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# Managing for Performance: Measurement and Monitoring of Contracts in the Transit Industry

Olga Smirnova

Juita-Elena (Wie) Yusuf  
*Old Dominion University*, [jyusuf@odu.edu](mailto:jyusuf@odu.edu)

Suzanne Leland

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## MANAGING FOR PERFORMANCE: MEASUREMENT AND MONITORING OF CONTRACTS IN THE TRANSIT INDUSTRY

Olga Smirnova, Juita-Elena (Wie) Yusuf and Suzanne Leland\*

**ABSTRACT.** Public agencies contract out to pursue a variety of goals. But, these goals cannot be realized if the performance of contractors is not assessed and monitored. This study examines the state of performance measurement and contract monitoring in the U.S. transit agencies. We focus on three research questions: (1) What monitoring capacity exists within transit agencies? (2) What monitoring methods are used by transit agencies? (3) What performance measures are tracked by transit agencies? We find monitoring units are common in a third of agencies in the study. Service and customer complaints are the most common performance measures, while penalties and liquidated damages are the most frequent form of penalties. Finally, we find that transit agencies utilize a variety of output and outcome measures to monitor contractors.

### INTRODUCTION

The last three decades have seen growing emphasis on performance measurement and management as a mechanism for ensuring accountability (Boyne, Gould-Williams, Law, & Walker, 2002; Dubnick, 2005). More recently, interest in performance measurement has been driven by a number of forces, such as increased citizen distrust of government, taxpayer revolts, devolution of responsibility

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\* *Olga Smirnova, Ph.D., is an Associate Professor, MPA Department of Political Science, East Carolina University. Her research interest is in economic development and performance measurement. Juita-Elena (Wie) Yusuf, Ph.D., is an Associate Professor, School of Public Service, Old Dominion University. Her research interest is in transportation policy, infrastructure finance, and environmental policy. Suzanne Leland, Ph.D., is a Full Professor, Department of Political Science and Public Administration, University of North Carolina at Charlotte. Her research interest are urban policy and local government administration.*

to lower levels of government, legislative actions to manage spending, and privatization (Poister, 2008). Yet, while privatization has contributed to the call for greater accountability, it has complicated efforts to use performance measurement as a tool.

The growth of contracting out services has led many agencies to examine how they monitor their contracts in order to maximize their effectiveness. Scholars have emphasized that when public services are outsourced, their provision (and performance) needs to be monitored. Regular tracking and monitoring is a key characteristic of performance measurement. Public agencies contract out to pursue a variety of objectives, including achieving cost savings, realizing greater efficiency, managing risks, and improving service delivery. However, such contracting may pose risks to government; in several American examples, contracting has been marked by graft, corruption, and concerns about service quality (Durant, Girth, & Johnston, 2009; Keeney, 2007). Furthermore, the benefits of contracts cannot be realized if the performance of contractors is not assessed and monitored. Contracting out for services presents challenges to performance measurement, due largely to information asymmetry and the possibility of opportunistic behavior by private contractors (Amirkhanyan, 2011). Government agencies must be smart buyers and smart managers of contracts (Fossett et al., 2000; Kettl, 1993), but research on the “hollow state” (Howlett, 2000; Milward & Provan, 2000; Milward, Provan, & Else, 1993) has raised concerns about government’s ability to manage provision of contracted services.

Milward (1994) noted the irony of contracting in that it is promoted as the solution to government inefficiency and mismanagement, but can work well only if the government agency manages the process effectively. Other researchers have similarly acknowledged the importance of contract management, and contract monitoring specifically. Gormley (1994) pointed to the need to monitor to “avoid unfettered discretion” (p. 231) and to evaluate performance to ensure that contracts provide the desired outputs and outcomes. Fossett et al. (2000) suggested that, to be prudent purchasers, government agencies must be able to specify performance measures, determine if and how contractors are meeting performance metrics, and hold contractors accountable for meeting the metrics by sanctioning them for failure to perform. As Potoski noted, “The pressing question is no longer whether government should purchase goods and services but

rather when to purchase and how to manage and regulate purchasing” (2008, p. S58).

This study analyzes the current state of practice of contract monitoring and performance measurement in the transit industry. We utilize data from a survey of transit agencies in the U.S. to examine contract monitoring practices, including monitoring capacity, monitoring methods, and performance measures. To supplement the survey findings and add more depth to our analysis, we also develop profiles of contract monitoring and performance measurement practices in ‘typical’ agencies.

### CONTRACTING OF TRANSIT SERVICES

We believe that the transit industry provides valuable insight into performance management of contracts because of the industry’s contracting history. Public transportation was originally provided by private companies and over time transitioned to a government-dominated industry. Eventually, government entities began contracting with private companies for the delivery of transit services.

State and local governments in the U.S. rely extensively on contracting for public transit services (rather than in-house provision). Data from the National Transit Database show that this trend began in the 1980s, and today, over half of transit agencies contract out. However, empirical evidence over the last several decades suggests that cost-savings do not necessarily materialize automatically from contracting out transit services (Leland & Smirnova, 2009; Perry & Babitsky, 1986; Smirnova & Leland, 2014; Zullo, 2008). Smirnova and Leland concluded that public agencies “should pay attention to monitoring the performance of the contract and should also keep in mind the challenges of liability, diminished capacity, and some loss of control over daily operations that might occur during contracting out” (2014, p. 362).

Nowhere is the reliance on contracting for complex tasks or services more evident than in the delivery of transit services. In this study, we examine contract monitoring and performance measurement practices of transit agencies in the U.S. Specifically, we focus on three questions:

- (1) What monitoring capacity exists within transit agencies?

- (2) What monitoring methods are used by transit agencies?
- (3) What performance measures are tracked by transit agencies?

Answering these questions will provide insight into if and how transit agencies are investing in contract measurement and monitoring activities.

### **Challenges of Contracting**

Contracts for public service are often underspecified or incomplete, which may allow opportunistic vendors to exploit contracts (Brown & Potoski, 2006). Two key challenges faced by government agencies are: (1) ensuring achievement of contracting goals (e.g. cost savings, improved service delivery); and (2) ensuring accountability.

Yusuf and O'Connell (2014) suggested the possibility of an accountability dilemma associated with outsourcing complex government services; this accountability dilemma drives the need for greater contract management and oversight. The use of contracting exacerbates the general challenges of accountability and performance management. "Even though the actual delivery of public works and infrastructure may be performed by private sector partners, public agencies are not exempt from being accountable to their multiple stakeholders for performance" (Yusuf & Leavitt, 2014, p. 213).

The classical lens used to study and practice contracting is rooted in principal-agent theory, transaction cost economics, the theory of market competition, and standard procurement practices (Apte, Apte, & Rendon, 2011; Fernandez, 2007). Contracts are defined as "discrete arm's-length transactions between adversaries with competing interests" (Fernandez, 2007, p. 1125). Overcoming the challenges of performance and accountability requires properly structuring the contractual relationship, reducing information asymmetry, and limiting contractors' opportunistic behavior. Public agencies can do so through several means, such as increasing competition, specifying contracts precisely and in detail, and rigorously monitoring contractors' performance (Brown & Potoski, 2003b, 2003c; Hefetz & Warner, 2004; Kettl, 1993; Rehfuss, 1990; Romzek & Johnston, 2002; Savas, 2000, 2002; Seidenstat, 1999). In this paper, we focus on contract monitoring and performance measurement practices of transit agencies as mechanisms for holding contractors accountable.

### **Contract Monitoring and Performance Measurement**

Effective monitoring of contracts allows government to better benefit from contracting (Brown & Potoski, 2003b, 2006). During the evaluation phase of contracting, public agencies require evaluation capacity to monitor and evaluate the contractor's performance to determine if its contract responsibilities are met. "[B]uilding contract management capacity includes acquiring and nurturing physical infrastructure, financial resources, and perhaps most important, human capital" (Brown & Potoski, 2006, p. 325).

As Gormley noted, "Accountability continues to be the Achilles heel of many contracts" (1994, p. 224). Performance measurement is a critical element of effective contract accountability, which Romzek and Johnston defined as when "the state is able to design, implement, manage, and achieve accountability for its ... contract" (2005, p. 237). For effective contract accountability, monitoring mechanisms must be in place to provide data for contract evaluation. Strong monitoring capability contributes to achievement of outputs and outcomes by allowing the government agency to ensure effective oversight and assure contract compliance with standards of service provision. Identifying performance measures and monitoring them allows for objective assessment of outcomes.

Amirkhanyan (2011) found performance measurement to have a positive impact on government's ability to effectively manage contracts. Specifically, performance measures that included costs, client impact, service timeliness, service disruptions, and process-related service delivery measures were associated with accountability effectiveness. "Rigorous contract monitoring is supposed to improve success in contracting by identifying instances of inappropriate or opportunistic behavior on the part of the contractor and by detecting performance fluctuations and shortfalls" (Fernandez, 2007, p. 1126).

Fossett et al. (2000) pointed to three key components of prudent purchasing: (1) specifying performance measures; (2) determining if and how contractors are meeting performance metrics; and (3) holding contractors accountable by rewarding performance and sanctioning failure to perform. Our examination of the state of practice of performance measurement and contract monitoring by transit agencies will focus on these three components.

Fernandez (2007) focused on two components of contract monitoring: monitoring scope or the variety of aspects of performance that are monitored, and monitoring intensity which is the use of different monitoring tools and procedures to assess contractor performance. Yang, Hsieh, and Li (2009) defined evaluation capacity as: (1) having a formal monitoring system to evaluate whether contractors have fulfilled the responsibilities specified in the contract; (2) utilizing monitoring techniques such as field inspections, periodic evaluations, and recipient interviews; (3) requiring regular, formal performance reporting; and (4) monitoring the contracted service continuously to ensure performance.

Transit agencies seem to acknowledge the need for contract monitoring and performance measurement. In a 2001 survey of 237 transit agencies that contract transit services, General Managers of the transit agencies were asked to offer advice to other agencies considering contracting (Transportation Research Board, 2001). The top three recommendations were all related to contract administration and monitoring. First, the managers pointed to the need for specificity in defining the duties and responsibilities of contractors. Second, they suggested that well-defined performance standards be included in the contract, and contractors be rewarded for exceeding standards and penalized for poor performance. Third, monitoring contract performance was identified as important. Furthermore, the managers highlighted “the importance of clearly communicating the agency’s intention to monitor the work and to hold the contractor responsible for meeting agreed-upon standards” (p. 126). Subsequent follow-up interviews underscored the importance of performance monitoring.

### **Specifying Performance Measures**

Poister pointed out that developing performance measurement systems is relatively straightforward for “production-oriented agencies with more tangible service delivery systems such as those related to public works and infrastructure” (2008, p. 18). But, when the public service landscape is characterized by multiple organizations from multiple sectors (e.g., government and private) involved in financing, delivering, and/or managing public infrastructure, it is more difficult to specify what service providers are to accomplish (Behn & Kant, 1999; Poister, 2008). Public agencies working with private contractors face challenges in setting clear objectives and defining appropriate

performance measures (Kettner & Martin, 1995; Yusuf & Leavitt, 2014).

Another important concern for performance measurement is that public agencies should define performance broadly enough to cover the key dimensions of performance (Wholey, 1999). Multiple categories of performance measures are available to public agencies, including inputs, activities, outputs, short-term outcomes, intermediate outcomes, end outcomes, and impacts (Hatry, 1999; Milward, Provan, & Else, 1993; Padovani & Young, 2008; Poister, 2008).

Applying the three dimensions of engineering, business, and public administration to the study of performance in the transportation field, Baird and Stammer (2000) focused on infrastructure condition and use; effectiveness, efficiency, and equity; and broader measures important to societal stakeholders (e.g. mobility, accessibility, convenience, user satisfaction). Fernandez (2007), in his analysis of contracting performance, used a multidimensional measure based on eight indicators: actual cost compared to projected cost; actual cost compared to in-house service delivery; quality of work; responsiveness to government's requirements; timeliness; service continuity; compliance with the law; and customer satisfaction. For our study of transit agencies, we explore the key performance indicators public agencies use when monitoring contracts. We specifically examine the extent to which transit agencies are using performance measures in four categories: (1) inputs, (2) process, (3) outputs, and (4) outcomes. These categories reflect the efficiency and logic models approach. We also look at whether agencies have a separate contract monitoring unit. Having a specifically dedicated unit ensures that agencies have the capacity to monitor contracts (and contractor performance) regularly and continuously.

### **Monitoring Performance**

Specifying the appropriate metrics is a necessary element of performance measurement and management. However, if the measurement information is not used, the effort and cost of the performance management process will be wasted. The key to performance management is the periodic measurement of performance. Therefore, it is necessary for public agencies to monitor contractors' performance to determine if and how they are meeting performance metrics.

Multiple tools and approaches are available to public agencies for tracking and monitoring contractors' performance. Some are directly related to service delivery, while others are end customer and process-oriented. Brown and Potoski (2003a), for example, suggest that public agency evaluation capacity can include conducting citizen surveys, monitoring customer complaints, making field observations, and analyzing operational records.

Transportation agencies, on the whole, have become more focused on the customer perspective (Stein & Sloane, 2003), relying more on customer or citizen surveys. For example, state DOTs regularly conduct user surveys to obtain perceptions of and satisfaction with the transportation system. Similarly, transit agencies use customer surveys "to solicit feedback on customers' perceptions of the reliability, safety, convenience, and overall quality of the service they provide" (Poister, 2007, p. 491).

We specifically examine the extent to which transit agencies utilize four mechanisms to track and monitor contractor performance: (1) customer satisfaction surveys; (2) levels of service provision; (3) customer complaints; and (4) secret shoppers.

### **Holding Contractors Accountable – Rewards and Sanctions**

Monitoring contractors' performance is a costly activity. Case studies have found that monitoring costs average about 20% of contracting costs (Pack, 1989; Prager, 1994). Teal (1991), in a study of contracting in California, found that administrative and monitoring costs of contracting represented approximately 14% of the contract amount. Hurwitz (1996), also using a transit contracting case study in California, found average administrative and monitoring costs of \$0.10 to \$0.25 per vehicle-mile. Furthermore, as noted by Cooper, rigorous contract monitoring can become part of a police-oriented approach to contracting where "the contract manager is viewed as the cop on the beat preventing bad things from happening" (2003, p. 104). Instead of enhancing cost savings or improving service quality, such approaches can potentially "absorb energies that need to be directed toward service improvement and management innovation" (p. 106).

Therefore, even with rigorous contract monitoring, contract outcomes may not be achieved. Monitoring can be ineffective if contractors can game the system or if there are no consequences of the performance being monitored. "The challenge lies in creating a

strong linkage between performance measurement and the use of information to improve performance” (Yusuf & Leavitt, 2014, p. 215). How the contractor responds to the monitoring system depends upon the credibility of the system itself and the willingness of the public agency to enforce punishment (Yang, Hsieh, & Li, 2009).

More specifically, effective monitoring requires that contractors be incentivized to perform. Incentives are the mechanisms that motivate contractors and maintain accountability through threat of sanctions. The use of incentives can counterbalance contractor opportunism (Barthélemy & Quélin, 2006). Incentives can take two forms: positive incentives or rewards for satisfactory performance, and negative incentives or sanctions for unsatisfactory performance. Sanctions, while not the only way to ensure contractor accountability in contracting, are one of the most powerful mechanisms to “correct or penalize performance shortfalls” (Girth, 2014, p. 318). But, the simple threat of sanction may not sufficiently incentivize contractors. Public agencies must enforce sanctions for them to be effective.

Lawther and Martin (2014) offer an example of how key performance indicators can be linked to financial incentives (availability payments) in a rewards-based performance management system to improve performance, particularly in the context of contracting and public-private partnerships. While public agencies may specify and monitor performance, if they do not act on the performance information, there will be insufficient incentives for private contractors to focus on performance. “Once demand risk is removed from private partners, incentives and sanctions that accompany the stated performance standards during operations and maintenance are the only means by which optimal performance can be ensured” (Lawther & Martin, 2014, p. 230).

In their discussion of contracting for health services, Bennett and Mills (1998) highlight the role of contractor monitoring and implementing sanctions for contractor nonperformance as two important steps in the successful contracting process. These sanctions may include verbal warnings, reduction of payment or non-payment to contractors, and even legal proceedings against the contractor. The public agency must specify the sanctions in the contract and ensure that sanctions are implemented if the contractor fails to perform.

We examine what penalties, incentives, and liquidated damages are being employed by transit agencies to ensure contractor performance. We also analyze whether having the internal capacity in the form of a monitoring unit leads agencies to use a different incentives structure than those without such a unit.

### METHODOLOGY

Our analysis uses data from a biannual survey of transit managers' perceptions of contracting out. Survey data were collected in 2009, 2011, and 2013. This time period captures the recovery period following the Great Recession. This unique data was collected using an Internet-based survey service that provides the privacy for managers to respond. The survey ensures respondents' anonymity. The survey was distributed to all transit agency managers that report to the National Transit Database with publicly available email addresses (over 600). The response rate in 2009 was 22.6% (137), 30.7% in 2011 (188), and 36.6% (249).<sup>1</sup>

The purpose of the surveys were to build upon a previous 2001 study of transit services contracting that was reported in the Transportation Research Board (TRB) Special Report No. 258, *Contracting for Bus and Demand-responsive Transit Services: A Survey of U.S. Practice and Experience* (Transportation Research Board, 2001). At the time the report was issued, this survey was the only extensive source of information about contracting out in the transit industry.

A series of questions were included in the survey to identify the respondent's agency characteristics including agency type, services provided, vehicles operated for bus services, service area, service population, and region. We also collected extensive information on transit managers' perceptions of contracting out, including how they monitor contracting performance, the duration of contracts, the number of bidders, the perceptions of contracting, as well as more specific questions about the agency's largest contract. In the latter, we follow TRB's (2001) practice of identifying the largest contract and monetary considerations and incentives specified by that contract. For a large number of agencies, the largest contract is also their only contract. The distribution of contracts in our study is highly skewed with the majority of agencies reporting under ten contracts, and the largest proportion reporting just one contract.

The following section highlights our results and findings on the monitoring capacity of transit agencies, the monitoring methods used, and performance measures tracked by transit agencies. For some variables (e.g., monitoring methods or performance provisions), we ran Chi-square tests to identify the differences between agencies with and without the monitoring units. The Chi-square tests allow us to test whether the presence of monitoring units and the use of certain monitoring methods or performance provisions are independent of one another. Since the test can be applied to categorical variables and the majority of contracting provisions are not mutually exclusive categories, we created dichotomous variables for the provisions, monitoring methods, and monetary provisions where one marks any case where a category of interest (e.g., penalties) has been used and zero becomes any case where such category has not been used.

## RESULTS

We separate our findings by the three research questions on monitoring capacity, methods, and performance measures. In addition to the quantitative descriptions below, we have created typical profiles for transit agencies of various sizes, with different degrees of contracting and contract monitoring capacity. Appendix A summarizes these profiles.

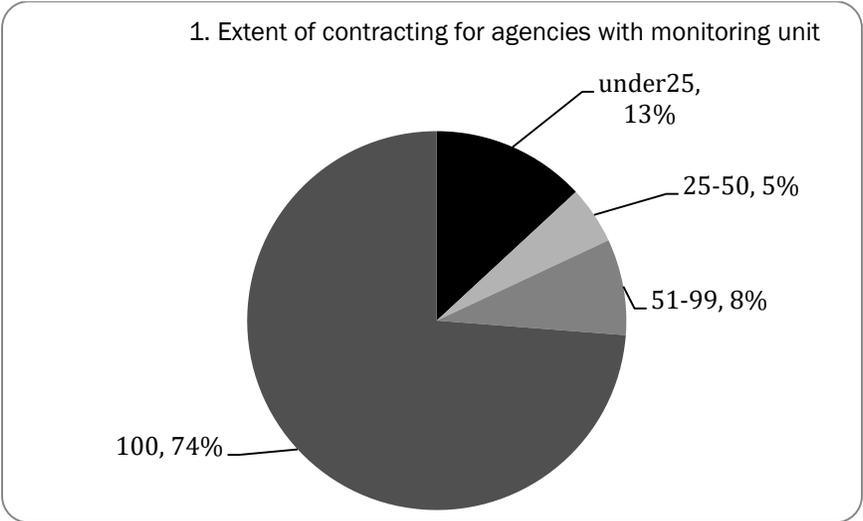
### **Contract Monitoring Capacity**

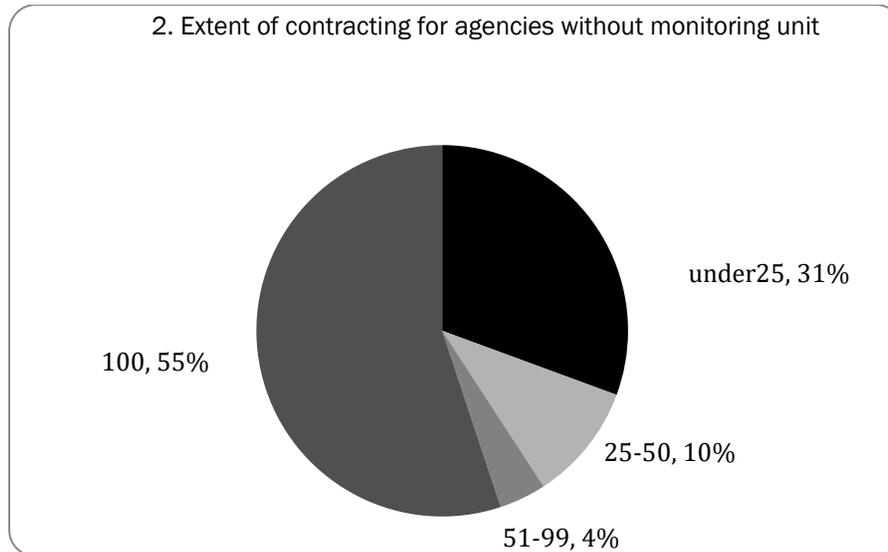
First, we look at contract monitoring capacity. If an agency has a specific unit dedicated to monitoring contracts, this ensures that the agency may have the necessary components of evaluation system as described by Fernandez (2007) and Yang, Hsieh, and Li (2009). For example, a separate monitoring unit may make it easier to implement a formal monitoring system and conduct periodic evaluations. The monitoring unit does not guarantee the quality of contract evaluations, but at least provides capacity to regularly review contracts and contractor performance. The TRB (2001) survey asked the question: “Does your agency have a specific unit to monitor the performance of contracted services?” In 2001, 63% of 144 responding transit agencies indicated having a monitoring unit. The same question was asked in our 2013 survey and, in contrast, only 37% of 228 respondents indicated that their agency has a monitoring unit. This is

a surprising and troubling finding because the extent of contracting out has been increasing in the transit industry since 2001.

In terms of the extent of contracting (as a percentage of services), as shown in Figure 1, contracting varies depending on whether an agency has a monitoring unit. In Figure 1, the extent of contracting out has been broken down into four categories: under 25%, between 25% and 50%, between 51% and 99%, and 100%. About 74% of agencies with a monitoring unit contract out 100% of services (top panel), while 55% of agencies without monitoring unit contact out for all services (bottom panel).<sup>2</sup> Zullo (2008) finds partial contracting as not efficient, and a part of his findings may be attributed to the absence of an internal monitoring unit for regular evaluation.

**FIGURE 1**  
**Extent of Contracting out (% of Services) By Presence of Monitoring Unit, 2013**





Additional analysis shows that transit agencies operating in larger areas are more likely to have a monitoring unit than agencies operating in smaller areas. Of transit agencies with service areas of populations less than 100,000 residents, 24% (out of 58) did not have a contract monitoring unit. In contrast, in medium-sizes areas of population between 100,000 and 500,000, 34% (out of 116) of transit agencies had a contract monitoring unit. In larger service areas, with populations greater than 500,000 residents, 61% (out of 23) of the transit agencies had a separate unit to monitor contracts.

In the contracts for complex products or products and services with high asset specificity, there is also an inherent level of uncertainty about the outcomes. This may create perverse incentives for contractors, and have been a subject of extensive study on incomplete contracts (see Guriev & Kvasov, 2005; Baker, Gibbons, & Murphy, 2002, 2007). The presence of a monitoring unit does not guarantee the quality of contracted services, but does provide the data that may bridge this uncertainty creating information about the performance levels. The long-term relationships establishing trust in the incomplete contracts may be another answer to this problem.

### **Contract Monitoring Methods**

Besides having a specific unit to evaluate contract performance, our surveys contained questions on specific contract monitoring methods. The question about monitoring methods was adopted from the TRB 2001 survey, which asked: How do you monitor contractor's performance? The following options were provided: customer satisfaction surveys, monitoring the level of service provision, monitoring the level of customer complaints, secret shoppers, and other.

There is fairly wide use by transit agencies of methods relying on the customer perspective, which is consistent with the focus of transportation agencies as a whole (Stein & Sloane, 2003). For example, in 2009, customer complaints, results of secret shoppers, and customer satisfaction surveys are employed by 92%, 40%, and 56% of the responding transit agencies, respectively. Also, a more objective method based on the level of service provision is the most commonly used method to monitor contractor performance (about 82% in all years).

The results show that transit agencies rely on a combination of objective and subjective methods for contractor performance monitoring. Customer satisfaction surveys conducted at regular intervals are employed by a large proportion of agencies, but never relied on as a stand-alone measure. The monitoring of customer complaints and the monitoring of service provision levels (which can be done using key performance indicators) are the most frequently employed measures, usually in combination with others. A smaller number of agencies employ the use of secret shoppers. Table 1 summarizes the results by year.

The majority of transit agencies employ a combination of methods, with the most frequent option being the use of all four monitoring methods. Of those agencies without a monitoring unit, only ten have implemented all four measures, while 23 agencies with a monitoring unit have implemented all methods. Table 2 shows monitoring methods for the agencies with and without monitoring units. The agencies with monitoring units are more likely to implement all measures than the agencies without monitoring units, and these differences are statistically significant as measured by Chi-squares.

**TABLE 1**  
**Methods to Monitor Contractor Performance**

	2009 (N=50)		2011 (N=74)		2013 (N=110)	
	Numbers	%	Numbers	%	Numbers	%
Customer satisfaction surveys	28	56	49	66	72	65
Monitoring level of service provision	41	82	61	82	90	82
Monitoring complaints	46	92	63	85	99	90
Secret shoppers	20	40	25	34	38	35
Other	12	24	15	20	23	21
Non-mutually exclusive replies	51	86	74	91	99	90
Skipped	2	n/a	15	n/a	17	n/a

Note: The percentages by year do not sum up to 100% because a respondent can select multiple items. The total number of non-skipped replies was 50 in 2009, 74 in 2011, and 110 in 2013. The question was asked only of agencies that currently contract out. The lowest question-specific non-response rate was in 2009 (4%), and the highest in 2011 (17%).

**TABLE 2**  
**Methods Used to Monitor Contractor Performance by Existence of Monitoring Unit, 2013**

	Without Monitoring Unit (N=61)		With Monitoring Unit (N=47)	
	Numbers	%	Numbers	%
Customer satisfaction surveys*	26	19	46	60
Monitoring level of service provision*	36	26	60	78
Monitoring complaints*	43	31	56	73
Secret shoppers*	12	9	26	34
Other	11	8	12	16
All four methods	10	7	23	30
Non-mutually exclusive responses	40	29	59	77
Skipped	6	4	8	10

Note: The percentages by year do not sum up to 100% because a respondent can select multiple items. \*Indicates that there is a statistically significant difference in the monitoring methods for the agencies with and without monitoring units at 0.05 level, using Chi-square tests. There is no statistical difference in implementation of the 'other' category.

We believe this illustrates that implementing a variety of monitoring methods (or increasing the scope of evaluation) is easier with the presence and guidance of a dedicated contract monitoring department.

Since effective monitoring requires that contractors be incentivized to perform, we examined individual contract provisions (for the largest contract) for fixed route bus services. Table 3 indicates that penalties and liquidated damages are the most popular performance provisions in 2013. This is comparable to data reported by the TRB in 2001. In the TRB survey, 43 agencies reported specifying penalties, 45 included liquidated damages in contract specification, and 25 included incentives. Penalties and liquidated damages are negative incentives, and as such, are utilized to counteract vendor opportunism (Barthélemy & Quélin, 2006).

**TABLE 3**  
**Performance Provisions Specified in the Largest Contract**

	2009 (N=40)		2011 (N=53)		2013 (N=81)	
	Numbers	%	Numbers	%	Numbers	%
Penalties	20	50	32	60	47	58
Incentives	11	28	17	32	13	16
Liquidated damages	20	50	28	53	44	54
Other	5	13	4	8	7	9
Non-mutually exclusive responses	18	45	28	53	36	44
Skipped	12	n/a	36	n/a	46	n/a

Note: The percentages are shown for the total non-skipped answers. The percentages by year do not sum up to 100% because a respondent can select multiple items. The question was only available to those agencies that currently contract out. The question specific non-response rate ranges from 23% in 2009 to about 40% in 2011.

There may be a difference in contract performance provisions depending on whether or not the agency has a contract monitoring unit. Over time, a transit agency may acquire additional data on the scope and quality of contracted services that may help in identifying

appropriate levels of performance and associated penalties. These data may not be available for a recent contract. Thus, the implementation of incentives may be more difficult when there is a lack of data. When we specifically explore the 2013 data on incentives, we see that agencies with contract monitoring units employ the bulk of contractor incentives. In essence, transit agencies with monitoring units are twice as likely to utilize incentives for their contracts.

Girth (2014) argues that sanctions can be very powerful mechanisms for ensuring contractor performance. But, these sanctions must be enforced if they are to be effective. As shown in Table 4, agencies with a monitoring unit use sanctions (penalties and liquidated damages) to a greater extent compared to those agencies without a monitoring unit. This is not surprising, as agencies with greater monitoring capacity (i.e. have contract monitoring units) are also more likely to have the capacity to enforce sanctions.

**TABLE 4**  
**Negative and Positive Incentives by Existence of a Monitoring Unit, 2013**

	Without Monitoring Unit (N=31)		With Monitoring Unit (N=50)	
	Numbers	%	Numbers	%
Penalties*	14	45	33	66
Incentives*	3	10	10	20
Liquidated Damages*	13	42	31	62
Other	5	16	2	4
Non-mutually exclusive responses*	8	26	28	56
Skipped	22	n/a	21	n/a

Note: The percentages are shown from the total non-skipped answers. The percentages do not sum up to 100% because a respondent can select multiple items. The question was only available to those agencies that currently contract out. \*Indicates that there is a statistically significant difference in the incentive use for the agencies with and without monitoring units at 0.05 level, using Chi-square tests.

An agency can also specify the incentives structure through monetary provisions. In our study, such data is available for the agencies' largest contract. These monetary arrangements include market-incentives such as a negotiated rate per unit of service, vehicles or facilities leases, and reimbursements for operating deficits (see Table 5). Vehicle leases are usually used in combination with other monetary arrangements. This may be an indication that the transit agencies must use specially equipped buses to satisfy

**TABLE 5**  
**Monetary Provisions for the Largest Agency Contract**

Monetary Provision	2009 (N=52)		2011 (N=89)		2013 (N=127)	
	Numbers	%	Numbers	%	Numbers	%
Negotiated rate per unit of service delivered	35	73	51	80	80	81
Cash reimbursement of some of the seller's operating deficit	1	2	1	2	2	2
Cash reimbursement of all of the seller's operating deficit	3	6	5	8	2	2
Cash reimbursement to the seller for reduced fare programs	0	0	0	0	0	0
Vehicles given, sold, or leased below market value to the seller	5	10	10	16	14	14
Maintenance facility leased to the seller	2	4	6	9	6	6
Cash payment to the seller for specific mass transportation services	13	27	11	17	12	12
Other	3	6	7	11	12	12
Non-mutually exclusive responses	11	23	19	30	23	23
Skipped	4	N/A	25	N/A	28	N/A

Note: The percentages are shown from the total non-skipped answers. The percentages do not sum up to 100% because a respondent can select multiple items. The question was only available to those agencies that currently contract out.

federal requirements such as the Americans with Disabilities Act of 1991. The highly specific assets make it more difficult for contractors to enter the market, and such leases may enable contracting. The most frequently used type is the negotiated rate per unit of service delivered in combination with some other monetary arrangement.

Several monetary provisions stipulate some form of reimbursement for the contractors' deficits. Such provisions may be easier to negotiate and implement because they do not require the measurement of service delivery as in the case of, for example, the negotiated rate per unit of service delivered. However, they are likely to be less effective as mechanisms to ensure contractor performance as they transfer to the transit agency some of the risk of underperformance.

The application of monetary provisions differs between agencies with and without monitoring units (2013 survey, see Table 6). Among those who responded to both questions, there are slightly more agencies that both have a monitoring unit and use a negotiated rate per unit of service. In fact, almost 80% of agencies who use this technique have a monitoring unit (45 out of 57). This is an indication that the presence of monitoring units allows agencies to implement performance measurement at a different level. The presence of a monitoring unit may facilitate the implementation of penalties or incentives, or application of a negotiated rate per service delivered because these provisions require an agency to track specific performance measures.

**TABLE 6**  
**Monetary Provisions by Monitoring Units, 2013**

	Without Monitoring Unit (N=42)		With Monitoring Unit (N=57)	
	Numbers	%	Numbers	%
Negotiated rate per unit of service delivered*	35	83	45	79
Cash reimbursement of some of the seller's operating deficit	2	5	0	0
Cash reimbursement of all of the seller's operating deficit	1	2	1	2%

TABLE 7 (Continued)

	Without Monitoring Unit (N=42)		With Monitoring Unit (N=57)	
	Numbers	%	Numbers	%
Cash reimbursement to the seller for reduced fare programs	0	0	0	0
Vehicles given, sold, or leased below market value to the seller	8	19	6	11
Maintenance facility leased to the seller	2	5	4	7
Cash payment to the seller for specific mass transportation services	6	14	6	11
Other*	4	10	8	14
Non-mutually exclusive responses	11	26	14	20
Skipped	13	N/A	10	N/A

Note: The percentages are shown from the total non-skipped answers. The percentages do not sum up to 100% because a respondent can select multiple items. The question was only available to those agencies that currently contract out. \*Indicates that there is a statistically significant difference in the incentive use for the agencies with and without monitoring units at 0.05 level, using Chi-square tests. The other monetary provisions are either not statistically significant or the Chi-square test cannot be applied (cash reimbursement of some of the seller's operating deficit, cash reimbursement of all of the seller's operating deficit, cash reimbursement to the seller for reduced fare programs, and maintenance facility leased to the seller) due to the low expected count.

### Performance Measures

Our 2013 survey includes the open-ended question: "What key performance indicators do you use for monitoring your contracts?" Table 7 lists the top performance indicators used by transit agencies in the 2013 survey. On-time performance was by far the most popular response with over half of all agency managers reporting the use of this measure. The number of customer complaints was second (25%). Ridership costs, missed trips, accidents, and maintenance logs and costs were cited fewer than 10% of the time by respondents.

**TABLE 8**  
**Top Ten Most Frequently Cited Performance Indicators, 2013**

1	On-time performance
2	Number of complaints
3	Ridership costs
4	Missed trips/ Breakdowns/ Road calls
5	Accidents
6	Maintenance logs/ Costs
7	Ridership
8	Miles between road calls
9	Budget adherence/ Cost containment
10	Safety

Only a few agencies used ridership numbers, miles between road calls, budget adherence of the contractor and safety. Other, less frequently cited performance measures, included operator courtesy, driver citations, and number of passengers left on the side of the road. One transit agency reported that measures were under development, and another that it uses measures required by its regional authority. A few agencies did not use any performance measures to monitor contracts or were not sure of the measures used. Two respondents simply stated “the standard measures” or “the standard twelve measures.”<sup>3</sup>

We can also classify the types of performance measure utilized by transit agencies in 2013 using Hatry’s (1999) framework of input, process, outputs, and outcomes. As shown in Table 8, most performance measures are outputs and outcomes. The most popular measure – on-time performance – is an outcome measure used by about half of the agencies. Fewer agencies used accidents and customer satisfaction as performance measures. Only one input measure, operating costs, is used frequently in the transit industry for contracts.

### **Profiles of Contract Monitoring and Performance Measurement in Practice**

The purpose of this study is to better understand the current state of practice of contract monitoring and performance measurement as it applies to transit agencies. Our survey results indicate that some

**TABLE 9**  
**Performance Measures Utilized by Transit Agencies by Type, 2013**

Input Measures	Process Measure	Output Measures	Outcome Measures
Operating Costs	Budget Adherence/Cost Containment	Number of Complaints	On-time Performance
	Vehicle Maintenance logs/Costs	Ridership Ridership Costs	Safety
		Miles between Road Calls	Customer Satisfaction
		Trip Denials	

contract monitoring capacity exists but that there is variation across the agencies in terms of how contracts are monitored and performance is measured. To contextualize our findings and improve understanding of the state of current practice, we also developed profiles of 'typical' agencies. We did so by analyzing results of the 2013 survey and conducting an extensive analysis of transit agencies' websites. These profiles are organized by size of service area, extent of contracting, and presence of monitoring unit. These profiles illustrate differences in contract management capacity and use of methods and metrics across different types of transit agencies. The profiles are briefly discussed below and summarized in Appendix A.

We have separated the transit agencies into three groups: small agencies (serving populations under 100,000), medium-size agencies (serving populations over 100,000 up to 499,000), and large agencies (serving populations over 500,000 and under one million). Only a small number of agencies serve populations over one million, and these agencies operate in very unique environments. In each group, we separated cases by the presence of a monitoring unit, and selected cases representing typical responses. For example, a typical small agency with a monitoring unit will contract out 80-100% of the services, while a typical small agency without a monitoring unit will contract out under 25% or almost all (100%) of their services. The typical medium-sized agency tends to contract out under 25% of services or 100% of services, and the typical large agency tends to contract out 100% of its services, regardless of whether a contract monitoring unit is present. In terms of monetary arrangements, agencies with monitoring units (regardless of size) tend to implement more complex structures

compared to those without monitoring units. Smaller agencies also tend to use a wider range of performance measures, while larger agencies tend to utilize a broader array of monitoring methods.

***Agency 1: Small Agency, Contracts Out 80%, Has a Monitoring Unit***

This is a city-run agency that contracts out for bus and paratransit, primarily to use union labor. By state law, the agency cannot bargain with the union: therefore, the city contracts with a management company. The agency has a specific unit to monitor contract performance and contracts out about 80% of its bus service. It contracts for service delivery, maintenance and security. The agency typically has three bidders and bids the contract out every three years. The agency monitors contractor performance with customer satisfaction surveys, monitoring of level of service provision, monitoring of complaints, and secret shoppers. With the agency's largest contract for bus services, the same vendor has been used for six years. Penalties for lack of performance and cash reimbursement of all of the vendor's operating deficit are included in the contract.

***Agency 2: Small Agency, Contracts 100%, Has No Monitoring Unit***

This agency is a single purpose government that provides multiple modes of transportation including bus service, demand response, and paratransit. It contracts out 100% of its bus services at a negotiated rate per unit of service delivered and have operated the same contract for 13 years. While the agency does not have a monitoring unit, it uses customer satisfaction surveys, monitors the level of service provision, monitors complaints, and uses secret shoppers. Key performance indicators used are on-time percentage, passengers per hour, miles between road calls, miles between accidents, and missed trips. It monitors the largest contract by imposing a program of penalties and incentives if the contractor's performance fails to meet certain minimum targets. However, the manager notes that the agency has never had to impose penalties.

***Agency 3: Medium Size Agency, Contracts Out 100%, Has a Monitoring Unit***

This is a city-run agency that only operates one mode: buses. It has contracted out all (100%) bus services since 1999. The most recent contract has been in place for 14 years. It has a monitoring unit and

uses on-time performance, customer comments, and operating costs as performance metrics. The agency uses negotiated rate per unit of service delivered and the contract specifies liquidated damages.

***Agency 4: Medium Size Agency, Contracts 2.6 Percent (Partial Contractor), Has No Monitoring Unit***

This is a single purpose government agency that currently contracts out for bus service (only a small percentage of services, 2.6%), and provides demand response and ADA paratransit. It started contracting out around 1984, but only contracts out because of peak demand times. The agency does not have a monitoring unit and has had just one contract over a five year period. It currently monitors performance by the level of service provision, complaints and secret shoppers. Only one key performance indicator is used: on-time performance. The agency uses negotiated rate per unit of service delivered because it allows more flexibility in funding services at different levels. With the only contract, the agency uses penalties and incentives as performance provisions.

***Agency 5: Large Agency, Contracts Out 20%, Has a Monitoring Unit***

This agency, a city municipal corporation, operates bus service and contracts out for 20% of its services, customer call center and retail store. The agency has contracted out since 2004. The agency has a monitoring unit and uses negotiated rate per unit of service delivery for monetary considerations. Performance monitoring includes customer satisfaction surveys, tracking level of service provision and client complaints, and holding routine performance meetings with the vendor. Key performance metrics are on-time performance and customer service complaints.

***Agency 6: Large Agency, Contracts Out 45%, Has No Monitoring Unit***

This single purpose government agency currently provides bus service and contracts about 45% of bus service for three years with two one-year options available. The agency does not have a monitoring unit but uses on-time performance, number of breakdowns and customer satisfaction to monitor contracts. Its largest contract uses the following monetary considerations: negotiated rate per unit of service delivered, and vehicles given, sold, or leased below market

value to the vendor. Penalties, incentives, and liquidated damages are the performance provisions included in the contract.

### DISCUSSION AND CONCLUSION

Smirnova and Leland (2014) found that reliance on outsourcing by transit agencies is driven more by path-dependent behaviors than the current fiscal climate. The implications, then, are “that public administrators, and particularly transit agency managers, need to choose wisely when deciding whether to contract out for services because the decision will seldom be revisited, even during a recessionary period” (Smirnova & Leland, 2014, p. 362). This highlights the need to monitor contractors to ensure performance and to hold contractors accountable for their performance.

Contracting out for complex products and services represents certain challenges such as measuring performance and setting accountability standards. Yusuf and O’Connell (2014) and Yusuf and Leavitt (2014) underscore the importance of contract management and oversight to improve accountability. This study examines the state of the practice of contract monitoring and performance measurement by transit agencies in the US during 2009, 2011, and 2013. The findings indicate that just over a third of transit agencies reported having a special monitoring unit for contracts in the 2013 survey. The presence of contract monitoring units also varies with the extent of contracting and size of the service area. A larger percentage of agencies with monitoring units, contract out all of their services than those without monitoring units. Monitoring service and customer complaints are the most frequently used performance measures in the industry. Penalties and liquidated damages are the most frequently used negative incentives. Agencies with monitoring units employ twice as many incentives as agencies without monitoring units. Finally, we find that transit agencies utilize a wide variety of output and outcome measures to monitor contractors.

Our results are fairly consistent with other studies of contract management in public agencies in terms of the relatively low use of contract monitoring and performance measurement. Focusing on contracting for services by the U.S. Navy, Apte, Apte, and Rendon (2011) found that only 25% perceived the level of contract monitoring and oversight to be appropriate. Previous studies have also found a wide range of measures used to monitor contractor performance. In a

comprehensive study of contracting by local governments in the U.S., the average local government collected five (out of eight) types of contractor performance data<sup>4</sup> (Fernandez, 2007). Using a similarly-constructed sample, Brown and Potoski (2003a) examined local government contract evaluation capacity and found that 52% of local governments reported using specific techniques (e.g. monitoring citizen complaints, conducting citizen survey and field observations, etc.) to systematically evaluate contractor's service delivery. In a study of public bus transit contracting, performance provisions were found to be included in some transit contracts (Shetterly, 2002) - positive incentives (sharing of cost savings) and negative incentives (deductions for non-performance) were used by 13% and 35% of the jurisdictions in the sample, respectively.

This study was intended to provide a survey to better understand the current state of practice of contract monitoring and performance measurement of transit agencies. As such, our analysis focused solely on the current state of practice of contract monitoring and performance measurement. This examination is an important first step in understanding how transit and other public agencies manage their contracts effectively to ensure the goals of outsourcing are achieved. From this study, we know that some contract monitoring capability, in the form of dedicated contract monitoring unit, does exist in transit agencies. We also know that transit agencies are utilizing performance measurement to track contractor performance along multiple dimensions such as process, outputs, and outcomes. Furthermore, some transit agencies are rewarding and/or sanctioning contractors based on their performance. We have some indication that monitoring scope and intensity vary by the extent to which the transit agencies contract for services. In terms of prudent purchasing prescribed by Fossett et al. (2000), there appears to be variation not only in the capacity to be prudent purchasers, but also in the implementation of prudent purchasing practices. Almost all of the transit agencies responding to our survey specify contract monitoring and performance measures, but not all agencies have the ability to identify if the contract requirements are being met, and reward a highly performing vendor or sanction an underperforming one.

However, our study raises additional questions that are important for a broader understanding of effective contract management. Future research should continue this stream of study by examining contract

monitoring and performance measurement in more depth both in the transit industry and for other government services. For example, contract monitoring and performance measurement are, in theory, necessary for ensuring contract fulfillment and that the needs of the contracting agency are met. But, to what extent do they contribute to a successful contracting experience? More specifically, does contract monitoring and performance measurement lead to cost savings and improved service delivery? Additionally, why do some transit agencies have greater contract monitoring capabilities than others? What factors drive transit agencies to have greater monitoring scope and/or intensity? Furthermore, some questions arise regarding specific differences in terms of practices across agencies. For example, penalties and liquidated damages are used to a greater degree by transit agencies with monitoring units, compared to those without monitoring units. What factors account for this difference? These sanctions - penalties and liquidated damages - also seem to be used more extensively compared to positive incentives. What may account for this popularity, and why are some types of incentives more popular than others?

These are some questions that can, and should be, addressed in future research. Research may also be needed to examine interactions between the extent of contracting, contract monitoring, and contracting performance. Zullo (2007), for example, found partial contracting to be less efficient than complete outsourcing. Could this relationship between extent of contracting and efficiency be mediated by contract monitoring capability, where those agencies that contract to a lesser degree also rely less on contract monitoring and performance measurement? Furthermore, some questions arise regarding specific differences in terms of practices across agencies. For example, penalties and liquidated damages are used to a greater degree by transit agencies with monitoring units, compared to those without monitoring units. What factors account for this difference? These sanctions - penalties and liquidated damages - also seem to be used more extensively compared to positive incentives. What may account for this popularity, and why are some types of incentives more popular than others?

Our focus on transit agencies was driven by the high reliance on contracting within the transit industry. However, contracting is prevalent in other government functions and various other government

agencies rely extensively on contractors to provide key public service deliveries. The growth in what can be viewed as multi-sector service delivery – involving government agencies, non-profit organizations, and private contractors – has placed greater emphasis on the need to understand how to better manage the delivery of services that involve actors from multiple sectors. Our study, while limited to government use of contracting by private firms, moves our understanding forward by providing the ‘lay of the land’ in terms of current practices. By knowing the current state of the practice we can better understand where we need to be in the future.

#### NOTES

1. Our analysis focuses on the subset of the survey respondents (transit agencies) that contract out.
2. The agencies with monitoring units contract out 100% of their service more often than the agencies without monitoring units. The differences are statistically significantly (Chi-square 4.19,  $p < 0.05$ ) for agencies contracting out 100% services vs. all other agencies. There is not any statistical difference for agencies contracting under 25% of their services or contracting out 51-99% of their services. The expected counts are smaller than 5 (making Chi-square an inappropriate test) for the contracting 25-50% of services category.
3. The number and variety of standard measures may differ somewhat from state to state. For example, the Florida Department of Transportation uses 16 various standard measures of effectiveness, 23 for efficiency, and 29 general performance indicators. The National Transit Database lists annual revenue miles and hours, vehicles available for maximum services, peak-to-base ratio, operating expense per vehicle revenue mile, operating expense per vehicle revenue hour, operating expense per passenger mile or unlinked passenger trip, and unlinked passenger trips per revenue mile or per revenue hour.
4. The eight types are: work inputs, work processes, work outputs, timeliness, cost, accuracy of invoicing, legal compliance, and complaints.

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**APPENDIX A**  
**Profiles of "Typical" Transit Agencies' Contract Monitoring and Performance Measurement**

	Monitoring unit	No monitoring unit
Small Agency Size (population under 100,000)		
Extent of contracting	80-100%	100% or under 25%
Monetary Arrangements	negotiated rate per unit of service delivered alone or cash payment for specific services alone	negotiated rate per unit of service delivered with some other provision
Monitoring contracts through	customer satisfaction surveys, monitoring level of service provision, monitoring complaints	monitor the level of service provision and monitor complaints
Performance measures:	on time percentage, passengers per hour, miles between road calls, miles between accidents and missed trips as key performance indicators	on time percentage, passengers per hour, miles between road calls, miles between accidents and missed trips as key performance indicators
Medium Agency Size (population between 100,000 and 499,000)		
Extent of contracting	100% or under 25%	100% or under 25%
Monetary Arrangements	negotiated rate per unit of service delivered or cash payment for specific services usually with some other provision	negotiated rate per unit of service delivered or cash payment for specific services usually with some other provision
Monitoring contracts through	customer surveys, monitoring level of service provision, monitoring complaints	customer complaints and surveys
Performance measures:	on-time performance, customer complaints	on-time performance, customer complaint

## APPENDIX A (Continued)

	Monitoring unit	No monitoring unit
Large Agency Size (population between 500,000 to under 1 million)		
Extent of contracting	100%	100%
Monetary Arrangements	negotiated rate per unit of service delivered and other provisions **varies by agency	negotiated rate per unit of service delivered
Monitoring contracts through	customer satisfaction surveys, monitoring the level of service provision, monitoring complaints, secret shoppers	customer satisfaction surveys, monitoring the level of service provision, monitoring complaints, secret shoppers
Performance measures:	on-time performance, customer complaints	on-time performance, customer complaints

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