracted service that is the low-cost provider and it is possible to allow a privately contracted firm to obtain a monopoly position that leads to high cost. In general, it is expected that if competitive private provision is possible it will be the lowest cost option since each firm providing the service will have continuing incentives to improve efficiency and lower cost. If such competition is not feasible and a single provider must be chosen, then a competitively bid contract is likely to lead to the lowest cost. In most cases, this would likely lead to provision by a private firm, but public sector competition should be allowed so long as the competition is fair.

3.1.1 Private Competition

Direct private competition will still require that government set standards, issue licenses, audit private firms, and have some final collection service. In evaluating the cost of this alternative, the government costs must be included. It is also important to ascertain that viable competition

will exist. If there are large economies of scale or there are substantial barriers to entry, then private market power could lead to high cost and poor service.

3.1.2 Private Contract

The cost of developing and enforcing the contract should be included in any cost comparisons. Where other states have entered into similar arrangements, much of the cost of developing the contract can be avoided (See Appendix for an example of an RFP for private provision of toll collection services), but where the activity is very unusual or innovative, the cost of developing and enforcing an appropriate contract should be included in the comparison. It is important that there be ongoing competition, although the contract period may have to be fairly long term due to start-up costs and so on. There is a balance that must be maintained between the length of term for least-cost organization and the need to maintain competition in the provision of the service.

The actual cost of developing the contract and reviewing bids appears to be small relative to the cost of the collection center itself. Table 3.1 shows a high end of less than \$10,000 for the cost of developing a contract as estimated for the Oregon Department of Transportation. The contract for a collection center would be more complex than most other contracts, and could easily end up costing several times the high end cost shown in the table. However, the cost of the contract itself is likely to be small relative to the value of the contract.

Table 3.1: Estimated Costs to Generate a Contract

RFP (Includes screening Contract Request; drafting RFP; meetings / discussions with Customer)	\$ 525.00 - \$1,400.00 (15 - 40 hours)
DOJ Review (depending on dollars)	\$ 500.00 - \$1,000.00 (5 - 10 hours)
RFP Monitoring (Includes Website / VIP posting; responding to questions / protests; Pre-proposal Conference; opening proposals)	\$ 525.00 - \$1,400.00 (15 - 40 hours)
DOJ Consults (as needed)	\$ 500.00 - \$1,000.00 (5 - 10 hours)
Proposal Evaluation (Includes facilitating Evaluation Committee; Customer / Contractor contacts)	\$ 525.00 - \$1,400.00 (15 - 40 hours)
Contract Execution (Includes notifying Proposers / Contractor; negotiating; obtaining signatures; distribution)	\$ 175.00 - \$ 525.00 (5 - 15 hours)
DOJ Final Review	\$ 200.00 - \$ 500.00 (2 - 5 hours)
DAS Review / Execution	\$ 500.00 - \$1,000.00 (5 - 10 hours)
Total	\$3,450.00 - \$8,225.00

Note: Hourly rates based on \$100 per hour for DOJ and \$35 per hour for all others. Costs could easily double for first contract. Source: Estimates provided by Oregon DMV

Since government providers typically have a variety of cost advantages, it would be important to specify contract provisions that allow for private contractors to take advantage of such cost reductions wherever possible. For example, since governments can borrow at lower tax-exempt rates, the use of government debt to finance capital acquisitions could lower total cost.

Similarly, the use of government purchasing agreements may allow for lower-cost acquisition. Contract terms should specify when and how such cost-cutting arrangements would be allowed.

3.1.3 Public Provision

In certain circumstances, direct public provision may be the least costly method. This is likely if there is difficulty in specifying terms for a contract. The latter may occur where there is substantial uncertainty about cost and operating characteristics of the collection center. If public provision is chosen, then all costs of the public operation should be included. In comparing different forms of organization, it is important that responsibilities be clearly delineated so as to make cost comparisons accurate. This is particularly true if there is to be a competitively bid contract and public agencies are allowed to compete. In particular, for a new operation, items such as training, equipment purchases, and public education should be explicitly accounted for.

3.2 ENFORCEMENT

All taxes suffer from evasion, avoidance, and delinquency. Avoidance is legal action taken to reduce the tax burden, evasion is illegal action for the same purpose, and delinquency is late payment or default on acknowledged obligations. In most cases, no action is required relative to avoidance, and it may even be encouraged under some circumstances. For example, if high prices reflect the high cost of providing service, such as higher peak period prices, then avoidance behavior meets the objective of the tax. However, if pricing is limited to certain roads and avoidance takes the form of increased usage of un-priced roads, then some activity to discourage avoidance may be warranted.

Evasion is typically addressed through a combination of enforcement mechanisms. First, there are methods to identify and discourage evasion. For toll collection, these typically include methods to identify non-payers and to prevent illegal avoidance of toll points. Second, there is typically a legal enforcement mechanism, with penalties for those caught evading the tax.

Delinquency is typically addressed through various collection mechanisms. Delinquency can occur for specific taxpayers or for intermediaries collecting revenue for the state. Use of private tax collectors typically raises concerns about potential collection problems, especially when the private firm has financial problems.

Specification of responsibility for enforcement can affect both cost and revenue collection. For toll and fee collection, a key question becomes who is responsible for uncollected revenue? If the state has all enforcement obligations, then a private contractor may have little incentive to collect delinquent payments or to minimize evasion. However, the state typically has greater power to enforce collections than would a private contractor. If private contractors or competitors are involved, the state will also have to enforce payments due to the state. This would typically involve an audit function.

3.2.1 Private Competition

Under private competition, the private providers will largely be concerned with their own customers. It would generally be a state obligation to be sure that all vehicles that should pay the fee are enrolled with a private collection agency. If enrollment is voluntary, e.g., pay the gas tax or the user fee, then enforcement may not be much of an issue; but if enrollment is mandatory, then identifying vehicles that are not enrolled could be a substantial issue. The problems with uninsured drivers, despite state insurance requirements, indicate the types of problems that may arise without appropriate enforcement mechanisms. A related issue would be the possibility that some private providers may themselves try to evade the law. Hence, government enforcement efforts would also have to be directed at the private providers.

3.2.2 Private Contract

Enforcement issues under a single contract would be substantially reduced relative to competitive provision. Nevertheless, there must be a clear delineation of responsibility. Some of the enforcement activity could be more easily transferred to the private contractor in this case. For example, the private contractor could be responsible for checking that vehicles are registered for the user fee and identifying those that are not. In existing toll collection situations, this might take the form of the private toll collector having responsibility to identify the license number of violators.

3.2.3 Public Provision

Enforcement would clearly be a public sector activity under public provision of the collection service. However, it is important to keep this cost in mind when making comparisons between public and private provision. For example, if the public provider were to rely on State Police for enforcement then the private comparison should allow for the same option or include the cost of police enforcement as part of the cost of the public provider.

3.3 REVENUE AND DEBT COLLECTION

While the amount of revenue should not vary with the type of collection, certain factors would affect the amount that the state receives. In particular, delinquency can become a problem if a private contractor goes out of business or declares bankruptcy. The legal relationship between the contractor and the state may affect the state's ability to collect from the contractor. This could be a particular problem if there is open entry into the collection business and the collectors do not immediately pass the money on to the state.

Experience with sales taxes provides some guidance as to how to best protect the state's claim on money collected and how to respond to delinquency on the part of tax collectors. Obviously, direct public provision of collection services would not result in any delinquency by the service provider. Similarly, a single contract for provision of the service can protect the state's interest. For example, the Virginia collection center run by Castle Rock Consultants deposits all payments by clients into state accounts. Hence, any financial difficulties for the firm could not directly

affect the state's claim on the payments. However, if there are many providers of the service, the potential for problems increases.

While most, if not all, existing toll systems in the U.S. require advance payment or payment at the time of service, some of the user fees under discussion would be amenable to billing. When billing is used, there would be some percentage of revenue that would not be collected. Legal responsibility for the uncollected revenue would affect both the cost of running a collection center and the incentive to collect from delinquent accounts. If the collection center is responsible for payment of revenue whether collected or not, the cost would clearly reflect the uncollected revenue. Since there would be little experience with such a system initially, the private provider may require substantial premiums to insure against large losses. However, if the private provider were responsible for all payments, they would have the most incentive to keep collection rates high. Government assumption of the risk would reduce this incentive. In the latter case, contractual provisions for effort on collection should be clearly identified.

The ability to stop service for delinquent accounts is important for any of the providers. Portland Water Bureau gets close to 100% payment on active accounts because the water is simply turned off for delinquency. However, around ten percent of final payments are never collected and problems with multi-family or sewer-only accounts, where service cannot be turned off, may be around twenty percent (Perkel, 2002). The ability to block access to roads for those delinquent in paying their road user fees would be sensitive to the type of system and the method of organization, but this could become a substantial problem under a billing system. In general, it appears that some combination of pre-payment, use of active credit cards, or payment of a deposit, will be necessary to minimize delinquency problems.

3.4 FLEXIBILITY

It seems reasonably clear that private competition would allow for the greatest amount of flexibility, followed by private contract, and public provision. Some may view the low flexibility of the public sector in adopting changing technology as a benefit, since consumers may be reluctant to adopt changes as well. In general, flexibility will be beneficial to the operation in terms of cost but care must be taken to not impose undue compliance costs on road users who would also have to adopt the changes.

3.5 PUBLIC PERCEPTION

Public perception of the collection center is not likely to be dependent on whether the public or the private sector provides the service. Perception will most likely be affected by the way data is collected, by the safeguards created for the data, and by the quality of service that customers receive when dealing with the collection center. The issue of privacy is largely independent of who collects the data. While private providers may have an incentive to use data for marketing or other commercial gain, public providers may have an incentive to use it for law enforcement, e.g., monitoring speed. Either activity would create problems, and whoever provides the service, there would have to be clear guidelines for using and safeguarding data and well-defined penalties for breach of the guidelines. Experience with existing toll systems and the Progress

Insurance experiment in Texas indicate that concerns over privacy may be somewhat exaggerated, especially if consumers have some option for privacy or for not participating in the system. Further, service providers have the ability to monitor many of the cars currently equipped with GPS systems, but consumers seem comfortable that this is not a problem.

3.6 SUMMARY

In general, full competition by private providers licensed by the state would probably provide the highest level of service and lowest net cost for the collection center; however, it would also create the most potential problems and would require state audit and oversight. Competition for a contract would generate many of the cost savings associated with private provision, even if the service is ultimately provided by a public agency involved in the competition. However, it is clear that much effort must go into setting the contract terms and being clear about responsibilities. It is also important that there be real competition and that the competition for the contract be re-opened regularly. If this is not possible, then direct government provision may be the best option.

3.7 CASE STUDY - VIRGINIA DOT SMARTTAG SERVICE CENTERS

The SmartTag electronic toll collection facilities in Virginia operate on 7 toll roads and over 150 toll lane collection areas. SmartTag processes approximately 9 million transactions a month. The system operates using transponders placed on the inside windshield of a vehicle. As a vehicle equipped with a transponder passes through a reader installed on the roadway, the amount of the toll is deducted from a user's account. Communications between the transponder and readers is short range RF. The transponder has a range of approximately 100m. Data sent from the transponder is collected at the roadside and transmitted back to the service center over telephone lines.

The SmartTag service centers are set up on a distributed network. There are service centers in Reston, Richmond, and at the Coleman Bridge. The current back office system and call centers are in Reston. The SmartTag center infrastructure uses leased lines and frame relay connections of at least 56kbps for connections between service centers and toll facilities. The system is capable of transmitting toll lane transactions and transponder update information. Toll lane transactions include: date, time, location, vehicle class, transaction type and tag number; disbursement summaries and details of daily revenue; non-revenue transaction activity; account updates; and violation data.

The SmartTag collection centers operate on a prepayment system whereby each user is set up with a customer account. A charge is made against this account each time the user drives through a SmartTag facility. Users can open accounts by walk-in, telephone, Internet, mail, or fax. The operation of the SmartTag program is managed under private contract. Based on discussions with the VDOT Fiscal manager of the Dulles Toll Road at the time the decision was made and the current project manager of the SmartTag contract for operations of the service center, the following were identified as the primary reasons for selecting to outsource the operations of the SmartTag Service.

3.7.1 Ability to Move Faster on the Project.

The initial setup of the service center occurred over a few months. Large numbers of temporary employees were brought in by the private contractor to handle the large order processing to get the first wave of transponders out on the street.

3.7.2 Effective Equipment Purchasing.

Because large amounts of computers, routers, data lines, and equipment were needed to operate the service center (many of which were not fully understood until the setup and operations began), the idea of an operations contract with a private vendor was attractive. The private company was able to procure equipment without being tied to purchasing constraints placed on the DOT. However, the private company (working on behalf of the state) was able to take advantage of some price benefits, by purchasing equipment using government rates when possible.

3.7.3 Reduced Need for Additional VDOT Staff

Operating the service center internal to VDOT would have likely meant the creation of 10-15 full time staff members. As creating FTE positions is difficult within the DOT, it was attractive to avoid this. Many of the staff positions required specialty areas of expertise that are not typical to DOTs. Similarly, at the time of initially deciding to outsource the service, VDOT had a hiring freeze and was not able to hire additional FTEs.

3.7.4 Lack of Specific VDOT Experience in this area

It was felt by some that VDOT did not have the specific experience in-house to operate or oversee operations of a Service Center such as the one needed to operate the SmartTag system. Therefore, it made logical sense for this system to be procured through a competitive bid.

3.7.5 General Flexibility

It was believed that an outside contractor performing the service would have more general flexibility than internal VDOT staff. For example, if early days of operations revealed that additional skills in fiscal or operational management were required, the contractor could more readily hire this additional skill. Similarly, the private contractor could procure space in non-DOT buildings to house the service center in a convenient location for walk-in traffic to sign-up for the system. Similarly, the private contractor could temporarily hire additional staff during ramp-up periods and reduce the number of staff as desired, very conveniently.

4.0 CONCLUSION

The precise nature of the fee collection system will partially determine the feasibility of the three institutional arrangements in collecting the data and fees, and each of the potential types of organization – private competition, private contract, or public provision – has strengths and weaknesses. In general, private competition would tend to provide the greatest flexibility and lowest cost when it is feasible. However, it is also the most susceptible to problems associated with enforcement of the fee and delinquency in fee collections. It also offers the greatest risk since there does not appear to be any directly comparable system currently in use. Its greatest advantage appears to be its potential to allow a fee system that is a low-cost add-on to existing GPS-based systems.

If there is to be a single cost collection center, then the key issue is whether there would be competition among potential providers. While there is substantial evidence that contracted services are less costly and more efficient than comparable public provision, recent research indicates that this may be the result of competition per se. In a number of cases where competition has been introduced, the public sector provider has been the low-cost bidder. Hence, if there is to be a single collection center, there should be an open competitive process carefully designed so as to include all costs when making comparisons between public and private providers.

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1.0 Purpose

Overview:

The Virginia Department of Transportation (VDOT) is interested in a proposal to operate its Smart Tag Customer Service Center (STCSC) which currently services participating facilities operated by VDOT, RMA (Richmond Metropolitan Authority) and TRIP II (Toll Road Investors' Partnership):

Participating Facility	Operator
Dulles Toll Road	VDOT
Dulles Toll Road Extension	TRIP II
Powhite Extension	VDOT
Powhite Parkway	RMA
Boulevard Bridge	RMA
Coleman Bridge	VDOT

Two additional road systems -- 168 in Chesapeake and 895 in Richmond -- will probably be added during the contract period.

2.0 Background

Electronic Toll Collection (ETC) systems consist primarily of AVI instrumentation installed at the lanes, communications and central account processing. Smart Tag patrons are able to pay tolls electronically as they drive through equipped lanes via a transponder that is mounted in or on their vehicle. ETC reduces queuing time, reduces the efforts of toll collectors, increases throughput and generally results in lower violation rates. Conventional toll payment methods remain available to patrons, but are covered by separate contracts.

Patron ETC prepayment accounts are maintained at the STCSC. Accounts are prepaid by the patron. Passage through the lane at the participating facility results in the deduction of the appropriate toll amount from the patrons account. If the patron's account balance is zero or negative, the patron must pay cash in order to avoid a violation.

Participating facilities use technology that is similar, so that patrons may use ETC at all participating facilities.

The basic responsibilities of the STCSC are therefore to:

- Issue transponders to patrons and establish all Smart Tag prepayment accounts.

- Accept transactions from participating facilities detailing which patrons passed through toll lanes and the tolls due.
- Update patrons' individual Smart Tag prepayment accounts.
- Transfer the appropriate toll payments and reports to participating facilities and perform other administrative duties required to manage the STCSC.
- Provide technical services needed to maintain the hardware and software used by the STCSC.
- Bring on-line new toll facilities as authorized by VDOT.

The need to improve system capabilities and upgrade the STCSC also require that the responsibilities of the STCSC include:

- Investigate options to upgrade the current system to accommodate growth and technological advances.
- Develop implementation plans to include but not be limited to: requirements document, definition phase, preliminary design phase, detail design phase, testing and acceptance testing.

The STCSC currently provides services to over one hundred and seventy thousand patron accounts with approximately two hundred and fifty thousand transponders. Over six million ETC transactions occur each month.

These transactions are processed via ARCS – Advanced Revenue Collection System – developed and licensed by TransCore. The STCSC currently retains TransCore managers to facilitate ARCS maintenance and operations.

Specifications and Scope of Work are presented in detail in Section 3.0.

3.0 Statement of Needs/STCSC Requirements

3.1 STSC Operations

3.1.1 General Description

The STCSC operation shall be provided under this contract shall be divided into customer service centers and back office operations.

Customer service centers will provide locations which Smart Tag patrons can visit in person to open and close accounts, as well as make deposits, turn in transponders, inquire about account balances and obtain other information. The customer service centers will provide suitable customer waiting areas, customer service counters, and a private areas where Smart Tag patrons can discuss account information with customer service representatives

The back office operations will house the computer and communications equipment and the personnel necessary to manage the Smart Tag accounts as described in these STCSC

requirements and as required to support operation of Smart Tag at the participating facilities.

3.1.2 Location

Customer service centers are located within the general vicinity of each facility if the volume of customers needing access to the service center warrants a separate facility. In the case where more than one facility is located in the same urban area, a single service center may serve this requirement, if it is identified to be easily accessible to the various participating facilities. Establishment of customer service center is subject to final approval by VDOT.

The Contractor shall be responsible for identifying the appropriate location for each new service center. The location shall be subject to approval by VDOT. The Contractor shall be responsible for all costs associated with procuring, equipping, operating and maintaining each center. The service centers must provide adequate parking with easy patron accessibility and shall be located within a retail/office (non-industrial) type area.

The back office functions may be located in the customer service centers or may be provided at a separate location. The Contractor shall identify where this functionality will be located.

3.1.3 Customer Service Center Operating Hours

Initially, new customer service centers are open to the public at the following times: Monday through Friday, 10:00 a.m. to 7:00 p.m., Saturday, 10:00 a.m. to 3:00 p.m., except all State holidays.

Once established, the Contractor should review customer demand and adjust hours accordingly. Any such alterations will be agreed in writing between VDOT and the Contractor. The Contractor shall propose cost changes per hour and the impacts on the transaction fee, if any, for the following situations:

- Extended opening hours.
- Reduced opening hours.
- Change of opening hours.

3.1.4 Staffing

The Contractor will be required to propose staffing and equipment levels necessary to provide a satisfactory response time to STCSC customers. The Contractor shall propose methods for ensuring that patrons visiting the customer service centers are served as quickly as possible. Appendix C contains statistical information for the STCSC's currently in operations.

The Contractor shall also propose procedures and strategies for handling rush periods that may be in excess of the average that could be caused by the addition of new facilities

such as Routes 168 and 895. These procedures for both routine operations and for rush periods will be subject to the review and approval of VDOT.

The Contractor shall propose a staffing plan. This will include but not be limited to:

- Identification of the types and quantities of staff positions that are proposed.
- The roles, responsibilities and duties of each of these positions.
- The qualifications of personnel anticipated for these positions.
- Identification of whether these positions will be filled from within the Contractor's current workforce or will be hired from outside.

The Contractor shall identify the roles and responsibilities of any temporary services used. VDOT will retain the right to approve and terminate use of staff provided by the Contractor for the STCSC operations.

3.1.5 Customer Service Methods

Proposals shall identify the methods of interactions with existing Smart Tag patrons and potential Smart Tag patrons. This may include, but not be limited to:

- Customer Service Representatives.
- Internet communications through the world wide web.
- Toll free 24-hour telephone number allowing patrons to open individual Smart Tag prepayment accounts and access general and account information via an automated touch tone system and recorded messages or an operator.

3.1.6 Security

VDOT desires the Contractor to use their ingenuity and experience to provide security measures for patrons, revenue and accounts. These shall include, at a minimum:

- Bonding STCSC employees
- Employee security check, including criminal background and credit
- ID Cards
- A video surveillance system at STCSC's
- An overnight safe
- A secured transponder supply
- Computer security

The Contractor shall describe in detail the security procedures to be utilized. All procedures will be subject to review and approval by VDOT.

3.1.7 Account Types

The STCSC is required to operate revenue and non-revenue AVI accounts. Non-revenue accounts, per Virginia Code section 33.1-252, will be held by some qualified individuals.

A number of these non-revenue transactions are handled by non-AVI toll collection and will therefor not be the responsibility of the STCSC.

The STCSC shall continue to service Smart Tag accounts with varying numbers of transponders. For an account with a single transponder, the patron's account balance shall be decremented whenever its corresponding transponder passes through an AVI toll lane. For accounts with multiple transponders, a single account will be decremented when any of its assigned transponders pass through an AVI toll lane.

3.1.8 Account Opening

Proposals shall provide outline procedures for opening individual Smart Tag accounts at STCSC locations, by telephone, internet, and mail. Final procedures, methods and system functionality will be subject to review and approval by VDOT.

The Contractor will propose staffing and equipment levels which allow the testing of transponders before distribution and the verification of transponder activation and individual Smart Tag account number. The Contractor shall document proposals for testing and activating transponders and account numbers and updating inventory before distribution to patrons. }

Non-revenue individual Smart Tag accounts may be opened by mail or in person at the STCSC. Contractor shall verify authority of non-revenue applicants with the appropriate facilities prior to issuance.

An introductory package shall be provided to all patrons opening individual Smart Tag accounts. This package shall include, but not be limited to:

- Terms and conditions of the agreement between the STCSC and the patron.
- Instructions on installation of the transponder.
- Ad description of operations of the system from a patron perspective.
- Contact numbers and mailing addresses in case of problems.
- Instructions on account replenishment.

For accounts opened in person at the STCSC, Customer Service Representatives (CSR's) will install the transponder in the customer's vehicle where possible. Accounts shall be immediately activated. Individual Smart Tag account information must therefore be communicated to the participating facilities' systems in time to permit updates of the new account information at the lane level, before a customer reaches the closest facility. }

Similarly, when transponders are distributed by mail, patrons shall be able to use the transponder as soon as it is received. >

The Contractor shall propose a method by which the installation and functionality of the transponder are verified to the user prior to leaving the STCSC. >

with new system changes
↓ ?

The processing time for account opening in person at a STCSC shall not exceed five minutes. Tag installation shall be undertaken as soon as the account opening processing is complete.

3.1.9 Deposits

Patrons opening individual Smart Tag accounts may be required to pay a refundable deposit for the transponder. Presently VDOT has elected not to require patrons to pay a deposit if they choose to replenish their accounts automatically via credit or debit card. However, if a deposit is required, VDOT requires a deposit of an amount sufficient to encourage return of the transponder in the event that the account is closed.

3.1.10 Transponders

All transponders shall be purchased and stored by VDOT until needed at the STCSC's. The Contractor will assume custody of transponders from VDOT's stock location as stock is depleted at the STCSC's. The Contractor will notify VDOT when it is necessary to re-order.

Transponders have a 1 year warranty from date of purchase. The Contractor shall return all transponders to the vendor which are defective for credit or replacement. The Contractor will analyze stock requirements at the end of each fiscal quarter to determine projected inventory needs and to maximize the number of transponders issued while still under warranty.

3.1.11 System Performance Requirements

Appendix A lists system hardware components.

Appendix B describes the operational functionality of the system.

Appendix C quantifies patron and facility activity.

Appendix D contains patron contracts in force.

Appendix E contains Standard Operating Procedures (SOP).

As part of the technical proposal, the Contractor shall propose any modifications or changes to the system hardware and /or software. Any proposed modifications or changes should provide detailed listings for all hardware and software components, the related functionality and benefits. The Contractor should also provide manufacturers' specifications, model numbers, revision numbers, data sheets, and detailed descriptions of functional components and executable applications.

3.1.11.1 General Performance Requirements

The Contractor may be responsible for developing off line applications, upgrading and/or installing new system hardware and software necessary for Smart Tag operations.

At a minimum, the proposed STCSC system shall maintain the following characteristics:

- Be new, state-of-the-art design for data processing, accounting, and customer service applications.
- Provide efficient user friendly screens, processes, displays, user prompts, reports and applications.
- Be capable of supporting current users and expandable to support expansion.
- Be capable of maintaining and servicing at least five hundred thousand Smart Tag accounts.

In addition, any systems developed, upgraded or installed must meet or exceed the following performance standards:

- Provide a one hundred percent audit trail for all Smart Tag account transactions.
- Meet and / or exceed total system availability equal to ninety-nine point ninety-nine percent. The system provided shall be a high availability, fault tolerant data processing environment.
- Meet and / or exceed total account transaction processing accuracy equal to ninety-nine point ninety-nine percent.

99.99%

In responding to this requirement, the Contractor will present a schedule identifying the services available, the cost to meet the specified performance standards as well as alternative proposals and their relative costs.

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The contractor will monitor on a daily basis compliance with the above performance standards. It shall be at the sole discretion of VDOT as to the determination whether performance damages will be imposed, waived and/or placed in default.

3.1.11.2 General Software Requirements

The Contractor may provide, install test and maintain system software that is of the latest release from the manufacturer. All system software, which includes, but is not limited to, the operating system, communications, database, utility, networking, accounting, financial, POS, and all other user applications, as well as all third party software, shall be identified and described.

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All system software shall be subject to the review and approval of VDOT. Once approved by VDOT, the Contractor shall provide software license(s) to VDOT that permit them to use, upgrade, modify and maintain all software components provided. The Contractor shall be administratively responsible for all software licenses used in the STCSC operation.

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Additionally, the Contractor shall be required to place both documented source and executable object programs and all software documentation for all customized or specially written application software, in compatible system media in escrow, to be secured by VDOT in the event of the Contractor being placed in default. The final approved system software and related software documentation shall be placed in escrow.

Final software licenses and escrow agreements shall be subject to the review and approval of VDOT. The approved licenses and agreements shall be executed as part of the STCSC's acceptance.

3.1.11.3 Testing

Since the Contractor will be assuming responsibility for an existing system, the Contractor should specify any tests necessary to obtain a comfort level that the system is operating at an acceptable level. These requirements shall also be applied for any major enhancements and / or upgrades to the existing system.

The Contractor shall provide acceptance test procedures, test criteria and data forms for VDOT approval at least sixty days prior to transition of management. The test procedures shall include the sequence of conducting the tests and the duration of the tests. The test procedures and test criteria shall be approved by VDOT prior to initiation of tests.

A) Acceptance Testing

The Contractor shall conduct approved tests on STCSC equipment installed at the STCSC for forty five days prior to final acceptance of the Contractor.

A stand alone test program which demonstrates that the Contractor is able to manage all equipment, components and subsystems so that they are fully functional as an integrated STCSC as described in this solicitation, shall be developed by the Contractor and submitted to the VDOT Contract Administrator for review.

The test shall be conducted by the Contractor and observed by VDOT and participating facilities. The tests shall, at a minimum, verify, demonstrate and permit full evaluation of all functional operations of each unit of STCSC equipment and of the integrated STCSC system, including tests of communications systems between the STCSC and participating facilities. The tests shall also include a forty five day period of normal operation without any functional disruption, failure or interruption of service.

In the event of any significant failure or disruption in service or functional operations as determined by VDOT, the forty-five day test period shall be restarted from the beginning. In the event of a equipment or system not modified or installed by Contractor, the tests shall be suspended until the necessary repairs are made and then the tests shall be restarted for the continuation of the forty-five day period.

3.1.11.4 Software Review

Periodically, modifications, upgrades and/or other changes to STCSC software may be required. A minimum of three reviews shall be conducted by the Contractor with the participation of VDOT prior to acceptance of their software. All software development shall be divided into the following phases:

- Definition phase
- Preliminary design phase
- Detailed design phase

At the end of each phase, VDOT must approve the phase processes and documentation before the Contractor is allowed to proceed with the following phase.

A) Definition Phase

A software definition review will be held at the completion of the definition phase to determine the adequacy of the Contractor's efforts in defining the system requirements. A software requirements definition document will be submitted at least seven days prior to the meeting. During this phase, the Contractor shall address incorporation of interface specifications for the participating facilities' central computers. The results of the review will be incorporated into the requirements document before approval by VDOT.

B) Preliminary Design Phase

A software preliminary design review will be conducted at the end of the preliminary design phase. The review will establish the compatibility of the physical and functional interfaces between the STCSC and the participating agencies' central computers. The review will demonstrate that the preliminary design defines the functional capability of the system as agreed in the definition phase. During the review the final interface specification between the STCSC and the participating facilities' central computers shall be reviewed for approval.

C) Detailed Design Phase

The detailed design phase will last from completion of the preliminary design phase until full system acceptance. A software detailed design review will be held towards the end of the detailed design phase. During the detailed design phase, each unit from the previous phase will be further broken down into complete detailed logic and data descriptions. All logic and data flow diagrams for all software and hardware elements of the system shall be provided. The detailed design will cover all user interface designs, including all menus, options and terms, and outline operational procedures required to support operation of the system.

The detailed design shall include definition of all software test plans and procedures, all user interfaces, all functions, all accounting, all reporting and all documentation. The detailed design review shall include a demonstration of the simulated participating facilities' central computers that will be used during the stand-alone tests. Prior to

completion and approval of this phase, a detailed design document shall be compiled by the Contractor and submitted for review and approval by VDOT. The contractor shall not be permitted to proceed until an approved document is attained. Failure to reach approval of the detailed design document may result in the Contractor being placed in default.

The detailed design document shall include all software that will be used to operate and maintain the STCSC. The Contractor shall warrant that no disabling code shall be included in any of the software provided that may prevent the participating facilities from utilizing the software after buy out or termination.

3.1.11.5 General Hardware Requirements

The Contractor will manage the STCSC, using the existing hardware. If the Contractor's proposal requires additional hardware, the following requirements apply:

The Contractor shall provide, install, test and maintain all system hardware that is necessary to operate the STCSC. At a minimum, the proposed hardware shall meet the following requirements:

All system hardware shall be new and shall be the latest design and release of the manufacturer. At a minimum, the design shall be of a 32-bit architecture that utilizes hardware and software from a single manufacturer to the maximum extent possible.

Redundant processor and communications architecture shall be required. The redundant processor and communications architecture shall be linked together in a high availability configuration, operating under the control of fault tolerant hardware and/or software, so that if one central processor and/or communications link failed, shut down, or manually switched, the other would automatically take over the operation without any user intervention or loss of any data or control, under any circumstance.

The system design architecture shall provide all necessary hardware and software to archive transactions, accounts, data base, system and report data.

At a minimum, the system should be capable of handling five hundred thousand Smart Tag accounts.

At a minimum, one hundred and eighty days of on-line account, transaction and report data shall be immediately available.

The Contractor shall furnish all communications devices necessary to support a redundant communications architecture. Communications components shall consist of all hardware and software required to support all nodes of the STCSC communication network, including communications devices at the participating facilities' computer centers.

All spare parts necessary to operate and maintain the STCSC system shall be furnished. The Contractor shall submit a preliminary listing identifying all spare parts to be furnished.

3.1.11.6 Data Security and Confidentiality

The Contractor shall be responsible for user and system data security. Under no circumstances shall any data be lost or corrupted, modified an/or accessed by unauthorized users. Complete security must be maintained at all times for all patron Smart Tag accounts and other system data.

3.2 Procedural Documentation

The Contractor shall prepare and provide a STCSC Standard Operating Procedure (SOP). A preliminary STCSC SOP shall be provided with the proposal. The STCSC SOP must be approved by VDOT before final acceptance of contractor management will be granted.

The STCSC SOP shall include all procedures necessary for the management, operation and quality assurance of the STCSC. Once written, the Contractor shall submit the STCSC SOP for review and approval of VDOT. VDOT shall require that any and all changes to align the SOP with VDOT objectives, policies and/or practices be implemented at no additional cost.

The final approved STCSC SOP shall be implemented immediately when Contractor commences STCSC management and maintained for the duration of the Contract, unless otherwise directed in writing by VDOT. The Contractor, its employees, and agents shall comply with the approved STCSC SOP in the execution of the Contract. Failure to comply with the approved STCSC SOP may result in the Contractor being declared in default.

3.2.1 Documentation Development and Control

The Contractor shall develop and provide for VDOT's approval, a comprehensive document control plan and system. All documents shall be assigned unique control numbers showing applicable dates, originators and revision numbers. Documentation shall include, but not be linked to, all drawings, system documentation, the STCSC SOP, and applicable reports.

Once the document control plan and system are approved by VDOT, it shall immediately be implemented by the Contractor, unless otherwise directed in writing by VDOT. All documentation prepared and provided by the Contractor shall be subject to the review and approval of VDOT. All documentation required by VDOT relevant to this Contract shall become the property of VDOT as well as all rights thereto associated.

Development of required procedural documents shall occur during the period of this Contract prior to the Contractor's taking over STCSC operations. The entire process, including development, preliminary reviews, edits, analysis and formal acceptance by VDOT shall not exceed one hundred and twenty calendar days from the date of the beginning of the contract period. The review and editing process shall include, but not be limited to review of content and format for all plans, SOP's and reports, a final review and edit, and the approval process, which may include additional edit and review and a formal sign-off by VDOT.

The Contractor shall ensure that all plans, the SOP, and all applicable reports are approved and ready to execute once a commencement date has been established by VDOT and provided to the Contractor. Failure to have the approved plans, the SOP, and the applicable reports ready to execute, as specified, may result in the Contractor being declared in default. Provisional approved plans, the SOP, and/or applicable reports may be considered, but in all cases, shall be at the sole discretion of VDOT.

3.2.2 Documentation Approval and Maintenance

The procedure for obtaining approval of all documentation will include review, approval and change processes as follows:

- a) The Contractor shall prepare and submit to VDOT all documentation as specified. VDOT accepts no liability for delays in approval of documentation resulting from submittals not made on schedule or in accordance with the Contract.
- b) VDOT will conduct its review of the document and return comments to the Contractor. These steps will continue until a final approved document has been developed by the Contractor and approved by VDOT.
- c) The Contractor shall accept any request by VDOT for changes to the documents. The documents shall be re-submitted to VDOT within fifteen calendar days after receipt of the requests unless otherwise allowed in writing by VDOT.
- d) Once accepted by VDOT, the document will be subject to periodic review and modification, in whole or in part, any time, at the discretion of VDOT.
- e) The documentation requirement shall include maintaining one duplicate and complete library of approved contract documentation for each participating facility and for VDOT.

Addresses and points of contact shall be provided by VDOT. The Contractor shall provide updates, changes, modifications and a current index of material to ensure the libraries always contain current versions.

3.2.3 Review and Approval Provision

Any and all matters shall be subject to the review and approval process of VDOT. The review and approval process shall include, but not be limited to, all STCSC operational procedures, standards and conventions, all STCSC hardware and software components, all related documentation and all staff and subcontractors assigned.

3.3 Interfaces with the Participating Facilities

3.3.1 General Description

The STCSC will transmit and receive a variety of information to and from the participating facilities' toll collection computer systems. This information will include transaction information required to update individual Smart Tag accounts, account status information required to validate status of these accounts at the lane level, and various reports defining transaction, customer service and system performances, as well as transaction auditability and quantities.

Communications shall utilize leased telephone lines of at least 56 kbps to each of the participating facilities along with a backup system. The Contractor may propose alternative methods for the interfaces to the facilities' central computers.

3.3.2 Transaction Communication

The STCSC must have the ability to communicate detailed individual Smart Tag prepayment account transactions with participating facilities' central computers. The STCSC must be capable of providing communications both as periodic batch transfers and in real-time. Real-time transaction communication will be the primary method utilized. The transactions that are to be communicated include, but are not limited to, the following:

From the participating facilities:

- Transactions originating from the toll lanes to include, but not be limited to, time, date, location, vehicle class, transaction type, and transaction reference number.
- An "end of revenue day" message from the participating facilities.
- Updates to individual Smart Tag account information for non-revenue transponders.
- Violation information.

To the participating facilities:

- Individual transponder status update information.
- System status information.
- Periodic complete Smart Tag transponder database download to the participating facilities' central computers.

3.3.3 Communication Protocols and Physical Requirements

The STCSC shall be required to communicate with the participating facilities' central computers located at the participating facilities' administrative buildings.

The Contractor must work with all current and future participating facilities and VDOT to maintain and develop interface specifications between the STCSC and the participating facilities' computer. The STCSC must be capable of supporting the hardware and software configurations of participating facilities.

Secure and reliable communications must be maintained between the STCSC and the participating facilities. This should include message numbering and acknowledgements at a minimum. The Contractor shall provide details of their proposed methods for maintaining security and reliability of messages. Final methods and procedures shall be subject to review and approval by VDOT.

Communication links between the STCSC and the participating facilities' central computers must be operational twenty-four hours a day, three hundred and sixty-five days a year. Primary communications are provided through leased lines to the participating facilities' computers. The STCSC is responsible for procuring and operating these leased telephone lines.

A backup communications link shall be provided in the event that any part of the leased line communication system fails. The backup system shall provide similar capabilities for batch and real time communications capability as the primary communications system.

The Contractor will be liable for liquidated damages of \$1,500 per hour pro-rated for partial hours for aggregate down time the the STCSC system in excess of 2 hours during any twenty-four hour period. Provision will be made to waive damages due to catastrophic failure of primary and backup communications systems beyond the control of the Contractor. Down time is defined as any one of the following:

- The inability for transaction information to be successfully communicated to and acted upon by the STCSC, unless due to a failure of the participating facilities' equipment not provided by the STCSC.
- The inability of the STCSC to calculate and communicate updated account statuses to one or more of the participating facilities.
- The inability of the STCSC to process patron-requested transactions resulting in a real time delay to patrons.

Down time and failure periods will be measured over a sliding period of twenty-four hours. Once a down time or failure occurs, time will be accumulated against the two-hour limits until the system and communication are brought back on-line. Any further failures before twenty-four hours have elapsed will cause down time to continue to be accumulated and the elapsed time reset to zero hours.

This accumulated time will not be reset to zero until twenty-four hours of uninterrupted system operation has occurred. The STCSC will also be responsible for the loss in revenue during this down time due to inability of the STCSC to update account status

information. The Contractor shall propose methods by which any down time can be accurately assessed. These methods will be subject to the review and approval of VDOT.

3.4 Fund Transfers and Fund Management

3.4.1 General Description

The STCSC will receive moneys from patrons wishing to use the Smart Tag system for the payment of tolls and/or other fees. Upon opening an individual Smart Tag account, the STCSC will receive a prepayment to be used as credit for the payment of tolls and/or other fees of the participating facilities. The STCSC may also receive an initial deposit for the transponder, if that deposit is not waived by VDOT. Periodic payments by patrons shall be used to replenish the amount of credit available for payment of tolls and other fees.

Moneys paid by patrons will be deposited into either an AVI transponder deposit account or a prepayment account, depending on the type of payment.

3.4.2 Transponder Deposits

VDOT shall own the AVI transponders to be used on the toll roads. Transponder deposits shall be paid into a separate AVI transponder account on the day received.

The STCSC will comply with the terms of all contracts between VDOT and Smart Tag patrons as part on the individual Smart Tag prepayment account opening process, as provided in Appendix E. The Contractor shall detail the method of returning the deposit and any funds held by the STCSC upon termination of the patron's individual Smart Tag prepayment account. The Contractor shall propose a patron deposit amount appropriate to the value and life of the transponder and policy covering the waiver and refund of deposits. Final policy and procedure shall be subject to review and approval by VDOT.

3.4.3 Smart Tag Prepayments

All money paid to the STCSC for the patron's individual Smart Tag prepayment account balance shall be credited into a Smart Tag bank account. This bank account shall be maintained by the Contractor on behalf of VDOT. VDOT is the legal holder of the account. This will ensure that, in the event of the Contractor's bankruptcy or default, no accounts necessary to continue operation of the STCSC can be frozen.

All payments made by patrons shall be immediately credited to the patron's individual Smart Tag prepayment account balance to enable the patron to immediately start or continue use of the Smart Tag system to pay tolls and other fees. All patron payments must be deposited into the Smart Tag prepayment bank account on the same day they are received. All payments received directly from patrons at the STCSC shall be received.

The STCSC accepts payments from customers using cash, all major credit cards (MasterCard, Visa, American Express and Discover), personal checks and debit cards.

If the payment instrument is not honored (e.g., by a credit card company or through a bounced check), the patron's individual Smart Tag prepayment account balance shall be decreased by the amount of the payment and any associated charges.

So long as the patron's account is positive, they shall be permitted to use participating facilities. Once a toll or fee results in a negative balance to the patron's account, their status will become inactive.

The Contractor shall propose check return and other fees that will be charged to the Smart Tag patron in the event of a refused payment by a financial institution. The Contractor shall propose methods by which these fees will be recovered from Smart Tag patrons. Depending on the STCSC payment option exercised in the contract, this money may be used to offset the Contractor's costs. All proposed policy and procedures are subject to VDOT review and approval.

The Contractor shall propose methods to safeguard the Smart Tag prepayment bank account from embezzlement or other misuse of funds by the Contractor, its employees or other agents.

All methods and procedures will be subject to review and approval by VDOT.

3.4.4 Transfers to Participating Facilities

An electronic funds transfer, check or other agreed financial instrument shall be used to transfer funds into each of the participating agencies bank accounts on a daily basis or at other times mutually agreeable with both parties. These funds transfers shall be the total of all revenue owed to that agency for Smart Tag patrons that have utilized the participating facilities for the preceding day, or other mutually-agreeable time period.

Additional transfers for funds may be required depending on the STCSC funding options exercised by the contract.

3.4.5 Refunds

All refunds to a patron from the patron's individual Smart Tag prepayment account and the related AVI transponder deposit bank account are to be provided by the Contractor according to the agreed upon contract between VDOT and the Smart Tag patron. The Contractor shall treat such refunds as a routine operating expense of the STCSC.

3.5 Patron Individual Smart Tag Prepayment Account Management and Maintenance

3.5.1 General Description

The Contractor shall be responsible for managing and maintaining all patron individual Smart Tag accounts. This shall include, but not be limited to:

- Providing individual account statements.
- Monitoring all account activity and balances.
- Handling account-related patron complaints.

The system currently accommodates approximately 175,000 individual Smart Tag patron accounts. However, when upgraded, the system shall be capable of handling a minimum of five hundred thousand accounts.

3.5.2 Statements

The Contractor shall provide patrons several methods of monitoring individual Smart Tag account. These shall include, but not be limited to:

- A toll-free number for access to account balance information.
- A monthly summary statement for a fee. *summary monthly?*
- A monthly itemized statement for a fee.
- A quarterly summary statement at no charge to the patron -

The Contractor shall propose statement fees and provide justification for the selected amounts. For the individual Smart Tag prepayment accounts with more than one transponder, this fee may be based on the number of transponders, or on other bases proposed by the Contractor. The final fee structure to be utilized shall be subject to review and approval by VDOT.

3.5.3 Individual Smart Tag Prepayment Account Status

Individual Smart Tag prepayment account balances shall be updated by patron payments, transactions received from participating facilities' computers based on charges or credits as a result of special activity by the STCSC or participating facilities.

If a Smart Tag patron account reaches zero balance, electronic payment using the Smart Tag system will be denied at the participating facility. If patrons do not pay the necessary toll or fee by other means, enforcement activities may be undertaken by the participating facilities. However, in the interest of traffic throughput and safety, patrons travelling in Smart Tag Only lanes will not be required to stop, even if there are insufficient funds in their account. However, enforcement procedures may be undertaken.

To help Smart Tag patrons ensure that they maintain sufficient funds in their individual accounts, a low balance warning is provided in the toll lanes. This low balance warning is based on the account balance and is generated by the STCSC and maintained in a reference table at the participating facility. The STCSC is responsible for generating and maintaining account status information for each individual Smart Tag prepayment

account and/or transponder and communicating this information to the participating facilities' central computers.

The Contractor may propose alternative methodologies for setting appropriate low balance amounts for various types of accounts with different patron demographics.

The Contractor shall provide an automated account replenishment service. For this service, a patron's credit card account, or similar financial instrument, is debited by the STCSC by a pre-agreed replenishment amount when a pre-agreed account low balance is reached. The Contractor may propose alternative replenishment amounts for the different account types, including accounts with multiple transponders. The contractor will be encouraged to promote automatic account replenishment as is minimizes costs associated with account maintenance and may also reduce violations.

The Contractor shall propose methods by which credit card information will be updated to ensure that the automated account replenishment service can continue until cancelled by the patron.

Any changes in account status shall be transmitted in real time to the participating facilities' central computers to allow for timely status updates. Where an account with multiple transponders changes status, the information sent to the participating facilities must include status changes for all transponders that belong to that account.

In addition to low and invalid (zero balance), accounts are assigned additional statuses such as "lost or stolen" or "unassigned" to assist with the participating facilities' enforcement efforts.

3.5.4 Patron Individual Smart Tag Prepayment Account Activity

The Contractor will be responsible for monitoring patron individual Smart Tag prepayment accounts for periods of inactivity and unusual activity. Unusual activities will include, but not be limited to, multiple transactions with a physically impossible time spacing. The contractor shall include in their proposal an outline of the monitoring activities to be undertaken. The Contractor shall also identify what actions shall be undertaken based on the results of this monitoring. The Contractor shall identify the process by which inactive Smart Tag accounts are closed and transponders recovered.

3.5.5 Patron Privacy

Patron account information is the property of VDOT and will not be sold or disclosed by the Contractor to any outside parties. The information may be used by the Contractor in the normal course of operations at the STCSC.

The Contractor shall be able to use patron account information to conduct Smart Tag customer surveys pertaining to the operation and performance of the STCSC. Any bulk or promotional mailings to be made utilizing the Smart Tag patron list or any subset thereof shall be subject to approval of VDOT.

3.5.6 Procedural Documentation

Full documentation of all STCSC operating procedures shall be provided by the Contractor for VDOT review prior to implementation. The Contractor shall be required to maintain these procedures in line with actual STCSC practices and provide updates.

3.5.7 Transponder Inventory

The Contractor shall be responsible for recording and maintaining an on-line computerized AVI transponder inventory. Transponders returned from patrons shall have the associated account status modified as appropriate. The Contractor shall propose methods and procedures by which maximum use is made of returned transponders, either by reissue, recycling or other methods. The Contractor shall identify how they will ensure all previous account activity is closed out before reissuing transponders.

Transponders shall be kept in a secure location. The Contractor shall propose inventory and stock taking methods to ensure that transponder inventory is secure.

The Contractor shall also propose methods to protect transponders during shipment by mail. This shall include ensuring that transponders are not inadvertently read during shipment.

3.5.8 Customer Complaints

It will be the responsibility of the Contractor to reconcile all complaints by patrons on account management and maintenance. Complaints will be taken at the STCSC, via telephone and via mail. The Contractor shall propose a complaint logging and tracking system to ensure all complaints are adequately dealt with. The format and procedures for maintaining these logs will be subject to VDOT review and approval. The logs will be monitored by VDOT and will be considered in determining the performance of the Contractor and as the basis for remedial action if required.

The STCSC shall be responsible for handling malfunctioning transponders, including replacement and AVI vendor warranties. Replacement transponders will be provided to patrons free of charge. Malfunctioning transponders which do not provide a valid account number at the lane level will be treated as violations if no other form of payment is made.

3.5.9 Lost or Stolen Transponders

The STCSC shall supply patrons with a free replacement transponder if the patron's transponder is stolen. The Contractor shall identify the method used to validate a stolen transponder claim. The status of the lost or stolen transponder shall be changed accordingly in the database sent to the participating facilities.

If a patron loses a transponder, or if a stolen transponder claim is not validated by the Contractor, the patron shall be required to pay a new transponder deposit before a new transponder is issued.

Procedures for handling lost and stolen transponders shall be documented by the Contractor. These procedures shall be subject to review and approval by VDOT.

3.5.10 Patron Violations

Once a patron's account balance reaches a preset minimum level, the account status shall be set to low balance. Depending on the level of this balance, potential exists for patrons to have a low balance status on their individual Smart Tag prepayment account which will not entirely pay a toll at certain locations. The Contractor shall identify a procedure a procedure whereby these payments are tracked and the payment is recovered from subsequent payments into the patron's account.

The low balance level will be set in collaboration with the participating facilities in order to best meet their operational and legal requirements. A different minimum balance may be determined for each of the participating facilities and for different classes of vehicles due to the different tolls. This may help to minimize the chance of accounts achieving a negative balance while ensuring that patrons are not denied passage when their balance is high enough to pay multiple tolls. The minimum balances and their maintenance will be subject to review and approval by the participating facilities and VDOT.

The Contractor will ensure that the contract between Smart Tag patrons and VDOT is kept up to date and clearly identifies selected balance methodology and process.

3.6 Responsibility / Liability

The Contractor will be granted the right to use the Smart Tag name and trademark. This shall only be used for conducting the STCSC business as detailed by any contract arising from this RFP.

The Contractor shall attend quarterly progress and performance review meetings with the participating facilities once the STCSC is operational. At these meetings, the Contractor will be required to provide a financial report, summaries of account activity, a summary of customer complaints and corrective actions, and identify any other issues relevant to the operation of the STCSC.

The Contractor will be responsible for the collection of all patron prepayments for electronic tolls using the Smart Tag System.

All operations and maintenance of the STCSC and its associated equipment and documentation will be the responsibility of the Contractor. Operations and equipment will at all times be subject to review and approval by VDOT.

All subcontracts will be subject to review and approval by VDOT.

The Contractor will be responsible for compliance with any federal, state, and local laws concerning the furnishing and operation of the STCSC. This shall include obtaining and maintaining any licenses required for operation of the STCSC and associated equipment. The Contractor shall ensure that licenses are easily transferable to VDOT in the event of transition of operations back to VDOT.

*and
Measure* } The Contractor will be responsible for all Smart Tag transactions on zero or negative balance patron accounts until the time that the participating facilities are notified that the patron's account has reached a zero or negative balance. An acknowledgement of receipt of data message from the participating facilities' central computers shall represent the time from which the Contractor shall not longer be responsible for revenue lost.

All bounced checks, failed credit card transactions and subsequent costs incurred are the responsibility of the Contractor and shall be reported to VDOT.

All erroneous charges to credit cards made by the STCSC are the responsibility of the Contractor.

The Contractor will be responsible for and will report to VDOT all funds lost due to mismanagement or embezzlement by its own employees.

The Contractor will be required to interface with current and future participating facilities' existing computer systems. Additionally, the Contractor will be required to conform to STCSC interface specifications developed by those facilities' contractors. Where possible, the Contractor will be given the opportunity to work with the participating facilities' contractors in the development of these interfaces.

what } The configuration of the lanes of the participating facilities shall be entirely at their discretion. They shall operate their facilities for maximum throughput and level of service to all patrons. The Contractor shall not be permitted to assess damages for loss in their revenue as a result in down time for either the participating facilities or their associated equipment.

3.7 Marketing

The participating facilities may undertake their own marketing effort prior to the opening of any facility using Smart Tag which will likely include local radio coverage. Any marketing effort undertaken by the Contractor must be complementary to the

participating facilities' efforts. All marketing materials and marketing plans must be approved by VDOT prior to implementation.

The contractor shall propose any marketing methods they believe could be used to cost effectively promote the use of Smart Tag. At a minimum, this should include the production of flyers for distribution by the participating facilities in the lane. The Contractor will be responsible for all costs associated with their marketing efforts.

3.8 Auditability

The STCSC must maintain financial and audit trails to enable the STCSC to be audited by VDOT. VDOT shall be permitted to audit the STCSC at any time. All records and documents must be maintained according to state archive procedures. Document maintenance shall be included in the STCSC's SOP and shall be subject to VDOT review and approval.

3.9 Project Management

As part of the proposal submitted, a Project Manager shall be designated to assume full responsibility for overall program control and management and implementation of this contract. This Project Manager will develop and maintain a direct communication line with VDOT. The Project Manager shall be an employee of the Contractor, and at a minimum, have an education level equal or exceeding a Bachelor's Degree, or equivalent experience operating a service center. It is desired that the Project Manager shall also have at least ten years experience in the design, development and installation of computer based accounting application systems. The Project Manager shall be identified in the proposal. VDOT shall reserve the right to approve and/or terminate the Project Manger from this engagement.

The Contractor shall also designate a STCSC Manager to assume full responsibility for managing STCSC operation. The STCSC Manager may be an employee of the Contractor and have experience in financial management and customer service applications. The STCSC Manager shall be identified in the proposal. VDOT shall reserve the right to approve and/or terminate the STCSC Manager from this engagement. The STCSC Manager may be the same person as the Project Manager provided appropriate experience can be demonstrated.

3.10 Project Schedule

The Contractor shall submit a preliminary project plan for the transition into management of STCSC operations. This schedule shall identify major milestones in the transition from current management to the Contractor's management. The schedule shall be divided into logical stages with scheduling of training, mobilization and acceptance dates clearly defined. The schedule will be subject to review and approval by VDOT.

Within 10 calendar days after the Authorization to Proceed and prior to an initial mobilization conference, the Contractor shall provide three copies of a proposed final

project schedule (CPM, PERT or equivalent) in accordance with any and all items of work. The final project schedule shall clearly indicate the interrelation and proposed timings of individual tasks.

Upon final approval of VDOT, the approved final schedule and sequence of work shall constitute the approved sequence for this project. No change will be permitted in the approved sequence and schedule except as approved in writing by VDOT. If the need for a change arises due to circumstances beyond the Contractor's control, the Contractor shall submit a revised project schedule and detailed justification within ten calendar days after it is requested by VDOT or its representatives. Any failure or delinquency in submission of the schedule or of the detailed justification shall be treated as default on the part of the Contractor.

In order to review certain operational aspects of the STCSC, VDOT reserves the right to audit all aspects of the operation including but not limited to performance of services, costs, practices and procedures, and security procedures.

4.0 Reporting and Deliverable Requirements

4.1 General Reports

General reports to be provided by the Contractor will include job cost accounting, inventory control, general ledger, compliance with performance standards, recording of material changes to equipment, software and personnel, upcoming planned material changes and user definition. The formats and frequency of provision of these reports will be subject to the review and approval of VDOT.

Appendix B provides a list and samples of reports currently available to meet these requirements. The Contractor shall identify additional reports deemed appropriate to satisfy the requirements.

4.2 Communication Report

The STCSC must be capable of processing Smart Tag database queries from the participating facilities' central computers. In addition, the capability must be provided to create, import and export standardized and ad hoc reports of all Smart Tag transactions in the form of electronic and paper copies.

A communication performance report shall be provided, identifying number of messages sent and received, number of re-sent messages, number of errors, and a summary of down time. Other reporting requirements are identified in the individual sections of this requirements document.

The Contractor shall identify the database formats that will be utilized and identify how the participating facilities will gain access to report databases, how report databases will

be imported and exported with the participating facilities' applications and how ad hoc reports and queries will be generated.

4.3 Financial Report

The STCSC shall provide financial reports to the participating facilities at the end of their revenue day. In addition, the Contractor will provide standardized reports that include:

- Agencies' Disbursement Report – Disbursements identified by type, date, individual Smart Tag prepayment account number and amount. Must reconcile to STCSC detailed transaction report.
- STCSC detailed Transaction Report – Summary of transactions by type, individual Smart Tag prepayment account number, date, time, beginning balance, transaction amount, transaction lane location, and ending balance. Must reconcile to participating facilities' disbursement report.
- Summary Costs Report – Summary of costs related to specific types or categories by cost center, type, date, name, description and amount.

The Contractor will use existing database formats and processes that provide standardized reports and ad hoc queries. The Contractor may propose alternative options for reporting that are subject to final review and approval by VDOT.

4.4 Payment Activity Report

At the end of the revenue day, the Contractor shall provide daily reports to the participating facilities containing individual Smart Tag prepayment activities. These reports shall include, but not be limited to:

- AVI Account Activity – including new AVI accounts, closed AVI accounts, low and zero balance account details, and restored low or zero balance accounts.
- Revenue Refund Report – listing of refunds by account, account type, amount and reason for refund.
- Deposit Report – deposits made for a period and year to date, listed by bank (or other institution), account type, type of receipt and amount; must reconcile to Receipt Report.
- Receipt Report – all receipts identified by type (i.e., statement fees, toll charged, etc.), date, account number, amount and any related credits to individual Smart Tag prepayment accounts; must reconcile to Deposit Report.
- Bad Charges Report – all dishonored checks or charges, identified by issuer, bank, check number and amount.
- Transponder Inventory Reports – summarizing starting inventory by transponder type (new, returned) transponder numbers issued, individual Smart Tag prepayment account, number of recipients, type of account and ending transponder inventory.
- Customer Complaint Report – detailing complaints received and action taken as a result.

In addition, the capability must be provided to create standardized and ad hoc reports of all account and transaction data in the form of electronic and paper copies. The Contractor shall identify the database formats that will be utilized and identify how the participating facilities will gain access to these reports and how custom ad hoc queries and reports will be generated.

5.0 PROPOSAL PREPARATION AND SUBMISSION REQUIREMENTS

5.1 General Requirements

5.1.1 RFP Response

To be considered for selection, Offerors must submit a complete response to this RFP. One (1) original and four (4) copies of each proposal must be submitted to VDOT. Please identify the original copy on the cover page. No other distribution of the proposal shall be made by the Offeror. Proposals will not be accepted by facsimile transmission or by electronic mail. Any proposals received after the deadline will not be considered. It is the Offeror's responsibility to ensure that the proposal packages are received by that time and date. Proposals submitted elsewhere, including to state or federal agencies, will not be accepted.

Please submit mailed proposals by 2:00 P.M. EDT on July 21, 2000 to:

Virginia Department of Transportation (VDOT)
Administrative Services Division
1401 East Broad Street
Richmond, Virginia 23219
Attn: William W. Barker

5.1.2 Proposal Preparation

Proposals shall be signed by an authorized representative of the Offeror. All required information must be submitted. Failure to submit all required information may result in VDOT rejecting the proposal or giving a lowered evaluation of the proposal.

Proposals should be prepared simply and economically, providing a straightforward, concise description of capabilities to satisfy the requirements of the RFP. Emphasis should be placed on completeness and clarity of content.

All information requested by this RFP on the ownership, utilization and planned involvement of small businesses, women-owned businesses and minority-owned businesses must be submitted. If an Offeror fails to submit all information requested, VDOT may require prompt submission of missing information after the receipt of Offeror's proposal. (See Attachment B)

Each copy of the proposal should be bound or contained in a single volume where practical. All documentation submitted with the proposal should be contained in that

single volume. Proposals should be organized in the exact order in which the requirements are presented in the RFP and should be page-numbered. The proposal should contain a table of contents that cross references the RFP requirements and the specific page of the response in your proposal.

Other proposal format requirements include:

- All portions of the proposal, exclusive of any financial statements, attachments or appendices, shall be limited to 20 typed pages.
- 8½ x 11 inch page size
- No font smaller than 12 pitch

5.1.3 Proprietary Information

Ownership of all data, materials, and documentation originated and prepared in response to this RFP shall belong exclusively to the participating public agencies and be subject to public inspection in accordance with the Virginia Freedom of Information Act. Trade secrets or proprietary information submitted by an Offeror shall not be subject to public disclosure under the Virginia Freedom of Information Act provided the Offeror invokes in writing the protections of Section 11-52D of the Virginia Public Procurement Act which provides that:

“Trade secrets or proprietary information submitted by an Offeror or Contractor in connection with a procurement transaction shall not be subject to public disclosure under the Virginia Freedom of Information Act; however, the Offeror or Contractor must invoke the protection of this section prior to or upon submission of the data or other materials, and must identify the data or other materials to be protected and state the reasons why protection is necessary. Failure to mark the data or other materials as stated will result in the data or other materials being released to Offerors or the public as provided in the Virginia Freedom of Information Act.”

The classification of the entire proposal document, line item prices, and/or total proposal prices as proprietary or trade secrets is not acceptable.

5.1.4 Oral Presentation and Product Demonstrations

Offerors who submit proposals in response to this RFP may be required to give an oral presentation of their proposal to the Proposal Evaluation Team. This provides an opportunity for the Offeror to clarify or elaborate on the proposal. VDOT will schedule the time and location of these presentations. Oral presentations are an option of the Proposal Evaluation Team and may or may not be conducted. Therefore, proposals should be complete.

5.1.5 Offeror Understanding of Requirements

It is the Offeror's responsibility to inquire about and clarify any requirements of this RFP that are not understood. **NO ORAL INQUIRIES ABOUT THIS RFP WILL BE ACCEPTED.** Procedural and technical questions will be accepted as well as any comments on the RFP. All inquiries concerning this RFP must be submitted in writing to:



Mr. William W. Barker
Virginia Department of Transportation
Administrative Services Division
1401 East Broad Street
Richmond, VA 23219
Facsimile: (804) 225-4292

Mark the envelope "Inquiries on RFP 709-WB". All inquiries must be received by the issuing office not later than 2:00 P.M. EDT, July 7, 2000. The Commonwealth of Virginia is under no obligation to accept any further inquiries after that date. Responses to such inquiries will be mailed to all RFP recipients.

5.1.6 Cost of Proposals

The Offeror is responsible for all costs of proposal preparation. The Commonwealth of Virginia is not liable for any costs incurred in response to the RFP.

5.2 Specific Requirements

5.2.1 Signed RFP and Addenda

Offerors shall include a signed copy of RFP cover sheet and any addenda.

5.2.2 Commitment Letters

This section shall include letters from the prime Offeror and all team members, if any, committing themselves to the project and identifying their relationships/arrangements.

5.2.3 Written Proposal Preparation

Provide a written narrative to include the following topics (at a minimum). The Statement of Needs that are described in Section 3.0 should be addressed within these topics as deemed appropriate. Proposal contents shall be arranged in the same order and identified with headings as presented herein. Proposals should be explicit about the legal and corporate arrangements which are proposed or which may be necessary. Proposals that do not fulfill all project requirements or omit any of the following topics may be rejected or receive a lower evaluation score.

- Proposed plan to meet Statement of Needs
- Proposed staffing.
- Organization chart.
- Resumes for all proposed staff
- Statement of experience operating smart tag service centers or similar facilities
- List of references to contact about past work
- Name and title of firm's official to whom further communications should be directed

5.3 Small, Women-Owned And Minority Business Participation

It is the policy of the Commonwealth of Virginia to contribute to the establishment, preservation, and strengthening of small businesses and businesses owned by women and

30
4.0
need to include

minorities and to encourage their participation in State procurement activities. The Commonwealth of Virginia encourages Offerors to provide for the participation for small and businesses owned by women and minorities through partnerships, joint ventures, subcontracts and other contractual opportunities. Submission of a report for using the goods and services of such businesses and plans for involvement on this contract is required. By submitting a proposal, Offerors certify that all information provided in response to this RFP is true and accurate.

The Offeror must submit the following three sets of data for small business, women-owned business and minority-owned business: 1. Ownership, 2. Utilization of small, women-owned, and minority-owned business for the most recent 12 months, and 3. Planned involvement of small businesses, women-owned businesses and minority-owned businesses. This information is to be reported in the format shown on Attachment B.

6.0 EVALUATION AND AWARD CRITERIA

6.1 Proposal Evaluations

All proposals received by the deadline will be reviewed by the Proposal Evaluation Team. Proposals must be complete and responsive to all sections of the Request for Proposals. Proposals that do not fulfill all project requirements in Section 3.0 or omit any of the proposal contents as described in Section 4.0 may be rejected or receive a lower evaluation score. Factors upon which proposals will be evaluated include:

6.1.2 Criteria For Evaluating The Proposals

- Transition plan
- Demonstrated understanding of services to be provided
- Experience of firm in operating electronic toll tag service centers
- Cost of services as shown in the operating costs and fixed fee.
(Lowest Cost Offeror divided by Offer being evaluated equals percent factor times maximum available points equals points assigned)
- Qualifications and experience of proposed personnel including Project Manager
- Participation of Disadvantaged Business Enterprise (D.B.E.). (See Attachment B)

6.2 Award

Submitted proposals will be reviewed by the Proposal Evaluation Team. Selection shall be made of two or more Offerors deemed to be fully qualified and best suited among those submitting proposals on the basis of the evaluation factors included in this Request for Proposals, including price. If further information and clarification is deemed necessary, the top applicants may be invited to participate in an interview process with the Proposal Evaluation Team. Following interviews, the highest rated Offerors will be asked to participate in a negotiations process. After negotiations have been conducted with each Offeror so selected, the Proposal Evaluation Team may ask for best and final offers. After the best and final offers are submitted, no further negotiations shall be conducted with any of the Offerors.

The Proposal Evaluation Team shall select the Offeror, which, in its opinion, has made the best proposal, and shall award to that Offeror. VDOT may cancel this Request for

Proposals or reject proposals at any time prior to an award, and is not required to furnish a statement of reason why a particular proposal was not deemed to be the most advantageous. (Section 11-65D, Code of Virginia.) Should the Proposal Evaluation Team determine in writing and in its sole discretion that only one Offeror is fully qualified, or that one Offeror is clearly more highly qualified than the others under consideration, a contract may be negotiated and awarded to that Offeror. The award document will be a contract incorporating by reference all the requirements, terms and conditions of the solicitation and the Offeror's proposal as negotiated.

7.0 Pre-Proposal Conference

There will be no pre-proposal conference.

8.0 GENERAL TERMS AND CONDITIONS

For the purposes of clarification, each firm receiving this Request for Proposals is referred to as an "Offeror" and the Offeror awarded the contract to supply goods or services is referred to as a "Contractor." This Request for Proposals states the instructions for submitting proposals, the procedure and criteria by which a contract may be awarded, and the contractual terms which will exclusively govern the contract between VDOT and the Contractor.

For a listing of the General Terms and Conditions, please see Attachment A. If there is a conflict between the General Terms and Conditions and the Special Terms and Conditions, the Special Terms and Conditions shall govern.

**VIRGINIA DEPARTMENT OF TRANSPORTATION
ADMINISTRATIVE SERVICES DIVISION**

GENERAL TERMS AND CONDITIONS

Attachment A

1. **VENDOR'S MANUAL:** This solicitation is subject to the provisions of the Commonwealth of Virginia VENDORS MANUAL and any revisions thereto, which are hereby incorporated into this contract in their entirety. A copy of this manual is available for review at the purchasing office, and in addition a copy can be obtained by calling the Division of Purchases and Supply, (804) 786-3842, or by accessing DPS's Electronic Bulletin Board for downloading, (804) 371-8346.
2. **CONTRACTUAL DISPUTES:** Contractual claims arising after final payment shall be governed by Section 11-69A of the Code of Virginia. This claim shall be submitted to the Commissioner of VDOT who will render a decision within 30 days. Contractual disputes arising during the course of performance shall be submitted to the Administrative Services Administrator who will make a decision in 30 working days, which will be final. Vendors will not be precluded from filing a claim at the conclusion of performance as a result of the decision made during the course of contract performance.
3. **APPLICABLE LAW AND COURTS:** This solicitation and any resulting contract shall be governed in all respects by the laws of the Commonwealth of Virginia and any litigation with respect thereto shall be brought in the courts of the

Commonwealth. The Contractor shall comply with applicable Federal, State and local laws and regulations.

4. **ANTIDISCRIMINATION:** By submitting their bids or proposals, all Bidders or Offerors certify to the Commonwealth that they will conform to the provisions of the Federal Civil Rights Act of 1964, as amended, as well as the Virginia Fair Employment Contracting Act of 1975, as amended, where applicable, the Americans with Disabilities Act, the Virginians With Disabilities Act and Section 11.51 of the Virginia Public Procurement act which provides:

In every contract over \$10,000 the provisions in A. and B. below apply:

- A. During the performance of this contract, the Contractor agrees as follows:

The Contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex or national origin, or disabilities except where religion, sex, or national origin is a bona fide occupational qualification reasonably necessary to the normal operation of the Contractor. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause. The Contractor, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, will state that such Contractor is an equal opportunity employer. Notices, advertisements and solicitations placed in accordance with Federal law, rule or regulation shall be deemed sufficient for the purpose of meeting the requirements of this section.

- B. The Contractor will include the provisions of A. above in every subcontract or purchase order over \$10,000 so that the provisions will be binding upon each Subcontractor or Vendor.

5. **ETHICS IN PUBLIC CONTRACTING:** By submitting their bids or proposals, Bidders or Offerors certify their bids or proposals are made without collusion or fraud and they have not offered or received any kickbacks or inducements from any other Bidder or Offeror, Supplier, Manufacturer or Subcontractor in connection with their bid or proposal, and they have not conferred on any public employee having official responsibility for this procurement transaction any payment, loan, subscription, advance, deposit of money, services or anything of more than nominal value, present or promised, unless consideration of substantially equal or greater value was exchanged.
6. **IMMIGRATION REFORM AND CONTROL ACT OF 1986:** By signing their bids or proposals, the Bidders or Offerors certify that they do not and will not during the performance of this contract employ illegal alien workers or otherwise violate the provisions of the Federal Immigration Reform and Control Act of 1986.
7. **DEBARMENT STATUS:** By submitting their (bids/proposals), (Bidders/ Offerors) certify that they are not currently debarred by the Commonwealth of Virginia from submitting bids or proposals on contracts for the type of goods and/or services covered by this solicitation, nor are they an agent of any person or entity that is currently so debarred.