Agencies should provide as much information as possible to the contractor as proposals are being prepared. Without the information, the contractor is at a distinct disadvantage in trying to estimate the amount of prior maintenance that has been conducted, the age of the facilities, and/or the in situ structure of layers that may be obstructed from sight. Pavement management systems, other infrastructure databases and/or maintenance management systems are likely sources of this information. By the same logic, the selected contractor should be contractually obligated to update available inventories and databases with the record of any work that is conducted so that the contracting agency can maintain a complete historical record of its assets.

#### **Change Orders and Retainer Clauses**

Contracts that are conducted on a time and material basis generally do not require change orders; however, they may require a provision for contract extensions beyond the original contract period. Although most performance-based contracts operate on a fixed-cost rather than a cost-reimbursable basis, change orders are not issued for contractor error in estimating the amount of work or nominal fluctuations in material costs. If change orders are used for any reason, the specific events that can trigger change orders should be specified in the contract and clearly indicated as part of the RFP process. It must be emphasized that change orders which alter the scope of the contract could become the basis of successful legal challenges by unsuccessful bidders or others.

On the other hand, retainer contracts may be used in conjunction with fixed-price performancebased contracts for emergency services beyond those required in the basic contract. For instance, the Asset Management contract being conducted for the District of Columbia included a provision for additional payments to the contractor for snow removal services over and above a pre-specified sequence. This exception was clearly outlined in the RFP and helped to reduce some of the risk to the contractor in putting together its bid estimate. It may have also reduced the total cost to the contracting agency since some of the contractor's risk for unusual weather occurrences was reduced.

#### **Payment Terms**

Payment terms under contract maintenance contracts should be defined in the RFP. Total maintenance contracts typically operate on a lump-sum basis, and so those payments are made at the end of each contract year. A large percentage of the cost may be paid initially to cover the contractor's start-up costs. However, this aspect of these contracts is not readily accepted by some agencies used to making payments only after a certain amount of work has been performed.

Under most performance-based contracts, the contractor expects payments to begin immediately upon contract award, even if maintenance activities do not begin until the mobilization period is complete. This is important to the contractor because of the large costs associated with the mobilization and start-up of these contracts. The contracting agency must rely on its

#### 44

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contract to ensure that the required level of performance will be met as the contractor transitions from start-up to implementation.

#### Scope

The scope of work is described in the RFP and serves as the basis for the contractor's bid on the project. For this reason, a clear scope that fully describes the contractor's responsibilities under the contract is important. Any information that is not clearly defined will be assumed by the contractor to be his responsibility and the total cost of the contract will be increased to cover the assumptions.

The contracting agency should also consider the geographic distribution of the assets that are to be maintained during the contract period. A single contract for the maintenance of statewide assets may eliminate many local contractors from the competition and result in higher unit costs to the agency. Multiple contracts to maintain assets on a more local basis, on the other hand, may encourage more bids from local contractors and help to reduce bid prices.

## 4.5 AGENCY CONSIDERATIONS

In addition to the issues listed above, the agency must consider other factors, including the decision to enter into a contract of this type, the level of competition that exists (or should be fostered), and the availability of federal funds for this type of work.

## **Deciding to Contract for Maintenance Activities**

Contract maintenance is an important resource for transportation agencies due to many of the factors discussed in Chapter 1. For some agencies the decision is mandated, while for others it is an approach that is forced by a shortage of resources. The primary considerations that influence the decision to contract out maintenance activities include the following:

- 1. A shortage of available resources to complete the work (primarily personnel shortages).
- 2. The work is mandated.
- 3. A systematic process was used to demonstrate the cost-effectiveness of the program.

Agencies with mandatory contracting requirements or workforces unable to keep up with maintenance demands find the decision to begin contracting maintenance to be relatively easy. Where a more systematic process is used, much more work is required on the part of the contracting agency.

Systematic processes have been used in a number of agencies, such as Arizona and Pennsylvania, to determine whether to issue contracts for maintenance activities. A pilot test program has also been conducted by the Louisiana Department of Transportation and Development

45

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#### Issues in Contract Maintenance

(LaDOTD). A study of the LaDOTD program reports that the Arizona model uses a total of eight qualitative factors to determine the outsourcing potential of various tasks, ranking the importance of these tasks to the Department of Transportation. These factors, which might include the availability of multiple, qualified contractors, the complexity of the work and the level of risk to the agency, are then combined to indicate whether a particular maintenance activity is a good candidate for outsourcing. The LaDOTD pilot project researched the various approaches used by other states and determined that it wanted an approach that used qualitative factors and was relatively easy to use.

The process developed for the pilot is outlined in Figure 4.1. Conceptually, the outlined process is fairly simple to follow and would likely be customized by any agency choosing to apply it. A comprehensive evaluation process is likely to address many of the issues that have been raised in this guide.

46

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Figure 4.1. Sample qualitative process from the LaDOTD.

#### Availability of Competition

The number of qualified contractors that can bid on a contract maintenance project can have a significant impact on the contracting agency. Generally, contracting agencies prefer to minimize the number of contracts that are issued, thereby encouraging the use of larger contractors with the resources to compete on larger projects. However, there are many small, qualified contractors able to perform much of the work on these types of contracts and an agency should not inadvertently eliminate them from competition because they can't obtain bonding for a large project or do not have the resources to cover a statewide contract. No guidelines exist to indicate the optimum number of contractors necessary to provide sufficient competition. The

47

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contracting agency could broaden its pool of contractors by determining why some existing contractors do not bid on projects. Several agencies have successfully increased the number of contractors bidding on projects by working directly with industry to address issues such as contract size and bonding requirements.

## **Contractor Prequalification**

Depending on the type and magnitude of the contract, an agency may require contractors to be prequalified prior to bidding on a contract maintenance project. For the most part, this is not required on smaller contracts since bonding companies are believed to bond only those contractors capable of performing the work. However, on large-scale projects, requiring contractors to complete the prequalification process may help minimize the number of unqualified proposals the agency has to evaluate.

## Availability of Federal Funding

The availability of federal funding and the eligibility of any given contract for that funding should be discussed with representatives of the FHWA prior to proceeding with the contracting process. A good working relationship between the SHA and the FHWA may help to negotiate the use of federal funds to meet an approved objective (such as safety). The maintenance activities themselves may also be eligible if they are part of a preservation program. However, each situation should be evaluated on a case-by-case basis since there is typically so much variation in the way agencies approach these projects.

## 4.6 SUMMARY

Contract maintenance is a potentially effective means of maintaining transportation assets, especially when the contract is approached as a win-win opportunity for all involved parties. Agencies find this type of contract an attractive means of supplementing its available work force and potentially shifting the risk for asset management to contractors. It also enables agencies to get more work done, especially if certain infrastructure assets are in an undesirable condition.

Contractors also find contract maintenance an effective means of doing business, especially when the contractor is provided the autonomy to achieve the specified results. Contractors working under this type of contractual arrangement have been able to implement innovations that have proven to be cost-effective means of maintaining the facilities.

The success of this type of contract is largely dependent on the ability to clearly establish each party's responsibilities under the contract. This chapter has focused on some of the issues that have the largest influence on the contractor's performance and the overall success of the

#### 48

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project. Contract maintenance truly represents an important business relationship between the contractor and the agency. In order to realize the greatest benefits under this type of contract, however, it is important that both sides work together as a team to provide the desired level of service to the users of the facility.

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## **Chapter 5. Case Studies**

## 5.1 INTRODUCTION

Although the use of contract maintenance may be new to many transportation agencies, a number of agencies in the United States have been using these techniques for more than ten years, while in other countries these contracting approaches have been used even longer. In this chapter, several case studies are featured to illustrate the diversity of projects implementing contract maintenance techniques, the different reasons agencies have used these techniques and lessons that have been learned. The case studies presented are not intended to represent an exhaustive coverage of all projects, but are meant to represent the range of projects that have been used in the United States.

## 5.2 AN OVERVIEW OF THE CASE STUDIES

Table 5.1 summarizes various case studies that are included in the remainder of this chapter. The table provides a reference for any agency seeking further information on one or more types of contracting methods. Appendix A to this document also provides useful references on the different types of contracts that agencies are using. Several Internet web sites also address related topics of interest. For examples, see the innovative contracting web site maintained by the Utah Department of Transportation's T<sup>2</sup> Center at <u>www.utaht2.usu.edu</u> or the Federal Highway Administration's site at <u>www.fhwa.dot.gov/programadmin/contracts</u>.

## 5.3 THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION CASE STUDY

#### **Special Features**

Managed Competition Agency-to-Contractor Single Feature Program

## **Program Summary**

The Massachusetts Department of Transportation initiated its contract maintenance project in the early 1990s as a means of improving the cost-effectiveness of its maintenance activities. The program consisted of efforts to force competition between state forces and contractors so that the most cost-effective crew was selected to perform the work. Initially, the program included all routine highway maintenance, bridge maintenance, roadside maintenance, traffic maintenance, and drawbridge operations in Essex County.

51

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The initial effort was a trial, and in 1996 MassDOT expanded the program statewide. They offered 14 contracts, and seven each were won by public employees and private firms. The bottom line for taxpayers is that between 1991 and 1999 the highway maintenance budget in Massachusetts fell from \$40 million to \$25 million, while the amount of maintenance work performed increased (Moore 2000).

	Method-Based Contracts		
Agency	Directed Contracts	Specification-Based Contracts	Performance- Based Contracts
Massachusetts Department of Transportation	V		
Florida Department of Transportation	$\checkmark$	√	$\checkmark$
Georgia Department of Transportation		√	$\checkmark$
Wisconsin Department of Transportation	$\checkmark$		
Washington, D.C. Department of Public Works			$\checkmark$
Virginia Department of Transportation			$\checkmark$
Michigan Department of Transportation		√	
Texas Department of Transportation	$\checkmark$		$\checkmark$

#### Table 5.1. Summary of agencies and contract types in case studies.

#### **Program Results**

As a result of the contract maintenance program, the state reports the following advantages and disadvantages to its use.

#### 52

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#### Advantages

- The efficiency of the state's crews improved dramatically in order to compete with private industry, with a 70 percent reduction in overtime and about a 50 percent decrease in sick leave used.
- The level of competition between state forces and contractors increased, resulting in the selection of the most cost-effective means of accomplishing the work.
- Contracting was demonstrated to be a cost-effective means of accomplishing some maintenance activities. The John F. Kennedy School of Government reported that the privatized services were 20 percent more cost-effective than their public counterparts.

#### Disadvantages

- There was a decrease in the state's workforce with no plans to add additional staff.
- The contract was reported to be so specific that it tended to stifle innovation.

# 5.4 FLORIDA DEPARTMENT OF TRANSPORTATION CASE STUDY

Special Features Maintenance Rating Process Activity-Based and Performance-Based Contracts Single Feature and Total Facility Contracts

## **Program Summary**

The Florida Department of Transportation (FDOT) first experimented with the use of contract maintenance in the mid-1970s. The first use of contract maintenance in the state was considered very controversial and included treatments for single activities. In 1994, FDOT combined several small activity contracts into one bundled contract. This evolved into a pilot project on I-95 and was followed by a three-year contract for all state highways (approximately 110 miles) within Nassau County. Under this three-year contract, the state issued work orders for any work needed and the contractor responded as required. Agency costs were reduced since the state had fewer contracts to advertise and inspect. In 2000, FDOT developed a further contract innovation for a performance-based lump sum contract to manage, operate, and maintain 253 miles of Interstate 75 for a seven-year contract period. Performance standards have been established to ensure contractor performance, and reductions in payment have been included for performance failures. The contractor is responsible for management, planning, administration, performance, and inspection for all routine maintenance on the I-75 corridor, including rest area operation and security, emergency response, natural disaster cleanup, bridge hit repair, state bridge inspection, motorist aid call boxes, motorist aid service patrol, and routine transportation system performance.

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