PUBLIC ASSET MANAGEMENT: EMPIRICAL EVIDENCE FROM THE STATE GOVERNMENTS IN THE UNITED STATES

by

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This dissertation was prepared under the direction of the candidate's dissertation advisor, Dr. Khi V. Thai, School of Public Administration, and has been approved by the members of his supervisory committee. It was submitted to the faculty of the College for Design and Social Inquiry and was accepted in partial fulfillment for the requirement for the degree of Doctor of Philosophy.

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ABSTRACT

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Public asset management is a critical component of the financial integrity of government. However, in practice, problems exist in the field of public asset management at different levels of government in the United States. This research explores the management of public fixed assets owned, controlled and used by state governments in America. It attempts to answer two major questions: (1) What are the characteristics of a modern public asset management system based on the available literature? and (2) How do public asset management practices at the U.S. state government compare to the system standard described in the first question?

Based on systems theory and current research on public asset management and public procurement systems, this research develops an intellectual framework of a public fixed asset management system. This system is composed of six interdependent cornerstones, including legal and regulatory requirements, organization structure,
management process throughout the life cycle of assets, human capital strategies, information and technology resources, and monitoring, integrity, and transparency. Each cornerstone consists of a number of components that reveal the underlying working principles of the relevant cornerstone and together determine the standards of fixed asset management in the relevant area. Survey results demonstrate that state governments fundamentally satisfy the standards identified in the fixed asset management system. However, certain problems obviously exist in the area of each cornerstone. In addition, survey results reveal that the six cornerstones of fixed asset management system are interrelated with one another. In most states, when a management element in the area of one cornerstone is widely implemented, the relevant management elements in areas of other cornerstones are employed and vice versa.

A major contribution of this research is the development of a fixed asset management system. State and federal governments may compare their fixed asset management to the standards identified in this system. Local governments may find appropriate management components to adapt to their characteristics from this system.
DEDICATION

This manuscript is dedicated to my wife Wenzhi and my son George. Wenzhi has shown her constant concern about the progress of my dissertation. Her concern and the care she took of our family had been a loving push for me to exert every effort in my dissertation. George has piously prayed that I could have wisdom and finish my dissertation as expected. This manuscript is also dedicated to my late father whose great desire was that his son would obtain a doctoral degree.
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CHAPTER 1. INTRODUCTION

In the past decades, a number of disastrous accidents have occurred to public infrastructure in the United States. On August 1, 2007, the I-35W Mississippi River Bridge in Minneapolis, Minnesota, collapsed during the evening rush hour, killing thirteen and injuring one hundred forty-five people (National Transportation Safety Board, 2008). As a result of the bridge failure, the engineering company in charge of evaluating the bridge’s structural integrity (URS Corporation), the construction company (PCI Corporation) that built the bridge, and the state government of Minnesota in 2008 paid the victims approximately $100 million (Bakst, 2010). Not including the loss of people’s lives and economic interest and damage of assets in the local community, the cost of the replacement bridge reached $234 million.

Similarly in June 1983, the Mianus River Bridge in Greenwich, Connecticut, collapsed after twenty-five years of use, killing three people and seriously injuring three other people (Higashide, 2008). In July 2007, an 84-year-old steam pipe erupted in New York city, killing one man, injuring thirty others, and causing millions of dollars of economic losses to businesses (Goldman, 2007; Scherer, 2007). In May 2003, the Silver Lake Dam failed in Michigan. It caused $100 million in damages (Upper Peninsula Power Company, 2003).

An in-depth comprehensive investigation found that the disastrous infrastructure incidents were caused by a number of factors. The collapse of the bridge in Minneapolis
mainly resulted from design error, substantial increase in the weight of the bridge because of previous bridge modifications, and the traffic and concentrated construction load of the bridge (National Transportation Safety Board, 2008). The National Transportation Safety Board found that although the bridge had been inspected every two years and had been rated deficient in structure for sixteen years before the accident, the conditions responsible for such rating, like rust, corrosion, and section loss on gusset plates did not contribute to the collapse of the bridge. The collapse of Mianus River Bridge was caused by fatigue cracking and a lack of redundancy in the main truss system (Scherer, 2007). In addition the bridge’s inspection was obviously insufficient. In the case of the steam pipe eruption in New York City, the site had been inspected the day before the explosion, yet nothing was found. The eruption was mainly caused by a pipe rupture that occurred due to deficient repair of a leak. Key factors causing the failure of the Silver Lake Dam included highly erosive soils, erosive velocities at flows lower than considered in the design, a permissible velocity higher than what was recommended, and hydraulic jump in highly erodible soils. Erosion and subsequent head cutting of the spillway discharge channel was partly attributable to design defect of the dam and negligence of the erosion of the fuse plug foundation.

These core causes directly resulted in the infrastructure accidents. However, when apprised of these causes, the public may ask “What’s wrong with the infrastructure management?” and “Can these accidents be avoided?” Actually, these questions point to problems in the management of public assets. This dissertation addresses these problems and the issue of effective and efficient management of public assets.
During Hurricane Katrina, storm surge precipitated over 50 breaches in New Orleans’s levees and flood walls. These infrastructure failures resulted in wide flooding that put the majority of New Orleans under water for days. The failure of pump stations in New Orleans worsened the catastrophic flooding during the hurricane. These facts remind people the importance of infrastructure and other public assets. The widespread critical infrastructure collapse calls attention to the implications of vulnerabilities of critical infrastructures (Miller, 2007).

In the United States, government owns, controls, and uses enormous amounts of public assets. A major portion of these public assets are fixed assets, such as buildings, land, equipment, construction in progress, and infrastructure (like roads, bridges, sewer lines, and water plants). Owing to their special nature, such as long life, high costs, depreciation, and life-cycle management, fixed assets are the focus of public asset management. Generally, asset management bears responsibility for every aspect of fixed assets, from planning and acquisition to disposition of the property. Government should exert efforts to effectively and efficiently manage its fixed assets for public service delivery. In addition, like private businesses, government should maximize the value of fixed assets when providing property services (Goldhagen, 2007). However, traditional public asset management is still far from meeting these requirements (Kaganova McKellar, & Peterson, 2006). It is not effectively aligned with the changing missions of government agencies (Ungar, 2003).

The Current Situation of Public Asset Management in the United States

Governments at different levels in the United States have been implementing
different systems of fixed asset management. The major differences lie in organization formats, management priorities, capitalization standards, and methods of financial reporting (Kaganova, 2008; Peterson, 2006; GAO, 2007). But in their respective domains of fixed asset management, the federal, state, and local governments have encountered a number of problems.

Federal Government

Currently, the U.S. federal government employs or utilizes a combination of centralized/decentralized fixed asset management. According to Title 40 of the U.S. Code, the General Services Administration (GSA) takes charge of acquiring, managing, utilizing, and disposing of real property for most federal agencies. Individual federal agencies are delegated authority to acquire real properties by different means. About 93% of the federally owned and leased real property (in terms of value of real property) is concentrated in nine federal departments (GAO, 2007). Each year, federal agencies lease great amounts of building space mainly for offices (51% of total leased square footage), warehouses, family housing, schools, and service. The total square footage of leased building space has been rapidly increasing while owned square footage is slowly decreasing. The total federally-leased building space reached approximately 398 million square feet in fiscal year 2006 (GAO, 2008a). However, the Government Accountability Office’s report demonstrated that “building ownership often costs less than operating leases, especially for long-term space needs” (GAO, 2008a, p. 1).

Since 2003, the GAO has reported that federal real property is a high-risk area
owing to a number of reasons (GAO, 2003a, 2003b, 2004). The major reasons include long-standing reliance on costly leasing, excess and deteriorating property, unreliable data, and security challenges. Federal Real Property Profile (FRPP) data demonstrated that in FY 2006, GSA, which serves as a leasing agent for most federal agencies, held 6750 leases and provided about 169 million square feet of leased building space for nearly every federal agency that is covered in the agent leasing authority of GSA provided by Title 40 of the U.S. Code. However, dominant federal building space lease holders and owners have enormous amounts of excess and underutilized real property. For example, as of October 1, 2002, GSA, the Department of Veteran Affairs (VA) and the U.S. Postal Service (USPS) had reported 600 vacant and 327 underutilized real properties that ranged from facilities to land located throughout the country. The space of vacant and underutilized facilities amounted to about 32.1 million square feet (GAO, 2003c). A GAO 2007 report demonstrates that the Department of Energy, the Department of Homeland Security, and NASA had over 10% of their facilities either as excess or underutilized (GAO, 2007). GSA’s number of excess or underutilized properties increased from 236 in 2002 to 258 in 2006 while its rentable space decreased from 18.4 million square feet in 2002 to 13.8 million square feet in 2006 (GAO, 2003c, 2007). In 2002, the VA reported 29% of its total facilities as vacant or underutilized (GAO, 2003c). In 2007, the Department of Veteran Affairs’ vacant buildings decreased in number, but the amount of total vacant and underutilized space has remained relatively unchanged since 2002 (GAO, 2008b).

Each year, while bearing the opportunity cost of excess and underutilized real
properties, the federal government spends great amounts of its budget repairing and maintaining excess and underutilized properties. For example, the Department of Defense annually expended roughly $3-4 billion in the early 2000s for maintenance of unneeded facilities (Ungar, 2003). In 2002, the DOE reported that it had spent over $70 billion each year on maintenance and security of its excess facilities (DOE Office of the Inspector General, 2002). Other federal agencies that hold excess facilities also spend annually a relatively large portion of their limited budget repairing and maintaining their excess properties.

Besides, reliability of federal property data is problematic at some major real property holding agencies. For one thing, there are no common definitions for some real property elements and performance measurements. It is difficult for the Federal Real Property Council (FRPC) to reach consensus on some elements when agencies adopt many different definitions for some elements. For another, Federal Real Property Profile (FRPP) does not encompass complete, accurate, and timely data of the total real property assets that the federal government owns and controls, such as their value, overall cost, and operation status (GAO, 2007). Without appropriate data, decision makers may have challenges to make appropriate decisions regarding reducing operating costs, improving asset utilization, recovering asset values, and improving property asset conditions, among others.

In February, 2004, President George W. Bush issued Executive Order (EO) 13327 to “promote the efficient and economical use of American’s real property assets and to assure management accountability for implementing federal real property
management reforms” (EO 13327, Section 1). This provides a good foundation for strategically addressing long-standing problems with federal real property management. However, because FRPC and real property-using agencies have not taken significant, practical measures to improve real property management, the problems that the GAO has addressed when identifying federal real property as a high-risk area have remained unresolved (GAO, 2007; the Federal Real Property Council, 2010).

**Local Government**

For local government, fixed assets account for a very large portion of total assets on balance sheet. They provide a physical basis on which local government provides public services. In addition, fixed assets are an indispensable part of local financial management. On the balance sheet, net assets are an important criterion of a local government’s financial soundness. The increase or decrease in net assets may be a useful indicator of the financial performance of a local government (Peterson, 2006). This is particularly true when rating firms evaluate a municipal bond issuer’s credit quality. Large net assets indicate high credit quality of a bond issuer. They help keep bond pricing competitive and bond financing cost low. Conversely, small or minus net assets indicate poor credit quality of a bond issuer and low investment grade. Poor credit quality and low investment grade mean a higher price for the issuer to compensate and higher bond financing costs (Leonard, 2004). This suggests that municipal fixed asset management is essential for a municipality’s financial condition and capacity building for long-term debt issuance.

One problem in traditional fixed asset management at the local government level
is that real properties are perceived as “free goods” because the using agencies rarely care about life-cycle management of the real property they use (Kaganova, 2006). As a result, local government pays inadequate attention to fixed asset management. From a caretaker perspective, local government utilizes, preserves, and maintains fixed assets. However, local government hardly assigns appropriation to maintenance and repair of their real property assets because it is hard to measure program performance (Kaganova et al., 2006). This partly contributes to inefficiency in public real property management. One direct negative consequence is that the value of municipal real assets suffers from high-rate depreciation. Actually, as most of their real properties are tax-free, local governments barely track real property on an individual basis, thus obtaining little market information of the assets they own (Simons, 1993a).

In traditional practices of public asset management, local governments pay much attention to the flow of financial resources, but little attention to understanding the value of fixed assets and their optimal use (Fernholz & Fernholz, 2006). Similarly, local governments have more regulatory requirements on financial flows like revenue and expenditure, but less scrutiny on fixed asset management. As a result, expenses related to fixed assets, such as high administrative costs, are neither systematically managed nor strictly monitored; the value of fixed assets has not been fully utilized; market value of fixed assets owned by local government is not effectively maintained because of deferred maintenance and repair (Kaganova, 2008; GFOA, 2010).

Currently, in the practice of fixed asset management, local government is confronted with a variety of challenges. For one thing, local government has the
pressure to improve efficiency and effectiveness in managing its vast array of fixed assets (Kaganova, 2000). This pressure is particularly large when budget is tremendously cut during economic and financial crisis. For another, local government can hardly afford to employ professional real property management personnel because of their small revenue base and financial difficulties (Hentschel & Utter, 2006). Actually, only a very small percentage of local governments have constituted a dedicated team to manage local property assets. Without expertise to manage its fixed assets, local government has to resort to private professionals for expertise in real estate management. Therefore, local governments depend more on private services to manage real properties than do federal and state governments.

**State Government**

The U. S. state governments own, use, and control a large variety of fixed assets. The major part of a state government’s fixed assets includes motor vehicle fleets, buildings, improvements other than buildings, construction in progress, lands, equipment, and infrastructure. Traditionally, state agencies, despite their size, take charge of the fixed assets they use and control. This means that individual state agencies are responsible for maintaining, preserving, and repairing the property assets they use and control.

Since the 1980s, driven by the impetus of the new public management movement and other factors (like budget cuts), a number of states have established a division of asset management or reorganized their organization of government agencies by merging closely related functions of government into a new agency. For example, in
1992, the state of Florida established the Department of Management Services (DMS) by merging two former agencies: Department of Administration (DOA) and Department of General Services (DGS). The law that merged the two agencies (Ch. 92-279, Laws of Florida) mandated that DMS reduce its personnel expenditures respectively by 5% in fiscal year 1993-94 and 10% in fiscal year 1994-95 on the basis of combined amounts expended by DOA and DGS for the same categories in fiscal year 1991-1992 (Turcotte, 1996). This requirement forced DMS to streamline work processes and experiment with new operation formats like privatization and public-private partnerships. Another example is the Connecticut Department of Public Works. The department was created in 1987 by the authority of the Connecticut General Statute Chapters 59 and 60 to be responsible for major state facility capital projects, leasing and property acquisition for most state agencies, facility management, and surplus property statewide. This measure may constitute economy of scale and place state resources of fixed assets under systematic planning and control, thus improving the efficiency of the state’s fixed assets in terms of cost reduction and potential value increase. These examples demonstrate a trend of centralized organization of fixed asset management at state government.

There are a number of common problems with fixed asset management in state government. One problem relates to overdependence on leasing properties from private businesses. Similar to the federal government, some state governments have a rather high percentage of leased building space. The sale-leaseback of state-owned office buildings is a common practice at state government. But a long-term lease increases
costs of using properties (Taylor, 2010). Another problem is about the evaluation of asset management performance. A survey of state government websites shows that state agencies responsible for statewide real property management have barely evaluated fixed asset performance. A third problem is that some states do not have a complete inventory of fixed assets. This may negatively affect decision-making for fixed asset management.

The federal, state, and local governments have been making efforts to effectively and efficiently manage their fixed assets. However, their problems suggest that certain management elements are either missing or inappropriately incorporated in their current management system. Governments have not identified an effective system that appropriately incorporates each fundamental management component in the practice of fixed asset management. They do not have established standards to benchmark fixed asset management in their respective jurisdiction.

**Purposes of Research**

Considering the current situation of public asset management, especially the problems government faces, this dissertation attempts to answer two research questions. One is “What are the characteristics of a modern public asset management system based on the available literature?” The other is “How do public asset management practices of state governments in the United States compare to the system ‘standard’ described in the first research question?”

To answer the first research question, this dissertation intends to propose a property asset management system, that is, on the basis of available literature, to identify and
analyze the most indispensable cornerstones that support the public asset management system as well as the principal components that comprise each cornerstone. To date, most of research on public asset management focuses on municipal asset management, and thus targets more specific aspects of public asset management such as inventory component, registration, valuation methods, technology, strategic reviews, and physical planning. However, owing to restrictions of municipal asset management, such as lack of expertise and human capital, public asset management system at the municipal level does not encompass certain key components of public asset management, such as human capital strategies and organization development. Previous research on public asset management has not explored the entire public asset management system. Therefore, systematic, academic research to target on a comprehensive public asset management system will be considerably significant. For one thing, this research will present a whole picture of public asset management from the system’s perspective. For another, research on a public asset management system may provide help and guidance for public asset managers to improve effectiveness and efficiency in their management practice. With this said, addressing the first research question is to identify, through analysis of the literature, the major components that constitute the characteristics of a modern public fixed asset management system.

The second research question will examine the practices of public fixed asset management by the state governments in the United States. It will explore the implementation of the “standard” of the fixed asset management described in the first question. There are a number of reasons for this focus on the evidence of fixed asset
management by the state governments. First, although state governments have a variety of differences in fixed asset management, there should be certain components that are indispensable and applicable to most government entities in fixed asset management. These components may constitute a fixed asset management system that contributes to effective and efficient performance of fixed asset management. Second, state fixed asset management may have considerable influence on local fixed asset management. Local governments are subject to the federal and state laws that have authority over them. Laws and regulations that a state government enacts regarding fixed asset management may directly affect local government in specific aspects of fixed asset management, like fixed asset acquisition, range of asset use, and methods of asset disposition. Third, state government usually serves as an agent of the federal government to dispose of federal fixed assets that are located in state jurisdiction. More often than not, state government transfers some of state surplus properties and federal properties at disposal of state government to local government or nonprofit organizations. Therefore, state government is a vital link to public fixed asset management nationwide. Research on state fixed asset management may provide useful reference for research on local public asset management. Finally, as of today, there has been little systematic academic research on fixed asset management by state governments. It will be significant to explore an appropriate system or model of fixed asset management by state government. This system may encompass essential cornerstones that in turn consist of principal components of fixed asset management. The system may indicate how well a state government organizes and operates its fixed
asset management in comparison with the “standard” of modern public asset management this dissertation proposes, thus determining the contribution of fixed assets to the performance of government service delivery and production of public goods.

Based on the research on and identification of the characteristics of public asset management, this dissertation raises more specific questions to examine the current status of fixed asset management at state governments. These questions include:

- How does the legal and regulatory framework affect organizational structure, life-cycle management, human capital strategies, information and technology resources, and monitoring and transparency?
- What forms of fixed asset management organization are applied to serve different property needs of government agencies?
- What public asset management measures are used to build up the capability of fixed asset management?
- What elements are included in fixed asset planning and to what extent does public fixed asset planning depend on these elements?
- To what degree does government select to lease rather than purchase (or self-construct) real properties to save money on a short-term basis?
- What services of real property operation and management are privatized? Have privatization programs achieved expected consequences?
- Is life-cycle costing combined with property asset ownership in the practice of fixed asset management?
- To what extent does human capital planning contribute to the achievement of goals and objectives of fixed asset management?
- Does employee development training improve employees’ subsequent performance in fixed asset management? If yes, what effect does employee development training have on employees’ performance?
- Is the fixed asset information system regularly updated?
- Does the fixed asset management information system affect acquisition, disposition, financial input, and financial reporting of fixed assets?
- What major criteria are used to evaluate performance of fixed assets management?
- Does monitoring or oversight produce any effect on performance of public fixed asset management?
- Do measures for maintaining integrity and transparency contribute to effective fixed asset management?

Research Methods

To address the research questions, this dissertation will first of all analyze current literature on the fundamentals of public asset management. These fundamentals include categories of assets, asset management goals and objectives, driving forces for improvement of asset management, and the current issues that remain unresolved in public asset management. The literature analysis lays out an intellectual foundation for a public fixed asset management system that is proposed on the basis of the theoretical analysis and practice discussion of major indispensable cornerstones. These
cornerstones of fixed asset management include (1) legal and regulatory requirements, (2) organization structure, (3) the management process throughout life cycle of assets, (4) human capital strategies, (5) information and technology resources, and (6) monitoring, integrity, and transparency. The process in which these cornerstones are identified and analyzed is actually an exploratory process in which the public asset management system is proposed. Based on the intellectual analysis and management practices, the public asset management system is supported by both the major cornerstones and components related to these cornerstones.

This dissertation research applies qualitative and quantitative methods to examine the practices of fixed asset management by state government across the United States in comparison with the public asset management system. Data are collected first through a survey of state government websites, especially the websites of the major state agencies responsible for state-wide fixed asset management, and then through surveying fixed asset managers of state governments. The survey of state government websites helps examine and understand the functions of the major state government agencies that manage major fixed assets statewide, such as buildings, land, fleet, and infrastructure (like roads, water supply, and sewers). The survey also provides information for analyzing the structure of asset management organization and the outcome of asset management. In addition, a website may provide a state government’s legal and regulatory requirements concerning public fixed asset management, including laws, regulations, policy, norms and guidance, and procedures. In a modern society, websites of public asset management agencies demonstrate the extent of transparency in the area
of fixed asset management.

Through surveying public asset managers, this research obtains first-hand data to understand the current status of public property asset management at state government. The comprehensive data collected from fixed asset managers illustrate fixed asset management at state government in the fields of the six identified cornerstones of the public asset management system. In each field, specific elements are analyzed to generalize the actual principles state asset managers abide by and the major characteristics of fixed asset management at state government. After an analysis of the components and specific elements of each cornerstone, the research will present a comprehensive understanding and examination of the current status of fixed asset management practice at state governments throughout the United States. The survey results will help each state government compare their fixed asset management to both the standards of the fixed asset management system this dissertation proposes and the outstanding practices most state governments have in common. This may help state governments appropriate manage their fixed asset.

**Organization of the Dissertation**

The introductory chapter-Chapter 1-discusses the major tasks of this dissertation through a review of incidents in infrastructure operation and maintenance and a brief discussion of the situation of fixed asset management at federal, state, and local governments. This chapter also introduces the research methods to be employed in this research. These methods help define characteristics of the public asset management system and contribute to data analyses that generalize the practices of fixed asset
management at the state government level in the U.S.

The main body of this dissertation will be divided into three parts. The first part is literature review and conceptual framework of a public asset management system. This part consists of eight chapters. Chapter 2 reviews literature on fundamentals of public asset management. The literature review mainly encompasses the definition and objectives of public asset management as well as the major factors that may influence public asset management. Chapter 3 elaborates the system of public asset management based on systems theory, current research on municipal asset management, and systems of public procurement. A new public asset management system is proposed that consists of six cornerstones identified from current municipal asset management systems and public procurement systems. Chapters 4 though Chapter 9 deal in detail with each cornerstone of the public asset management system. These cornerstones include legal and regulatory requirements, organization structure, management process throughout life cycle of assets, human resource strategies, information and technology resources, and monitoring, integrity, and transparency. Each of these chapters analyzes the major components and elements of a cornerstone and summarizes the functions of the relevant cornerstone. In combination, these chapters conceptually build up a fixed asset management system that is composed of independent elements across six boundary fields.

The second part is a description of the research methods. This part, which consists of only Chapter 10, describes a survey of state governments’ websites and a mail survey of public asset managers at the state governments in the United States.
The third part, which consists of Chapter 11 and Chapter 12, analyzes the findings of the two approaches of survey. This part first examines financial resources of the state governments and the position of fixed assets in state governments’ annual financial report. Then this part analyzes the data of fixed asset management collected through the mail survey to fixed asset managers at state governments. The analyses compare fixed asset management at the state government level against the conceptual system of fixed asset management developed in the second section. In addition, this part summarizes the outstanding components of fixed asset management through data analysis. It also analyzes the variance between individual state governments and the relationship between the six cornerstones of the fixed asset management system.

The concluding chapter—Chapter 13—summarizes the significance of this research to the academic field of public asset management and fixed asset management in practice. This chapter also advances indications of this research to the state governments in the United States. In addition, this chapter briefly discusses the limitations of this research and recommends research to be developed in the future.
PART I. LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

CHAPTER 2. LITERATURE REVIEW

Research on public asset management cannot omit fundamental concepts concerning the key nature and functions of public assets. Each asset should be conceptually and operationally defined so as to determine its characteristics and classification. On this basis, contents, goals, and objectives of asset management are clarified and determined within the range of organizational missions and responsibilities. Going further, issues in public asset management may be explored with a goal of improving asset performance, and the effectiveness and efficiency of public asset management. This section examines these cardinal elements to understand public assets and public asset management. The discussion provides a basis on which a comprehensive system of modern public asset management is proposed and developed in Chapters 4 through 9.

Definition and Classification of Public Assets

Asset can be defined from different perspectives. From an accounting perspective, the International Accounting Standards Board defines an asset as “a resource controlled by the enterprise as a result of past events and from which future economic benefits are expected to flow to the enterprise” (The IASB Framework for the Preparation and Presentation of Financial Statements, paragraph 49). Similarly, the Financial
Accounting Standards Board defines assets as “probable future economic benefits obtained or controlled by a particular entity as a result of past transactions or events” (The FASB Concepts Statement No. 6, Elements of Financial Statements, paragraph 25). Based on these two definitions and several others, like the UK Statement of Principles for Financial Reporting, the IASB proposed a working definition of an asset. According to this definition, an asset is “a present right, or other access, to an existing economic resource with the ability to generate economic benefits to the entity” (IASB, 2005, p. 2). Broadly speaking, definitions of assets indicate that assets have the following characteristics (1) a right or access, which means an aspect of control and excludes other people’s access; (2) an economic resource that has value and is scarce; (3) the ability to generate future economic benefits, or the ability to produce favorable cash flows; and (4) a completed transaction that leads to the entity’s right to control of the benefit (FASB, 1985; IASB, 2005).

It is important to note two common characteristics of assets on the balance sheet. One characteristic is that assets are not necessarily associated with ownership because assets equal liabilities plus equity, where equity is equivalent to net asset (Gauthier, 1997). This means that assets are not necessarily equal to net assets. The other characteristic is that assets are measured in financial statements as of the date of the balance sheet (Ruppel, 2005). In the public sector, governments report net assets as of the end of a fiscal year.

Assets are generally categorized into tangible (like, cash, real estate, and equipment) and intangible assets (such as patents, copyrights, franchise, trade names,
and trademark) in terms of physical substance. Tangible assets can be further categorized into movable assets that are not affixed to real estate and can be moved and used after removal (like equipment, furniture, and automobiles), and immovable assets that cannot be moved or cannot be used if removed (Viljoen, 2009). From an accounting perspective, assets are categorized into current assets (including cash and cash equivalent, short-term investment, accounts receivable, tax receivable, inventory, and prepaid expenses), and non-current assets, including long-term investments and fixed assets (like land, buildings, equipment, furniture, tools, infrastructure, public housing projects, and water distribution systems) (Viljoen, 2009). Figure 1 summarizes the classification of assets.

**Figure 1 Public Asset Classification**

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[Diagram of asset classification]
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Government obtains assets in ways different from private businesses. Government revenue is mainly obtained through statutory authority while private businesses receive revenue from the sale of goods and services. On this basis, in the public sector, an asset is a public economic resource that is obtained or controlled by government as a result of past transactions and events, including legal obligations. Generally, public assets are indispensable means by which government operates to provide public services and
produce public goods.

Governments at different levels or even governments at the same level may have different arrays of assets under control. Assets in a government-wide financial statement include current assets, restricted cash and cash equivalents, long-term investment, and capital assets. In practice, various terms are used to denote the focus of public asset management, such as real estate in “real estate management,” real property in “real property management,” property asset as in “Federal Real Property Asset Management,” and fixed or capital asset as in financial statement. These terms emphasize different classification of public assets and relationship of owners to assets. The word “property” highlights the relationships between a property and the owner(s) and non-owners. It confirms the rights of the owner(s) to the property and negates the rights of non-owners. In contrast, the word “asset” emphasizes the economic value (or resource) of a tangible or intangible item that may produce future economic benefit. The term “estate” consists of all property one owns or controls. From a legal perspective, it has a larger coverage of financial interest. Based on different connotation of these terms, “real estate” and “real property” may refer to the same tangible entity—land and buildings or other objects permanently fixed to the land, but with different preference. Generally, “real estate” mainly encompasses land and all physical property on, below, or attached to the land while “real property” in the public sector includes more physical entities than those of “real estate,” such as waste distribution systems, infrastructure, hydro electric projects, computer hardware and software, and weapon systems. The term “property asset” is to some extent not a clear expression of
preference in that it mainly refers to real property, like land and buildings (Kaganova et al., 2006; Gibson, 1994); but it also emphasizes the nature of assets as a public resource—value and benefits.

In practice, “fixed asset,” sometimes referred to as property, plant, and equipment, is often considered equivalent to “capital asset.” In government financial reporting or accounting, fixed assets or capital assets are non-current assets that cannot be easily converted into cash. They consist of long-lived assets that are depreciable and non-depreciable. According to Government Accounting Standards Board (GASB) Statement 34 (Paragraph 19), “all tangible or intangible assets that are used in operations and that have initial useful lives extending beyond a single reporting period” are accounted as capital assets.

The most common classes of capital assets encompass land, improvements to land, easements, buildings, building improvements, vehicles, machinery, equipment, and works of art and historical treasures. Since 1999, GASB Statement 34 requires that infrastructure assets be recorded as part of a government’s capital assets. Some examples of infrastructure assets include transportation and communication systems, drainage systems, water supply and sewer systems, dams, road networks, and lighting systems. Governments formulate and implement different capitalization policies that set minimum dollar thresholds to determine what specific purchases are recorded as capital assets. The thresholds vary according to governmental functions, organization size, and standards of value and length of useful life (Ruppel, 2005).

However, in economics and accounting of businesses, fixed assets are not identical
to capital assets. In the production of a product, fixed asset is fixed capital which is a portion of total capital and is not used up in contrast with circulating capital such as raw material and operating expenses. Stickney & Weil (1997, p. 622) suggested that the term “capital assets” be avoided except in financial reporting and accounting because it is used in many different senses that are not well defined. For example, it is often used as a synonym for fixed asset in accounting or for investment in securities. Considering the connotation of capital asset the feature of fixed asset, “fixed asset” is an appropriate term to discuss the focus of public asset management.

From a management perspective, all public fixed assets can be classified into three categories in term of functions: fixed assets for governmental use (e.g., offices, police stations, firehouses, warehouses), fixed assets for social use (school buildings, health service facilities, public housing, parks and recreation facilities), and surplus fixed assets (Utter, 1989). According to Hentschel and Utter (2006), government-use assets and social-use assets are the core assets that government uses and controls to achieve its goals of service delivery; surplus property assets are non-core assets that are “supplementary or complementary to the government’s service delivery mission” (p. 184). Government may adopt different policies and implement different strategies to manage each category of fixed assets to achieve its goals and objectives.

Public Assets Management

Builta (1994, p.83) defined asset management as “the process of maximizing value to a property or portfolio of properties from acquisition to disposition within the objectives defined by the owner.” This is a broad definition that describes the functions
of managing property assets either as investment assets or as operational assets. In addition, the definition identifies the objective of fixed asset management, that is, “maximizing value to a property or portfolio of properties” (Builta, 1994, p.83) in either case of asset management.

Generally, assets held for investment are managed to earn a certain rate of return on capital; they appreciate in capital value in the case of long-term ownership. Assets held for operations are expected to support the business of the entity that occupies the property (Edwards & Ellison, 2004). In the public sector, fixed assets are not purchased or constructed for commercial investment except in government-owned enterprises. Instead, fixed assets are usually considered as an economic resource and as a means by which government fulfills its goals and objectives of service delivery. Ideal types of fixed assets and appropriate management of fixed assets may determine the overall organizational performance of fixed assets. Therefore, the major task of managing public fixed assets is providing services for fulfilling government functions rather than having cash flow or marketing fixed asset for profits (Builta, 1994).

Kaganova et al. (2006, p. 2) defined asset management as “the process of decision-making and implementation relating to the acquisition, use, and disposition of real property.” This definition applies to both the private sector and the public sector. Acquisition, utilization, and disposition are the major activities of both private and public fixed asset management. Specifically, these activities may include inventorying, valuation, portfolio review, financial auditing, and asset reporting (Fernholz & Fernholz, 2007; Builta, 1994; Harris, 1994a). However, strategies to implement these
activities are different to some extent between the private and public asset management. For example, in the private sector, real property management involves “valuating the financial performance of each property in the context of the whole portfolio” (Kaganova & Nayyar-Stone, 2000, p. 311). This may provide information for acquisition, holding, or disposition of individual properties on the basis of both financial characteristics and optimal portfolio composition. In contrast, fixed asset management in the public sector barely evaluates the performance of their properties overtime (Simone, 1993b). Very few government agencies measure the performance of their fixed assets in monetary terms. There are at least two reasons that lead to these inactive fixed asset management practices. One reason is that fixed assets are traditionally considered as “free goods” (Kaganova et al., 2006). It seems that a fixed asset user is given the asset for free because it does not take a strategic approach to managing its fixed assets and because it does not completely recognize the value of its assets (Gibson, 1994). Generally, the value of fixed assets is depreciated until the assets retire. Owing to this accounting rule regarding public fixed assets, few government entities care about the market value or fair value of the fixed assets they own (Simon, 1993a). A second reason is that, unlike private enterprises, government entities do not have a common standard (like financial requirement) to measure performance of property asset services. Therefore, it is difficult to quantify the contribution of fixed assets that government owns and controls (Gibson, 1994).

Public fixed asset management is affected by various factors, such as political influence, legal framework, regulations, organizational arrangement, administrative
decisions, and composition of stakeholders (Fernholz & Fernholz, 2006, 2007). These factors strongly affect acquisition (like purchasing, transfer, and decentralization), ownership, leasing, sale, and use of public fixed assets, and responsibilities of management. In addition, these factors also determine the specific modes in which public fixed assets are managed, such as public-private partnerships, coordination and cooperation between government agencies, participation of stakeholders, measures for transparency, measures for maximizing the value of fixed assets and improving the efficiency of using fixed assets.

**Objectives and Goals of Asset Management**

In the private sector, the objectives and goals of asset management are determined by the objectives and goals of the asset’s owner. As previously mentioned, fixed assets are held and managed for two different purposes. One purpose is to consider fixed assets as commercial investment. The other purpose is to consider fixed assets as an assisting mechanism for the owner to fulfill the major objectives of manufacturing products and/or delivering services. For either purpose, the major objective of fixed asset management is to maximize the value of fixed assets. However, the value to be maximized does not necessarily mean financial value. It also means social value, cultural value, and ecological value (Fernholz & Fernholz, 2007). When a property is held as an investment asset, asset management focuses on pecuniary returns on capital (Edwards & Ellison, 2004). This can be fulfilled by maximizing the after-tax rate of return on the basis of financial flows while minimizing operating and financial cost (Simons, 1993b). However, in this case, there are situations where the asset owner is
less interested in economic return than in other objectives (Friedman, 1994). Correspondingly, fixed asset management may shift focus to satisfying the needs of the owner. In the case of operational assets, fixed assets are not usually used for financial purpose, but as a part of the asset owner’s investment to provide services for activities of the business (Edwards & Ellison, 2004). Expenses of fixed asset management are a part of the cost of investment. From this perspective, the objective of fixed asset management is to maximize the value to the portfolio of the fixed assets so that appropriate services are provided at low cost. However, when the asset owner is the sole tenant, fixed asset management has to take into account the image of the owner in the management process (Friedman, 1994). In this case, the principle of bottom line profit may not be as important as in other cases of fixed asset management.

For either purpose of asset ownership discussed above, asset management needs to follow the golden principle of obtaining the most at the least cost. Generally, the impact of property taxes on real estate is an indispensable element asset managers have to take into account when calculating the cost of property operation and management. Additionally, efficiency and effectiveness are vital elements in the course of cutting cost and improving services.

In the public sector, generally speaking, government agencies do not produce goods and provide services for economic profits. Neither does government finance fixed asset acquisition and provide services with fixed assets it owns mainly for economic profits. In reality, public fixed asset management exerts very little effort to produce cash revenue (Simons, 1993b, 1994). Fixed assets are owned and leased to
serve agencies in fulfilling governmental missions, to provide services for the public, and to provide workplaces for the employees (National Research Council, 1998). The objective of public fixed asset management is to promote efficient and economic use of government-owned real properties (GAO, 2008; Executive Order 13327). Fixed asset management serves as a mechanism to equitably distribute certain public resources.

The goals of public asset management can be generally classified into two categories: traditional and non-traditional (Kaganova & Nayyar-Stone, 2000). The traditional goal is to supply appropriate properties for providing public goods and services at the least cost, based on market valuation (also see Fernholz & Fernholz, 2007, p.14; Dent & Bond, 2007). The U.S. Federal government and some state governments that implement centralized asset management provide efficient and effective asset services that are as competitive as in the private sector. Government agencies are allowed to select private real property services if they find the services provided by the centralized asset management agency inappropriate in quality and expenses. Typical examples of the non-traditional goals include supporting economic development, promoting social development, and developing governmental revenue sources (Simons, 1994; Fernholz & Fernholz, 2006; National Research Council, 1998; Dent & Bond, 2007; Kaganova & Nayyar-Stone, 2000). These non-traditional goals can be implemented through land allocation, environmental projects, public housing programs, and disposing of surplus assets, among other strategies. Actually, the non-traditional goals of fixed asset management are closely related to government strategic planning that focuses on productive use of public assets, or on the disposal of
surplus assets, or on capital investment in social development programs.

Government defines the goals and objectives of their asset management according to the assets they have or the goals and objectives of government. The U.S. General Services Administration (GSA), as the federal government’s leader in asset management, defines its goals of asset management as helping federal agencies on federal fixed asset management issues. These issues include inventory management, asset management planning, and performance measurement; developing programs and methods to assess agency compliance; overseeing and improving the Federal Real Property Profile (FRPP) and the government's database of federally owned and leased assets; inventorying and evaluating real property performance; developing and promoting safe, high performance workplaces; and directing and developing regulations to ensure full effective utilization of assets, appropriate levels of investment in assets, and disposal of surplus real properties (GSA, 2009a, 2009b). Besides, asset management targets supporting agency missions and strategic goals through employing life-cycle cost benefit analysis and using public and commercial benchmarks and best practices (GAO, 2007). Florida Department of Management Services, which is in charge of part of the state fixed assets, clarifies that its objective of asset management is “to establish responsibility for public assets, provide for better utilization of property, facilitate the physical inventory, and comply with the laws of the State of Florida” (Florida DMS, 2009, p.1).

Generally, few local governments have dedicated agencies to manage the assets they own. Comparatively, local governments have a modest revenue and low
percentage of surplus assets (Hentschel & Utter, 2006; Kaganova & Nayyar-Stone, 2000). Considering these characteristics, local government focuses more on fulfilling traditional goals and less on non-traditional goals of asset management. While examining public asset management in U.S. cities, Hentschel and Utter (2006) asserted that “[t]he goal of municipal asset management is to achieve an efficient and balanced deployment of the portfolio of municipal properties so that it will yield the most benefits at the least cost” (p.172). Although this goal definition applies to asset management at all levels of government, it clarifies the very focus of local public asset management.

In a word, the goals and objectives of public asset management center around providing services for government operation through maximizing the value of the fixed assets that government owns and leases while minimizing the cost of asset utilization. From this perspective, there is not much difference between public and private asset management. Government agencies should emulate their private counterparts with regard to strategies and approaches to success of management (Hentschel & Utter, 2006).

**Driving Forces for Efficient and Effective Public Asset Management**

As mentioned previously, the traditional practice of public asset management considers properties as “free goods.” This perception partly contributes to some deficiencies of public asset management. A number of issues and requirements drive public asset management to update its goals and objectives that aim to maximize the value of properties at the least cost in the process of providing appropriate services for
government agencies. The major driving forces for efficient and effective public asset management include (1) new public management movement, (2) demands of financial payoff from real asset management, (3) accounting reforms, and (4) application of private sector practices to government fixed asset management (Kaganova et al., 2006; Dow, Gillies, Nichols, & Polen, 2006).

New Public Management is a movement that originated from governmental response to the fiscal crisis of the 1970s. It aims to produce a government that works better at less cost through improved performance, efficiency, and effectiveness (Denhardt, 2004). To achieve high efficiency at low cost, government exerts efforts to restructure bureaucratic functions and streamline governmental operation processes. Osborne and Gaebler (1992) provided a number of principles for government entrepreneurs to transform governmental functions and improve public services. Some of these principles include doing more steering and less rowing, injecting a competitive system into the public sector, creating mission-driven organizations, funding outcomes rather than inputs, establishing customer-driven systems, decentralizing decision making, and applying market-oriented thinking to public service delivery (also see Hood, 1995; Kearns, 1996; Kettle & Milward, 1996; Kaboolian, 1998; Barzelay, 2000; Pollitt & Bouchert, 2000). To implement these principles, government agencies employ privatization, outsourcing, performance measurement, strategic planning, public-private partnership (in disposing of surplus assets and acquiring assets through construction), and new formats of budgeting (like performance budgeting and results-oriented budgeting), among other approaches. The core principles of New
Public Management drive public asset managers to redefine the goals and objectives of public asset management.

Public assets account for a large portion of total economic and financial assets under the control of government. For the U.S. federal government, its receipts in fiscal year 2006 were $2.178 trillion while the replacement value of its real property assets under control is about $1.5 trillion the same year (GAO, 2008a). When government experiences fiscal constraints because of various reasons (like reduced revenues, loss in government investment, and devolution of service responsibilities from higher level of government without commensurate transfer of revenues), public asset management is pushed to reduce costs and explore approaches to raise revenues from real properties (Kaganova et al, 2006). Frequently adopted approaches in the United States include selling surplus or underutilized properties and building public-private partnerships with surplus properties as part of an investment.

Besides, accounting reforms and requirements in the public sector exert strong impact on the operation of fixed asset management (Kraus, 2004; Kaganova et al., 2006). The requirement of accrual accounting and standards of generally accepted accounting principles clearly specify how fixed assets are accounted for and how values of fixed assets are measured and recognized during the life cycle. For example, Government Accounting Standards Board (GASB) in the United States requires that capital assets on the balance sheets need to be valued frequently for financial statements. Before GASB issued Statement 34 —Basic Financial Statements for State and Local Governments, values of fixed assets were accounted for and reflected in the
financial statements but without an entry for depreciation. With implementation of GASB Statement 34, state and local governments are required to add infrastructure (like roads, bridges, and rights-of-way) as fixed assets to their financial statements and account for the value of all fixed assets based on depreciation in their annual and interim financial report. GASB Statement No. 34 allows two methods for asset valuation. One method is to take into account straight-line depreciation or the historical cost of assets on the basis of assigned useful lives for different types of capital assets. An exception is freehold land because it does not have depreciation except when it is polluted or under erosion (Andrew & Pitt, 2006). The other method that GASB recommends is the modified reporting approach that valuates capital assets based on market value or replacement cost. According to the first method, spending large amounts of funds on maintenance will decrease the ending value of capital assets being maintained; spending the same amounts of money on new construction will increase the ending value of capital assets (Kraus, 2004). The second method of valuating capital assets provides data of capital assets, like book value, when asset dispositions are considered. Considering these new requirements, property managers would like to work with legislators and relevant officials to determine priorities of spending funds well in advance because spending priorities would somewhat change the financial position of government (Kraus, 2004).

Therefore, the requirements of asset valuation by GASB affect the practices of public asset management by state and local government. These requirements have produced tremendous impact on specific approaches to be implemented during the
asset management process. After implementation of Statement 34, infrastructure asset managers know better “the impact of various funding levels on the level of service the infrastructure will provide over the long term” (Kraus, 2004, p. 18). They have supporting information for obtaining funds or adjusting spending priorities well in advance.

In addition, the practice of asset management in the private sector has considerable influence on public asset management (Kaganova et al., 2006). Survey results demonstrated that public real property management had fallen behind the private sector in a number of areas (Simon, 1993a). The major areas included centralized property inventory, property valuation, written standards, decision making, and property development. As a matter of fact, real property management in the private sector provides a prototype for public asset management (Simon, 1993b). When professional real property managers enter the realm of public asset management, they initiate programs to efficiently and effectively manage public assets so that government can function better at lower cost.

These driving forces analyzed above have performed vital roles in determining goals and objectives of property asset management. On the one hand, these same forces foster policy making about how public fixed assets should be managed to serve customers (McKellar, 2006; Dow et al., 2006; Bizet, 2006), contribute to restructuring asset management organization (Conway, 2006; Dow, et al., 2006; Bizet, 2006), and bring about rational financial accounting and reporting standards (Conway, 2006; McKellar, 2006; Dow et al., 2006; Bizet, 2006). On the other hand, these driving forces
help public asset managers initiate new management activities like public-private partnerships (PPPs) (Kaganova & Polen, 2006; Kaganova & McKellar, 2006), construct the inventory of property assets, and combine accounting, valuation, and property reporting (Dow et al., 2006; Bizet, 2006). These forces drive fixed asset management to become more efficient in providing effective service for government agencies to fulfill their missions.

Issues Affecting Achievement of Public Asset Management Goals

Currently, governments at different levels own a large array of assets and lease a great number of parcels of private real properties for public uses (Kaganova & Nayyar-Stone, 2000; Kaganova, 2008). These assets are used and managed to contribute to the provision of public services and the fulfillment of government agency missions. From management’s perspective, public asset management needs to provide appropriate services that agencies need to achieve their goals. On the other hand, public property asset management should provide effective services at the least cost while maximizing the value of the property portfolios under control. However, in the actual process of public property assets management, a number of issues are hindrances to achieving the goals and objectives of public asset management.

One typical issue that hinders property asset management in achieving its goals and objectives is that the function of fixed assets to help government agencies fulfill their missions has not been adequately recognized in the processes of strategic planning and budgeting (National Research Council, 1998). Issues related to fixed assets are not usually on the agenda of a government’s strategic planning that focuses on the
long-term mission of the government. The only time when decision makers discuss fixed assets’ functions to support the fulfillment of governmental missions is when they review budget requests for acquiring new fixed assets. In other times of an asset’s life, government decision makers rarely reconsider the relation of fixed assets to the implementation of agency missions. As a result, the costs of ownership in the full life cycle of new fixed assets are not regularly considered. Costs for operation, repair, and maintenance of real properties, which account for 60 to 85 percent of total ownership cost (Christian & Pandeya, 1997), do not usually receive considerable scrutiny in the budget process. When faced with a shortage of funds for life-cycle maintenance or renewal, especially during economic recession, real properties deteriorate quickly and their life cycle grows shorter than expected. In addition, when maintenance is deferred, government expends more funds on fixed assets in deteriorated condition (Jolicoeur & Barrett, 2004). Deferred maintenance also implies that the fixed asset whose quality and reliability are lower than expected will not adequately serve the public or the agency to provide public services. Because of deferred maintenance, the value of public fixed assets is reduced and the life shortened (Hatry & Liner, 1994; GFOA, 2010).

A second issue that hinders public asset management to fulfill its goals and objectives is fragmented management. Fragmentation of asset management means a lack of centralized property management authority. Public fixed asset management is implemented by many government agencies, each of which uses and controls a small portion of the total assets that government owns and leases (Kaganova et al., 2006). Survey results demonstrate that compared with the private sector, public asset
management is inferior in centralization of organization (Simons, 1993a). Under fragmented management, government loses the advantage of the economy of scale. Meanwhile, when leasing real properties from private owners, an individual agency may be placed at a disadvantaged position compared with an organization as agent for many agencies. In addition, expertise in management is hardly guaranteed. When government lacks unitary strategies, rules, and policies, fragmented management may bring about deficiencies in serving agencies, thus making it hard to fulfill the goals and objectives of public fixed asset management.

A third issue is more dependence on leasing property space from private businesses. Under fiscal constrains, government turns to leasing real properties rather than constructing or acquiring new fixed assets. GAO (2003c, 2008a, 2009) reports that GSA had increased its leased space from 160 million square feet in FY 2003 to roughly 172 million square feet in FY 2006; and the leased space would continue to increase in 2008. However, according to GAO (2008a), leasing looks cheaper in any year, but over a long term (more than 30 years) it is much more expensive to lease real property than to own real property through construction. A 1999 statistic showed that for eight of nine major operating lease programs GSA had proposed, construction rather than leasing would have saved $126 million over 30 years (GAO, 2008a).

A fourth issue is lack of a well-established management information system (MIS) associated with property portfolios. Currently, governments at different levels attempt to establish an information system of fixed asset management. However, because of fragmented management, unitary measurements and standards are lacking in the
management information system, and thus MIS data are not complete (GAO, 2007). Because property valuation and depreciation are not reflected in financial accounting, relevant information is not available in the MIS. In addition, as revenues and expenses are not recorded within budgeting system, such financial information cannot be tracked on a property-by-property basis through MIS (Kaganova et al., 2006). Compared with private counterparts, government agencies barely conduct information analysis (Simons, 1993a). They have achieved limited success in making effective use of the information they have collected for the ongoing management of fixed assets under control (National Research Council, 1998).

A fifth issue is lack of accountability for stewardship and transparency in management process. Some components of real properties have shorter lives than the life of the whole property. Therefore, they deteriorate more easily. But the deterioration occurs over time and may not be found instantly. Managers are accountable for current operation of the fixed assets in their charge. They have a duty to detect incipient deterioration before a serious problem occurs. But senior executives seldom have incentives to worry about potential deterioration of assets until obvious deterioration takes place (National Research Council, 1998). Besides, management of public fixed assets involves a large number of transactions and procedures. Abuses may occur if relevant information is not shared among stakeholders. Without knowledge of operation procedures and policies, cooperation and coordination is lacking in the asset management process, thus producing inefficiency and hindering the implementation of goals and objectives of fixed asset management.
In order to fulfill the goals and objectives of asset management, public managers need to incorporate into their business operation many of the desirable, effective approaches of real property management practice in the private sector (Simons, 1993b; Hentschel & Utter, 2006). These approaches include establishment of written standards of management objectives and decision-making systems, a centralized comprehensive property inventory, consideration of rates of return for different categories of real estate in the accounting process, cost-efficient analysis, and using market rents and a life-cycle approach in management (Pittman & Parker, 1989; Utter, 1989; Simons, 1994).
CHAPTER 3. PUBLIC ASSET MANAGEMENT SYSTEM

A system is defined as an assemblage of interrelated, interdependent elements that interact upon each other within an environment (von Bertalanffy, 1968; Katz & Kahn, 1966; Thompson, 1967; Scott, 1961; Buckley, 1967). A system has a variety of characteristics such as wholeness and interdependence, correlation, hierarchy, chain of influence, self-regulation and control, and goal-oriented operation. In addition, a system can be either closed or open on the basis of its nature and operation. A closed system is preoccupied with internal efficiency and does not interact with its external environment. Because it does not import energy from an external environment, the closed system is unable to adapt to external changes, thus unlikely to survive. A typical open system interacts dynamically with the external environment and takes in energy. With more energy than it can expend in the process of transformation, the open system increases its likelihood to survive. On the one hand, external environment influences a system’s organizational structure, planning, and objective (Katz & Kahn, 1966; Hitt, Middlemist, & Mathis, 1989). Therefore, a system has a concern and desire for maintenance and survival by means of adapting to environmental needs. On the other hand, a system influences its environment through outputs and outcomes (Thompson, 1967).

In the field of management, a system transforms input into output; and it controls input, transformation process, and output through internal and external feedback.
(Szilagyi & Wallace, 1983). For organizations, inputs include human resources, machines and equipment, materials, information, financial resources, and instructional resources. Transformations of input are a process of production and management. Generally, transformations are performed on inputs in many different modes according to the characteristics of the inputs (Szilagyi & Wallace, 1983; Hodge, Anthony, & Gales, 2003).

Public asset management involves a variety of components that work together for efficient service delivery and low cost. These components involve every internal element of public asset management including response to relevant external environmental factors. Conjointly, components of fixed asset management constitute a public asset management system that determines consequences of asset management in the public sector. Developing an appropriate system is an essential issue for effective and efficient management of public assets. Ideally, the purpose of this strategy is to establish mechanisms by which public asset managers provide appropriate asset services to help government fulfill its mission, goal, and objectives. On this basis, the goals and objectives of public asset management are dependent on the goals and objectives of government departments and agencies. Therefore, designing an effective public asset management system takes into account the relationship between government service delivery and the needs of assets to implement government service delivery.

Considering the principles of systems theory applied in public asset management, public asset management is a complex process of making and implementing decisions
regarding acquisition, utilization, and disposition of public assets (Kaganova et al., 2006). Decisions are made within a legal and regulatory framework. Decision making involves not only information and models (Simons, 1957, 1965, 1997; Lindblom, 1959; Cyert & March, 1963; Allison, 1971) but also levels, goals, and preferences (Ivancevich et al., 1977; Hodge, Anthony, & Gales, 2003; Mintzberg, 1979; Hall, 1971). Decision making directly determines the whole process of management throughout an asset’s life cycle, including what assets are acquired, how they are managed, and when they are disposed. In addition, asset management decisions may produce an impact on the external environment. For example, government ownership of fixed assets, such as land, public buildings, highways and rights of way, and military bases significantly influences the growth of the real estate market (Downs, 1991). The presence of government assets may influence the rise and fall of real estate values. Decision implementation closely relates to the organization of human and economic resources, efficiency and effectiveness and performance evaluation. Therefore, public asset management is also a process by which various categories of human and economic resources are appropriately collocated for maximum outputs and positive outcomes. Moreover, in a democratic society, public asset management as a part of government operation is under monitoring and oversight both from government departments with monitoring functions and from social groups and citizens. Under the guide from statutes, regulations, ordinances, and professional ethics, monitoring and oversight may ensure integrity.

Researchers have attempted to establish a public asset management system (or
framework) through examining functions, practices, and experiences of public asset management. Owing to differences in research purpose and in focus of public asset categories, all the public asset management systems ever developed contain distinct components. Therefore, they serve particular functions and contribute to various consequences.

Simons (1993a, 1993b), after having analyzed the data obtained from a series of surveys of corporate real estate managers (see Veal, 1989; Gale & Case, 1989; Pittman & Parker, 1989; Redman & Tanner, 1989; Potter, 1992) and public real estate managers in the Cleveland, Ohio, metro area, has explored the status of public real estate management in the early 1990s in comparison with corporate real property management. The significance of Simons’ research (Simons, 1993b, 1994) is that the research, although based on a survey in a relatively small region, has identified the deficiencies of public real estate management in the organization of real estate, information management, formalization of objectives and rules, and specific approaches of real estate management. The comparison of corporate and public real property management demonstrates that government falls behind private business in a number of specific areas; and it is feasible to apply certain private real estate decision-making and management practices in the public sector. The research recommends approaches to organizing government real estate management. The major steps encompass establishing a centralized real estate authority to direct control over acquisition, management, and property disposition functions, devising policies and decision rules appropriately, creating a property-by-property accounting system,
creating management information system (MIS), developing expertise to derive maximum financial return, and evaluating asset holdings like a portfolio. These measures are crucial components that help resolve the current issues in public asset management, but they are far from constituting a comprehensive system of public asset management. On the one hand, Simon’s approaches to real estate management (Simon, 1993a, 1993b, 1994) constitute an operating mechanism at local government. Measures like centralized control over acquisition may not apply to a government that owns huge amounts of assets under the control of various departments and agencies. On the other hand, Simon’s approaches are far from constituting a public asset management system because a public asset management system is rather complex and involves many components and complicated processes.

Kaganova and Nayyar-Stone (2000), Kaganova (2008), and Kaganova, Nayyar-Stone, and Peterson (2000), based on the Denver Model of real property management, the corporate real estate asset management prototype, and their literature review of approaches to public asset management, have established a framework of municipal fixed asset management. The framework is composed of an inventory component, a property management and an accounting component, a portfolio management component, and a strategy implementation component. Each component consists of specific items that can be implemented at different stages of asset management. Overall, these items form a “menu” that contains major activities to make public asset management more effective (Kaganova & Undeland, 2006). According to Kaganova (2008, p. 10), “any local government can select items from this ‘menu’ that
have the highest priority in local circumstances and are politically and administratively feasible to start with.”

Fernholz and Fernholz (2007) identified seven components and established an asset management system for local governments. The seven components are a political, legal, and regulatory framework; inventory and information system; registration of municipal assets; the financial reporting system; administrative and organizational considerations; technology and asset management; and strategic views of asset management. This framework of public asset management encompasses essential components connected with public asset management. In a narrow sense, it may serve as a useful toolkit for asset managers at local government. However, the framework fails to address the process of management from asset acquisition to asset disposition. In addition, as local government hardly possesses appropriate expertise of asset management in certain aspects, the problem remains unsolved in the management framework.

Obviously, as indicated in Table 1, the systems of public asset management discussed above have a number of components in common. These common components include centralized authority, legal and regulatory framework, a management information system, performance evaluation, portfolio management, and financial accounting. Other major conceptual components are pinpointed by one or two asset management systems. These individual components are in-house expertise, organization of asset management, a cost and benefit review, maximization of financial return, auditing and transparency, promotion of accountability, acquisition, rental, use,
and sales of assets, incentive for better management, and technology.

Table 1 Public Asset Management System Comparison

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<tr>
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<tbody>
<tr>
<td>Centralization of acquisition, management, &amp; disposition</td>
<td>Strategy implementation component: centralized authority, policy &amp; decision, in-house expertise, incentive for better management</td>
<td></td>
<td>Political, legal, &amp; regulatory framework</td>
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<tr>
<td>Policy &amp; decision-making</td>
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<tr>
<td>Property-by-property accounting system</td>
<td>property management &amp; accounting component: management &amp; accounting system on property-by property basis, value report, use private sector management approaches</td>
<td>Financial reporting system: accounting standards, methods of valuation and appraisal</td>
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<td>Maximum financial return</td>
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<tr>
<td>Evaluating asset holdings like a portfolio</td>
<td>Asset management component: role of real estate based on municipal goals, class-specific financial tools and performance standards, portfolio management approach, policy for rationing property demands and consumption</td>
<td>Administrative and organizational considerations for property management: organization, audit mechanism, transparency, efficiency, acquisition, rental &amp; sale of assets, contracting</td>
<td></td>
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<tr>
<td>Management information system</td>
<td>Inventory component</td>
<td>Inventory and information system &amp; registration: classification &amp; registration of assets, organization of registry</td>
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<td></td>
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<td>Technology &amp; asset management</td>
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<tr>
<td></td>
<td></td>
<td>Strategic review &amp; valuation: review of costs vs. benefits, mission, objective, and performance of assets, portfolio reviews for major assets, promoting synergies &amp; accountability</td>
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</table>

Public procurement and public asset management have a number of characteristics in common. The acquisition of public assets might be a particular process of public procurement, which involves strategic planning, solicitation development, and contract management. The process of public asset management is concerned about a series of purchases of goods and services from the private sector. Thus, fundamentals of public
procurement are also indispensable characteristics of public asset management. Like other governmental activities, both public procurement and public asset management operate strictly under the guidance of laws, regulations, norms, and policies. Budgeting for public purchase and public asset management is subject to executive and legislative procedures. It results in financial resources for purchasing public goods and services and effectively and efficiently providing properties for government to achieve its goals and objectives. In addition, both public procurement and public asset management involve hiring employees and seeking expertise. Therefore, human resource management is of high value and supreme importance for both public procurement and public asset management. Finally, both public procurement and asset management are susceptible to market. Supply and demand of goods and services that government needs have impact on government purchasing and management of assets. The job market affects the recruitment of employees that government needs.

Considering the common characteristics public procurement and public asset management share, this dissertation takes for reference both the methodology for assessing the national public procurement system (OECD, 2006) and the framework for assessing procurement functions at federal agencies (GAO, 2006) to identify the major components of public asset management. The OECD methodology is to provide a common tool for assessing the quality and effectiveness of national procurement systems or procurement at a sub-national and agency level. According to OECD (2006), a national public procurement system should consist of four pillars, including (1) legislative and regulatory framework, (2) institutional framework and management
capacity, (3) procurement operations and market practices, and (4) integrity and transparency. Each pillar is composed of two or three components. Each component, in turn, consists of a number of factors. Table 2 presents the twelve components identified by the OECD mechanism for assessing public procurement systems. Similarly, the GAO framework identifies four cornerstones of a public procurement system: (1) organizational alignment and leadership, (2) policies and processes, (3) human capital, and (4) knowledge and information management. Each cornerstone consists of a number of elements, each of which, in turn, is supported by a variety of critical success factors. The cornerstones and supporting elements are listed in Table 2.

Table 2 demonstrates similarities and differences between the two public procurement systems developed respectively by OECD (2006) and GAO (2006). Obviously, OECD and GAO have different structures or different priorities for their public procurement system owing to their different perspectives of procurement functions. However, it is important to note that a major component in one system might be identified as a sub-component in another system. For example, information management identified as a major component in the GAO procurement system is treated as an element of the major component “institutional development capacity” under the pillar of Institutional Framework and Management Capacity. Generally, the two systems conceptually generalize a number of major blocks of a public procurement system, either termed “pillar” in the OECD system or “cornerstone” in the GAO system.
<table>
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<tr>
<th>OECD Procurement System</th>
<th>GAO Procurement System</th>
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<tr>
<td>Legislative &amp; regulatory framework: (a) achievement of the agreed standards and compliance with applicable obligations; (b) existence of implementing regulations &amp; documentation</td>
<td>Organizational alignment &amp; leadership: (a) aligning acquisition with agency’s missions; (b) commitment from leadership</td>
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<tr>
<td>Institutional framework and management capacity: (a) integration of procurement system into public governance system; (b) normative or regulatory body; (c) institutional development capacity</td>
<td>Policies &amp; processes: (a) strategic planning; (b) effective management of the acquisition process; (c) promoting successful outcomes of major projects</td>
</tr>
<tr>
<td>Procurement operations and market processes: (a) efficient procurement operations; (b) functionality of the public procurement market; (c) contract administration &amp; dispute resolution</td>
<td>Human capital: (a) valuing &amp; investing in the acquisition workforce; (b) strategic capital planning; (c) acquiring, developing &amp; retaining talent; (d) creating results-oriented organizational culture</td>
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<tr>
<td>Integrity &amp; transparency: (a) control &amp; audit system; (b) appeals mechanism; (c) access to information; (d) ethics &amp; anti-corruption mechanism</td>
<td>Knowledge &amp; information management: (a) acquisition data &amp; technology; (b) safeguarding the integrity of operations &amp; data</td>
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Except for the variance of specific elements between public procurement and public asset management, the conceptual framework of public procurement discussed above covers the general components identified in the public asset management systems developed by Simons (1993a, 1993b), Kaganova and Nayyar-Stone (2000), Kaganova (2008), Kaganova, Nayyar-Stone, and Peterson (2000), and Fernholz and Fernholz (2007). This framework may apply to the establishment of a public asset management system. Legal and regulatory framework and information management identified in public asset management are actually two major blocks of the public
procurement system. Other common components in the public asset management systems previously discussed, such as performance evaluation, portfolio management, and financial accounting, can be integrated into blocks of information management, operation process, and audit and transparency. Other individual components of a public asset management system (e.g. in-house expertise, organization of asset management, cost and benefit review, maximization of financial return, auditing and transparency, promoting accountability, acquisition, rental, use, and sales of assets, incentive for better management, and technology) can be components or sub-components in such blocks of an asset management system as human resource strategies, organization structure, operation process, and monitoring and transparency. Based on the conceptual framework of public procurement systems developed by OECD (2006) and GAO (2006) and the major components of public asset management systems previously interpreted, this research identifies six areas of asset management as the cornerstones of the public asset management system. These cornerstones (for which Chapters 4 through 9 are named) are Legal and Regulatory Requirements, Organization Structure, Management Process throughout the Life Cycle of Assets, Human Capital Strategy, Information and Technology Resources, and Monitoring, Integrity, and Transparency. Each cornerstone encompasses a number of interdependent components. Each component is supported with a number of elements that are interrelated and interdependent.

The following chapters, Chapter 4 through Chapter 9, are dedicated to each of these cornerstones, analyzing the functions of every indispensable component in the
area of each cornerstone and elaborating the value of all possible elements supporting each component. The component analysis and element elaboration are based on available literature. Altogether, the following six chapters intend to describe the characteristics of modern public asset management and provide “ideal” standards of a public fixed asset management system.
CHAPTER 4. LEGAL AND REGULATORY REQUIREMENTS

Governments at different levels need a framework of laws and regulations that clearly state what to do, when and how to do it. Government works according to the requirements of laws and regulations in the process of public governance. Generally, the legal framework of public administration is based on such common principles as legality, equality before law and prohibition of discrimination, proportionality, legal security and reliance on legitimate expectations, administrative procedure based on the rule of law (United Nations Secretariat, 1995). Government must adhere to these general principles when implementing governance. On the one hand, laws and regulations grant government authority over the issues under its administration. For example, government has legitimate power to levy taxes and redistribute social resources. On the other hand, laws and regulations limit government’s activities in the legal framework. For example, the Administrative Procedures Act governs the way in which U.S. federal government agencies propose and establish regulations. It also establishes a process for federal courts to directly review the decisions made by federal administrative agencies.

With respect to public asset management, laws and regulations are the fundamental cornerstone on which government authority is established over public fixed assets. This cornerstone consists of such components as policies, laws and regulations, procedures, and norms and guidance. These components respectively or intersectantly designate
responsibilities and obligations of public fixed asset managers, ways and approaches of management, specific strategies for fixed asset acquisition, utilization, and disposition.

**Laws and Regulations**

Laws and regulations are the fundamental basis on which public affairs are managed. Legal framework serves as a creative instrument of public management (Moe, 1997). According to Stanton (1995), legal framework is the fundamental element that determines the quality of public institutions. Stanton (1995, p. 55) also posits that legal framework largely determines “the external environment, capacity and incentives, nature of service to public purposes, and life cycle of each type of institutions.” Laws and regulations, especially general management laws, provide working principles and directions for the executive branch. About one hundred general management laws promulgated by the U.S. federal government² specify “crosscutting provisions that regulate the activities, procedures, and administration of all agencies of government” (Moe, 1997, p. 46). Special laws specify detailed approaches and strategies that relevant agencies employ to implement daily operation.

Like any other areas of public management, public fixed asset management has authorities, responsibilities, and obligations in accordance with laws and regulations. At the federal government level, these laws and regulations include the following:

- the U.S. Constitution;
- relevant general management laws like those listed in Note 2;
- special laws like the Federal Property and Administrative Services Act of 1949, the Public Buildings Act of 1959³ and its amendments respectively in
1972, 1976, and 1988, the Federal Land Policy and Management Act of 1976, the Occupational Safety and Health Act, and the National Environmental Policy Act;

- Presidential Executive Orders, like Executive Order (EO) 13327-Federal Real Property Asset Management;
- Federal Property Management Regulations (Code of Federal Regulations, Title 41, Chapter 101); and
- Other regulations promulgated by the executive departments and agencies of the U.S. federal government, especially the Office of Management and Budgeting, the Office of Personnel Management, the Office of Federal Procurement Policy, the Office of Information and Regulatory Analysis, and the Office of Federal Ethics.

State governments, while complying with particular federal laws that apply to the whole country, promulgate and enact laws that may regulate fixed asset management at state government. These laws may consist of

- state constitution;
- state statute pertaining to both general management of state agencies and particular management of the fixed assets owned, used and controlled by state government;
- state administrative code regarding state property assets;
- gubernatorial executive orders; and
- regulations promulgated by state agencies to regulate fixed assets the state
owns and leases.

Local governments comply with both federal and state laws that apply to the whole country or the whole state. Besides, local governments promulgate laws and regulations regarding various aspects of local fixed asset management.

**Table 3 Functions of Laws and Regulations in Public Asset Management**

<table>
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<tr>
<th>Function</th>
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<tr>
<td>Provide authority over fixed assets, including rights to ownership, use, and disposition</td>
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<td>Establish management entities</td>
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<tr>
<td>Determine the structure of management organization</td>
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<tr>
<td>Provide general principles for the management, acquisition, use, and disposition of property assets</td>
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<tr>
<td>Prescribe rights and liabilities in contracting issues</td>
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<tr>
<td>Designate the uses of budgetary funds and financial returns</td>
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<td>Provide general principles for environmental protection</td>
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<tr>
<td>Prescribe specifications of fixed assets to be acquired and used</td>
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<tr>
<td>Prescribe due processes and employee rights</td>
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<tr>
<td>Specify distributions and rationings of property assets</td>
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Laws and regulations as a component in the fixed asset management system are expected to resolve the issues listed in Table 3.

Public fixed asset management is based on laws and regulations for authority, structure construction, responsibility definition, and management strategies. Public fixed asset management structure is established in accordance with relevant laws. For example, the Property and Administrative Services Act of 1949 established the General Services Administration (GSA). Executive Order 13327 established the Federal Real Property Council within the Office of Management and Budget for administrative purposes to develop guidance for each federal agency’s asset management plan. Laws
that regulate public asset management grant government agencies authority over public fixed assets. The authority includes the rights to fixed assets and determining the functions of a fixed asset in delivering public service. According to Barzel (1989), asset rights that an individual has over assets consist of the rights “to consume, obtain income from, and alienate these assets” (p. 2). These rights can be categorized into legal rights and economic rights. Government is no different from individuals in terms of rights over fixed assets. Fernholz & Fernholz (2006) deem that the normally accepted rights that government has over its real properties encompass “the right to use, transfer and sell the property, the right to benefit from the property, and in many cases the right to exclude others from the property” (p. 2). The United States Code authorizes GSA to acquire, manage, utilize, and dispose of real property for most federal agencies. GSA can lease building space for many federal agencies in accordance with authorities designated in Title 40. Laws and regulations provide guidelines for the management, acquisition, use, disposition, and agency-to-agency transfer of public assets. For example, the Public Building Cooperative Use Act of 1976 authorizes the administrator of GSA to acquire and utilize space in suitable buildings of historical, cultural, and architectural significance; and encourages the public use of public buildings for cultural, educational, and recreational activities. In addition, laws and regulations provide specific criteria for taxes levied on government properties that serve different purposes. Public fixed asset management must consider tax factors when determining the functions of properties government owns and controls.

Laws and regulations also directly or indirectly designate the beneficiary of the
services and financial returns that public fixed assets provide (Fernholz & Fernholz, 2007). They may establish the right and obligation of chief fixed asset managers to register assets, apply appropriate methods of asset valuation for various purposes, establish management data bank, and initiate processes in which eminent domain is implemented. EO 13327 requires that the administrator of GSA establish and maintain a comprehensive database of all real properties that all executive branch agencies use and control. This database is named Federal Real Property Profile (FRPP).

Laws and regulations determine the formats of fixed asset management by establishing a central management agency or authorizing asset-using agencies to acquire and manage fixed assets, dispose of surplus fixed assets, and lease real properties from private businesses. The authority of fixed asset management may be centralized at a dedicated agency that takes charge of policy oversight and specific management activities, or the authority of fixed asset management may be decentralized to asset-using agencies that are delegated authority to acquire and manage fixed assets. In addition, as privatization yields benefits, like reducing costs, improving service quality, and reducing the growth and dominance of the public sector (DeHoog, 1997), it is further implemented in the public management practice of federal, state, and local governments (Savas, 1987). Accordingly, laws and regulations that regulate public asset management provide particular mandates concerning contracting-out programs and leasing projects (DeHoog, 1997). These mandates include a prescription of the rights and responsibilities of both contractors and government agencies that purchase services in different phases of contracting-out
Policies Concerning Public Asset Management

Besides laws and regulations, public policy is also an important component of the public fixed asset management system that designates what government chooses to do with public properties. Gerston (2004) defined public policy as “the combination of basic decisions, commitments, and actions made by those who hold or affect government positions or authority” (p. 7). This definition clearly points out the content of public policy and who makes public policy. Public policy is not only what government is going to do but also what government does to convert its commitments into practice. When it makes decision, government intends to resolve issues in response to demands and achieve particular goals to make differences (Anderson, 2003; Dye, 2002; Johnson, 1996). Those who participate in making public policies include not only government position holders or authority, like legislators, the executive, administrative agencies, and the courts, but also nongovernment participants, like interest groups, political parties, research organizations, communication media, and individual citizens. Generally, the components in the public policy process encompass

- issues that appear on the public agenda;
- the actors who present, interpret, and respond to those issues;
- resources that are affected by those issues;
- institutions that deal with issues; and
- the level of government that address issues (Gerston, 2004, p. 8).
As discussed in Chapter 1, public fixed asset management demonstrates some problems at different levels of government. In the federal government, since 2000, successive Congresses have endeavored to address the problems that challenge federal real property management. Initiatives have been developed to implement effective measures on federal property management that are not encompassed in the Federal Property and Administrative Service Act of 1949. However, none of these initiatives was actually enacted due to Congressional Budget Office (CBO) scoring rules (GAO, 2008). Consequently, there have been no comprehensive legal policy tools directly for real asset management in recent years except EO 13327 that President George W. Bush signed in 2004. However, some other policies have been implemented in such areas as federal high-performance green buildings (GAO, 2008c) and public land (U.S. Department of Interior, 2001).

Public policy tools include legal tools and non-legal tools (Cooper, 1996). Legal tools encompass statutes, executive orders, treaties, and regulations; non-legal tools are usually principles implemented pursuant to laws and regulations. Policies discussed in this part focus on non-legal policy tools. Non-legal policies regarding fixed asset management are usually issued and implemented by central asset management agencies, like GSA, or agencies that own and control an enormous amount of fixed assets, like DOD. Environmental protection agencies may issue policies regarding new standards of emission. This may lead local government to update waste disposal facilities. The planning department may formulate and implement new zoning policies. As a result, the location and cost of public fixed assets will probably be affected. In this sense,
policies concerning fixed asset management are expected to serve the functions listed in Table 4.

Table 4 Functions of Public Asset Management Policies

- establish professional ethics for those involved in property asset management
- establish performance evaluation criteria
- identify priorities in purchasing, leasing, using, and disposing of real properties
- clarify zoning and real property locations
- establish property rationing criteria
- regulate regular real property reporting
- specify specific requirement for real property insurance
- determine the criteria of public real property user fees
- determine goals and objectives to improve performance of real properties

The functions of non-legal asset management policies listed in the above box are usually not specified for every detail to deal with particular elements in fixed asset management. The issues asset policies intend to address are actually the major issues real property administrators need to carefully handle in the course of public asset management. Professional ethics supplement laws when behaviors of asset managing staff are not specifically and explicitly regulated by laws, such as the Ethics in Government Act of 1978. Under the guiding principles of the Government Performance Results Act of 1993, asset management agencies may evaluate performance by designing particular criteria according to the status of the fixed asset they manage and services they provide. To comply with GASB requirements, state and local governments formulate capital asset policies about reporting, depreciation of buildings, infrastructure, and leasehold improvement (see Florida Department of Financial Services, 2001). These policies require that central asset management
agencies or individual asset users report annually the properties they use and control. In addition, governments at different levels may have policies to determine priorities when making decisions concerning fixed asset acquisition, use, and disposition to support nonprofit organizations. For local government, zoning policies affect the location and specification of the fixed assets government attempts to purchase or lease. Characteristics of residential, commercial, and recreational zones will immensely affect the consequences of public fixed asset management in these zones. Similarly, government formulates policies regarding user fees, property insurance, and incentive devices to improve fixed asset management.

**Norms and Guidance**

Norms and guidance are usually management strategies or tools central asset management agencies or individual asset users implement to regulate either comprehensive management or a particular element of management. For example, Federal Real Property Council (FRPC) issued Guidance for Improved Asset Management in 2004 to address required components for agency asset management plans, property inventory data elements, and governmentwide performance evaluation measures (GAO, 2007). OMB has issued asset management guidance that directs agencies to develop capital programming processes. The Capital Programming Guide, as one of these issuances, intends to provide agencies with a basic reference for effective investment decision-making. The Massachusetts Executive Office for Administration and Finance has published a facility maintenance manual to assist maintenance and operation staff in performing their duties. Facility staff is expected to
meet relevant technical, legal, and regulatory requirements associated with operating and maintaining facilities (Massachusetts Division of Capital Asset Management, 2008). Another example is that the Kentucky Department for Facilities and Support Services issued guidance for agencies to dispose of surplus properties. Agencies with or without delegated authority to dispose of surplus personal properties follow the guidance when implementing surplus property disposition (Kentucky Department for Facilities and Support Services, 2008).

**Table 5 Functions of Norms and Guidance in Public Asset Management**

- Operation of property purchase
- Operation of property disposal
- Property repair, maintenance, and preservation
- Contracting-out programs
- Inventory construction
- Property reporting
- Capital investment
- Land management guidance
- Responsibilities of property managers and staff
- Performance assessment

Like policies, norms and guidance are usually authoritative except when stated otherwise. They provide public managers with management mechanisms that direct operation of various activities in different sub-areas of fixed asset management like building construction, repair, and maintenance, contracting, acquisition, and disposal. On the other hand, norm and guidance standardize the operation of property asset management activities. As an indispensable component in public fixed asset management, appropriate guidance may help improve the quality of management operation. Norms and guidance can be issued for various sub-areas of fixed asset
management, but they generally intend to address the major issues listed in Table 5.

Central fixed asset management agencies and individual property users may publish and implement any kind of guidance for quality asset management. However, it is important and necessary to note that the major function of public fixed asset management is to provide support for agencies to achieve their missions and strategic goals. Thus, the major sub-areas of fixed asset management that norms and guidance usually address are those associated with fixed asset management processes, i.e., property planning, acquisition, use, and disposition.

**Procedures of Fixed Asset Management**

Both federal and state governments have promulgated administrative procedure laws that define the obligations of government agencies and the procedures government agencies must follow when formulating and enforcing rules and regulations. Administrative procedure laws require that government agencies keep the public informed of their rulemaking procedures and provide for public participation in the rule-making process. From this perspective, public asset management agencies are expected to follow the requirements of administrative procedures either in internal operation of fixed asset management or in external connection with the public. With regard to internal operation, which is concerned with the management attribute of procedures, fixed asset management as a whole follows a particular procedure of governing fixed assets for expected outputs and outcomes. This procedure basically follows in such successive phases as asset planning, inventory of assets, assessment of asset condition, resource allocation, asset service delivery, and asset reporting. Each
phase of fixed asset management is composed of specific details that involve laws and regulations, policies, and norms and guidance. With respect to external obligations, which involve the legal attribute of procedures, public fixed asset management is required to keep the public informed of the rulemaking procedures and call for public participation. In addition, agency decisions regarding asset management are subject to judicial review. Generally, procedures of public fixed asset management are associated with the major issues listed in Table 6.

Table 6 Major Issues Public Asset Management Procedures Addresses

- Property planning
- Property purchase
- Self-construction
- Disposition
- Personnel recruiting
- Property assessment
- Property reporting
- Contracting out services or expertise
- Employee performance evaluation
- Management performance evaluation
- Public hearing

There are more issues that procedures of asset management address than are listed in Table 6. Considering both legal and management attributes of procedures, public asset management agencies are obliged to follow the requirements of administrative procedures to make available the information concerning rules, opinions, orders, records, and proceedings in every aspect of public fixed asset management. On the other hand, government asset management agencies need to formulate procedures regarding business operation of the major issues listed in Table 6.
Table 7 demonstrates the checklist of the components in the management area of Cornerstone 1.

**Table 7 Checklist of Cornerstone 1 Components**

- What specific areas of fixed asset management do the existing laws, regulations, policies, procedures, and guidance regulate?
  - The functions of property assets in attaining goals of state government
  - Planning for property acquisition (like cost-benefit analysis, budgeting, zoning, and risk analysis)
  - Centralized inventory and registration
  - Professional ethics
  - Property repair, maintenance, and preservation
  - Property asset acquisition
  - Property asset leasing
  - Property asset use
  - Property asset disposal
  - Regular property reporting (like value, occupancy, and expenses)
  - Property asset rationing for employees & agencies
  - Responsibilities of property asset managers

In summary, public asset management depends on laws and regulations, policies, guidance, and procedures for authorities, resources, organization, management approaches, transparency, and determination of goals and objectives. A systematic quality legal and regulatory framework largely determines the effectiveness of public asset management in attaining its goals and objectives.
CHAPTER 5. ORGANIZATION STRUCTURE

According to institutional theory, an institution contains structure, process, and values as the key properties (Farazmand, 2002; Powell & DiMaggio, 1983). Organization structure provides organizational elements or institutions, determines organizational mechanism and values, and affects the structure and functioning of institutions. Considered as an institution and influenced by social, political, and economic factors, public fixed asset management establishes its structure, process, and values on the basis of laws, regulations, policies, procedures, norms and guidance as well as other internal factors. Governments at different levels establish the organization structure and decision making mechanism of public fixed asset management by means of institutionalization through laws and regulations. The organization structure and decision-making structure thus established gains legitimacy and capacity to survive and prosper. In addition, from the perspective of systems theory, as an output of laws and other components, organization of public asset management develops a mechanism of sustainability building as a result of internal interaction and external exchange with environment. This section of the dissertation focuses on the organization structure of public fixed asset management in terms of three components: organization structure, decision-making structure, and sustainability building of fixed asset management.

Fixed Asset Management Organization Structure

An appropriate organization structure is an indispensable premise of high
organization performance. However, it is impossible to design an ideal structure that satisfies the needs of all organizations (Hitt et al., 1989; Ivancevich et al., 1977; Hodge et al., 2003). This does not negate the importance of effective structuring in achieving high organization performance. Designing an appropriate organization structure involves a number of key factors. One key factor is environment. Environmental elements like market, economics, customers, suppliers, rules and regulation have tremendous effects on the establishment of organization structure (Hitt et al., 1989; Slocum & Helriegel, 2007). Burns and Stalker (1961) suggested two types of organizational structures: mechanistic organization and organic organization. The former is characterized with precisely defined activities, numerous rules and procedures, tight hierarchical control from top management, and emphasis on formal vertical communication, while the latter has such major characteristics as loosely defined task activities, few well-defined rules and procedures, more emphasis on self-control, and emphasis on horizontal communication. According to Burns and Stalker (1961), mechanistic organizational structures are more successful in a stable environment because little change is needed and most problems can be predicted in a stable environment. In contrast, organic organization structures are more adaptive in a dynamic, quickly changing environment. Research has found that organizations of high performance take either mechanistic or organic structure according to environmental stability or dynamicity (Lawrence & Lorsch, 1967), or they develop different structures if they have particular internal and external circumstances (Duncan, 1972; Tung, 1979).

Besides environment, other major factors like workflow, technology, size of
organization, strategy, and organizational culture also have immense effects on the designing of organizational structures. Centralization, tight control, formalization, and specialization are more effective in the case of routine (simple and repetitive) technology while decentralization, flexibility, and informalization are more adaptive to nonroutine (complex and nonrepetitive) technology (Hitt et al., 1989; Daft, 2004). Small organizations usually adopt structural forms different from that of big organizations (Byrne, 1989). Structures of large organizations are usually hierarchical, complex, and mechanistic while small organizations tend to use simple, responsive, and flexible structure. An organization’s strategies require particular organization structures (Porter, 1980, 1988; Lewin & Stephens, 1994). Finally, an organization whose culture values teamwork, collaboration, and open communication usually functions well with decentralized, horizontal, flexible organization structure while an organization whose culture emphasizes formalization, control, and specialization may work well with centralized, vertical organization structure (Daft, 2004).

Taking into account both the factors that affect organization structure and the features of major organization structures, organization structuring needs to resolve the following issues in public fixed asset management (see Table 8).

Governments at different levels possess numerous categories of fixed assets. Management of these fixed assets encompasses a variety of tracks, such as purchasing properties, construction, leasing, property disposal, and outsourcing services. However, fixed asset management is a section of the whole public sector governance system. It must be integrated into the comprehensive governance system of a government in
accordance with appropriate statutes and administrative structures. In addition, considering the characteristics of public fixed asset management, government is faced up with different kinds of environments. Meanwhile, governments may have different sizes of their fixed asset portfolio, use different technologies, and adopt different strategies when implementing fixed asset management. This suggests that government can establish a particular organization structure or several particular structures for fixed asset management. The key features of these structures include centralization, decentralization, or a mixture of both.

**Table 8 Functions of Organization Structuring in Public Fixed Asset Management**

- Satisfying the requirements and needs of the public sector governance system
- Adapting to environmental characteristics: including changeability of private real property market, construction industry, and private property management practice
- Meeting the needs of workflow in asset management
- Satisfying the requirements of technology employed in fixed asset management
- Combining organization structuring with organization strategies
- Adapting to an organizational culture of fixed asset management
- Meeting the needs of the size of the property portfolio
- Enabling effective, timely communication in fixed asset management
- Achieving expected fixed asset performance

Centralized management of public fixed assets is a system in which authority, responsibility, and control of activities are concentrated in one dedicated administrative agency. Under centralized property management, the dedicated agency is authorized power to manage fixed assets used by all agencies of the relevant government. With
total centralization, the dedicated asset management agency takes charge of all property management activities while property users have no discretion regarding particular management operation. With low level centralization, a dedicated fixed asset management agency is responsible only for policy oversight, monitoring, and evaluation (see Thai, 2007). In contrast, decentralized management of fixed assets is a system of management in which asset users are delegated authority to implement certain activities regarding asset management, like acquisition, use, and disposition of fixed assets under control. Total decentralization of fixed asset management is a system in which there is no central authority or a dedicated management agency other than statutes, policies, and regulations promulgated by either the legislature or chief executives. It is at the opposite continuum from total centralization of fixed asset management.

Governments may vary in levels of centralization or decentralization of fixed asset management. Centralized asset management performs an essential role in attaining goals and objectives of governmentwide fixed asset management. When implemented appropriately, centralization of fixed asset management may demonstrate a number of benefits, including

- establishing comprehensive information of inventory and registry of fixed assets to improve decision making about asset management;
- allocating fixed asset among users to increase use rate and reduce surplus fixed assets;
- providing expertise in service delivery, property maintenance, repair, and
preservation;

- improving competitive capacity in acquiring property by sale and construction;
- producing sizeable efficiencies by taking advantage of economies of scale;
- minimizing duplication of efforts that may otherwise be implemented by individual users;
- assuring accountability and consistency in implementing property management policies;
- freeing individual property users from getting involved in management activities; and
- improving management efficiency by employing new technology and management approaches (see Thai, 2007, pp. 32-33).

High-level centralization of fixed asset management applies to government (or a group of government agencies) that does not have a vast array of fixed assets, or whose agencies have appropriately similar amounts of properties. Meanwhile, centralized inventory construction helps improve governmentwide decision making regarding asset acquisition and disposal. Centralized policymaking, monitoring, and auditing may provide a mechanism by which government evaluates financial performance and service delivery. For example, the establishment of the Federal Real Property Council and the required governmentwide database of Federal Real Property Profile (FRPP) demonstrate that federal asset management is centralized from an administrative viewpoint even though the centralization is of low level. However, centralized property
management also has some disadvantages. From the perspective of economies of scale, when the quantity of output reaches a certain level, the unit cost stops decreasing. Thus, for governments with large quantities of fixed assets, high-level centralization may not contribute to expected reduction of cost paid for properties and services. In addition, centralization of fixed asset management involves hierarchical decision making, which may be more control-oriented and less efficient. When confronted with complex and sometimes quickly changing environment, organizations need flexibility and discretion to make prompt decisions in response to environmental changes (McCue & Pitzer, 2000; Osborne & Gaebler, 1992). However, centralization can hardly provide these privileges because it seeks to suppress discretion and flexible operation. This accordingly incurs conflicts between central property management authority and property-using agencies. Actually, under a centralized management system, property users may find their required needs unsatisfactory owing to the standardization and formalization that the central property management authority implements.

Conversely, decentralization of fixed asset management has a number of potential benefits. Some of these benefits include

- easier adjustment of management priority allocation,
- easier coordination within property using agency,
- prompt decision making, especially in response to changing environment,
- promptness in service delivery, and
- sensitivity to unique requirement of services.

When appropriately implemented, decentralization can offer these advantages in fixed
asset management. For example, as an agent of most federal government departments and agencies, GSA is authorized to lease office space and maintain facilities for these agencies. GSA can delegate leasing authority to the heads of all federal departments and agencies. GSA allows these agencies to lease office space and maintain facilities by themselves if they are not satisfied with the services GSA provides. In countries like Canada, France, Australia, and New Zealand, many property management authorities have been delegated to individual agencies. To ensure that individual property users effectively implement central policies and principles, decentralization is paired with appropriate incentives and performance benchmarks (Conway et al., 2006). However, decentralization of fixed asset management obviously has substantial disadvantages and risks. Some of these disadvantages and risks encompass lack of efficient inventory control, increased cost of asset or service purchase owing to reduced volume, higher management cost because of a separate request for services, and lack of expertise.

It is of great importance to note that in order to establish an efficient and effective organization structure of fixed asset management, government needs to analyze the characteristics of relevant internal and external factors previously discussed. A balanced connection must be identified between the organization forms of fixed asset management and achievement of missions and objectives of public asset management. Figure 2 summarizes the relationship between the analysis of internal and external factors and determination of fixed asset management organization structures.
Figure 2 Determination of Organization Structure of Asset Management

Fixed Asset Management Decision-Making Structure

Decision-making is a process by which decision makers identify and solve problems (Daft, 2004). The approach to a rational decision is based on the assumption that decision makers are capable of clearly defining a problem, have a full range of alternatives to consider and full information to predict the consequences of each alternative with certainty; that decision makers have fully adequate time, skill, and resources; and that decision makers are able to choose the alternative to maximize their goals, values, and objectives (Edward, 1967; Forrester, 1984; Zey, 1992). Decision-making starts with defining the problem, and then proceeds through specifying decision objectives, developing alternative solutions, evaluating alternatives, ranking them according to their chances for success and selecting the best one, and implementing the selected objective.

However, in the practice of decision-making, individual decision makers’ rationality is actually bounded because, for one thing, individual decision makers have incomplete information, inadequate time, scarce resources, and limited skills (Forrester, 1984; Morçöl, 2007); for another, decision makers are frequently faced up with
ambiguous, poorly defined problems (Simon, 1997). Therefore, it is almost impossible to sort out and rank all alternatives pertaining to a particular problem; and an individual decision maker conducts limited search for alternatives and selects the most satisfactory one (Simon, 1957; Lindblom, 1959; Perrow, 1986). The uncertainties in decision making imply that decision makers are “intendedly and boundedly” rational (Simon, 1947). However, “bounded rationality” does not imply that decision makers give up rational, efficient efforts to maximize value and objectives to whatever possible degree based on resources they have (Denhardt, 2004). Owing to constraints in the course of decision making, decision makers circumvent a thorough examination of all alternative solutions and restrict their focus to a limited number of options (Braybrooke & Lindblom, 1963).

Organization-level decision-making involves many individuals. Different from individual decision making where an individual alone makes decisions, organization-level decision making determines a final choice based on a coalition among a group of decision makers (Cyert & March, 1963; March & Simon, 1958). Coalition during organization-level decision making brings about two benefits. One is that coalition helps determine problem priorities when decision makers cannot agree with each other on which problems to solve in the case of ambiguous and inconsistent organizational or operative goals. The other is that coalitions can help eliminate some of the constraints individual decision makers have, such as incomplete information, insufficient time, and limited skills. Through coalition building, a group of decision makers exchange the information they have individually collected and share the skills
they have individually grasped. In addition, coalition building saves time and reduces ambiguity, thus contributing to satisfactory solutions that most decision makers will accept. These benefits suggest that building agreement through coalition is an essential part of organizational decision making (Daft, 2004).

Table 9 Stakeholders and their Interest in Fixed Asset Management

<table>
<thead>
<tr>
<th>Stakeholders in Fixed Asset Management</th>
<th>Interest</th>
<th>Participation Stages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legislature</td>
<td>reelection and constituents’ interest</td>
<td>P1, P4</td>
</tr>
<tr>
<td>Chief Executives</td>
<td>operation of government, good performance, reelection</td>
<td>P1 – P4</td>
</tr>
<tr>
<td>Courts</td>
<td>legal framework</td>
<td>P1 – P4</td>
</tr>
<tr>
<td>Central fixed asset management agency</td>
<td>authority over fixed assets, large asset portfolio</td>
<td>P1 – P4</td>
</tr>
<tr>
<td>Property-using agencies</td>
<td>good services, control over assets</td>
<td>P1 – P4*</td>
</tr>
<tr>
<td>Planning department</td>
<td>security of fixed assets, relation of asset with government function</td>
<td>P1, P4</td>
</tr>
<tr>
<td>Other departments relevant to fixed asset management</td>
<td>efficient and effective use of public resources</td>
<td>P1 – P4**</td>
</tr>
<tr>
<td>Citizenry/Electorate</td>
<td>service of public facilities, functioning of government</td>
<td>P1 – P4</td>
</tr>
<tr>
<td>Private Sector, Contractors, Suppliers, Suppliers, Developers</td>
<td>good infrastructure, good service from government, business opportunities</td>
<td>P1 – P4</td>
</tr>
<tr>
<td>Professional Associations</td>
<td>standard practice, participation in functioning of government, access to resources</td>
<td>P1 – P4</td>
</tr>
<tr>
<td>Neighborhood Associations</td>
<td>participation in local development, benefits of public facilities in neighborhood</td>
<td>P1, P3, P4</td>
</tr>
<tr>
<td>Nonprofit Organizations</td>
<td>access to fixed assets &amp; services, cooperation with government</td>
<td>P1, P3, P4</td>
</tr>
<tr>
<td>Political Parties</td>
<td>use of resource base for election, access to resources</td>
<td>P1 – P4</td>
</tr>
<tr>
<td>Higher Level Government(s)</td>
<td>functioning of governments in jurisdiction, control of &amp; access to resources, priority to special programs &amp; projects</td>
<td>P1 – P4</td>
</tr>
</tbody>
</table>

Phase 1 = Planning  Phase 2 = Acquisition  Phase 3 = Management  Phase 4 = Disposition
* In the case of decentralized management, property users participate in all phases of property
management. In the case of high-level centralized management, property users may participate only in P1, and P3.

** Other departments like the budgeting division and central procurement division may participate in certain phases of fixed asset management.
Reference: Fernholz & Fernholz, 2006

In the domain of public fixed asset management, decision-making is determined by organization structures. As previously discussed, a government may have different organization structures that satisfy various internal and external needs. To attain organizational and operative goals and objectives of fixed asset management, decision making involves a number of stakeholders. Generally, these stakeholders who have different degrees of power participate in the process of decision-making regarding fixed asset management for different interests. Table 9 shows stakeholders and their interest in fixed asset management.

With all relevant factors taken into account, decision making for public asset management is a complex process. Since this process addresses the major issues of fixed asset management, there are possibly conflicting interests between stakeholders. The conflicts and priority issues need to be resolved through bargaining and negotiation (Fernholz & Fernholz, 2006).

Decisions are made throughout the four phases of a property’s life cycle. Planning decisions may be associated with the interests of a number of stakeholders as indicated in Table 9. The major decision makers include the planning department, property using agencies, central fixed asset management agencies, chief executives, and legislature. But the decision-making process is immensely influenced by other stakeholders. The decision-making mechanism is illustrated by Figure 3. Making decisions is concerned
with goals and objectives of fixed asset ownership, mission and objectives of fixed asset operation, architectural specifications of fixed asset, location or geographic position of fixed asset, and budget.

**Figure 3 Decision-making Process of Fixed Asset Management**

![Diagram](image)

After property programs or projects are determined in the planning process, central property management agencies and property using agencies are authorized to implement the decisions regarding the property programs or projects. In the phases of property acquisition and management, the central government procurement division, finance department, contractors, developers, suppliers, professional associations, non-profits, and courts are involved in various sessions of property acquisition and management. These sessions include but are not limited to bidding, property rights transfer, contracting, construction, portfolio management, facility service, repair and maintenance, area management, architectural services, and information management.
Simultaneously, political parties, neighborhood, and citizenry may exert influence on certain issues of property acquisition and management, such as program priorities, externalities that public facilities produce, and equity of services. Generally speaking, decisions during property acquisition and management are made by central property management agencies or individual property users according to legitimate authority they are granted.

In the phase of property \textit{disposition}, central property management agencies in the case of total centralization or individual property users in the case of decentralization are authorized to sell, transfer, change the functions of property, invest in public-private partnership, and place to retirement the fixed asset under control. These issues involve various stakeholders as listed in Table 10. Decisions concerning property disposition, especially in the case of major public facilities, are proposed by central fixed asset management agencies or individual property users, and examined and approved by chief executives and/or legislature.

General issues that decision-making involves throughout different phases of fixed asset management are summarized in Table 10. Specific issues will be further elaborated in the discussion of Management Process throughout Life Cycle of Assets in Chapter 6. To make effective decisions, decision makers must consider all possible elements that may directly or indirectly affect final decisions regarding fixed asset management.
Table 10 Issues That Decision Making Involves in Fixed Asset Management

- Setting goals and objectives of property ownership or leasehood
- Analyzing property characteristics and property users’ characteristics
- Determining missions and objectives of property operation and maintenance
- Location and geographic position of the fixed assets
- Zoning of real properties
- Budgeting for property ownership, operation, and management
- Determining the level of decision making regarding each fixed asset management section
- Acquisition of fixed assets
- Property rights transfer
- Portfolio management
- Fixed asset repair and maintenance
- Area management
- Architectural services
- Staffing for fixed asset management
- Employee and customer training
- Fixed asset and financial information management
- Disposition of fixed assets

It seems that decision making is a process of complexity and even disorder owing to the participation of numerous stakeholders. However, it is vital to note that it is major decision makers (like legislators, chief executives, courts, central fixed asset management agencies, property using or managing agencies, and planning departments) who initiate fixed asset programs and make various categories of decisions in accordance with authorities and responsibilities specified in legal and regulatory framework. Decision-making is a process of governance that involves not only decisions but also normative or regulative functions. Therefore, an effective decision-making structure is expected to follow a number of key principles. These principles may include:
• Functions assigned to decision-making entities by laws and regulations are unambiguously specified without gaps and overlaps;

• Hierarchical and/or horizontal decision-making entities’ authorities and responsibilities are specified in the legal and regulatory framework but do not create gaps and overlaps;

• The normative or regulatory function of decision-making agencies is equipped with sufficient stuffing, funding, and level of independence to exercise its duties, and is consistent with responsibilities;

• Responsibilities of decision-making entities provide separation and clarity so as to avoid interest conflict interference during fixed asset management; and

• Lower level decision-making entities are authorized discretion in particular management strategies, but receive oversight from higher level decision-making entities.

Capacity Building of Fixed Asset Management

Organization structure of public asset management must take into account organization capacity building for the strategic operation of property management and a high level of property performance. According to Farazmand (2009), the modern world is experiencing dramatic changes in the movement of globalization. Public administration has been facing a turbulent environment and has started to adapt to social changes with the features of sweeping privatization, marketization, commercialization, and shrinkage of the public sector in favor of the private corporate sector. Farazmand (2009) argued that management capacity to provide quality service
in the emerging environment of rapid changes and uncertainties is badly needed. To build management capacity, government needs to construct responsive strategies and proactive, future-oriented strategies by two means: (1) adapting to external changes; (2) working creatively to create changes and prepare for the future. The first means requires that public asset managers understand current practices of property management in the private sector, especially in the areas of property acquisition, construction, maintenance and repair, value maximization, and disposition. Collaboration between public asset management and private businesses is needed. This helps public asset managers find an appropriate alternative of property acquisition, reduce costs of property operation, maintenance and repair, and obtain best value when disposing of properties, thus making best use of public assets to provide services for government agencies to fulfill planned goals and objectives. The second means requires that public asset managers establish a system for future unexpected negative happenings. This system intends to keep public asset management sustainable in emergency and risk situations. To develop this capacity, government must learn to deliver quality services that can be measured by efficiency, cost-effectiveness, timeliness, and attaining goals and objectives (Farazmand, 2009). Capacity building in this aspect can be enhanced through strategic employee training programs, which is elaborated in detail in Chapter 7.

Organization development and advancement is also a strategy through which an organization builds capacity and improves social functioning. Through organization development, organizations can increase health and effectiveness (French & Bell,
1995), improve communication between managers and workers and among workers, and enhance collaboration and consensus, thus contributing to organization growth and advancement (Varney, 1997). To promote organization development and advancement, organizations need to eliminate resistance to change (Cummings & Worley, 2009; DeVito, 1996). In addition, sustainable development is a goal of organization operation, growth and advancement. Organizations achieve sustainable development mainly through organizational learning (Lassey, 1998; Fulmer et al., 1998), establishment of partnership (Kaganova & Polen, 2006; Yescombe, 2007), and incentive for improvement.

Among these strategies for building sustainable capacity, organization learning is of supreme importance and covers a wide range of capacity building. Organization learning is a collective activity for the purpose of implementing organizational objectives and goals (Yeung et al., 1999). To implement organization learning, an organization must develop a systematic approach to solving problems, build shared vision, develop expertise and proficiency, build and sustain effective team learning, construct visible leadership, encourage creation and exploration of new knowledge (Senge, 1990; Kofman & Senge, 2003; Tobin, 1993; Marquardt, 1996; Argyris & Schön, 1978; Boyett & Boyett, 1995). Considering these characteristics, organization learning is an investment in an organization’s future, not an expense to avoid (Tobin, 1993; Frydman et al., 2000).

Public fixed asset management is externally influenced by socioeconomic factors, political factors, building and construction industries, financial market, material
market, labor market, and government’s and citizens’ requests for services. These independent variables may change turbulently and exert totally different influence on the development of public fixed asset management. Confronted with property market changes and socioeconomic changes, fixed asset management needs to collect information about the development trend of influential factors, like the construction industry, property needs and supplies, and government revenue. Fixed asset management agencies should prepare early for future facility leasing, purchasing, construction, and disposal by analyzing the information collected; they may also make adjustments to the properties currently in use. Besides, fixed asset management agencies need to establish a mechanism for service delivery during emergency and crisis. The mechanism may include, but not be limited to, property protection, people evacuation, emergency repair and reconstruction, emergency insurance, accelerated depreciation, emergency appropriation by legislature, reserve fund, and facility financing. In addition, risk management issues (like hazard insurance that covers only the replacement value, not market value, of a property), co-insurance issues, and various types of liability coverage are usually encountered in the practice of asset management. Self-insurance is a case in which “the owner assumes risks that are not covered by an insurance product purchased from an insurance company,” and “rather than purchasing insurance, the owner set aside money which will be used to pay for any loss that may occur” (Builta, 1994, p. 97). To prevent some emergencies and risks from occurring, quality property services, such as regular security and safety inspection, are indispensable.
To promote organization development and advancement of fixed asset management, public asset managers need to improve communication inside organizations between management and workers, between sections of management functions. In addition, managers need to enhance collaboration and cooperation between the entities of the management system, such as planning, accounting, risk management, construction, repair and maintenance, leasing, surplus asset disposal, cleaning, and personnel. Fixed asset management needs to eliminate resistance to changes, like property as “free goods,” and create new ideas, like property as investment. Moreover, fixed asset management must implement organization learning to build management capacity. Specific means may include consensus of quality service, introducing or inventing new skills or knowledge to reduce costs and improve response from property users, improving the utilization rate to reduce underutilized and surplus facilities, reducing energy consumption, analyzing optimal alternatives of property acquisition, and combining management goals and objectives with those of customer agencies and the whole government, among other techniques.

The issues involved in capacity building of fixed asset management can be summarized as in Table 11.
Table 11 Issues Addressed for Capacity Building of Fixed Asset Management

| ✓ Collect and disseminate information about property market and other socioeconomic factors to adapt to environmental changes |
| ✓ Establish information system of all properties owned and controlled to meet agency needs for properties |
| ✓ Take proactive measures to prevent emergencies |
| ✓ Establish property emergency and crisis management mechanisms |
| ✓ Improve communication and enhance cooperation between different entities of fixed asset management |
| ✓ Eliminate resistance to changes |
| ✓ Establish sustainable strategy to provide training, team learning, and assistance for both employees and customers |
| ✓ Establish collaborative partnership with nongovernmental organizations |
| ✓ Establish and use quality control standards to evaluate employee performance |
| ✓ Provide incentive for efficiency and effectiveness |
CHAPTER 6. THE FIXED ASSET MANAGEMENT THROUGHOUT THE LIFE CYCLE OF ASSETS

In a public asset management system, while the Law and Regulation Cornerstone provides legal authorities, liability, and working principles for public fixed asset management, the Organization Structure Cornerstone establishes organizational framework and decision-making structure. The Cornerstone of Management Process throughout Life Cycle of Assets, on the other hand, elaborates the dimensions of most part of property life cycle, including planning, acquisition, management, and disposition of fixed assets. Generally, this section deals with the expected schemes and activities for the property managers to execute government policies regarding fixed assets. Specifically, this section analyzes the prototype mechanisms of fixed asset planning, acquisition, operation and maintenance, disposition, and life-cycle management. In addition, this chapter also develops a number of devices to test the mechanisms government currently implements in the practice of fixed asset management.

Fixed Asset Planning

Fixed asset planning is a process in which government identifies its fixed asset needs and develops strategies and projects to address these needs so as to meet service delivery needs of government agencies (Province of British Columbia, 2002). Fixed asset planning is usually initiated by an asset using agency. It starts with establishment
of a service plan that specifies services to be delivered and links service delivery to fixed asset plans. Accordingly, fixed asset using agencies set goals and objectives of property acquisition and operation management on the basis of the missions and objectives of the agencies’ service delivery requirements (Edwards & Ellison, 2004). To determine the goals and objectives of property acquisition and operation, fixed asset using agencies must analyze fixed asset needs. Fixed asset needs are usually driven by demographic factors, program changes, technological changes, economic and business changes, environmental factors, social changes, and legislation requirements (Province of British Columbia, 2002). They are also based on inventory information of current fixed assets that an agency owns and controls.

Fixed asset using agencies quantify asset needs as financial or budget estimate, and then analyze strategic options to find the most efficient ways to satisfy their fixed asset needs. They take into account service delivery and characteristics of fixed assets when determining a fixed asset option. Characteristics of a fixed asset may encompass the physical aspects, acquisition cost and life-cycle costs, the legal obligations and rights, the value a fixed asset contributes to the asset base of operation, and the role a fixed asset performs in the operation of asset using agencies. Strategic options for fixed asset needs are numerous, including changing the way of service delivery to avoid or limit fixed asset spending, traditional procurement, alternative capital procurement, asset leveraging, and integrated strategies (the Province of British Columbia, 2002). By traditional procurement, government agencies procure a fixed asset and take responsibilities for design, construction, operation, and risks throughout the fixed
asset’s life cycle. Alternative capital procurement involves acquisition of a property without direct purchase by government agencies, or by transferring part or all of a property’s life-cycle risks to outside parties, or by financing with limited or no recourses to the fixed asset using agency (the Province of British Columbia, 2002, p. 33). Common methods of alternative capital procurement may include operating leases, self-supporting projects, and public-private partnerships. Public-private partnership may be determined by different indicators, such as financial criterion, technical criterion, operational standard setting, and public policy standard. Typical forms of public-private partnership projects include DBO (public financing, private designing, building, and operating), BLOT (private financing, private building on public land, public leasing, private operating, and transferring property to public sector), and BOO (public sector setting objective and constraint, private sector building, owning, and operating a property). These approaches of public-private partnerships are usually employed when acquiring fixed assets through construction. They will be further interpreted in the following section of asset acquisition. According to agency theory (Arrow, 1985; Perrow, 1986), public-private partnerships (PPPs) based on contracts may apply the principle of economy of scale and specialization to lower costs, maximize certainty, and avoid risks in public-private relationships. In the field of public fixed asset management, a public-private partnership as “a risk-sharing contractual relationship between the public and private sectors” is intended to “use the private sector to provide a property-associated public outcome (for example, to build or renovate and operate property for public use)” (Kanganova & Polen, 2006, p. 366).
Overall, the main purposes of alternative capital procurement are to maximize the value of public funds and transfer risks to private partners (see Figure 4). Asset leveraging intends to capture (for example, to commercially exploit) the value of public assets to offset service costs and the costs of owning capital assets (Province of British Columbia, 2002). Typical examples of capital asset leveraging may include selling or leasing part of a real property, exploiting excess capacity of a real property to generate revenue, and taking advantage of other public real properties to generate revenue for a capital project.

**Figure 4 Risk Allocation and Property Management**

<table>
<thead>
<tr>
<th>Least Risk Transfer</th>
<th>Most Risk Transfer</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Total Public Ownership)</td>
<td>(Total Private Ownership)</td>
</tr>
<tr>
<td>Traditional Procurement</td>
<td>Outsourcing</td>
</tr>
<tr>
<td>Public-Private Partnership</td>
<td>Privatization</td>
</tr>
</tbody>
</table>


Fixed asset using agencies systematically analyze each strategic option to determine the most effective and efficient way to meet service delivery needs. Strategic option analyses are based on the length of each capital asset’s life, preliminary cost and benefit estimates over the whole life cycle of the capital asset, qualitative risk assessment, the function of capital assets (operational or investment assets), protection of public interest, and government policy requirements. Life-cycle costs include the cost of architectural design, construction or purchase, maintenance, repair, perseverance, energy, and service. Benefits are the expected return on investment. Since some fixed assets deteriorate over time, strategic option analyses must take into
account the discount rate when making an estimate of costs and benefits. When total benefits in terms of value exceed total costs, property acquisition programs or projects are considered potentially worthwhile if other requirements are satisfied. Comparative unit costs can be calculated to predict how cost-effective a capital program or project is for different property-using agencies to deliver services. Risk analysis helps predict the level of negative consequences and prevent the occurrence of negative effects. Risk analysis may also assure that the results of cost-benefit analysis are more accurate. Policy requirements, like zoning, may determine the functions and physical characteristics of a real property.

A property-using agency, or government, must establish criteria for an acquisition program or project ranking. Some of the ranking criteria may include the appropriate fit between the agency’s fixed asset needs and physical characteristics of the property to be acquired, procurement costs and life cycle costs, legal or contract requirements, protection of people, protection of existing properties, service plan targets, and benefit. Fixed asset agencies make a ranked list of options that specify the most promising options and recommend to senior decision makers the preferred options for their review and consideration. The list of options describes the major advantages and disadvantages of each preferred option and explains by comparison why the options are prioritized that way.

While prioritizing real property acquisition programs, fixed asset using agencies establish asset management performance measures. These performance measures may include fixed asset management within a fiscal target, implementation of proposed
strategies, achievement of asset management goals, effective asset support of service delivery, and quality of program/project completion (Province of British Columbia, 2002). In addition, fixed asset using agencies formulate a multi-year fixed asset management plan throughout a property’s life cycle in the process of agency service plans.

Finally, fixed asset using agencies submit budget request to senior decision makers for review and approval according to government fixed asset management organization structure. With high-level centralized asset management, the central asset management agency may first review the asset-using agency’s fixed asset budget request and allocate asset resources to asset-using agencies if appropriate, or submit a fixed asset budget request to the budget office or higher levels of decision makers. With low-level centralization or total decentralization, individual asset-using agencies submit a fixed asset budget request directly to the budget office of the same level of government or higher levels of decision makers. Currently, in both state and local governments, the budget for capital assets is separated from other categories of budget (Mikesell, 2007). When making capital budget decisions, high-level decision makers like governments’ chief executives and legislators examine the funding sources and financing sources of the fixed asset program. They also consider the impacts of the capital budget on the operating budget. Capital investment may increase the operating budget in terms of increased need for operating costs, increased debt service requirement, and maintenance, repair, and replacement cost (State of Illinois, 2008). Conversely, capital expenditure may reduce fixed asset maintenance expenditure by investing in more
durable assets, lower utility costs by installing efficient energy equipment, and improving staffing patterns by changing a building’s layout. These effects help decrease the operating budget. (See Appendix B for differences between capital budget and operating budget.)

Actually, budget decisions for any category of fixed assets are not only financial decisions for capital projects and programs; the decisions can affect the whole package of capital planning for asset management throughout the life cycle of the concerned property. Capital planning sets principles for asset acquisition, operation, use, maintenance, contracting, and other elements of fixed asset management. The general fixed asset planning is summarized in Figure 5.

**Figure 5 Fixed Asset Management Planning**
Fixed Asset Acquisition

Decision-making in the planning process examines the need of fixed assets and determines the most appropriate option for the needed property according to missions and objectives of the agency services. Therefore, property acquisition targets the process and mechanisms by which property managers effectively acquire appropriate properties in the most effective, efficient, and economical fashion. Acquisition addresses the initial control when property is acquired and available for service (JFMIP, 2000). Generally, fixed assets can be acquired by using different methods according to laws and regulations formulated by the government at different levels. The methods of property acquisition usually employed are as follows:

1. purchase of a property which is ready to use in the market place;
2. trade of properties of equitable value with other governments or individuals or private businesses;
3. construction;
4. donation from other governments or individuals;
5. transfer from other government agencies or higher level government;
6. tax foreclosure sale by bidding up to the amount of taxes due and other required cost;
7. rights of eminent domain; or
8. lease of property from private business.

From a legal perspective, there are laws and regulations concerning each method of fixed asset acquisition. Government fixed asset management needs to examine these
legal requirements as well as the specific circumstance of each parcel to be acquired before employing a property acquisition method. From the management perspective, despite differences between these acquisition methods, fixed asset managers must adhere to the principles of fairness, openness, and transparency. In the case of fixed asset procurement, fixed asset managers must implement the principles of competition, value for money, protection of public interest, and allocation and management of risks (Province of British Columbia, 2002).

**Purchases**

Considering all categories of fixed assets, purchase is usually the method most frequently employed by government at all levels to acquire properties (Cowart, 1990). Properties can be purchased either through a central procurement office or by a property using department. Whether a central procurement office is the agent for a property purchase is determined by a number of factors such as size of the government entity, enabling legislation, political environment, size of the procurement program, resources available, spectrum of procurement activities, and delegation of procurement authority (Thai, 2007). Hence, government purchase is generally decentralized at the federal government and centralized at state and local governments. The major benefits of centralized public property purchase include the following:

- Reducing property prices through volume discount by taking advantage of economics of scale;
- Reducing administrative cost by minimizing the duplication of procurement activities;
- Assuring property and service quality by means of competition;
- Coordinating interagency needs through effective inventory control;
- Consolidating property requirements at government level;
- Purchasing with greater specialization;
- Providing expertise to assure effective and efficient contract administration;
- Enhancing accountability and consistency in executing procurement policy (Thai, 2007; Dobler, Burt, & Lee, 1990).

The central property purchase agency has legal authorities and delegation from the chief executive. Its major responsibilities for property acquisition include the following:

- Strategic planning,
- Budgeting,
- Selection of purchasing methods,
- Solicitation,
- Determination of source of supply,
- Contract administration,
- Quality assurance,
- Dispute resolution,
- Relationship management with vendors, and
- Data management (Thai, 2007; Greenburg, 2004; Page, 1980).

Compared with the requirement for the creation of a central procurement agency, the requirement of centralized purchase of properties depends on a legal or regulatory
mandate regarding acquisition, procurement policy, and procedures of the central procurement office (Page, 1980). Considering the characteristics of a centralized property purchase, the dollar value and category of the property to be purchased are the major requirements of the centralized purchase of real properties.

A centralized purchase of fixed assets does not necessarily imply that a central procurement agency does everything related to the property’s purchase. Small governments usually make smaller purchases. Therefore, a “do-it-all” structure of central purchasing usually functions efficiency. Under this structure, a central purchasing office is delegated the responsibilities for implementing all purchase activities including providing all the properties and services during the full life cycle that are required by the relevant government entity (Thai, 2007). Conversely, large governments make sizable purchases. In order to improve efficiency and effectiveness, a central property purchasing division or agency tends to delegate some responsibilities to property-using departments (Thai, 2007; p. 1980). An interdependent relationship can be established between the central purchasing agency and the property-using department. This partnership is quite usual in construction purchase and purchase of particular facilities.

When the total value of a property or property service is below a certain level, the purchase is delegated to the using departments. This is because small purchases cannot produce most of the major benefits through central procurement. When small purchases are directly handled by property users, high efficiency can be achieved. Both state and local governments promulgate policies and regulations regarding small purchases.
(Page, 1980). For example, the Kentucky Model Procurement Code requires that a purchase that does not exceed an aggregate amount of $5,000 for construction services or $1,000 for all other categories of purchases may be implemented by all agencies without prior approval by the authority delegating agency — the Department of Finance.

For governments at all levels, maintaining the necessary balance between centralization and decentralization in property purchasing structure is essential for achieving the efficiency and effectiveness of fixed asset management (see Figure 6). Research demonstrates that although there has been a broad call for decentralization of procurement at state and local governments, the traditional practice has not been significantly changed (McCue & Pitzer, 2000; Coggburn, 2003). In addition, for the sake of equity, government may formulate policies that may benefit business of women and minority groups and nonprofit organizations.

**Figure 6 Property Purchasing Structure: A Combination of Centralization and Decentralization**

![Property Purchasing Structure Diagram]
Government agencies purchase real properties either through agreement or through compulsory acquisition. A real property purchase through agreement can be implemented by means of negotiation and entering into a commercial contract of sale. A real property purchase through compulsory acquisition mainly applies to the purchase of land or land with improvements. Government is empowered to purchase target real property under legislation. This category of property purchase is further elaborated later in the section of eminent domain. To purchase real properties to meet the needs of public service delivery, property managers should be careful to fulfill their responsibilities during due diligence. During this phase and before the acquisition is completed, fixed asset managers must thoroughly check and inspect all aspect of the property. For example, property managers must confirm the original assumptions they have made before price negotiation (Buita, 1994).

To sum up, a government entity must have an appropriate answer to the following four major questions to test property purchase management:

- What are the authorities and responsibilities of the central property purchasing agency?
- What are the authorities and responsibilities of property using agencies in the cases of centralization and decentralization?
- Are centralization and decentralization appropriately combined to handle real property purchases?
- Is there any equity policy that helps businesses managed by minority groups and nonprofit organizations?


Construction

Construction is another frequently used way by which government owns real properties. GAO (2008a) has found that owning a property by construction is less costly than leasing a property from private businesses for over thirty years. In recent years, the federal government has increased its total square footage of leased building space while gradually reducing the total areas of federally owned building space (GAO, 2008a). The trend is to meet the requirements of generic office space without many special features (Winstead, 2007). However, Public Buildings Service of GSA also admitted that GSA has leased some real estate facilities that should be federally owned, where there is a large, long-term real property requirement in major metropolitan areas (Winstead, 2007). Compared with other means of owning federal real properties, construction has its advantages. One of its major advantages is that construction provides the appropriate facility structure that best satisfies the requirements of service delivery by government agencies. This advantage helps save relevant costs that may be claimed for property-user improvements, such as altering space structure of the real property facility bought or released. A second major advantage is that construction satisfies special requirement of property users on a long-term basis. A good case in point is a security consideration for certain government agencies. A third advantage over property leasing is that construction saves unexpected costs that lessees have to pay, such as a penalty cost and high implicit interest cost. Finally, owning real properties by construction avoids long-term exposure to market risks.

Purchasing real properties through construction, or in other words, the purchase of
construction service, is a very complicated process because construction as a whole may involve a great variety of factors. These factors include, but are not limited to, funding, timing, policy requirements, project risks and complexities, type of work, construction site, selection of construction service provider, selection of an appropriate contracting option, risk allocation through contracts, contract management, and documentation and reporting, among other issues. These characteristics of construction projects and risks suggest that government should employ appropriate purchasing methods according to their own circumstances. Some traditional methods of purchasing construction service are briefly discussed as follows:

- Design-bid-build: This is the most frequently used method of purchasing construction service in the United States (Dobler, Burt, & Lee, 1990). Design of the construction project is completed before bidding for building starts. Designing and building are in the charge of two different organizations. Since architects may not be cost-conscious, the construction purchasing agency needs to adopt alternative methods of cost control.

- Design-build, firm agreed price method: The purchasing agency specifies the basic facility requirements to carefully pre-qualified builders, who prepare a bid package that consists of a design and price proposal. The construction purchasing agency awards a firm agreed-price contract to the builder whose bid is the most competitive (Dobler et al., 1990).

- Design-build, cost reimbursable: With this approach, only one contract is awarded for design and construction under responsibility of one general
contractor. Design is accomplished by both architects and construction engineers. Since the construction engineers may influence and well understand the design, preliminary construction proceeds when the design of certain elements of the project has been finished. This purchasing method is more effective when construction has to be completed within a short period of time (Dobler et al., 1990).

- Building team: With this method, while an architect works on the design of a construction project, the purchasing agency simultaneously retains a builder to provide relevant information regarding cost, procedures, and time requirements (Dobler et al., 1990). The builder may either accomplish the construction with his own crews or award it to the most competitive subcontractor.

Each of these methods of construction purchase has its own features. With regard to cost savings and time requirement, research has found that design-build (firm agreed price) method is the most effective. Compared with the design-bid-build method, the design-build (firm agreed price) method results in a 25% cost savings and average saved time of four and half months (Dobler et al., 1990). In addition, the involvement of contractors in the design of a construction project contributes to reducing operation and/or maintenance efforts and costs (New South Wales Government, 2008). However, a construction-purchasing agency needs to take into account all relevant requirements when selecting an appropriate purchasing method.

In recent years, as is mentioned previously in the phase of fixed asset planning,
new methods of construction purchase have been employed by governments that are either faced with financial and budget constraints or are driven to achieve various purposes. Property-related public-private partnerships (PPPs) have been created to address two types of assets: (1) new public fixed assets under construction, and (2) existing public real properties where asset managers seek more efficient use and operation (Kaganova & Polen, 2006). Some frequently employed new construction purchasing methods are as follows:

- **Design-build-operate**: With this method, government finances a construction project and sets asset performance objectives. The private sector partner designs, constructs, and operates the construction facility for a specified period of time. Government owns the facility, and pays the private partner cost of design, construction service, and maintenance (Province of British Columbia, 2002).

- **Design-build-finance-operating (DBFO)**: The private partner designs, builds, finances, and operates a fixed asset, and the public partner repays the cost of the construction project and an appropriate profit from its budget during the project’s lifetime. As is specified in the contract, either party may own the asset when the partnership comes to its end (Kaganova & Polen, 2006).

- **Build-operate-transfer (BOT)**: The public partner establishes asset performance objectives and authorizes the private partner to design, finance, and construct a facility on public land. The private partner receives concession-type rights to operate the facility and receives returns on
investment from the government or through user fees from citizens or firms. At the end of the partnership, the ownership, together with operating right, is transferred to the government (Province of British Columbia, 2002; Savas, 2000; Williams, 2003).

- **Build-own-operate (BOO):** Government establishes construction project objectives through a contract with a private partner and has regulatory authority on pricing and operations. The private partnership finances, builds, owns, and operates the construction facility during its life cycle. On a long-term basis of contractual obligations, the private sector provides the government with building space; government pays leasing fees to the private partner (Province of British Columbia, 2002; Savas, 2000).

From a management perspective, property-related PPPs provide some potential benefits for government. Financially, government has additional revenues through franchise in some cases; new construction facilities may be operated without public budget expenses; public funding can be restructured from capital to current expenditures (Kaganova & Polen, 2006). Risks could be allocated appropriately to the private partner who is best able to manage risks of cost and management. While the private partner takes responsibilities for construction management, government focuses more on core activities in planning and regulating (Osborne & Gaebler, 1992). The private partner applies its specialized expertise in all phases of a fixed asset’s life cycle, thus improving efficiency and property performance.

To ensure that a PPP gains success, government must establish an effective legal
framework that specifies responsibilities and liabilities of each party. PPPs should engage in a viable construction project where private service and finance are accessible. Besides, government has the ability to define a PPP project based on open competition. It must have the ability to manage the partnership within legal and policy framework.

Overall, public buyers of construction services have different resources and contingencies as well. It is important to note that purchasing fixed assets through construction intends to meet service needs of government agencies. Besides, like any other business transactions, the construction purchase must conform to the principle of value for money and protection of public interests.

**Leasing**

Leasing properties from the private sector does not involve ownership of the property to be leased. For state and federal governments, properties leased from individuals or private businesses account for a large portion of total real fixed assets under control by these two levels of government. Generally, leases include financial leases and operating leases (Nourse, 1990). A financial lease is an alternative to purchasing. The leasing purpose is to obtain using rights over the life of the fixed asset. An operating lease is usually a short-term lease which shifts the holding for the effective life of the fixed asset from the lessor (the owner) to the lessee (the tenant). One important purpose of an operating lease is to restructure the financing status when a government or corporation entity faces financial constraint. According to Dunahue (1989), when citizens own the assets, there is a potential for producing chronic inefficiency. Unlike a private ownership right that can be concentrated in the hands of a
small group of people who benefit greatly from efficiency improvement, public
ownership comes with a citizenry that is associated with dispersed accountability, thus
there is no impetus for greater efficiency from management (Dunahue, 1989).

One case of operating lease is a sale-leaseback transaction where government sells
a real property and then leases it back for continued operational use. Selling a public
real property and leasing it back may revitalize the fixed asset so that government may
have flexible use of public financial resources. The sale of a fixed asset may bring a
large sum of one-time revenue. This may temporarily relieve government’s fiscal
pressure. However, this approach is a double-bladed sword since it may hurt
government if it is not used appropriately.

There is a trend that governments at different levels tend to lease rather than own
real properties because, on a short-term basis, leasing is more economical than owning
properties (Kaganova & Nayyar-Stone, 2000; GAO, 2003c, 2008a, 2009). However,
research has found that on a long-term basis (such as thirty years), leasing is more
costly than owning a property through construction (Taylor, 2010; GAO, 2008a). GAO
(2008a) examined seven GSA leases and found that four long-term leases had cost
approximately 83.3 million dollars more than did construction over thirty years. The
California Legislative Analyst’s Office found similar results when it examined
sale-leaseback transactions of 11 state-owned office properties (Taylor, 2010). There
are a number of reasons why GSA relies more on leasing than construction. One major
reason is the lack of up-front capital for construction. A second major reason is that
over 70 percent of real property requirements in GSA are less than 10 thousand square
feet for a short term of five to ten years (Winstead, 2007). In addition, federal budget scorekeeping rules objectively discourage construction that needs a large initial investment because the rules require that “the full cost of government’s commitment be recorded in the budget in the first year” (GAO, 2008a, p. 5). From these perspectives, government needs to make a strategic plan for both long-term and short-term real property needs and determine whether to lease real properties or purchase real properties by appropriate means.

Central fixed asset management agencies or fixed asset using agencies must understand specific items concerning the real property to be leased and leasing contract to sign. They must also seek rights to use the property in specific ways when they enter into negotiation to lease a property. The key issues to which they should pay attention include

- Rent and definition of usable space;
- The term of the lease;
- Escalation clauses to increase rents owing to inflation, increases in property taxes, insurance, and utility expenses, among other factors;
- Range of uses that includes the lessee’s right to assign or sublease the premises;
- Responsibility for maintenance and repair;
- Destruction of premises by fire, storm, or other casualty; and
- Default (Nourse, 1990).

Besides, as lessees, central fixed asset management agencies or fixed asset using
agencies need to take into account the requirement of leasing purposes and the location and surroundings of a real property when they lease a property. In some cases, they also need to consider cash flow of leases so that benefits and costs can be predicted more accurately. These deliberations help central fixed asset management agencies and fixed asset using agencies make appropriate decisions for property leasing.

Another important issue lessees need to consider before they make a leasing decision is to analyze the option of acquiring using rights of a real property by lease or acquiring ownership of a real property by purchase or construction. This analysis involves not only costs and benefits but also the needs of government agencies to fulfill their goals and objectives.

**Donations**

Donation or gifts of real properties account for a small portion of public fixed assets. Government is allowed to receive or refuse donated properties in accordance with federal, state, and local laws that have relevant mandates (Cowart, 1990). On the one hand, government must compensate a property donor if there is such a legal requirement. For example, North Carolina requires a compensation of tax credit by 25 percent of the fair market value of the donated property interest (North Carolina General Statutes § 105-130.34). On the other hand, it is important to note that government needs to analyze the features of a property prior to accepting it. Government may refuse a property donation if the property is not needed for any current or future governmental uses, or if government must invest a great amount of limited capital budget before putting the donated property to use. Donated properties
need to have their ownership changed and be registered according to legal requirements.

**Acquisition through Tax Foreclosure**

Tax foreclosure is a rather common means by which local and state governments acquire fixed assets as a result of the failure of the owner to pay property taxes and the failure of private bidders to purchase the tax liens at the tax sale. When foreclosed properties remain unsold at a public auction, they can be deeded to land banks that are actually governmental or nonprofit entities, enabled by state legislation, and enacted by local ordinances (Sage Computing, 2009).

**Eminent Domain**

Eminent domain is the sovereign power of a government to seize a private property and devote it to public use through condemnation and compensation without the property owner’s consent. Under the authority of the Fifth Amendment and later the Fourteenth Amendment of the U.S. Constitution, federal, state, and local governments all have the power of eminent domain. This means that governments at all levels are able to acquire properties through eminent domain in accordance with laws. Private property owners may lose the ownership of the whole or a part of their property if the property is needed for public benefits. Public benefits can be broadly defined along the lines of public safety, health, interest, and convenience. Typical benefits brought by public use of private properties include building or expanding a public highway or road, building a public park or a public school by using private land, and redeveloping blighted neighbor (Larson, 2004).
Two points are worth noting with regard to governmental acquisition of real properties through eminent domain. One is that property acquisition through eminent domain is possibly a long process that involves negotiation with the property owner, organizing public hearing and filing petition if negotiation fails, and determining the fair market value of the property. The other point is that just compensation includes not only the price of the condemned property, but also other factors such as loss of business.

**Trades**

Acquiring real property through trading is a mechanism that is frequently employed by government at all levels. Laws and regulations may have specific requirements for property trading. Two major methods are usually employed in the practice of real property trading. One method is based on equal value. That is to say, the two parties have the equal value of real property regardless of the number of properties. The other method is based on equal square feet. The real property each party has for exchange has equal usable area. This method also ignores the number of properties two parties exchange.

It should be noted that property acquisition through trades occurs between a government and a private property owner, or between two governments. Property trading between agencies of the same government does not result in a larger number of real properties. A government needs to establish a system, such as a central property management division, or division with similar function under the control of the chief executive, to adjust or coordinate property needs of agencies by resorting first to inventory resources. Property trading between agencies of the same government shall
be handled under this system. Another point worth noting is that property trading occurs simultaneously with property title exchange, especially between government and the private sector or between one government and another. Finally, since real property trades are based on laws and regulations, an inflexible ordinance protects public properties from loss but concurrently discourages real property swaps. Flexible trading criteria based on fair property value and government needs will make real property trades easier and satisfy mutual benefits.

Transfer

Transfer is actually a means by which a government disposes of surplus real properties. Real property transfer is discussed in detail in the section of fixed asset disposition in this chapter.

Table 12 Checklist of Property Acquisition

<table>
<thead>
<tr>
<th>Acquisition Methods</th>
<th>Feature Analysis</th>
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<tbody>
<tr>
<td>Purchase</td>
<td>Property market analysis, property characteristics analysis, financial analysis, cost-benefit analysis, procurement centralization &amp; decentralization</td>
</tr>
<tr>
<td>Construction</td>
<td>Construction contracting, cost-benefit or cost-effective analysis, architectural service, market analysis, financial analysis</td>
</tr>
<tr>
<td>Leasing</td>
<td>Financial lease or operating lease, long-term lease or short-term lease, sale-leaseback transaction, lessors’ and lessees’ rights and responsibilities, defaults</td>
</tr>
<tr>
<td>Transfer</td>
<td>Property appraisal, ownership, property transferring and receiving analysis,</td>
</tr>
<tr>
<td>Donation</td>
<td>Legal requirement, compensation for donation, property user analysis</td>
</tr>
<tr>
<td>Foreclosure</td>
<td>Legal process, property valuation, property management if not sold out through bidding</td>
</tr>
<tr>
<td>Trading</td>
<td>Property analysis, trading bases, legal requirements, trading entities, property users’ needs</td>
</tr>
<tr>
<td>Eminent domain</td>
<td>Legal constraint, legal procedure, definition of public interests, property valuation and just compensation</td>
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</tbody>
</table>
In a word, property acquisition involves a number of factors. Except for part of decision making implemented in the planning phase discussed in Chapter 5, property managers have a full range of responsibilities to fulfill so as to help provide appropriate services at the lowest cost for government agencies to achieve their goals and objectives. Therefore, public fixed asset managers need to analyze the features of each property acquisition method and acquire fixed assets cost-effectively within the legal framework. Table 12 presents a checklist of asset acquisition strategies.

Fixed Asset Operation and Maintenance

Premises of Sound Fixed Asset Operation and Maintenance

As an indispensable component of public asset management, fixed asset operation and maintenance is a complex job that engages a variety of issues. First of all, fixed asset operation must comply with laws, regulations, policies, procedures, and guidance formulated by government at different levels. Secondly, fixed asset managers are granted responsibility and accountability for property operation and maintenance. While operation responsibilities are specified in statutes, management guidance, and job description, fixed asset managers are delegated accountability from executive chiefs. Asset managers must ensure that fixed assets are utilized effectively, efficiently, economically, and transparently. Thirdly, fixed asset operation and maintenance are implemented according to maintenance strategies and policies based on legal and regulatory framework. They are expected to achieve a certain level to satisfy the needs of agency service delivery. Operation strategies and plans specify resources for the operation and maintenance of real properties, level and standard of operation
performance, responsibility for, control, access to, and security of real properties, staff training, and collecting and reporting performance data. Similarly, maintenance strategies and policies define maintenance standard, specify type of maintenance, determine maintenance priorities, estimate the projected cost of routine maintenance, and forecast major replacements and repairs. It is important to note that appropriate utilization of fixed assets is beneficial to maximizing a property’s value. Under-utilization increases cost of program delivery while over-utilization deteriorates asset performance, shortens asset productive life, and increase operating and maintaining cost. Fourthly, fixed asset operation and maintenance involve mechanics and technology. Therefore, expertise is absolutely needed to ensure quality asset operation and maintenance. This requires competence of asset managers and asset custodians. Finally, because some sections of fixed asset operation and maintenance cannot be efficiently performed by in-house personnel, private businesses participate in public fixed asset operation management. Thus, contracting-out is a trend in the operation management of public fixed assets. Integral execution of these issues contributes to cost-effective and efficient property operation and maintenance.

**Portfolio Management**

The portfolio approach to public real property management considers individual properties as constituting entities of the whole group of properties a government owns and controls. The portfolio approach also monitors the performance of all properties over time, takes into account not only returns from management but also risks in the process of seeking returns, and analyzes the potential benefits based on the overall
risk-adjusted rate of return from diversifying portfolio (Simons, 1993b). Public real property management on a property-by-property basis provides a number of features. First of all, based on cost-benefit analysis, property-by-property management is able to avoid inefficient and negative portfolios, thus ensuring positive portfolios. Secondly, cost-effectiveness analysis provides a criterion for owning a property based on the cost input and the effectiveness the property produces. Thirdly, while public property is split into several portfolios that are managed independently, the cost of managing individual properties can be offset through efficient use of properties and strategic asset management (Kaganova & Nayyar-Stone, 2000). Specifically, property operation management involves the following components:

- custodial cleaning,
- mechanical and technical maintenance and repairs,
- utility management,
- security,
- parking,
- roof repair,
- disposal of trash and hazardous wastes,
- pest control,
- property user improvements, and
- supply provisions (Harris, 1994).

In practice, a large percentage of these real property operation tasks have been implemented by outside contractors. Outsourcing is a trend of public fixed asset
Cleaning can be implemented by both in-house crews and outside contractors. Specifications for the cleaning of each facility will be unique according to particular needs. Sound maintenance not only benefits regular service delivery of fixed asset using agencies, but also ensures that fixed asset resources are utilized cost-effectively and that real properties’ values are preserved. Based on policies and norms, property facility maintenance is either preventive, which is planned, like routine inspection and servicing, or corrective, which is usually unplanned, like repair. Mechanical and technical maintenance and repairs usually secure the safety and daily operation of facility equipment and mechanisms, such as elevators, computers used for controlling building management systems, heating, ventilating, and air-conditioning systems, fire alarms, electrical items, and the water supply system. Routine maintenance includes all tasks that are regularly scheduled on a daily or weekly basis. In this sense, it is largely preventive. Repairs are usually the tasks that property users report when problems occur. Regular and sound maintenance leads to satisfaction of property users (Shenkel, 1980). Simultaneously it results in less frequent occurrence of problems and repairs and more effective and efficient property operation as is illustrated by Figure 7. To reduce loss and improve quality of property operation, property managers need to establish an effective system to provide response to repair requests from property users.
Utility fees generally account for about twenty-two percent of a building’s operation expense (Harris, 1994). In an office building, major utility users include lighting, heating, ventilating, air-conditioning systems; the building envelop — windows, doors, and roof and wall insulation; and electrical equipment. In recent years, federal and state governments have enacted laws to encourage energy conservation and reduce impact on environment. The federal government has enacted the Energy Independence and Security Act of 2007. GSA has established the Office of Federal High Performance Green Buildings to help federal agencies improve energy efficiency in the facilities they use. Executive Order 13514 — Federal Leadership in Environmental, Energy, and Economic Performance — outlines the goals of greenhouse gas reduction as well as management strategies to reduce energy, water, and material consumption. It is important that state and local governments follow the steps of the federal government.

Security is an essential part of public fixed asset operation. Security programs vary according to requirements of government agency missions. Some agencies need high-level security while some other agencies do not. Therefore, expenses of security are dependent on specific security programs. In practice, security personnel may get involved in fire and life safety programs during property operation (Harris, 1994).
Disposal of hazardous wastes and substance must be implemented according to laws and regulations. The Solid Waste Disposal Act and the Resource Conservation and Recovery Act require that hazardous waste be handled in a manner that protects human health and the environment. Fixed asset managers must provide training for employees who initially use hazardous substances at work or physically encounter hazardous waste or substance at work (Panzer, 1994). Besides disposal of hazardous wastes and substances, indoor air quality is a major internal environmental issue in real property operation management. Getting rid of internally and externally generated pollutants is under the supervision of property managers.

When property structures do not meet the needs of government agencies, property managers need to negotiate with property users to verify the needs and take responsibility for redesigning the space to satisfy their needs if it is highly necessary. Relevant construction definitely increases costs. In the case of leasing properties from individuals and private businesses, any addition construction cost must conform to the negotiated terms in the lease document (Harris, 1979; Wrieden, 1994).

It is worth noting that with e-government’s being popular with customers to provide services, internet and information technology have been widely used in the practice of public fixed asset management. The computer system integrates various dimensions of management operation, thus enormously improving fixed asset portfolio management. Satellite-based mapping technologies contribute to effective decision making, especially for a government with large amounts of assets over a large geographic area. Such technologies also enhance intergovernmental cooperation in
public asset management.

**Fixed Asset Disposition**

Properties need to be disposed of if they are surplus or excess, or if they have aged to retirement. The Federal Management Regulation differentiates an excess property from surplus property (Subchapter C, Part 102-75). Excess property is any property under control of an executive agency that is not required by the agency’s needs or discharged of responsibilities as determined by the head of the agency; surplus property is excess real property that is not required by a federal landholding agency for its needs or discharged of its responsibilities as determined by the Administrator of GSA. But for this dissertation, both excess and surplus properties are unutilized and need to be disposed of, and thus are defined as the same.

As discussed in Chapter 1, fixed asset underutilization and surplus are serious problems that exist in governments of all levels (GAO, 2003c; GAO, 2007; Kaganova et al, 2006). Surplus properties incur a large amount of repair and conservation expenses as well as opportunity costs (GAO, 2003c; GAO, 2007; GAO, 2008b; Ungar, 2003; Kaganova et al., 2006). They are a financial burden to government. A survey of federal and state government websites found that currently, the federal government and a large number of state governments have established a dedicated administrative division to manage surplus fixed assets. Simultaneously, some federal agencies and state agencies have delegation from either the chief executive or administrators of property management department to dispose of fixed assets under their control. Local governments do no usually have a central property disposal agency. Individual agencies
or financial departments dispose of local properties in accord with federal, state, and local statutes and ordinances.

Governments at all levels have enacted laws and regulations concerning disposal of fixed assets that are not needed any more. Laws and regulations define fixed assets that shall be disposed of, designate and authorize disposal agencies, and prescribe approaches and procedures for general and particular property disposal. For the federal government, disposal of surplus real property must be implemented under the authority of Chapter 5 of Subtitle 1 of the United States Code Title 40 except when disposal is otherwise authorized by special legislation. The Federal Management Regulation defines the general policy that disposal agencies must follow when disposing of federal surplus proper. The policy has two major points: (1) “in the most economical manner consistent with the best interests of the Government,” and (2) “ordinarily for cash, consistent with the best interests of the Government” (Subchapter C, Part 102-75.250). The Federal Property and Administrative Services Act of 1949 (as amended in December, 2000) designates the methods in which federal surplus real properties are disposed of. These methods include sale, exchange, lease, permit, or transfer for cash, credit, or other property that the GSA Administrator considers appropriate. In addition, no matter what method of disposal is employed, property disposal agencies must follow particular procedures when disposing of surplus fixed assets.

State governments have promulgated statutes and regulations to dispose of property assets they own. What they may have in common is that state laws and ordinances prescribe what property assets shall be divested and how these property
assets may be disposed of. Although they all have established a legal framework for
property disposal, the U.S. state governments may prescribe different methods and
procedures for disposal of surplus fixed assets. For example, the state of New York
mandates that the commissioner of general services shall dispose of state buildings by
sale or demolition that will best promote public interest (Laws of New York,
PBB-Article 2-§ 10). In the state of Illinois, surplus property can be disposed of by sale
or transfer. In addition, the Director of the Department of Central Management Services
is authorized to grant easement on state lands to public utilities (Illinois Statute, Section
7.2). Meanwhile, state laws have authority over local fixed asset disposal concerning
both the types of properties to be disposed of and methods of disposal. For example, the
Georgia statute mandates that municipal government shall sell the property to the
“highest responsible bidder” (Georgia Code Title 36-37-6) when they dispose of real or
personal property. In addition, municipal governments in Georgia are permitted to trade
properties with other property owners if it is in the interest of the municipality. The
State of Illinois prescribes that no local government agency receiving property from
state government may dispose of the property except to another government agency, or
“as a trade-in on like property,” or with the written approval of the director of the
Department of Central Management Services (Illinois Statute§ 8, Section 8). Besides,
local government also promulgates its own statutes and ordinances for local property
disposal.

In the process of property disposition, government must endeavor to enhance
transparency while fulfilling goals and objectives of fixed asset management.
Transparency and secrecy are two ends of a continuum (Florini, 1998). Where transparency is a choice, the government decides where it should be on that continuum, which means they choose a degree of transparency. With respect to government operation, transparency involves both the openness of a government’s decision-making procedures to external observers (Mitchell, 1998) and a structure that makes information available to both inside and outside actors (Finel & Lord, 1999). This means transparency can be increased by information disclosure, such as free press and open government hearings. Thus, outsiders can make decisions on the basis of the information they have obtained (Mitchell, 1998). High-degree transparency ensures that government respects the rights of citizens and promotes accountability to gain good governance (Stirton & Lodge, 2001, p.476). Transparent disposal of public fixed assets helps improve the quality of decision making, integrity of government operation, and equity of government business, no matter what disposal methods are employed. Transparency in property disposal may also reduce the occurrence of corruption. This will be further collaborated in Chapter 9—Monitoring, Integrity and Transparency.

Government needs to establish a mechanism for macroscopic adjustment and control of the fixed assets it owns and leases. This requires formulation of specific procedures of asset disposal within the legal domain. According to these procedures, government agencies as property users need to report the fixed asset they plan to dispose of, especially the fixed assets whose value exceeds a certain level, to an agency that has authority over the macroscopic adjustment and control mechanism. The relevant authority determines how the property shall be disposed: by transfer, by sale,
or by other means.

**Transfer**

Fixed asset transfer can be considered first among government agencies. Before disposing of a fixed asset, fixed asset managers should rationally determine whether or not other government agencies could use the property (Allison, 1996). Government agencies of the same government or of a lower level government can request transferable properties. In the case of low-level centralized property management, once a surplus property is determined appropriate for transfer, the property is valuated and transferred for cash or credit to a government agency that has made a request for transferable properties. Surplus properties can also be transferred to nonprofit agencies that have public purposes. Before the property is actually transferred, the transferee must submit a plan that explains how the transferred property will be operated. Personal properties can be donated to agencies of lower level governments or nonprofit organizations in accordance with government policies.

**Sale**

Surplus property disposal by sale is a method most frequently employed by governments at all levels. Sales of surplus property can be performed through bidding, negotiation, or contract broker. Sale of surplus property through bidding is a commercial process. Government agencies that dispose of surplus property must advertise the property for bids. Time, method, and terms and conditions of the advertisement must permit full and free competition taking into account the value and
nature of the property advertised (see U.S. Code Title 40, Chapter 5, Subchapter 3, § 545). All sealed bids must be disclosed publicly as advertised. The award must be declared with reasonable promptness. The winner shall be the one who bids highest above the fair market value. A sale through a contract broker employed by a government agency is implemented in the same way as are similar commercial transactions. To make the sale transparent, the contract broker must give the public notice of the availability of the property for disposal.

The sale of surplus property through negotiation is performed in particular circumstances. These circumstances may include, but are not limited to, great impact of the properties to be disposed of, inappropriateness of public advertisement of the property disposal, special characteristics of the property for disposal, bid failure to meet the fair market value, and low value of the property for disposal. In these particular cases, negotiation will be appropriately in the public interest.

**Lease**

Federal laws allow federal government agencies to lease the surplus properties they own. Leasing surplus fixed assets means that the federal agency changes the function of the asset from serving the agency in achieving goals and objectives to obtaining revenue for government. However, compared with private businesses, government is not good at running businesses (Osborne & Gaebler, 1992). Government falls far behind in the real property leasing business (Simons, 1993b). In reality, governments, especially state and federal governments, have leased great amounts of real properties from private businesses and no doubt will lease more and more
properties in the future. Therefore, disposal of surplus property through lease is not actually a popular practice. Comparatively, government would like to sell fixed assets to have one-lump revenue (Mikesell, 2007).

**Changing Functions**

Public fixed assets are originally acquired for particular purposes. These purposes determine such elements as the functions of public properties, the budget fund, financial and accounting requirements, the tax category, and zoning regulations. Therefore, once a property is disposed of by changing its function, relevant elements of the property in question must be correspondingly changed. For example, capital assets recorded under different categories of funds are reported according to different financial and accounting requirements (GFOA, 1994). Under the governmental fund, they are reported as expenses; but under the proprietary fund they are reported as capital assets. Surplus properties may have their functions appropriately changed to fulfill different purposes. Accordingly, they can be invested in public-private partnerships (PPPs) if possible to provide property-associated public outcome (Kaganova & Polen, 2006).

**Retirement**

Property retirement is a significant phase of property management. Fixed assets have a life of more than one year. When fixed assets are no longer functional or are irreparable, they are retired. Retired real property may be sold or demolished depending on which method is in the best interest of the government. According to Allison (1996),
property at the time of retirement may have residual value or be of some use to other
government entities. For a real property, the land on which the property stands may still
be valuable when the property is retired. It is important to note that except for residual
value, a retired fixed asset involves expenses when demolished. Therefore, fixed asset
management should make appropriate decisions concerning asset disposal so as to
obtain maximum public interest.

No matter what methods are employed for property disposal, proceeds obtained
from different categories of property must be deposited into the treasury and accounted
according to rules and regulations. Nowadays, government at all levels is experiencing
rapid internal and external changes. Public fixed asset management needs to regularly
dispose of surplus properties under their control according to government agencies’
needs and conditions of assets. Sales of surplus fixed asset by auction or by bids should
be held at least once a year (Allison, 1996). This may be dictated by laws or ordinances.
The methods of property disposition are summarized in Table 13.

<table>
<thead>
<tr>
<th>Methods of Disposition</th>
<th>Features of Disposition Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transfer</td>
<td>Legal requirements, property valuation, transfer request, property ownership changing</td>
</tr>
<tr>
<td>Sale</td>
<td>Bidding, negotiation, contract broker advertisement, transparency, fair market value</td>
</tr>
<tr>
<td>Lease</td>
<td>Legal requirements, leasing goals, market analysis, lease agreement</td>
</tr>
<tr>
<td>Changing functions</td>
<td>Objectives of changing property functions, taxation policy, financial &amp; accounting requirements</td>
</tr>
<tr>
<td>Retirement</td>
<td>Residual value, demolishing expenses, maximum public interest</td>
</tr>
</tbody>
</table>
Property Life Cycle Management

Property life cycle is a time span during which a property is conceived, designed, manufactured/constructed, utilized, maintained, and retired. In the case of real property, life cycle consists of four major phases, including planning, acquisition, operation and maintenance, and disposal (see Figure 8).

Figure 8 Life-Cycle Property Management

Both the preceding discussion of decision-making process in Chapter 5 and operation management discussed in the previous section of this chapter demonstrate that each phase of a property’s life cycle consists of various aspects of fixed asset management. Life-cycle management of fixed assets is a structured approach to analyzing costs of asset management and the factors that determine these costs during the life of property. The purposes of life-cycle property management are concerned with two dimensions of fixed asset management. One dimension is that life-cycle property management is a strategic plan for long-term financing of property ownership,
operation, and maintenance. The other dimension is that life-cycle property management puts each property under systematic custody and seeks maximum functionality at minimum life-cycle cost. Life-cycle management ensures that facilities are sustainable, that is, healthy and comfortable for their occupants and economical to operate and maintain. This life-cycle management is also intended to conserve resources of any categories (like energy, water, and raw materials and land) and minimize the generation and use of toxic materials and waste in design, construction, landscaping, and operation (Section 255.253, Chapter 255, Title XVIII, Florida Statutes, the State of Florida, 2010).

Generally, life-cycle costing of a property is an efficient and effective way to manage the costs of fixed asset ownership and use. This technique takes into account all phases of ownership of a fixed asset, including acquisition, ownership, and disposal; and it encompasses all expenditures a property owner makes during the property’s service lifetime, not only acquisition costs but also operation and maintenance costs (National Research Council, 1990; Kaganova, 2008). The evaluation of life-cycle costing is based on four components:

1) Capital investment,
2) Annual operating and maintenance costs,
3) Annual repairs and replacement costs, and
4) Salvage value (Shenkel, 1980, p. 72).

The costs of various categories are summarized in Table 14. The list in the table is by no means inclusive. Life costs of asset operation, maintenance, repairs, and replacement
largely depend on a sustainable asset rating that conforms to certain rating criteria. For example, the Leadership in Energy and Environmental Design (LEED) rating system established by the United States Green Building Council (USGBC) assesses a building’s sustainability and building performance on the basis of standards in six categories, including sustainable sites, water efficiency, energy and atmosphere, materials and resources, indoor environmental quality, and innovation and design process (USGBC, 2010).

Table 14 Factors Incurring Life-Cycle Property Management Costs

<table>
<thead>
<tr>
<th>Life-cycle phases</th>
<th>Cost Incurring Factors</th>
<th>Affecting Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning</td>
<td>benefit-cost analysis, risk analysis, architectural needs, public hearings, and possible lawsuit</td>
<td></td>
</tr>
<tr>
<td>Acquisition</td>
<td>land, construction, administration, interest, building permits, utility connection, and legal needs</td>
<td>variability of land location, construction materials, structure, labor, and contingencies</td>
</tr>
<tr>
<td>Operation &amp; Maintenance</td>
<td>cleaning, utilities, repairs, regular maintenance, parking, user services, user improvements, waste and dangerous material disposal, pest control, inspection services, property valuation, and data management, among other factors</td>
<td>property location, type and purpose, size, design, quality of construction materials, price indices for utility and services, wages, interest and inflation rates, and organization budget conditions</td>
</tr>
<tr>
<td>Disposal</td>
<td>evaluation and assessment, public hearing, demolition cost, and sales</td>
<td></td>
</tr>
</tbody>
</table>

References: Gish, 1994; Harris, 1994; Christian & Pandeya, 1997

It is highly necessary that a government designate a range of life-cycle cost in accordance with a set of standards that apply to use and maintenance of the fixed assets owned, leased, or controlled (such as Florida Statute Title XVIII, Chapter 255-255). It
is also worth noting that these costs throughout the property’s life cycle are not clearly incurred solely during one phase. With respect to government real properties, it is impossible to distinguish expenditures for renovation and replacement projects from annual operation and maintenance (OM) costs (Christian & Pandeya, 1997). Consequently, OM costs may fluctuate over a range. Life-cycle property management needs to take this into account while planning and analyzing life-cycle costs.

**Figure 9 Effect of Adequate and Timely Maintenance and Repairs on the Real Property Service Life**

<table>
<thead>
<tr>
<th>Performance</th>
<th>Optimum Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Likely aging without normal maintenance</td>
<td>Likely aging with normal maintenance</td>
</tr>
<tr>
<td>Property service life</td>
<td>Minimum acceptable performance</td>
</tr>
<tr>
<td>Lost to poor maintenance</td>
<td></td>
</tr>
</tbody>
</table>

Reference: National Research Council, 1993

Property maintenance is an essential independent variable that determines the span of a property’s life cycle (National Research Council, 1998). As previously discussed in Chapter 2, OM costs account for 46% to 85% of a real property’s total ownership cost (Christian & Pandeya, 1997). This mean that cost of acquisition of a fixed asset, which is the initial investment cost, occupies a small portion of the total expenditure during the life cycle of a fixed asset. A case in point is highway capital expenditure. In 1996, the combined state and local highway capital expenditures were $43 billion, but the
total expenditures, including capital plus operating and maintenance costs, reached $127 billion (U.S Bureau of the Census, 2000). With other conditions equal, proper management and maintenance keep a property under optimal working condition to provide adequate performance and thus significantly prolong the life of the property. Figure 9 illustrates the effects of appropriate maintenance on the service life of a real property. When a property is appropriately maintained, its aging process is slow and its life span with minimum acceptable performance is prolonged. Conversely, when a property is not normally maintained, its life span with minimum acceptable performance is rapidly shortened.

Obviously, inadequate and/or deferred maintenance and repair may result in a series of deficiencies. Deferred maintenance negatively affects service delivery of property using agencies, enormously increases maintenance cost in later property service, and worsens the working condition of property components (National Research Council, 1998; GFOA, 2010). These defects will eventually cause mechanical breakdown, damage to real property, disruptions in property service and the routine operation of the property using agency, and other serious negative consequences (National Research Council, 1998; GFOA, 2010). Generally, inadequate and deferred maintenance and repair are caused by a number of factors. First, “underfunding is a persistent, widespread problem that undermines maintenance and repair of public buildings” (National Research Council, 1990, p. xi). The attitude of “if it ain’t broke, don’t fix it” is the major source of underfunding (Barco, 1994). Second, current government budgeting focuses on design and construction cost, which accounts
for only five to ten percent of the total cost of real property ownership, and ignores the full-life cycle costs of a new facility (National Research Council, 1990, 1998). Third, lack of accountability for stewardship contributes to deterioration of some facility components. The deteriorating components may further cause disruptions of property service. Fourth, formal regular property assessment is neglected. As a result, funding is somewhat reduced and backlogs pile up.

Besides inadequate maintenance and repair, other factors that contribute to loss of property service life include aging of fixed assets, lack of information to justify inspection and repair, and lack of appropriate rules and regulations. These factor may work individually or jointly to produce negative consequences in life-cycle property management.
CHAPTER 7. HUMAN CAPITAL STRATEGIES

Traditional public personnel management generally focuses on two functions: (1) routine processing of administrative tasks concerning payroll and retirement and (2) enforcement of laws, rules, and regulations governing the civil service system (Ban, 2002; Nigro & Nigro, 2000). These fundamental functions cannot meet the increasing needs of organizational management. While prioritizing efforts to improve organizational performance, line managers were constrained by excessive centralization of personnel authority (Nigro & Nigro, 2000). New public management requires that government provide efficient and effective services and be highly responsive to public needs. This requirement urges public personnel management to change its traditional functions to meet the increasing needs of line managers. Public personnel management should consider human resources as capital that may produce value. It should also expand from recruiting, selection, and pay and benefits to additional strategies to address an organization’s increasing need of human resources to achieve organizational goals and objectives. Thus, human resource management (HRM) is an appropriate term that describes the functions of employee management in a public organization.

The Investment in Workforce for Public Fixed Asset Management

Human resource management integrates the planning and management of the workforce with an organization’s mission and future direction. It fosters collaboration
between management and employees and encourages employee involvement (GAO, 1987). In the domain of public property management, as in other domains of public management, employees should be considered as human capital in which government invests. The investment in human capital of public fixed asset management can be reflected in a number of dimensions. First of all, a government agency’s senior leadership should be committed to developing effective ways to invest in human capital (GAO, 2006). Secondly, agency property managers should participate in developing the agency’s overall human capital strategy that demonstrates the requirements and goals of the agency’s fixed asset management. Thirdly, property managers are responsible for developing, implementing, and evaluating human capital approaches that are designed to meet the needs of the customers of property management and improve the overall property management operation. And finally, the human resource department handles payroll and retirement tasks and enforces laws, rules, regulations, and procedures. Generally, salaries and benefits account for 70 percent or more of operating cost (Sylvia & Meyer, 2002). In the domain of public real property management, operation and maintenance costs take up 60 to 85 percent of a facility’s total ownership cost (Christian & Pandeya, 1997). Costs of human resources occupy more than 60 percent of total ownership cost. Thus, investment in human resources is an enormous portion of property management cost.

Human resource management performs fundamental roles in public fixed asset management. Human capital staff partner with fixed asset managers to develop workforce plans that conform to the goals of asset management and the agency’s
mission accomplishment (GAO, 2006; Proctor & Curie, 1999). Human capital management serves as an internal consultant for fixed asset management in such areas as organizational design, program development, employee motivation, and productivity improvement (Ban, 2002). In addition, human capital provides not only expertise tailored for public fixed asset management but also employee involvement decision making and problem solving.

**Strategic Human Capital Planning**

Besides operational functions, human capital management should take on strategic roles. Strategic human capital planning should include needs of fixed asset management functions; it aligns decisions concerning human capital with decisions about the missions of fixed asset management and the goals of an organization (GAO, 2006; U.S. Office of Personnel Management, 1999). Therefore, an agency’s strategic human capital planning should take into account the workforce requirement of fixed asset management (Brinkerhoff, 1987; McMahon & Kerman, 1996). Management of the fixed asset workforce needs to address critical skills, development needs, and human capital challenges such as diversity, retention, and leadership capacity (GAO, 2006; Rummler, 1987; Hayles, 1996; Conover, 1996). In addition, strategic human resource management is responsible for succession planning, such as development of the talent of fixed asset management staff. This will be further discussed in the following section of this chapter. Moreover, strategic human capital planning should include planning for change and planning for cutback (Sylvia & Meyer, 2002). And it is necessary to consider all stakeholders in team development, whose involvement may
contribute to the success of fixed asset management (GAO, 2006).

Strategic human capital planning is based on the data of the current workforce involved in fixed asset management. Specifically, the data consist of the match between the size of workforce and the assignment of fixed asset management, the shape of the workforce, attrition rates, skill inventory, projected retirement rates, performance appraisal ratings, the average period to fill vacancies, acceptance rates of selected job candidates, and feedback of customer survey, employee survey, and exit interview (GAO, 2006). Moreover, strategic human capital planning is also based on other categories of data, such as agency budget, training programs being initiated, the number of employees receiving training, percentage of female employees, demand of services the agency provides, and union environment. It is important to note that these data may affect strategic human capital planning in different manners and in various degrees. For example, when an agency is forced to slash budgets owning to an economic downturn or a slowdown in demand for property services, strategic human capital plans have to be restructured to preserve the mission of the agency. Possibly, some training programs may be cancelled and employees laid off when necessary.

Human Capital Development for Property Management Talent

Human capital development is a kind of sustainable investment in human resources. It is related to employee training. On the other hand, as previously mentioned, human capital development is an essential dimension of strategic human capital planning. However, it consists not only of strategic planning but also of operational planning in the domain of public fixed asset management. From a
perspective of strategic planning, workforce management in public fixed asset management must take care of sustainable development of employees’ professional talent and expansion of employees’ professional vision. Meanwhile, from a perspective of operational planning, workforce management that handles public fixed asset management should provide new employee training or specific task-oriented training.

With respect to planning for sustainable human capital development, human resource management needs up-to-date information to make decisions concerning development of property management employees. Human resource management, with top-level commitment and help from fixed asset managers, needs to establish a systematic framework for attracting, developing, retaining, and deploying high performing property management employees to achieve property management goals and accomplish organizational missions. To implement sustainability planning, human resource staff must identify “positions that are likely to experience retirements in the near term, determine critical skills necessary to the positions, establish in-house training programs to develop the needed skills, and develop mentoring programs in which high-level managers work with particular subordinates and impart managerial skills” (Sylvia & Meyer, 2002, pp. 123-4).

To enhance sustainable human capital development, human resource management has responsibility to provide all employees with training regarding new practices in the domain of fixed asset management. Human resource management needs to establish cooperative relationships with local higher education institutions to provide seminars tailored for various groups of asset management employees. Simultaneously, the
agency should consistently provide resources to support training and human capital development priorities for fixed asset management.

With respect to operational training, human resource management, together with the asset management division, should provide training for new asset management employees regarding compliance to laws, regulation, procedures and specific operation as well. Public fixed asset managers need to provide opportunities for property management employees to learn best practices, in-house property asset management expertise, and technical problem-solving skills. To enhance operation of fixed asset management, asset managers with cooperation from human resource management need to establish training programs in team building and conflict management.

To ensure that human capital development for property management talent is implemented effectively and achieves expected results, it is of great importance that human resource management establish specific plans for human capital development based on up-to-date information regarding fixed asset management employees and particular needs to achieve asset management goals. On the other hand, human resource management and asset management division need to establish a transparent performance appraisal mechanism and performance incentive system (see Rosenberg, 1996). These measures may help property human resource management and asset managers attain goals of human capital development and fulfill mission of fixed asset management.

Creating Results-Oriented Organizational Culture

A healthy organizational culture promotes organizational learning. A learning
organization is more capable of adapting to environmental changes because it encourages creation and exploration of new knowledge (Senge, 1990; Kofman & Senge, 2003; Tobin, 1993; Argyris & Schön, 1978). In addition, organization may create a culture for performance improvement and sustainability building. Creating results-oriented organizational culture is a fundamental mission of human resource management because human resource management performs a role of leadership in building up an organizational atmosphere that encourages high performance, cooperation, and accountability. A results-oriented organizational culture helps mobilize the working enthusiasm of fixed asset management employees and motivate them to improve performance. An effective performance management mechanism is actually a tool that drives employees’ internal impetus to produce external results beyond management expectation (GAO, 2003b).

GAO recommended that government agencies need to provide cost-effective and flexible environment and develop results-oriented workforce (GAO, 2003b). To create a results-oriented organizational culture, an agency involves fixed asset management employees in making decisions, including individual and team goal setting to achieve organizational missions (GAO, 2006; also see Earley, Wojnaroski, & Prest, 1987; Locke, Shaw, Saari, Latham, 1981; Locke & Latham, 1990, 2002; Tubbs, 1986). Fixed asset managers need to understand their subordinates so as to adopt appropriate approaches to motivating to provide high performance. The agency needs to establish effective communication between managers and subordinates so that human capital potential can be fully exploited in the work place. In the case of strong employee
unions, the agency should involve union leaders in decision making regarding major workplace changes (Sylvia & Meyer, 2002).

Table 15 demonstrates a checklist of the key factors in human capital management. Working together, these key factors provide a strong, indispensable support to fixed asset management. In addition, these factors build up a dynamic, constructive system that effectively organizes fixed asset management activities to achieve organization goals and objectives.

**Table 15 Checklist of Key Factors of Human Capital Management**

- ✓ Senior leadership commitment to human capital investment
- ✓ Property managers participating in overall human capital strategy
- ✓ Property managers implementing human capital approaches
- ✓ Human capital department enforcing laws and regulations
- ✓ Human capital staff partnering with property managers to develop workforce plans
- ✓ Human capital department serving as property managers’ consultant in organizational design, employee motivation, & productivity improvement
- ✓ Employee job description based on overall property management goals & objectives
- ✓ Consideration of the workforce requirement of property management
- ✓ Planning for change
- ✓ Employee involvement in decision making
- ✓ Team development
- ✓ Improvement in operation proficiency
- ✓ Attainment of new work requirements
- ✓ Satisfaction of long-term need for qualified employees
- ✓ Meeting customer satisfaction
- ✓ Aligning with agency goals & objectives
- ✓ Build up atmosphere for organization learning
- ✓ Encourage high performance
- ✓ Encourage cooperation
- ✓ Enhance employee accountability
- ✓ Understanding subordinates
- ✓ Establish effective communication between managers and subordinates
CHAPTER 8. INFORMATION AND TECHNOLOGY RESOURCES MANAGEMENT

Information management has been growing in importance in modern public administration. Public managers have to gather data and process the data into usable information (Hitt et al., 1989). They make decisions by using the information obtained or provide the information to top-level decision makers to make significant decisions at critical times. There are two reasons that may explain why information management has become more important in both the private and public factor. One is that management as a job has become more complex and involves a variety of factors in a rapidly changing environment. The other factor is that decision making tools have been improved to help managers solve more complex problems. Therefore, decision making is more challenging nowadays because much more information has to be obtained and because complicated decision making tools must be employed for solution of difficult problems.

Similarly, public fixed asset management today is enormously affected by many factors. Public property administrators or managers must obtain up-to-date information concerning these factors to make decisions about property acquisition, use and maintenance, and disposition. In the public asset management system, the cornerstone of Information and Technology Resources occupies a special position. On the one hand, information acquisition is a dynamic process in which asset management categorizes property assets, collects raw data of properties, describes and records the state of
properties, valuates fixed assets, and records and reports financial and accounting contents of fixed assets. In this sense, information obtained is an output of fixed asset management in the property life cycle. On the other hand, information acquired has an indispensable function in the decision process of asset management. Public asset managers depend on asset information obtained to make decisions concerning how to handle the relevant properties in question. From a decision-making perspective, information has become input while the decisions that asset managers formulate are output.

**Figure 10 Information Management Process**

Information is considered as an organizational resource in the public asset management system. Managing information resources is to combine raw data, people and processes to produce information and use information to aid fixed asset managers in attaining goals and objectives of asset management. In the process of information
management, asset management employees gather, store, and file data; then they produce and provide information to those who use it for property management. The process is illustrated in Figure 10. Obviously, information management is a continuous process in which raw data produces information after a processing phase. Then the newly produced information is considered as input for decision making and produces new information. In fixed asset management, the products of information management are decisions that contribute to planning outcomes, assets acquired, services provided, and disposition of assets.

The cornerstone of Information and Technology Resources should encompass legal and regulatory information, human resource information, fixed asset information, financial and accounting information, and information stewardship. Since the public asset management system embraces particular cornerstones of legal and regulatory requirements and human resource management, the cornerstone of Information and Technology Resources focuses on property-related information, that is, traits of fixed assets and financial accounting attributes.

**Fixed Asset Information**

Building an inventory of fixed assets and registering fixed assets are two fundamental ways in which information managers gather and produce fixed asset information (Conway, Kanganova, & Mckellar, 2006; Kaganova & Nayyar-Stone, 2000). The activities of building a fixed asset inventory and registering fixed assets are based on laws and regulations, policies, guidance, and practices. At the U.S. federal government, Executive Order 13327 mandated that a comprehensive and descriptive
database (called Federal Real Property Profile or FRPP) of all real properties under the custody and control of all executive branch agencies, except when otherwise exempted for reasons of national security, be established at the U.S. General Services Administration. Federal executive agencies are required to submit an annual data report to the FRPP. With the consolidated data of government real property in the FRPP system, the federal government is poised to improve real property decision-making and benchmark federal real property management against federal requirements (the Federal Real Property Council, 2010). The FRPP system holds a wealth of real property information that can be used to oversee federal government efforts towards the goal of reducing real properties’ operation cost.

GFOA recommends that governments develop a policy to require a complete inventory and periodical assessment measures of physical conditions of all existing capital assets (GFOA, 2010). Governments need to determine the categories fixed assets are classified into. Different governments may have various criteria (such as laws, regulations, practices, and traditions) for fixed asset classification. Generally, real properties assets are classified into three categories: buildings, infrastructure assets, and land (Fernholz & Fernholz, 2007). All public fixed assets can be for governmental use (like office buildings), service provision (like schools and public hospitals), and social use (such as public housing, parks) (Kaganova & Nayyar-Stone, 2000; Fernholz & Fernholz, 2007). Property assets that are not put to use are surplus properties. Different governments may have various fixed assets for each category.

Besides criteria for fixed asset classification, asset management needs to define
and use data elements and standards for building fixed asset inventory. Consistent data elements make it easy for all stakeholders to understand the status of public assets. On the other hand, this consistency improves property information quality and avoids the dilemma of using different standards for various asset-using agencies.

Inventorying of fixed assets starts by gathering basic data on a property-by-property basis. It covers all properties that government owns and controls. The contents of data may be somewhat different for different categories of fixed assets. Inventory of various categories of fixed assets, whether owned or leased, may include such information as existing use, age, date of occupancy, zoning, location and address, site, percent utilized, historical operating statements, book value, original useful life, remaining useful life, and legal owner (Mahlmann, 1987; GFOA, 2010). For assets owned by government, more information would be added, such as acquisition cost, current value (or replace value), annual cost for ownership, and planned capital improvements. For assets leased from private businesses, the following information needs to be added: lease rent, option to renew or to purchase, cost of leasehold improvements, planned leasehold improvement, and estimates of current market rents and value, among other elements (Nourse, 1990). Comparatively, the inventory of land properties may have a number of particular elements and standards, such as soil conditions, flooding conditions, and environmental services and hazards.

Property registration, according to Fernholz & Fernholz (2007), is a process by which government identifies a property’s ownership, use, details of location, size, and features. From a legal perspective, property registration authorizes legal ownership and
tenure right of a property, especially land and buildings. This enables efficient and secure property transfer and transaction. From economic and financial viewpoints, property registration gathers information concerning property financing, taxation, security of credit, and improvement and management. With information obtained from property registration, government may use the properties registered more efficiently and effectively. For example, clearly registered properties can be used by banks as collateral, and registration of debt can be linked to certification of property for any potential transactions (Fernholz & Fernholz, 2007).

An effective and well functioning registration system depends on a number of factors. Some key factors include appropriately selected property elements, efficient organization, security, easy access, reliability, and cost-effective retrieval (Fernholz & Fernholz, 2007). A registry system that registers appropriately selected property elements may provide expected functions and serve appropriate purposes. Besides, government needs to determine which agency at which level of government has the authority for property registration. Property registration is not actually separated from the main body of asset management. It is recommended that the authority of public property registration go with the authority of public asset management so that property registration can best provide services. In addition, the data of property registry should be kept in a secure way and within easy access. An information database of all properties should be updated regularly and retrievable at lowest cost.

Besides the basic information of fixed assets, the performance of pools of fixed assets is fundamental information for effective and efficient public asset management.
Therefore, public asset managers have accountability to evaluate the performance of not only individual properties but also pools of properties so as to analyze the output of property management against investment input. Corporate real estate management uses return on investment and budget standard as major indicators of property performance evaluation (Gale & Case, 1989). But public asset management at state government rarely evaluates property performance. In recent years, public asset managers use specific monetary rates or user comments as major indicators for evaluating the performance of real properties and management, such as operating cost per square foot, dollars savings from audits, average cost per employee in leased space, favorable customer satisfaction in percentage, and utility trouble calls (New York Office of General Services, 2005).

Financial and Accounting Information

Currently in the United States, fixed assets account for a very large portion of the public financial resources at each level of government. In an annual financial report of state and local governments, capital assets occupy an important position. As discussed in Chapter 2, one major objective of public asset management is to maximize the value of fixed assets that government owns and controls. In the process of public fixed asset management, asset managers regularly report, track, and value fixed assets (Larson, 2004). Therefore, financial and accounting information management occupies a significant position in the fixed asset management system.

Accounting and Financial Reporting

State and local governments are subject to GASB guidance while the federal
government is subject to the standards promulgated by the Federal Accounting
Standards Advisory Board (FASAB). Both GASB and FASAB have requirements that
costs and revenues concerning capital assets be reported by categories. For state and
local governments, fixed assets are categorized as land, buildings, equipments,
 Improvements other than buildings, construction in progress, and intangibles. In
addition, GASB Statement 34 requires that infrastructure assets also be recorded as part
of a state or local government’s capital assets. Infrastructure assets usually include
roads, bridges, tunnels, water and sewer systems, dams, drainage systems, and lighting
systems. Capital assets used for governmental activities and those for business-type
activities are recorded in the government-wide financial statements while capital assets
used for fiduciary activities should be excluded from the government-wide statements.
A state or local government’s capitalization policy determines what assets are recorded
as capital assets and what assets are recorded as expenses. For example, a capital asset
purchased or constructed with a governmental fund is recorded as an expenditure rather
than as an asset. In addition, a state or local government may determine what assets are
recorded as capital assets by setting particular capitalization thresholds (in terms of
monetary value and useful life) according to that government’s capital asset structure.

The federal government uses property, plant, and equipment (PP&E) to take the
place of capital assets. FASAB states that PP&E falls into four categories: general
PP&E (all PP&E that is used to provide general governmental services), federal
mission PP&E (used as an integral part of the output of certain unique federal
government missions), heritage assets (those assets possessing significant educational,
cultural, or national characteristics), and stewardship land (land other than that included in general PP&E (SFAS 6, Federal Accounting Standards Advisory Board, 2009). FASAB specifies what cost and expenses are to be recorded in financial accounting reports. Federal agencies may determine their own capitalization thresholds according to their property characteristics.

GASB, in GAS No. 34, states that government-wide information should be provided for users of financial statements so that they may adequately understand a government’s overall financial circumstances. Therefore, state and local governments should prepare a balance sheet in the government-wide financial report. The balance sheet equation can be expressed as:

\[ \text{Net Asset} = \text{Assets} - \text{Liabilities} \]

This formula suggests that when fixed assets account for a large portion of total assets in dollar value, the fixed assets determine how good or poor the financial condition of a state or local government is.

**Fixed Asset Valuation**

Valuation of fixed assets is a methodological challenge and a controversially debated topic in the domain of public fixed asset management (Kaganova & Nayyar-Stone, 2000; Fernholz & Fernholz, 2006). Discrepancies on public asset valuation arise from a number of viewpoints (Kaganova & Nayyar-Stone, 2000). The first one is that property valuation is unnecessary because not all public properties have a potential to go on the market. Secondly, the social value of many public assets is hard to quantify. Thirdly, the value of some public properties are particularly specified with
public features and thus restricted. Fourthly, valuation standards are difficult to justify; thus it may cause confusion. Finally, public property valuation is an expensive issue that may incur unnecessary expenses and dissent from taxpayers.

However, in the practice of public asset management, there are a number of issues that need asset valuation and appraisal. Some of these issues may include the following:

- To estimate asset value for regular asset reporting,
- To estimate current value for using asset as collateral,
- To estimate market value for asset sale, transfer, trade, joint venture,
- To estimate sunk or residual value for retirement of an asset,
- To estimate market rent for internal transfer pricing, and
- To estimate current value for government agency merger or rescission (Nourse, 1990).

In addition, fixed asset valuation and appraisal involves a variety of factors, such as initial cost, age, physical and environmental characteristics, location, life span, depreciation, appreciation, and replacement value. Various valuation methods are actually employed to serve different objectives. For bookkeeping purposes, the following valuation criteria might be used:

- Book values: Fixed assets are valued based on their acquisition value. Book values can be used for the properties that “do not represent a true commercial opportunity cost, unless there is a pending sale/disposal of the assets of change in land use” (Fernholz & Fernholz, 2006, p. 8). Book values of fixed assets can be reduced by depreciation, amortization, and depletion while fixed assets are
used to provide services or obtain revenue. However, book values may not represent the true value of the fixed asset unless valuation is conducted at the time of acquisition, construction, or another particular time.

- Replacement value: Cost to be paid to replace a fixed property at the present time or at its pre-loss condition.
- Comparative market value: The value of a comparative asset is a good approximation to the value of the fixed asset to be recorded.
- Social and cultural value: These values may not be equal to financial values, but they are significant from a perspective of different segment of government (Fernholz & Fernholz, 2006).

For the purpose of a financial accounting report, GASB No. 34 allows two methods of property valuation. One method is a traditional method based on historical cost. By using this method, government records the original cost at purchase or construction and reduces the cost by straight-line depreciation according to assigned useful life of the reported property. However, historical cost accounting is criticized for a number of reasons: (1) the acquisition value on the balance sheet may be old; (2) historical cost accounting focuses on allocating cost not on the value of assets; (3) it is based on an assumption that purchasing power remains the same during the life time of a property; (4) historical cost prices reflect an old interest rate and out-of-date assessment of amount, timing, and uncertainty of future cash flows (Ahad, 2009). When historical cost is not available, it can be estimated by calculating the current replacement cost of a similar tangible property and deflating the replacement cost by using price indexes to
the year of property acquisition. If this traditional depreciation method is employed, maintenance and depreciation expenses are recorded as expenses. The other method GASB Statement 34 allows, termed “modified reporting approach,” assigns a current value to a fixed asset based on its market value or replacement cost. It recognizes that capital assets are maintained and preserved at their current condition through investment in repairs and replacement so as to extend their useful life. Under the “modified reporting approach,” the original cost and improvements and additions to capital assets are not depreciated; and maintenance and renew/preservation expenses are recorded as expenses. If electing to employ the modified reporting approach, state and local governments must have a qualifying management system that includes an up-to-date inventory of capital assets, consistent and complete condition assessment using a measurement scale, and an annual estimate of maintenance and preservation costs at the disclosed conditional level.

For the purpose of proactive asset management, which keeps close track of fixed assets and finds effective ways to ensure that fixed assets under control perform at their best, market value criterion is adopted (see Harris, 1994b, p. 56). Likewise, for the purposes of asset sale, transfer, and trade, a capital asset must be valuated and appraised to estimate its current fair market price. Generally, there are three approaches to valuation: sales comparison, income capitalization, and cost or summation (Nourse, 1990; Mikesell, 2007). The sales comparison approach starts with finding comparable properties that have been recently sold, and then adjusting the market values of these properties to estimate the value for the subject asset. Meaningful adjustments are made
by taking into consideration differences in sales time, differences in location, and differences in size, environmental conditions, and amenities that may cause a difference in value. However, this approach does not apply to unique properties because of a lack of comparable properties. The income capitalization approach converts future returns from owning a property into a present value equivalent to estimate the property value a willing investor would pay considering future income flow. This approach involves a capitalization rate that reflects a prevailing relationship between annual net operating income and total property value (Mikesell, 2007). In the case of buildings, the cost approach estimates land value and adds the depreciated cost of improvements on the land. This approach determines the cost of constructing a standard building, and adjusts the cost to account for any nonstandard building construction.

It is important to note that land value is calculated at original cost without using depreciation except when that land has pollution, erosion, or mineral extraction issues. Land for government use, commercial land (with the potential to be converted to commercial use), land for utilities, and potential areas of conversion from vacant land to buildings can be valued similarly. Various factors, like zones and impact of zoning changes on the valuation, are taken into account when considering land value.

Management Information Stewardship

How effectively a management information system works depends on a number of factors. Generally, a management information system consists of four components: planning, design, use, and control (see Ceriello, 1980). Planning determines what information is included in the management information subsystem. Only when a
management information system embraces correct information can the system function appropriately to serve expected purposes. In addition, information resources should be accurate, timely, complete and concise, accessible, and usable (GAO, 2006; Hitt et al, 1989; Fernholz & Ferholz, 2007). Outdated and inaccurate information may lead to incorrect decisions. Without sufficient information, managers are not able to arrive at rational decisions. However, large amounts of competitive information may cause confusion and contribute to irrational decisions (Scott & Podsakoff, 1985).

Design mainly determines the form in which information is stored and filed. In modern times, management information of government agencies is mostly computerized and available to not only managers and other internal stakeholders, but also to external holders. Actually, information computerization is usually considered a vital indicator of an effective management system. Moreover, software programs are created to develop a prototype of information storage and provide devices for public managers to make decisions.

The use of a management information system determines how information is used, who has access to the information, and who is in charge of and maintains the information. In the private sector, a growing number of organizations have established a chief information officer (CIO) to ensure that information resources are effectively managed (Synnott, 1987). The major responsibility of a CIO is professional strategic information planning. A CIO must ensure that an organization’s investment in its information system is aligned with its strategic business objectives (Beatty et al, 2005). Control indicates how management information is adjusted and updated. Particular
categories of information can be complemented or deleted to satisfy the needs of management’s and decision making.

A fixed asset information management system must encompass essential fixed asset information that consists of fundamental elements of each fixed asset a government owns and controls. The property information needs to cover core features of each and every asset, especially ownership and leasehold, physical asset condition, utilization state, services provided, and functional position in the government’s operation. The major information included in an asset management information system is presented in Table 16. Such major information is a pillar that supports strategic asset decision making. Besides, financial and accounting information not only presents a structure of financial resources, but this information also affects the manner in which government disposes of assets. The information resource must be processed and updated in a timely manner when any element of a property asset is changed. This keeps property-related information accurate and consistent.

How fixed asset management information is stored is determined by the amounts of fixed assets and the technology available, and it in return affects cost-effectiveness of the information system. Generally, computerization of property-related information means more effective use of information. For large amounts of fixed assets, software programs should be developed to categorize and synthesize information concerning every property asset. Simultaneously, a satellite-based mapping system can be employed for certain categories of fixed assets such as buildings and land (Fernholz & Fernholz, 2007). Information technology can be used to combine information records
with internet portals to improve fixed asset management’s efficiency and effectiveness while increasing management’s transparency. However, asset managers must ensure that the cost of retrieving and using management information is limited to a particular level.

From a macro management perspective, a government needs to put custody of its property management information system under the jurisdiction of a dedicated property management agency or financial service department if there is no such a dedicated agency. An example is that the federal government has placed its Federal Real Property Profile under the jurisdiction of the General Services Administration. The official in charge of the fixed asset management information system plays the role of a CIO who attends top strategic asset planning meetings. In addition, the electronic asset reporting system can be accessible to stakeholders. It must be securely stored and cautiously maintained.

Table 16 presents a checklist of major fixed asset management information. It is expected that a government at any level establish a fixed asset information system that records these characteristics of major fixed assets that the government owns, leases, and controls. This helps government decision-makers and fixed asset managers understand the constituents, condition, and value of fixed assets so as to make appropriate decisions concerning acquiring new assets, disposing of current assets, or restructuring the assets in use.
Table 16 Checklist of Major Fixed Asset Management Information

| ✔ Property asset category          |
| ✔ Location                         |
| ✔ Age                             |
| ✔ Current status                   |
| ✔ Percent utilized                 |
| ✔ Date of occupancy                |
| ✔ Size                             |
| ✔ Estimated value                  |
| ✔ Zoning                           |
| ✔ Legal owner                      |
| ✔ Property title                   |
| ✔ Original useful life             |
| ✔ Remaining useful life            |
| ✔ Transfer history                 |
| ✔ Acquisition (Construction) cost  |
| ✔ Total value of operational assets|
| ✔ Total value of investment assets |
| ✔ Total value of fixed assets      |
| ✔ Annual cost of ownership         |
| ✔ Annual operating expenses        |
| ✔ Insurance                        |
| ✔ Taxes                            |
| ✔ Rent of leased property          |
| ✔ Cost of leasehold improvement    |
| ✔ Soil mechanical condition (land) |
| ✔ Flooding condition (land)        |
| ✔ Environmental services (land)    |
| ✔ Hazards (land)                   |
CHAPTER 9. MONITORING, INTEGRITY, TRANSPARENCY OF FIXED ASSET MANAGEMENT

Considering the variety of the functions of public asset management, government should try to ensure that public assets function appropriately. Public asset management is significant for government to implement its missions and achieve its goals and objectives. For one thing, efficient and effective public asset services guarantee a physical foundation on which government delivers services and produces public goods. On the other hand, some categories of public fixed assets are public goods and provide service directly for constituents within the jurisdiction. In addition, public fixed asset management involves a wide range of business activities that need tremendous amounts of public funds. The efficiency and equity of spending each tax dollar usually attracts attention from the public. Accountable government needs to establish a mechanism to monitor and oversee the whole process of public asset management and improve transparency within legal constraints.

Monitoring and Oversight

Public fixed asset management has been producing considerable effects in the domain of public management. In order to ensure that public asset management achieves its goals and objectives in serving government agencies, the processes of asset management need to be effectively monitored in different dimensions. In addition, oversight over fixed asset management helps produce accountable and
transparent government by assuring constituents that tax money is spent reasonably and that publicly owned properties are utilized efficiently (Hentschel & Utter, 2006). Considering the structure of public asset management, monitoring and oversight covers the following aspects of fixed asset management:

- monitoring of compliance of laws and regulations,
- monitoring of effectiveness of policies & procedures,
- contract monitoring (cost, schedule, performance, quality),
- performance measurement, and
- financial accountability monitoring (purpose, time, amount).

Monitoring and oversight is a kind of managerial control and a process by which management at different levels evaluates and audits the fixed asset management process and performance against previously determined standards and takes corrective measures if necessary (Hitt et al., 1989). The standards on which monitoring and oversight are based include legal and regulatory requirements, policies and procedures, performance standards, contracting requirements, goals and objectives, job descriptions, and financial and accounting requirements. In the domain of fixed asset management, monitoring and oversight are intended to determine in what degree each component of fixed asset management is appropriately implemented to achieve its planned objectives.

**Monitoring of Compliance with Laws and Regulations**

As discussed in Chapter 4, laws and regulations authorize fixed asset managers to “make a choice among possible course of action or inaction” regarding asset
management (Davis, 1980, p. 4). Fixed asset management at all levels needs to examine the duties they have performed against requirements of laws and regulations to make sure they have not deviated from those requirements.

**Monitoring of Effectiveness of Policies & Procedures**

Policy, procedure, and guidance provide either broad or specific working principles as well as instructions regarding how fixed assets should be managed. Managerial control of job tasks to be performed within the policy and guidance framework may ensure that property asset management achieves its goals and objectives.

**Contract Monitoring**

A contract is an important business document that prescribes rights and liabilities of the involved parties. Public fixed asset management must examine the contracts signed for business with either a private party or another government entity so as to ensure that contracted goods and services are delivered according to time and quality requirements. Simultaneously, managers in charge of purchases must be cautious of every contract term so as to protect public interest while fulfilling responsibilities (Thai, 2007). Asset managers and higher level management must make sure that a contracted program has met its performance targets in terms of quality and quantity of purchased construction and service, timeliness, and payment within budget (Thai, 2007; Province of British Columbia, 2002). Besides, contingent factors frequently exist when complex construction programs—like buildings, bridges, and highways—are implemented. When disputes concerning contract clauses and terms arise, monitoring
entities need to ensure that relevant disputes are resolved fairly and promptly, and that the interests of either party have been protected and guaranteed. When a general contractor awards a portion of a contracted construction or service project to subcontractors, a monitoring entity (either the purchasing party or the supervisor of the purchasing party) must make sure that the general contractor has paid its subcontractors (Dobler et al, 1990).

It must be noted that contract monitoring is not implemented only after a contract is closed or a program/project is completely finished. Like financial auditing that starts after the budget is executed, monitoring of fixed asset management starts when property users initiate the asset planning process. Risks can thus be avoided, breach mostly prevented, contracts appropriately implemented, and target performance largely achieved.

**Monitoring of Performance Measurement**

Performance measurement is a part of monitoring and oversight on public fixed asset management. It intends to determine if the management processes are appropriate, whether intended asset performance and service delivery outcomes are achieved, and whether all of the accountable parties have fully met their responsibilities and roles (Province of British Columbia, 2002). Based on service plans of a government agency, asset managers set their departmental standards of fixed asset services. Supervisors, in turn, stipulate their sectional standards as well as individual job standards (Hitt et al., 1989). Performance standards established by managers of different levels must be results-oriented, comparative, diverse and balanced, stable, realistic, and able to
Fixed asset management performance is monitored and measured against all established standards and specific indicators. Generally, appropriate feedback is also simultaneously provided regarding variances between actual results and expected standards, underlying causes, and corrections and improvements to make (London, 2003; Province of British Columbia, 2003).

As discussed in Chapter 2, the goals and objectives of fixed asset management are to efficiently and effectively provide asset service for government agencies to satisfy the needs of public service delivery. Therefore, performance standards focus on measuring and monitoring asset performance. Frequently-used performance measures include cost per square foot (owned), cost per square foot (leased), vacancy rate (adopted by Building Owners and Managers Association and New York City); average cost per person, customer satisfaction (adopted by the GSA and New York City); employees housed, total square feet of real property, alternative workplace arrangements, real property disposal time, reimbursable property disposal time (adopted by the GSA), percent of leases on handover, number of days to process lease, usable square feet per employee in spaces planned, savings from audits, facility condition rating, number of utility trouble calls, percent of tenant renovations on time and on budget, operating cost per square foot, and number of emergency contracts (adopted by New York City) (New York Office of General Services, 2006; GSA, 2009b).

**Financial Accountability Monitoring/Auditing**

Financial accountability monitoring/auditing is an indispensable part of
organizational monitoring and oversight. The most important principle of financial accountability is that budget dollars for public asset management must be spent wisely, within budget limits, in the budget period (Mikesell, 2007). In addition, proceeds from property leases or disposals must be deposited into the treasury pursuant to legal requirements.

Public fixed asset managers, especially those at top levels, have a responsibility to ensure that effective and efficient fixed asset management of their jurisdiction operates towards designated goals and objectives of the jurisdiction. To assure that fixed asset management is exactly on the right track, top asset managers need to collect relevant information and analyze the information against particular indexes defining goals and objectives. Middle- and low-level asset managers need to measure their divisional operation against organizational or jurisdictional asset management goals and objectives. Fixed asset managers at all levels should take corrective measures if the information they have collected demonstrates that their asset management operation deviates even slightly from planned goals and objectives. From a financial perspective, GFOA recommends that finance officials should regularly monitor the capital projects. Specifically and at a minimum, such monitoring includes the following aspects:

- Confirmation that a project plan exists that identifies all required resources and milestone work products and assurance that the project plan is being followed;
- Confirmation that a project’s scope has been clearly identified upon completion of final design and that the project stays within scope or that changes to scope have been made consistent with an established process;
A review of project-related financial transactions to support a budget review, auditing and asset management;

A review of expenditures, both in relation to the current budget, and over the entire project life;

Review of circumstances and estimates of planning expenditure activity;

Confirmation of continued availability and appropriateness of revenue sources identified in the capital budget;

Confirmation of adequacy of cash flow in relation to planned project requirements;

Review of the timing of investment maturities compared to planned project disbursement;

Review of sources and project uses of bond proceeds and grants;

Results compared to established performance measures (GFOA, 2007, p.2).

This GFOA recommendation is a guide for monitoring capital project’s financial information and project activities. In addition, in order to ensure that capital project monitoring is effective, government should establish measures for quality assurance and control in each phase of every capital project, solicit feedback from stakeholders on business needs, and assess the adequacy of communication between various government agencies (GFOA, 2007).

Generally speaking, monitoring and oversight of public asset management must be a multi-dimensional process. This mechanism involves not only every aspect of asset management but also internal and external stakeholders. Figure 11 illustrates the
general structure of organizational monitoring and oversight of public fixed asset management at different levels.

**Figure 11 General Structure of Asset Management Monitoring and Oversight**

At each level of management, monitoring and oversight over public asset management should be implemented on the basis of obligatory requirements and organizational standards. Corrective actions can be taken once deviations are identified. However, the ultimate purpose of monitoring and oversight is to achieve the goals and objectives of public fixed asset management. Figure 12 shows the monitoring and oversight process.
Figure 12 Stages of Public Asset Management Monitoring and Oversight

```
Set organizational and individual standards
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```
Public fixed asset management goals and objectives
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```
Implement corrective actions
```
```
Measure actual performance
```
```
Compare actual and expected performance for deviations
```
```
Evaluate deviation if there is any
```
```
No deviation identified
```

**Integrity and Transparency of Fixed Asset Management**

Integrity and transparency are correlated in that integrity requires a transparent context and transparency helps improve integrity. In the domain of professional ethics, honesty and impartiality are two fundamental principles. Besides, employees also need to be loyal to the work entity (Thai, 2007). These principles of ethical codes require that public asset managers be consistently honest and impartial in fulfilling their responsibilities. They must be faithful and keep their dealings free from any conflict of interest. Transparency International, a global organization dedicated to curbing corruption, defines transparency as “a principle that allows those affected by administrative decisions, business transactions or charitable work to know not only the basic facts and figures but also the mechanisms and processes” (Transparency International, 2010). In a democratic society, civil servants have a duty to act visibly, predictably and understandably; and an accountable government must be responsible to
the electorate for its actions (Piotrowski, 2007). Government must ensure that citizens and/or stakeholders are accessible to “reliable, comprehensive, timely, understandable, and internationally comparable information on government activities” (Kopits & Craig, 1998, p. 1). Public fixed asset managers have responsibility to ensure that major fixed asset management decisions are conducted in an open forum and communicated to all inside and outside stakeholders (Hentschel & Utter, 2006).

To establish a mechanism of integrity and transparency in the public asset management system, government needs to take a number of measures in various respects. These measures may work together to control certain behaviors of public asset management professionals at work or the ways in which some issues in the domain of public asset management are handled. First of all, government must ensure that information about the major areas of fixed asset management, except when otherwise required by laws, is accessible through available media. Information release is an initial measure for transparency. In a highly technological society, constructing an e-government is a key to improving government integrity and transparency. The Internet provides a platform where stakeholders of public asset management are able to obtain the information they need. For citizens, the use of e-government provides alternative ways to have services related to public facilities. E-government helps increase citizens’ trust in government in the process of interacting with government and perceiving government responsiveness (Tolbert & Mossberger, 2006; Welch & Hinnant, 2009; West, 2004). For contractors and suppliers, e-government provides new models of doing business with government, and these models may cover a wide range
of strategies in such areas as seeking business opportunities and managing contracts (Moon, 2002). For government employees, e-government makes the operation of fixed asset management more transparent and understandable.

Secondly, government needs to have an effective control and audit mechanism (OECE, 2007). This mechanism is backed up by a legal framework, policy, procedures, and organization of fixed asset management operations. A number of components exist to contribute to compliance to integrity and transparency codes. One is sufficient and timely information on compliance provided by the internal control system. Another is auditors who are sufficiently informed about both fixed asset management operation and the control system. Still another is enforcement of control and audit requirements and follow-up on findings and recommendations of control and audit.

Thirdly, government needs to establish an efficient appeals mechanism. There are procedures through which appeals concerning contract fulfillment and other elements of fixed asset management are filed and resolved at different levels of organization. Appeal resolutions can be reviewed by a body that has enforcement capacity under law and full authority and independence to enforce the remedy. The appeals mechanism must operate fairly and efficiently. All relevant parties are informed of complaint review decisions.

Finally, government has legal and ethical measures against corruption. Fixed asset management ethics provide basic tenets, business conduct, and measures against violation. Laws and regulations stipulate provisions regarding corruption, fraud, and other illegal behavior in the domain of asset acquisition, use, operation and
maintenance, repair, and disposition. The legal framework defines penalty provisions for illegal practices that arise in the course of fixed asset management. To ensure corruption and other illegal and unethical practices are detected, government must have a secure and effective reporting mechanism.

In summary, Chapters 4 through Chapter 9 elaborate key components of the six cornerstones of the public asset management system: legal and regulatory requirements, organization structure, management process throughout life cycle of assets, human capital strategies, information and technology resources, and monitoring, integrity, and transparency in fixed asset management. These key components are interdependent and interact upon each other in the fixed asset management system. Specifically, legal and regulatory requirements provide legitimacy and authority for public asset management. Based on the legal framework, government agencies are authorized to establish fixed asset management organization, make management decisions, and endeavor to build fixed asset management sustainability. In addition, central fixed asset management agencies or individual fixed asset using agencies recruit management personnel and conduct human resource development for talents according to property management needs. With specific legal requirements, policy priorities, operation guidance, and appropriate human resources, fixed asset management agencies implement decisions with regard to property acquisition, efficient and effective operation and maintenance, and disposition. Simultaneously, strategic human resource development and management, together with fixed asset administration, generate information concerning property elements and financial and accounting data.
Thus a management information subsystem is created and, in return, serves as an amendment to legal framework, management organization and decision making, investment in human capital, and asset operation management. Moreover, monitoring, integrity, and transparency serve as a control and audit to ensure that fixed asset management is on the right track, operates effectively and efficiently, and is accountable to the public in a transparent environment.

The key components of the fixed asset management system illustrate various aspects of public asset management. Though under different cornerstones, these components work together to constitute a management system that helps public asset management achieve its goals and objectives. In addition, as discussed in Chapter 2, the functions of these key components may be upgraded through a mechanism of control, maintenance, and coordination to produce internal effects in the fixed asset management system while they are affected by external environment.
PART II. RESEARCH METHODOLOGY

CHAPTER 10. RESEARCH METHODS

As stated in Chapter 2, public asset management is a process of making and implementing decisions concerning asset planning, acquisition, use, and disposal. The conceptual framework elaborated in Chapters 4 through 9 demonstrates that decision-making for public asset management is a complicated process that involves every aspect of asset management ranging from asset planning to asset disposal, from statutes concerning use and operation to information management, from financial accounting to auditing and integrity. For the state governments, fundamental decisions related to public assets go through both executive and legislative procedures. In various dimensions, each state government enacts statutes to regulate management of the fixed assets it owns, leases, and controls. State agencies prepare budgets for acquiring additional fixed assets and maintaining current fixed assets in use. Every state legislative body examines and approves these budget requests so that financial resources are allocated to provide asset services for state agencies. Therefore, major decisions concerning fixed asset outlays at state government, like purchasing assets and repairs, are made through a budgetary process in which financial resources are allocated to fixed asset programs.

Website Survey
Website survey is an approach to understanding the practices of fixed asset management by state governments in the United States against the management system standard elaborated in Chapters 4 through 9. The author of this research surveyed the official websites of fifty state governments, especially the websites of state departments that are responsible for managing state fixed assets, including building, land, fleet vehicles, equipment, and infrastructure. Website survey may locate authorities of public asset management. The authorities might include legal and regulatory sources that authorize the power of management of fixed assets, allocation of authorities over public resources for fixed assets among government departments and agencies, and organization of governmental activities to manage fixed assets. These are the core cornerstones of the fixed asset management system elaborated in Chapters 4 through 9 of this dissertation. Surveying official websites of state governments may help understand the fixed asset management structures state governments have established in practice. The structures actually disclose in part how each category of fixed assets is managed to directly or indirectly provide public services. Missions, goals, and objectives can be found to help understand the functions of fixed asset management in service delivery and goods production within a state’s jurisdiction. In addition, surveying official websites of state governments finds contact information of state government agencies in charge of various categories of fixed assets.

Website survey also provides documents state governments have issued with regard to state asset management. These documents may encompass laws, regulations, management guidelines, financial reports, budgetary documents, performance reports,
and government policy reports, among other documents. These materials provide information regarding different aspects of state asset management. The documents posted on Internet help understand the operation of fixed asset management by the state governments.

**Mail Survey**

The other approach of the fixed asset survey is surveying administrators whose major responsibilities include fixed asset management at state government, or asset managers who take charge of the whole process of fixed asset management, including planning, acquisition, utilization, and disposition. Both high-level administrators and asset managers have information regarding major dimensions of fixed asset management although they have different priorities for asset management. However, chances are that respondents of the survey need to gather information to appropriately complete the questionnaire.

The survey questionnaire was constructed on the basis of the conceptual framework of a public asset management system as elaborated in Chapters 4 through 9. It covers the six cornerstones of the public asset management system: legal and regulatory requirements, organization structure, management process throughout life cycle of assets, human capital strategies, information and technology resource utilization, and monitoring, integrity, and transparency. Because state governments have a variety of fixed assets, and no one dedicated government department takes charge of all categories of fixed assets the state government owns, a survey can hardly gather from one respondent in a state the information that presents the status of
management of every category of fixed assets. Considering these factors, the mail survey contained a pre-survey question, asking the respondents to report the major categories of fixed asset under their authority of management. Thus, the fixed asset categories surveyed and management practices related to certain categories of fixed assets became more visible.

However, since a survey questionnaire cannot encompass too many questions and the questions of necessity had to be respondent-friendly, the survey questions could not tackle every component of each cornerstone. Therefore, only the major components of each cornerstone were explored through the questionnaire for this dissertation. In addition, the survey questions also involved prevailing issues in the practice of modern public fixed asset management, such as overdependence on long-term leasing of fixed properties from the private sector, fragmented management of information resources and technology utilized, life-cycle management and ownership, percentage of surplus assets, performance evaluation of fixed asset management, and oversight and transparency of fixed asset management. These issues are usually the major elements of strategic asset management. Finally, the survey questions are consistent with the research questions that delve into the empirical practice of fixed asset management at the U.S. state governments.

Currently at state government, there is no dedicated department that is authorized to manage all categories of fixed assets the state government owns, controls, and uses. Together with a cover letter, the survey questionnaire was sent through both regular mail and email to chief executives of state departments responsible for management of
major categories of fixed assets, including buildings, land, fleets and vehicles, office equipment, and infrastructure. Responsibilities for these fixed assets are mostly located in state departments (or bureau, agency, division) of general services, or other names like department of administration (or administrative services), department of management services, department of treasury, facility commission, and office of management and budget. When it was found that some chief executives were no longer in office, the questionnaire was sent through regular mail and email to the new chief executives. “Thank You” cards and email messages were sent to potential respondents to remind them of the deadline of response to the questionnaire. Finally, thirty-seven responses have been received, with a response rate of 74 percent. Even though this response rate is not high enough when compared with a small population, according to Gill (2001), this does not affect the validity of the research on the state level of fixed asset management. By the regions the U.S. Census Bureau uses, six respondent states are in the Northeast region (6 of 9), eight in the Midwest region (8 of 12), twelve in the South region (12 of 16), and eleven in the West region (11 of 13) (see Figure 13 with respondent states highlighted). By the size in terms of population in 2010, comparatively fewer respondent states are large states (with populations over 10 million). Too, fewer responses came from small states (those with a population under one million). Only 4 of 7 large states and 4 of 7 small states answered the survey questionnaire. Comparatively, 29 of 36 other states having populations between one million and ten million responded to the survey questionnaire.
Figure 13 Regional Distribution of Respondents

- **Region 1 (Northeast)** 9 states/6 respondents
  - Division 2 (Mid-Atlantic) New York, Pennsylvania, New Jersey

- **Region 2 (Midwest)** 12 states/8 respondents
  - Division 3 (East North Central) Wisconsin, Michigan, Illinois, Indiana, Ohio
  - Division 4 (West North Central) Missouri, North Dakota, South Dakota, Nebraska, Kansas, Minnesota, Iowa

- **Region 3 (South)** 16 states/12 respondents
  - Division 5 (South Atlantic) Delaware, Maryland, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida
  - Division 6 (East South Central) Kentucky, Tennessee, Mississippi, Alabama
  - Division 7 (West South Central) Oklahoma, Texas, Arkansas, Louisiana

- **Region 4 (West)** 13 states/11 respondents
  - Division 8 (Mountain) Idaho, Montana, Wyoming, Nevada, Utah, Colorado, Arizona, New Mexico
  - Division 9 (Pacific) Alaska, Washington, Oregon, California, Hawaii
CHAPTER 11. PUBLIC FIXED ASSET MANAGEMENT PRACTICES AT THE STATE GOVERNMENTS

This chapter presents the results of both the survey of state governments’ websites and the survey of public asset managers at the state governments in the United States. The website survey results are mainly those of documents published by the state governments. These results also include structures of public asset management and major tasks of various divisions of public fixed asset management. The mail survey results are the responses of state fixed asset managers to the questionnaire sent to them.

Capital Budget and the Position of Fixed Assets in the State Governments

In the United States, the state government budget process is mostly similar to that of the federal government, especially in budget procedures and interaction among the executive branch, the legislature, and interest groups (Morehouse & Jewell, 2004). Compared with the federal government, state governments are under a number of different constraints on both revenues and expenditures. On the revenue side, state governments depend on the strength of the economy and the tax structure. But the economy is largely shaped by federal government policies and world economic trends. State governments have no control over it. Therefore, revenue of state governments is relatively limited. On the expenditure side, almost all states have constitutional or statutory requirements for a balanced budget. The budget submitted by the governor,
passed by the state legislature, or signed by the governor is required to be balanced. One consequence of these constraints on state budget is that budget decision makers, both governors and legislatures, have limited opportunities to make tremendous changes in state spending (Morehouse & Jewell, 2004). In this sense, every state budget for fixed assets has attracted more concern.

There are a number of reasons why fixed assets are given special attention by state government (Matson, 1976). One is that fixed assets have a long life. Fixed assets are generally long-lasting assets as capital investment. Although they do not have the generation of future revenue as a primary function, fixed assets represent governmental investment to provide continuing public services through many future years of asset use, often thirty to fifty years if the facility asset is properly maintained (Lee, Johnson, & Joyce, 2004). A second reason is that fixed assets have a high price tag relative to the resources of state government. Each year America’s state governments spend huge amount of dollars as capital outlays. Generally, direct state capital outlay accounts for roughly seven percent (7%) of total state expenditure. (See Table 17.) But direct capital outlays do not tell the whole story since most of the capital assets are financed by borrowing and thus have interest costs. With interest on debt included in total capital outlay, the combined capital outlay of a state’s total direct expenditure jumps to a higher figure, roughly ten percent (10%). A third reason why fixed assets are given much scrutiny is that fixed assets are nonrecurrent. Once a capital project is completed, there is not much to be done if mistakes are found (Mikesell, 2007). In addition, fixed assets are susceptible to rapid depreciation in their values if are not well maintained during
their life cycles. And operation and maintenance of a fixed asset throughout its life cycle expends a much greater amount of revenue dollars than was spend as an initial expenditure for fixed asset ownership.

Table 17 U.S. State Government Capital Outlay in Total Expenditure ($ billion)

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Expenditure</td>
<td>572</td>
<td>1084</td>
<td>1280</td>
<td>1406</td>
<td>1472</td>
<td>1551</td>
<td>1636</td>
</tr>
<tr>
<td>Capital Outlay</td>
<td>45.5</td>
<td>76.2</td>
<td>89.9</td>
<td>91.0</td>
<td>94.2</td>
<td>101.4</td>
<td>110</td>
</tr>
<tr>
<td>Capital as % of Total</td>
<td>8.0%</td>
<td>7.0%</td>
<td>7.0%</td>
<td>6.5%</td>
<td>6.4%</td>
<td>6.5%</td>
<td>6.7%</td>
</tr>
<tr>
<td>Interest on debt</td>
<td>22.4</td>
<td>30.1</td>
<td>33.2</td>
<td>34.6</td>
<td>36.0</td>
<td>39.7</td>
<td>43.6</td>
</tr>
<tr>
<td>Combined capital outlay</td>
<td>67.9</td>
<td>106.3</td>
<td>113.1</td>
<td>125.6</td>
<td>130.2</td>
<td>141.2</td>
<td>153.6</td>
</tr>
<tr>
<td>Combined capital as % of total</td>
<td>11.9%</td>
<td>9.8%</td>
<td>9.5%</td>
<td>8.9%</td>
<td>8.9%</td>
<td>9.1%</td>
<td>9.4%</td>
</tr>
</tbody>
</table>


Owing to these reasons, a capital budget is usually separate from an operating budget of a state and local government. Benefits can be obtained from separate consideration of capital budget (Mikesell, 2007; Lee et al., 2004). One benefit is that since most capital projects are financed by borrowing, the separate consideration of capital budget helps improve both the efficiency and equity of providing and financing public facilities for service delivery. Bond issuance efficiently provides financial resources for capital programs. Bond issuance also concurrently achieves equity between generations of constituents who directly or indirectly pay for and benefit from the services the capital project provides. A second benefit is that a separate capital budget can stabilize tax rates when capital projects need big money while the host
government’s tax base is relatively small. In this case, long-term financing by borrowing can reasonably prevent the occurrence of a dramatic tax rate fluctuation during a project’s construction. A third benefit of a separate capital budget is that capital investing planning and special review of capital projects can reduce costly investment errors and achieve expected outcomes. In addition, a capital budget provides a mechanism for managing limited public financial resources. It helps ensure that capital project construction continues smoothly over the years of construction without peaks and valleys. Appropriate financial planning for capital projects contributes to life-cycle management and portfolio management during the capital facility operation that can maximize property value and improve fiscal choices.

Fixed assets have a special position in public finance. For state government, a comprehensive annual financial report presents the structure of the assets a state government owns as well as the liabilities the state bears. A government-wide Statement of Net Assets demonstrates the specific components of net assets. A comprehensive annual financial report also shows asset components in governmental activities and business-like activities. Generally, capital assets are the major components of financial resources for governmental activities while current and other assets account for a small portion of the total assets a state government owns. For example, in FY 2009, Florida’s current and other assets for governmental activities were about $20.9 billion while its net capital assets were valued roughly at $58 billion. Conversely, for business-like activities, current and other assets usually account for a larger portion of the total assets whereas net capital assets were a smaller part. Florida’s
comprehensive annual financial report FY 2009 shows that current and other assets for business-like activities were about $22.3 billion while its net capital assets were valued at $7.5 billion. Florida’s total assets were $108.6 billion in FY 2009, with total liabilities at $53.7 billion, resulting in total net assets of $54.8 billion (Florida Department of Financial Services, 2010). Two other examples are California and Arkansas (see Table 18). They have a financial structure similar to that of Florida.

Table 18 Statement of Net Assets, California and Arkansas ($million)

<table>
<thead>
<tr>
<th></th>
<th>Governmental Activities</th>
<th>Business-like Activities</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>California</td>
<td>Arkansas</td>
<td>California</td>
</tr>
<tr>
<td><strong>Assets</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current &amp; other</td>
<td>48369</td>
<td>4618</td>
<td>28752</td>
</tr>
<tr>
<td>Capital assets</td>
<td>96593</td>
<td>9369</td>
<td>6859</td>
</tr>
<tr>
<td>Total</td>
<td>144962</td>
<td>13988</td>
<td>35611</td>
</tr>
<tr>
<td><strong>Liabilities</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-current</td>
<td>98287</td>
<td>1387</td>
<td>27286</td>
</tr>
<tr>
<td>Other</td>
<td>41300</td>
<td>1144</td>
<td>3883</td>
</tr>
<tr>
<td>Total</td>
<td>139,587</td>
<td>2530</td>
<td>31169</td>
</tr>
<tr>
<td><strong>Net Assets</strong></td>
<td>5375</td>
<td>11458</td>
<td>4442</td>
</tr>
</tbody>
</table>


Judging from the comprehensive annual financial reports of U.S. states, capital or fixed assets occupy a fundamental position in state finance. As most fixed asset programs are financed through issuing bonds sold to investors through the underwriting process, the financial credit quality of state governments (as bond issuers) is one of the most important factors that determines the interest rate of the debt (Leonard, 2004). Higher credit quality means stronger ability to pay the principal and interest in full and on time, thus lowering interest cost the state governments must pay. Credit quality is evaluated on the basis of debt burden, budget soundness, tax burden, and the overall
condition of the economy (Feldstein, 1997). A state government can improve its credit quality by strategically planning the components of its fixed assets, especially buildings and infrastructure, and appropriate capital budgeting. Acquisition of fixed assets may help reduce overall net debt of a state government. Effective fixed asset management can maximize the value of fixed asset a state government owns. Capital budgeting based on a long-term plan contributes to a continuing tax structure and stable tax rates.

**Legal and Regulatory Framework**

Legal and regulatory framework consists of laws, regulations, policies, norms and guidance, and procedures. These components are mandatory or non-mandatory, each regulating or guiding public asset management from a different angle. Generally, the constitutions of state government, i.e., the supreme law of state governments, do not have specific requirements for management of public assets or properties. Comparatively, state statutes have more detailed requirements of fixed asset management. States have discrepancies in specific mandates regarding fixed asset management within jurisdiction. For example, the Code of Alabama has mandates for highways, roads, bridges, and ferries (Title 23); state-owned fleets (Title 41); and public works (Title 39). These laws have detailed requirements for public fixed assets. Title 23—Highways, Roads, Bridges and Ferries—addresses construction, maintenance, and repair of state highways, tunnels, and bridges, and purchase of properties under the control of Department of Transportation. Title 41—State Government—stipulates purchase, maintenance and repair, operation, and use of state-owned motor vehicles (Chapter 17). This title also requires that state agencies
develop an inventory and analysis of fleet vehicles as a baseline of data for a state’s green fleets policy (Chapter 17A). The inventory shall include such specific information as the following:

(1) Number of vehicles classified by the model year, make, model, engine size, vehicle identification number (VIN), drive train type of 2-wheel drive or 4-wheel drive, and the rated vehicle weight and classification as either light-duty, medium-duty, or heavy-duty;

(2) Miles per gallon or gallon equivalent, per vehicle;

(3) Average fuel economy of all light-duty vehicles in the fleet;

(4) Average fuel economy of all medium-duty vehicles in the fleet;

(5) Average fuel economy of all heavy-duty vehicles in the fleet;

(6) Type of fuel or power source including, but not limited to, electricity used;

(7) Average cost per gallon, or gallon equivalent of fuel;

(8) Average fuel cost per mile;

(9) Annual miles driven per vehicle;

(10) Total fuel or power consumption per vehicle;

(11) Vehicle function, such as the tasks associated with the vehicle's use (Section 41-17A-3, Title 41, Chapter 17A, the Code of Alabama, State of Alabama, 2011).

In order to effectively manage its state-owned vehicles, Title 41 mandates different categories of motor vehicles must comply with the requirement of average fleet fuel economy improvement. The State of Alabama has created a Green Fleets Review Committee to ensure compliance with the goals of cost effectiveness. Official policies
are implements to review the purchase of new motor vehicles and improve the use of current vehicles. Specifically, these policies include the following directives:

(1) To purchase, lease, or otherwise obtain or procure the most energy efficient vehicles possible that meet the operational needs of the department or agency for which the vehicles are intended by using life cycle costing as a method of determining the most cost efficient vehicles for the departments or agencies;

(2) To manage and operate its fleets in a manner that is energy efficient, that minimizes emissions, and that reduces petroleum dependency by utilizing specified proven technology identified by the Green Fleets Review Committee;

(3) To review every new vehicle purchase request and modify as necessary to ensure that the vehicle class to which the requesting vehicle belongs is appropriate for the duty requirements that the vehicle will be called upon to perform;

(4) To review the fleet inventory data required by Section 41-17A-3 to identify older vehicles that are not used or used infrequently, as well as those vehicles that are disproportionately inefficient, and schedule their elimination or replacement by determining the most cost-effective methodology of establishing surplus inventory within all departments and agencies;

(5) To implement an anti-idling policy prohibiting state employees from idling all state-owned or operated vehicles for an excessive period of time;

(6) To implement educational programs for state employees to drive efficiently and utilize efficient vehicle operating techniques;

(7) To maintain vehicles at optimal efficiency by reviewing current maintenance
schedules for all fleet vehicles and increasing or decreasing maintenance wherever cost-effective benefits will accrue as a result;

(8) To encourage carpooling and vanpooling by state employees by allowing commuter fees to be paid out of pretax income withholding as allowed by federal tax laws to help reduce fuel consumption, pollution, traffic, and parking congestion (Section 41-17A-5, Title 41, Chapter 17A, the Code of Alabama, State of Alabama, 2011).

Compared with these detailed criteria for management of state-owned motor vehicles, Alabama does not have particular requirements dedicated for state owned buildings and land in the Code of Alabama. In contrast, Florida Statutes have specific laws intended for various highway-related assets, including, but not limited to, the intrastate highway system and toll facilities; transportation financing and planning; highway contracting, acquisition, disposal, and use of property; and ferries, toll bridges, dams, and log ditches (Title XXVI); Florida also has a special constitutional title for management of public land and property (Title XVIII). This title includes laws that address regulation and administration of major state-owned assets, including state lands, buildings, libraries and state archives, state parks and preserves, memorials and museums, historical resources, and state-owned tangible personal property. With respect to management of state-owned buildings, the State of Florida has a number of specific legal stipulations. For example, besides mandates of contracts for public construction works, insurance programs for public construction projects, timely payment for purchases of construction services, and lease of space, Chapter 255 of Title
XVIII requires that preference be given to material suppliers, contractors, builders, architects, and laborers who reside in the state in the purchase of material and in awarding contracts for constructing any public administrative or institutional building whenever such material or the services of these material suppliers, contractors, builders, architects, and laborers are employed at no greater expenses than that to be obtained from a non-Floridian (Section 255-04). Similarly, when construction programs are financed by the state, preference shall be given to minority business enterprises in letting the contracts for public works, public bridges, buildings, and other structures with all other conditions being equal.

Apart from the preferences in selecting material suppliers, contractors, builders, and architects, Title XVIII of Florida Statutes has particular requirements for life-cycle costs and energy conservation. Florida has a strategic management approach to financing fixed asset ownership and leasehood. Florida Statutes mandate that all facility construction and leasing by any state agency should be performed with an evaluation of life-cycle costs implemented by the Department of Management Services on the basis of sustainable building ratings; that construction shall not proceed until the life-cycle cost, the facility’s sustainable building rating goal, and the capitalization of the initial construction costs of the building are disclosed to the Department of Management Services (Section 255.254, Chapter 255, Title XVIII, Florida Statutes, the State of Florida, 2010). The life-cycle costs are analyzed according to rules and procedures, including energy conservation guidelines. The sum of the costs consists of two parts:
(a) the reasonably expected fuel costs over the life of the building, as determined by the department (the Department of Management Services, noted by the author), that are required to maintain illumination, power, temperature, humidity, and ventilation and all other energy-consuming equipment in a facility, and (b) the reasonable costs of probable maintenance, including labor and materials, and operation of the building (Section 255.255, Chapter 255, Title XVIII, Florida Statutes).

The second part of the life-cycle costs is determined on the basis of certain rules promulgated by the Department of Management Services that include, but are not limited to the following:

(a) The orientation and integration of the facility with respect to its physical site;

(b) The amount and type of glass employed in the facility and the directions of exposure;

(c) The effect of insulation incorporated into the facility design and the effect on solar utilization of the properties of external surfaces;

(d) The variable occupancy and operating conditions of the facility and subportions of the facility;

(e) An energy consumption analysis of the major equipment of the facility’s heating, ventilating, and cooling system, lighting system, hot water system, and all other major energy-consuming equipment and systems as appropriate (Section 255.255, Chapter 255, Title XVIII, Florida Statutes).

As discussed in Chapter 2 and Chapter 6, operation and maintenance cost may
account for more than eighty percent of the total expenditure throughout the life cycle of a fixed asset. This fact is not given sufficient attention in traditional fixed asset management. However, the State of Florida has addressed this issue of financing fixed assets throughout a life cycle by means of promulgating and implementing detailed laws and regulations. Comparatively, Florida statutes do not particularly address state-owned fleets and vehicles, which are an important part of fixed assets the state owns.

From a legal perspective, a government has responsibility to promulgate mandates and regulate each aspect of the management of major categories of fixed asset it owns, leases, and controls. However, the examples of Alabama and Florida illustrate the discrepancies between states in their legal and regulatory requirements for fixed asset management. An online survey also demonstrates that requirements for fixed assets may be enacted in different forms. One category of the requirements may be mandatory in a form of special laws in some states, and become less obligatory in a form of guideline or policy. This means that requirements for fixed asset management have various authoritative forces as laws and regulations, policies, guidance and norms, and procedures. However, the requirements are enforced in different ways and at different levels of management.

The mail survey questionnaire addressed legal and regulatory requirements from eighteen major dimensions of public fixed asset management (see Table 19). These eighteen components addressed major issues in the other five cornerstones of fixed
asset management: organization structure, management process throughout life cycle of assets, human capital strategies, information resources, and monitoring, integrity and transparency.

Table 19 Legal and Regulatory Requirements for Fixed Asset Management

<table>
<thead>
<tr>
<th>Legal and regulatory requirements covering major elements of fixed asset management</th>
<th>Valid Cases¹</th>
<th>Yes²</th>
<th>%</th>
<th>No³</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Fixed asset acquisition</td>
<td>36</td>
<td>34</td>
<td>94%</td>
<td>2</td>
<td>6%</td>
</tr>
<tr>
<td>2 Fixed asset use</td>
<td>36</td>
<td>27</td>
<td>75%</td>
<td>9</td>
<td>25%</td>
</tr>
<tr>
<td>3 Fixed asset operation &amp; maintenance</td>
<td>36</td>
<td>23</td>
<td>64%</td>
<td>13</td>
<td>36%</td>
</tr>
<tr>
<td>4 Fixed asset disposal</td>
<td>36</td>
<td>36</td>
<td>100%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>5 Fixed asset insurance</td>
<td>35</td>
<td>24</td>
<td>69%</td>
<td>11</td>
<td>31%</td>
</tr>
<tr>
<td>6 Fixed asset valuation</td>
<td>36</td>
<td>29</td>
<td>81%</td>
<td>7</td>
<td>19%</td>
</tr>
<tr>
<td>7 Regular reporting of fixed assets</td>
<td>35</td>
<td>33</td>
<td>94%</td>
<td>2</td>
<td>6%</td>
</tr>
<tr>
<td>8 Fixed asset planning, e.g. asset need analysis &amp; budgeting</td>
<td>36</td>
<td>22</td>
<td>61%</td>
<td>14</td>
<td>39%</td>
</tr>
<tr>
<td>9 Centralized registration (legal title) of fixed assets</td>
<td>35</td>
<td>16</td>
<td>46%</td>
<td>19</td>
<td>54%</td>
</tr>
<tr>
<td>10 Centralized record management system of fixed assets</td>
<td>35</td>
<td>26</td>
<td>74%</td>
<td>9</td>
<td>26%</td>
</tr>
<tr>
<td>11 Leasing real property from the private Sector</td>
<td>36</td>
<td>35</td>
<td>97%</td>
<td>1</td>
<td>3%</td>
</tr>
<tr>
<td>12 Capitalization policies including thresholds</td>
<td>35</td>
<td>26</td>
<td>74%</td>
<td>9</td>
<td>26%</td>
</tr>
<tr>
<td>13 Fixed asset supply</td>
<td>34</td>
<td>11</td>
<td>32%</td>
<td>23</td>
<td>68%</td>
</tr>
<tr>
<td>14 Anti-corruption</td>
<td>34</td>
<td>20</td>
<td>59%</td>
<td>14</td>
<td>41%</td>
</tr>
<tr>
<td>15 Professional ethics</td>
<td>34</td>
<td>22</td>
<td>65%</td>
<td>12</td>
<td>35%</td>
</tr>
<tr>
<td>16 Audit and control</td>
<td>35</td>
<td>30</td>
<td>86%</td>
<td>5</td>
<td>14%</td>
</tr>
<tr>
<td>17 Responsibilities of fixed asset managers</td>
<td>35</td>
<td>24</td>
<td>69%</td>
<td>11</td>
<td>31%</td>
</tr>
<tr>
<td>18 Fixed asset performance evaluation</td>
<td>35</td>
<td>12</td>
<td>34%</td>
<td>23</td>
<td>66%</td>
</tr>
</tbody>
</table>

Note:
1. Valid cases—the number of respondents that answered the question;
2. Yes—the number of respondents that have legal and regulatory requirements for the area of fixed asset management;
3. No—the number of respondents that do not have legal and regulatory requirements for the area of fixed asset management.

Table 19 demonstrates the schema of legal and regulatory framework of the states in the U.S. on the basis of responses to the survey questionnaire. As can be seen from
the table, some legal and regulatory requirements are enacted and enforced in a higher percentage of respondent states to regulate fixed asset management within state jurisdiction while some other legal and regulatory requirements are implemented in a lower percentage of respondent states. The tendency of legal and regulation enforcement for fixed asset management at state government is reflected in Figure 14 which shares the same data as Table 19.

Figure 14 Legal and Regulatory Status of the States

![Graph showing the percentage of respondents with laws and regulations for fixed asset management.](graph)

Note: Yes = Percentage of respondents that have legal and regulatory requirements in an area of asset management; No = Percentage of respondents that have no legal and regulatory requirements in an area of asset management

Figure 14 illustrates the difference between all eighteen categories of legal and regulatory requirements enacted in the surveyed states to regulate fixed asset management. It demonstrates that in more than eighty percent (80%) of the surveyed states, there are legal and regulatory requirements to regulate six areas of fixed asset management. In other words, legal and regulatory requirements are most preferred for these six areas, including
- Fixed asset disposal,
- Fixed asset acquisition,
- Leasing real properties from the private sector,
- Regular reporting of fixed assets,
- Audit and control, and
- Fixed asset valuation.

These six areas of fixed asset management relate to spending (acquisition and leasing) and macro management of fixed assets (valuation, financial report, and property control).

In contrast, data from the mail survey shows that three categories of legal and regulatory requirements regarding fixed asset management are enforced in a very small number of respondent states, that is, in less than fifty percent of the surveyed states (see Table 19 and Figure 14). In other words, legal and regulatory requirements are least significant for the surveyed states in three areas of fixed asset management, including

- Central registration of all fixed assets
- Fixed asset supply (or allocation), and
- Fixed asset performance evaluation.

These categories of legal and regulatory requirements focus on the management process and evaluation of the management process (management performance).

The surveyed states have sharp differences in enacting and enforcing laws, regulation, policies, norms and guidance, and procedures with regard to fixed asset management. Data from the survey show that 4 of 36 (about 11%) valid respondent
states have enacted all of the designated legal and regulatory requirements that regulate management of fixed assets the state government owns, controls, and uses (see Table 20). Ten more of the surveyed states, i.e., 28% of the total respondents, have laws and regulations on fourteen or more of the eighteen identified major areas of fixed asset management at state government. In contrast to these respondent states that have a more appropriate legal and regulatory framework for fixed asset management, five surveyed states do not have particular laws and regulations for nine or more of the eighteen identified major areas of fixed asset management at state government.

Table 20 Legal and Regulatory Enforcement in Each Respondent State

<table>
<thead>
<tr>
<th>Cases</th>
<th>Yes</th>
<th>No</th>
<th>Yes %</th>
<th>No %</th>
<th>Yes</th>
<th>No</th>
<th>Yes %</th>
<th>No %</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>18</td>
<td>0</td>
<td>100%</td>
<td>0%</td>
<td>24</td>
<td>13</td>
<td>5</td>
<td>72%</td>
</tr>
<tr>
<td>17</td>
<td>18</td>
<td>0</td>
<td>100%</td>
<td>0%</td>
<td>22</td>
<td>12</td>
<td>6</td>
<td>67%</td>
</tr>
<tr>
<td>18</td>
<td>18</td>
<td>0</td>
<td>100%</td>
<td>0%</td>
<td>1</td>
<td>11</td>
<td>7</td>
<td>61%</td>
</tr>
<tr>
<td>23</td>
<td>18</td>
<td>0</td>
<td>100%</td>
<td>0%</td>
<td>7</td>
<td>11</td>
<td>7</td>
<td>61%</td>
</tr>
<tr>
<td>25†</td>
<td>10</td>
<td>1</td>
<td>91%</td>
<td>9%</td>
<td>10</td>
<td>11</td>
<td>7</td>
<td>61%</td>
</tr>
<tr>
<td>20</td>
<td>16</td>
<td>2</td>
<td>89%</td>
<td>11%</td>
<td>12</td>
<td>11</td>
<td>7</td>
<td>61%</td>
</tr>
<tr>
<td>2</td>
<td>13</td>
<td>2</td>
<td>87%</td>
<td>13%</td>
<td>28</td>
<td>11</td>
<td>7</td>
<td>61%</td>
</tr>
<tr>
<td>3</td>
<td>15</td>
<td>3</td>
<td>83%</td>
<td>17%</td>
<td>29</td>
<td>11</td>
<td>7</td>
<td>61%</td>
</tr>
<tr>
<td>5</td>
<td>15</td>
<td>3</td>
<td>83%</td>
<td>17%</td>
<td>34</td>
<td>11</td>
<td>7</td>
<td>61%</td>
</tr>
<tr>
<td>19</td>
<td>15</td>
<td>3</td>
<td>83%</td>
<td>17%</td>
<td>13</td>
<td>10</td>
<td>8</td>
<td>56%</td>
</tr>
<tr>
<td>31</td>
<td>15</td>
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<td>83%</td>
<td>17%</td>
<td>36</td>
<td>10</td>
<td>8</td>
<td>56%</td>
</tr>
<tr>
<td>35</td>
<td>15</td>
<td>3</td>
<td>83%</td>
<td>17%</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>50%</td>
</tr>
<tr>
<td>26†</td>
<td>14</td>
<td>3</td>
<td>82%</td>
<td>18%</td>
<td>27</td>
<td>9</td>
<td>9</td>
<td>50%</td>
</tr>
<tr>
<td>6</td>
<td>14</td>
<td>4</td>
<td>78%</td>
<td>22%</td>
<td>32</td>
<td>7</td>
<td>8</td>
<td>47%</td>
</tr>
<tr>
<td>8</td>
<td>14</td>
<td>4</td>
<td>78%</td>
<td>22%</td>
<td>15</td>
<td>8</td>
<td>10</td>
<td>44%</td>
</tr>
<tr>
<td>21</td>
<td>14</td>
<td>4</td>
<td>78%</td>
<td>22%</td>
<td>37</td>
<td>8</td>
<td>10</td>
<td>44%</td>
</tr>
<tr>
<td>11</td>
<td>13</td>
<td>5</td>
<td>72%</td>
<td>28%</td>
<td>33</td>
<td>6</td>
<td>12</td>
<td>33%</td>
</tr>
<tr>
<td>14</td>
<td>13</td>
<td>5</td>
<td>72%</td>
<td>28%</td>
<td>30</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>16</td>
<td>13</td>
<td>5</td>
<td>72%</td>
<td>28%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note:
1. Cases are respondent states which are coded by numbers. See Appendix A for code of respondent states.
2. Yes=the number of the identified major areas of fixed asset management that the respondent state has legal and regulatory requirements to regulate.
3. No=number of the identified major areas of fixed asset management that the respondent...
state does not have legal and regulatory requirements to regulate.

4. The highlighted case numbers stand for the surveyed states that did not report legal and regulatory requirements for all major eighteen areas of fixed asset management.

Figure 15 presents a clear picture of the legal and regulatory status of each surveyed state with regard to fixed asset management. Discrepancies between surveyed states are obvious in the number of legal and requirements the surveyed states have enacted to regulate fixed asset management in each phase of an asset’s life cycle.

Figure 15 The Respondents’ Status of Legal and Regulatory Requirements

![Graph showing the respondents' status of legal and regulatory requirements.]

Note: Yes = the number of legal and regulatory requirements this respondent has for asset management; No = the number of legal and regulatory requirements this respondent do not have for asset management.

Assessing the effects of laws and regulations, policies, norms and guidance, and procedures concerning fixed asset management is not an easy job. In the mail survey, respondents were requested to make an estimate, on the basis of their perception, of how much guidance legal and regulatory requirements provide in the major areas of fixed asset management. Table 21 shows that over ten percent (10%) of respondents that enforce a legal and regulatory requirement did not provide an answer to the
question of how much guidance legal and regulatory requirements provide for fixed asset management. Overall, legal and regulatory requirements provide considerable guidance, where over eighty percent (80%) of valid cases have moderate guidance and much guidance from laws and regulations in 11 of 18 major areas of fixed asset management. These areas are highlighted in Table 21. Among these areas, the area of No. 9 “centralized registration of all fixed assets” is special because only 16 of 36 (44%) surveyed states have laws and regulations for this area of fixed asset management. Therefore, the strength of laws and regulations over “centralized registration of all fixed assets” is not as convincing as the strengths of laws and regulations over other highlighted areas of fixed asset management.

Table 21 Guidance of Legal and Regulatory Requirements

| Legal and regulatory requirements covering major elements of fixed asset management | Yes | How much guidance? |
| --- | --- | --- | --- | --- | --- |
| | | A little | Moderate | Much |
| 1 | Fixed asset acquisition | 34 | 2 | 10 | 19 |
| 2 | Fixed asset use | 27 | 9 | 8 | 7 |
| 3 | Fixed asset operation & maintenance | 23 | 9 | 11 | 1 |
| 4 | Fixed asset disposal | 36 | 1 | 12 | 18 |
| 5 | Fixed asset insurance | 24 | 6 | 8 | 7 |
| 6 | Fixed asset valuation | 29 | 6 | 15 | 4 |
| 7 | Regular reporting of fixed assets | 33 | 3 | 11 | 13 |
| 8 | Fixed asset planning, e.g. asset need analysis & budgeting | 22 | 4 | 10 | 6 |
| 9 | Centralized registration of all fixed assets | 16 | 3 | 7 | 6 |
| 10 | Centralized record management system of all fixed assets | 26 | 6 | 8 | 9 |
| 11 | Leasing real property from the private sector | 35 | 4 | 8 | 18 |
| 12 | Capitalization policies including thresholds | 26 | 2 | 11 | 10 |
| 13 | Fixed asset supply | 11 | 2 | 5 | 1 |
| 14 | Anti-corruption | 20 | 7 | 10 |
| 15 | Professional ethics | 22 | 1 | 10 | 9 |
| 16 | Audit and control | 30 | 4 | 16 | 7 |
Apart from the highlighted areas in Table 21, legal and regulatory requirements have limited guidance in the other major areas of fixed asset management. This phenomenon is especially obvious in three areas of fixed asset management, including

- Fixed asset use
- Fixed asset operation and maintenance, and
- Fixed asset performance evaluation.

In these areas, a higher percentage of respondents reported that legal and regulatory requirements have a little guidance.

In sum, results from both the survey of state government websites and the mail survey answer the questions of “How does legal and regulatory framework affect the other areas of fixed asset management?” Obviously, laws and regulatory requirements have high- or low-level guidance in different areas of fixed asset management.

**Organization Structure**

**Location of Fixed Asset Management Authorities**

Fixed asset management at the state government level in America is not a governmental activity that works on its own. It is closely related to a number of other functions of government agencies, such as purchasing, personnel management, budgeting and financial management, risk management, and planning. Actually, in the practice of fixed asset management, state governments have been restructuring their
management system so that their fixed asset management will provide more appropriate services more efficiently and effectively. The survey of state government websites shows that fixed asset/property management, where “property” is more commonly used at state government in such terms as “real property,” “surplus property,” “property management,” and “state property,” keeps restructuring organizations and adding new functions. One example is that fixed asset management functions are enhanced from policy perspectives. Special agencies like the building commission (Alabama and North Carolina), the facility commission (Taxes), the properties commission (Georgia) are founded to take charge of a category of state assets for promulgating and enforcing rules and policies and supervising management practices. Another example is green management of fixed assets. To take charge of green management, a particular management division or program is established in a number of state governments, such as in California, Indiana, Kentucky, New York, and New Mexico. The survey of state government websites also revealed that state governments have paid close attention to fixed asset disposal. In order to effectively and efficiently dispose of excess fixed assets, a division of surplus property has been established in more than twenty states. These states include Arizona, Georgia, Illinois, Iowa, Kansas, Kentucky, Louisiana, Maine, Massachusetts, Michigan, Minnesota, Mississippi, Nebraska, North Carolina, North Dakota, South Carolina, Tennessee, Virginia, Washington, and Wyoming. In addition, with increasing needs for leased building space, space leasing service and space management are strengthened in fixed asset management. A leasing division is established to address the need of these
services, for example, in Alabama, Alaska, Connecticut, Indiana, Iowa, Maine, Massachusetts, Minnesota, South Dakota, and Texas.

A survey of state government websites has found that there is no state agency responsible for the management of all the fixed assets a state owns, leases, and controls. In each state, in addition to assets affiliated with highways, bridges, and tunnels and other assets the department of transportation uses and controls, the responsibilities for fixed asset management by the department of transportation mainly focus on construction, maintenance, and repair of highways, bridges, and tunnels, which account for the majority of state-owned fixed assets. Other fixed assets, such as buildings, equipment, improvements other than buildings, and infrastructure, are managed either in a centralized manner by a state department or in a decentralized manner by individual department users of the assets. In most states, when certain functions of fixed asset management (such as fleet services, disposition of surplus properties, and real estate leasing) are centralized and authorized in a department, such as a department of general services and a department of administrative services (see Appendix C for the location of centralized functions of fixed asset management), these functions are usually parallel to other fundamental relevant functions located in the same state department or agency. Across the fifty states, the departments or agencies where certain functions of centralized fixed asset management are located have similar or distinct components or functions. Generally, the functions that are parallel to fixed asset management functions in the same department or agency may include, but are not limited to, state procurement, human resources, retirement services, financial
management, budgeting, accounting, information management, and mail services. The website survey shows that major functions of fixed asset management, such as fleet management, construction and design, infrastructure, building services, property disposition, space management, property leasing, and portfolio management, whether highly centralized or partially centralized, are located in an administrative (or general) service department (35 states), or in the department of administration (or management) and finance (5 states including Arkansas, Kentucky, Maine, Massachusetts, and Mississippi), the department of administration and budget (4 states including Delaware, Michigan, North Dakota, and South Carolina), the department of administration and personnel (1 state: Colorado), the department of administration and information (1 states: Wyoming), the department of finance (2 states: Alabama and New Jersey), the department of general services and accounting (1 state: Hawaii), and the department of facilities (1 state: Texas). In addition, major functions of fixed asset management may be divided among more than two state departments or agencies. Examples are Alabama, Arkansas, Connecticut, Georgia, and Texas. Special agencies have authorized responsibilities to take charge of buildings, properties, land, and public works of the whole state. The location of major fixed asset functions in state departments suggests at least two points regarding the position of public fixed asset management. One point is that public fixed asset management is implemented to directly or indirectly serve public service delivery and public goods production. The other point is that public fixed asset management at the U.S. state government level is considered as a government function closely related to financial management. Public
fixed assets are highly valued in practice as non-current public assets.

**Fixed Asset Management Approaches**

As previously discussed, across the U.S. states, fixed asset management is subject to legal and regulatory requirements. From this perspective, a number of functions of fixed asset management may be centralized and authorized to a state department or agency. For example, the Alabama Building Commission is authorized to promulgate and enforce the State Building Code through plan reviews and inspections, and administrate contracts of state-funded construction. The State Building Code applies to state buildings and construction, public and private schools, hotels and motels, and motion picture theaters. The Arkansas Building Authority (ABA) is authorized to maintain oversight of state agency capital improvements regarding architectural design, floodplain reviews, and construction bidding. It performs a review of public school (K-12) new construction projects related to ADA design. In addition, ABA is the leasing agent for state agencies and implements oversight of property transfers for most state agencies. The State Properties Commission of Georgia (SPC) defines its mission as “To advise, guide, and maximize Georgia’s real estate portfolio by applying industry best practices in asset, space, and transaction management” (Georgia State Properties Commission, 2011). It provides services in acquisition and disposition of all state-owned real properties and real property interests. The portfolio management in the charge of SPC consists of three coordinated programs: asset management, space management, and transaction management. The Texas General Land Office is another example of centralized fixed asset management. This agency manages state lands and
mineral rights. Its primary responsibility is to lease state lands for the benefit of the Permanent School Fund, an endowment fund for the benefit of Texas’s public schools. Overall, these special state departments or agencies have central responsibilities for certain fixed asset management functions—either in policy making and enforcement or in specific fixed asset management practice. Generally, the chief executives of these special departments or agencies report directly to governors, thus enjoying greater authority.

Divisions of fixed asset management affiliated with a state department, such as the Indiana Department of Administration, the Mississippi Department of Finance and Administration, and the New Mexico General Services Department, may have central authority to manage certain categories of fixed assets the state owns, leases, or controls. However, the chief executives of these divisions, called managers, directors, commissioners, or administrators, have limited authority under the leadership of the department chief executive, who report directly to the governor. In addition, in most states, real estate, which is a major portion of fixed assets, is under the control of state comptrollers or controllers. The asset managers’ authorities are comparatively limited when asset management functions are parallel to other functions in a state department or agency. Currently, few states have a chief property officer who takes charge of state properties and reports directly to the governor.

Centralization of fixed asset management is defined in the mail survey as an approach by which one central management agency takes charge of all properties (or a property category) a government owns, controls, and leases, or by which a central
agency is responsible for policy oversight, monitoring, and evaluation of state properties while other agencies are delegated authority to own, lease, and manage the properties. Decentralization of fixed asset management is an approach by which individual government agencies have the delegated authority from the chief executive to own and manage properties for service delivery. A mixed approach is a combination of centralization and decentralization. The mail survey results show that these three approaches are applied across the U.S. states. In a particular state, different categories of fixed assets may be managed in various manners. The same category of assets may be managed in different manners in different states. For example, in the State of Alaska, some state buildings are managed in a manner of centralization while some other buildings are taken care of by individual state departments and agencies. Fleets and vehicles the state owns are managed in a centralized approach by the Alaska Department of Transportation and Public Facilities while the authority of office equipment management is delegated to individual state departments and agencies. Like state buildings, state land and infrastructure are managed in a manner of mixture of centralization and decentralization. The mail survey also demonstrates that a state may implement the same approach to manage every category of fixed assets it owns and controls. Of 37 respondents, two respondents (Indiana and Idaho) employ a centralized approach to manage all major categories of fixed assets. On the contrary, two other respondents (Florida and North Dakota) reported a decentralized approach to management of all five major categories of fixed assets the states own and control. An additional six respondents have adopted a mixed approach of centralization and
decentralization to manage all the five major categories of fixed assets surveyed.

Apart from these discrepancies of approaches in fixed asset management between states, the mail survey demonstrates that the survey respondents have a number of features in common with regard to management approaches. These features are demonstrated in Table 22.

**Table 22 Fixed Asset Management Organization Forms in U.S. States**

<table>
<thead>
<tr>
<th>Major categories of fixed assets</th>
<th>Fixed Asset Management Approaches</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Valid Cases</td>
</tr>
<tr>
<td>Buildings</td>
<td>36</td>
</tr>
<tr>
<td>Fleets &amp; Vehicles</td>
<td>35</td>
</tr>
<tr>
<td>Office equipment</td>
<td>35</td>
</tr>
<tr>
<td>Land</td>
<td>34</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>33</td>
</tr>
</tbody>
</table>

The majority of survey respondents manage their fixed assets in a mixed approach of centralization and decentralization. This tendency is obvious in the management of state buildings, land, and infrastructure. In more than two thirds of respondent states, a portion of state buildings, land, and infrastructure are managed in a centralized approach while the remaining of these fixed assets are managed by individual users. This means that in the majority of respondent states, the divisions of fixed asset management located in a department of administrative services or departments with similar functions are responsible for a portion of state buildings, land, and infrastructure. Some individual departments take charge of these categories of fixed assets in such areas as acquisition, maintenance, repair, and disposition, among other management issues.
On the other hand, management of fleets and vehicles and office equipment presents a different situation. Although about half of respondents implement a mixed approach to fleets and vehicles management, more than one-third of the surveyed states centralize management of these fixed assets. Compared with management of buildings, land and infrastructure, fleets and vehicles management shows a much stronger tendency of centralization. In contrast, office equipment management is just opposite to fleets and vehicles management. Compared with thirty-four percent (34%) of respondents that employ the mixed approach, fifty-one percent (51%) of the respondents elect to use a decentralized approach to manage their office equipment. This is the only inclination of decentralization in the management of surveyed categories of fixed assets. These survey results have answered the question “What forms of fixed asset management organization are applied to serve different property needs of government agencies?”

Capacity Building

In the survey questionnaire, capacity building is defined as an ongoing process by which an organization enhances its ability to identify and meet internal and external challenges. Internal challenges an organization meets are related to how to improve an organization’s performance and achievement of the organization’s goals and objectives while external challenges involve environmental changes that may impact organization operation and organization improvement. Based on a discussion of capacity building in Chapter 5, the mail survey sought information on five major aspects to understand capacity building in fixed asset management. These five aspects are shown in Table 23.
Table 23 Capacity Building of Fixed Asset Management Organization

<table>
<thead>
<tr>
<th>Measures for building capacity of fixed asset management</th>
<th>Is the measure included in your capacity building plan?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Valid Cases</td>
</tr>
<tr>
<td>Risk management</td>
<td>33</td>
</tr>
<tr>
<td>Emergency management</td>
<td>33</td>
</tr>
<tr>
<td>Partnership with private business</td>
<td>32</td>
</tr>
<tr>
<td>Organization improvement</td>
<td>30</td>
</tr>
<tr>
<td>Encouraging high efficiency and effectiveness</td>
<td>32</td>
</tr>
</tbody>
</table>

The component of risk management regarding fixed assets means planning, organizing, directing, and controlling resources to identify, assess, and minimize the probability of negative, unexpected events and managing the events at their occurrence to achieve planned organizational goals and objectives (see Head, 2009). Risk management is an integral part of any operation of fixed asset management that is intended to avoid impact and losses from risks or potential risks. Emergency management is an organizational effort to deal with hazards, either natural or man-made, that can cause disasters or catastrophes to public fixed assets. Partnership with private businesses refers to collaborative relations between public fixed asset management and private contractors and suppliers in fixed asset acquisition, operation, maintenance and repair, and disposition. Organizational improvement means strategies and mechanisms that help improve fixed asset performance while maximizing asset value. Encouraging high efficiency and effectiveness refers to incentives for more efficient and effective use of public fixed assets.

The mail survey shows that more than seventy-six percent (76%) of respondent
states have particular measures for building their capacity of fixed asset management in three of the five major aspects: risk management (76%), emergency (82%), and encouraging high efficiency and effectiveness (81%). On the other hand, relatively fewer respondents have strategies to enhance their capacity in partnership with private businesses and in promoting organizational progress. Fourteen of thirty-two (44%) surveyed states have established a collaborative relationship with private businesses in asset acquisition and asset management throughout the life cycle. This reflects an insufficient connection between the public sector and the private sector in fixed asset management. Privatization of fixed asset management programs, which is an essential part of the management process throughout the life cycle of fixed assets, may provide more evidence about the public-private connection. With regard to organizational progress in fixed asset management, sixteen of thirty (53%) states have organizational measures to achieve effectiveness of fixed asset management and maximize property value. This element of fixed asset management is closely connected with employee development training programs which will be discussed later. The question “What public asset management measures are used to build up the capability of asset management?” is answered in this analysis.

The Management Process throughout the Life Cycle of Assets

Fixed Asset Planning

As discussed in Chapter 6, fixed asset planning is the initial phase of fixed asset management throughout the life cycle. At state government, the organization of fixed asset management demonstrates that fixed asset planning involves various state
government agencies: fixed asset using agencies, fixed asset management agencies, central budget office, controller’s office, financial department, and the state legislative body. For example, in the State of Illinois, capital budgeting, which is an indispensable part of fixed asset planning, involves the Governor’s Office of Management and Budget and agencies that request capital budget. Other state agencies, authorities, and commissions, like the Illinois Department of Transportation, Department of Commerce and Economic Opportunity, Department of Natural Resources, Illinois Environmental Protection Agency, Capital Development Board, and Illinois Board of Higher Education, participate in reviewing potential capital investments that state agencies request.

Fixed asset planning is prospective. It takes into consideration the factors that may affect acquisition and management of the planned fixed assets. Because a capital budget request is an indispensable element of fixed asset planning, it is not particularly included in the survey. Except for budget, the survey questionnaire addressed six major elements that may be employed in fixed asset planning. These elements consist of fixed asset needs analysis, a mission statement of fixed asset acquisition, an analysis of acquisition methods, ranking priorities of acquisition, fixed asset performance measures, and life-cycle costing (see Table 24). Based on the characteristics of fixed assets, the survey question regarding fixed asset planning mainly asked about preparation by respondent states for acquisition and life-cycle utilization. Sufficient, overall, and reasonable preparation may prevent potential losses, obtain expected effectiveness of asset use, and maximize the value of public resources.
Table 24 Fixed Asset Planning

<table>
<thead>
<tr>
<th>Elements included in fixed asset planning</th>
<th>Is it included in your asset planning?</th>
<th>Has the element helped to improve performance?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>-----------------------------------------</td>
<td>-----</td>
<td>----</td>
</tr>
<tr>
<td>Fixed asset needs analysis</td>
<td>27</td>
<td>5</td>
</tr>
<tr>
<td>Mission statement for fixed asset</td>
<td>15</td>
<td>16</td>
</tr>
<tr>
<td>acquisition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analysis of acquisition methods</td>
<td>22</td>
<td>9</td>
</tr>
<tr>
<td>Ranking of priorities of acquiring</td>
<td>23</td>
<td>8</td>
</tr>
<tr>
<td>fixed assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asset performance measures</td>
<td>15</td>
<td>17</td>
</tr>
<tr>
<td>Life-cycle costing</td>
<td>22</td>
<td>9</td>
</tr>
</tbody>
</table>

Data from survey demonstrate that most of the respondent states have implemented needs analysis, analysis of acquisition methods, priority ranking to acquire fixed assets, and life-cycle costing. Twenty-seven of thirty-two (84%) respondents analyze fixed asset needs before acquiring the fixed assets. More than seventy-one percent (71%) of surveyed states claim that they analyze acquisition methods and rank priorities on the basis of acquisition method analysis and asset needs analysis. In addition, twenty-two of thirty-one (71%) respondents take into account life-cycle costs when acquiring fixed assets. However, survey responses also show that state governments have not exerted tremendous efforts to determine the mission of fixed asset acquisition and measures to assess fixed asset management performance. Only fifteen of thirty-one (48.4%) respondents reported that they had a mission statement for fixed asset acquisition. Similarly, only fifteen of thirty-two (46.9%) surveyed states have created measures for assessing the performance of fixed asset management. This fact is consistent with the insufficient legal and regulatory requirements across the surveyed states, which is shown in Table 19 and discussed previously.
Considering both the percentage of respondents that use the identified elements and the effect of these elements (see Table 24), needs analysis, acquisition method analysis, priority ranking, and life-cycle cost are four major elements for fixed asset planning and they have greater impacts on the achievement of improved fixed asset planning. The other two elements—mission statement and performance measures—have much smaller impact on improvement of fixed asset planning. These results provide an accurate answer to the question “What elements are included in fixed asset planning and to what extent does public fixed asset planning depend on these elements of fixed asset planning?”

**Privatization of Fixed Asset Services**

As is discussed in Chapter 6, the management process utilized throughout the life cycle of assets involves a wide range of activities from architectural design to pest control under the responsibilities of state governments. Because government does not have managerial expertise in every area of fixed asset management, certain programs are privatized to improve efficiency of government operation, or to provide better services, or to reduce the size of government (Lee et al., 2004; Mikesell, 2007; Osborne & Gaebler, 1992). Although it is criticized for various reasons, privatization is still implemented in different forms like contracting-out in public asset management. The mail survey questionnaire addresses privatization mainly in the operation and management of real properties because real properties account for the major portion of public fixed assets. The programs that are likely to be privatized are listed in Table 25.
### Table 25 Privatization Programs in Fixed Asset Management

<table>
<thead>
<tr>
<th>Major real property services</th>
<th>Service privatized?</th>
<th>Expected goals achieved?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>%</td>
</tr>
<tr>
<td>1. Custodial cleaning</td>
<td>24 71</td>
<td></td>
</tr>
<tr>
<td>2. Concierge services</td>
<td>3 19</td>
<td></td>
</tr>
<tr>
<td>3. Repair and Maintenance</td>
<td>13 41</td>
<td></td>
</tr>
<tr>
<td>4. Security services</td>
<td>19 58</td>
<td></td>
</tr>
<tr>
<td>5. Utility management</td>
<td>4 13</td>
<td></td>
</tr>
<tr>
<td>6. Restructuring real property for customers</td>
<td>4 14</td>
<td></td>
</tr>
<tr>
<td>7. Disposal of trash</td>
<td>26 81</td>
<td></td>
</tr>
<tr>
<td>8. Disposal of hazardous waste</td>
<td>27 84</td>
<td></td>
</tr>
<tr>
<td>9. Pest control</td>
<td>27 84</td>
<td></td>
</tr>
<tr>
<td>10. Green property management (in cleaning, construction, energy, etc)</td>
<td>11 44</td>
<td></td>
</tr>
</tbody>
</table>

*Yes*=the number of respondents that have privatized the service program  
*No*=the number of respondents that have not privatized the service program

The mail survey found that state governments are cautious in implementing privatization programs in fixed asset management. Privatization programs are concentrated in a very small number of management areas. Specifically, in most surveyed states, custodial cleaning, disposal of trash, disposal of hazardous waste, and pest control are largely outsourced to private businesses. Twenty-seven of thirty-two (84%) respondents reported that they have outsourced disposal of hazardous waste and pest control programs. Twenty-six of thirty-two (81%) respondent states have privatized trash disposal programs. Twenty-four of thirty-four (71%) surveyed states have outsourced their custodial cleaning programs. In addition, more than half of the respondents have outsourced security services. In contrast, concierge services, utility management, and restructuring real property for customers are seldom privatized. The percentages of valid respondents (those that answered relevant questions) that have
privatized these categories of fixed asset service programs are less than twenty percent (20%). Figure 16 demonstrates the tendency of real property service programs across the surveyed states in the U.S. It clearly presents the current situation of privatization in the operation of public real properties.

Respondents also reported that some categories of fixed asset services are not all privatized. This means that privatization may depend on a number of factors, such as the entrepreneurial capacity of asset managers, the services fixed asset users provide, security requirements, and the size of services to be privatized, among other factors. With regard to the effects of privatization programs, respondents reported an extremely positive estimate of the consequences of privatization outcomes. This is illustrated in Table 25. Except for two areas, “repair and maintenance” and “utility management,” to which the response rate is quite low, almost every respondent state that has privatized certain programs recognized that it had achieved expected outcomes.

**Figure 16 Distribution of Privatization Programs**

![Figure 16 Distribution of Privatization Programs](image)

Yes = percentage of respondents that have privatized the program
No = percentage of respondents that have not privatized the program

Composition and Utilization of Fixed Assets

State governments own tremendous amounts of fixed assets for their operation to provide public services and public goods. In addition, state governments lease a large portion of fixed assets from private businesses and control some real properties owned by other governments. As discussed previously, governments tend to lease more and own fewer real properties so as to reduce the cost of property ownership and expenditure of property utilization. Responses to the survey questionnaire came from general services departments or state departments with similar functions. Since no single department is in charge of all fixed assets a state owns, controls, and leases, information concerning a state’s total fixed assets, even total assets of one category, is hardly available. However, the respondent department of each surveyed state has certain responsibility that helps provide information regarding leased real properties, utilization of leased real properties, and surplus real properties. For example, a general service department usually acts as a leasing agent for most state agencies. It may have information about leased properties and surplus properties. Therefore, although such information is hardly accurate for the whole state, it can be considered as a worthwhile reference.

Data from respondent states demonstrate that generally about fifty-nine percent (59%) of total building space that the state governments use and control is currently leased from private businesses. With regard to individual states, this percentage of leased building space is either extremely high or extremely low. Of 31 respondent
states, 15 states have seventy percent (70%) or more of their total building space leased from the private sector while 9 states have thirty percent (30%) or less of their total building space leased from private businesses. The leased building space is utilized for various purposes. But generally speaking, of the leased building space, fifty-three percent (53%) is utilized for short-term purposes (less than five years) whereas forty-seven percent (47%) is devoted to long-term purposes (more than five years). Eight outlier respondents have eighty percent (80%) or more of their leased building space for long-term use.

Twenty-six of thirty-seven respondents reported their data of excess assets. The highest rate of excess assets is twelve percent (12%) while three respondents reported zero percent of excess assets. Ten respondent states have an excess asset rate of three percent or below. The average rate of excess assets is five percent (5%).

Life-cycle management is another factor that assesses fixed asset management. It is a comprehensive management plan that is implemented throughout the life cycle of an asset. The mail survey found that although seventy-one percent (71%) of respondents include life-cycle costing in their fixed asset planning process (see Table 24), only fifty-five percent (55%) of respondents combine life-cycle costing with fixed asset ownership in the practice of fixed asset management. The discrepancy shows that the life-cycle costing approach is not compulsively implemented in the management process. Possible reasons may include insufficient budget, negligence of fixed asset maintenance and repair, and lack of expertise in asset management.
Expansion of Fixed Asset Management Functions

The functions of fixed asset management have been undergoing adjustments at state government. The survey of state government websites found that fixed asset management, while readjusting management functions, broadens the range of responsibilities by establishing new management programs. For example, greening programs are established as an innovative approach to reserving energy, protecting the environment, improving service quality and efficiency, and reducing greenhouse gas. States like California, Florida, Indiana, Kentucky, and Michigan, New Mexico, and New York have initiated green management programs like green cleaning and green construction. The state of New York passed the Green Building Construction Act on August 26, 2009, mandating that the construction and substantial renovation of state-owned buildings comply with green building standards. The New York State Office of General Services is obliged to establish requirements and procedures to implement the Green Building Construction Act.

Human Capital Strategies

As discussed in Chapter 8, human resources management should provide human capital services for efficient and effective fixed asset management. Based on this perception, human capital strategies focus on (1) financial investment and leadership commitment; (2) human capital planning based on organizational goals, mission, and objectives; (3) employee development training for high performance, and (4) creation of a dynamic organization culture. Considering the tight relations between these focuses of human capital strategies and fundamental missions of fixed asset
management, the mail survey addressed human capital planning and employee
development training.

Human capital planning is determined by legal and regulatory requirements for
human recruitment and personnel needs in fixed asset management. From the
perspective of personnel services, the mail survey addresses five fundamental elements
of human capital planning (see Table 26). The first element emphasizes the relationship
between employee recruitment and the goals and objectives of overall property
management. The second element addresses preparation for employee talent
development for high employee and organization performance and attainment of
long-term organization goals. The third element asks about the motive of human
resource management to initiate organization development and change. Specific
strategies for organization development and change may include, but are not limited to,
new approaches of fixed asset performance evaluation, new approaches of employee
performance evaluation, alternative organization of tasks, establishment of new service
programs, and outsourcing asset services. The fourth element involves employee
participation in decision-making and continuous improvement activities that affect
employees’ jobs. The fifth element addresses training stakeholders to understand the
services that fixed asset management provides and business operations that state
government implements with regard to fixed asset management. These elements are
interrelated to provide human capital strategies for fixed asset management. Responses
to these elements help understand how well human capital planning is implemented by
state government.
Table 26 Strategic Human Capital Planning

<table>
<thead>
<tr>
<th>Issues addressed in strategic human capital planning</th>
<th>Implemented or Not?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>1. Position description based on overall property</td>
<td></td>
</tr>
<tr>
<td>management goals &amp; objectives</td>
<td>28</td>
</tr>
<tr>
<td>2. Employee talent development connected with</td>
<td></td>
</tr>
<tr>
<td>long-term goals of asset management</td>
<td>25</td>
</tr>
<tr>
<td>3. Planning for innovative work practices</td>
<td></td>
</tr>
<tr>
<td></td>
<td>25</td>
</tr>
<tr>
<td>4. Employee involvement in goal setting and planning</td>
<td></td>
</tr>
<tr>
<td></td>
<td>23</td>
</tr>
<tr>
<td>5. Team development engaging all stakeholders</td>
<td></td>
</tr>
<tr>
<td></td>
<td>25</td>
</tr>
</tbody>
</table>

Yes = the number of respondents that have the element in their human capital planning
No = the number of respondents that do not have the element in their human capital planning

Thirty-one of thirty-seven (84%) surveyed states provided responses to the five elements of human capital planning (see Table 26). More than eighty-one percent (81%) of valid respondents reported that they covered the first, second, third, and fifth identified element in their human capital planning. Seven-four percent (74%) of valid respondents have the fourth element in their human capital planning. With regard to the effect of overall human capital planning, ninety-three percent (93%) of valid respondents estimated that their human capital planning had either moderate or much effect on the achievement of goals and objectives of fixed asset management.

The mail survey also covers five elements to investigate employee development training, which is another focus of human capital strategies (see Table 27). These elements are summaries of sustainable employee training programs that address different objectives of fixed asset management at state government. The survey results demonstrate that twenty-eight of thirty-seven (76%) respondents answered the questions concerning employee development training. Eighty-one percent (81%) to ninety-three percent (93%) of valid respondents have implemented the identified
categories of programs to achieve their objectives of fixed asset management. The mail survey also revealed that ninety-six percent (96%) of valid respondents perceive the overall employee development training as moderately effective or even better. This survey result answers the question if employee development training improves employees’ subsequent performance and what effect employee development training has on employees’ performance.

Table 27 Employee Development Training

<table>
<thead>
<tr>
<th>Categories of sustainable employee development training programs</th>
<th>Do you have the programs?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Programs to increase employee performance</td>
<td>26</td>
</tr>
<tr>
<td>Programs to meet new work requirements</td>
<td>25</td>
</tr>
<tr>
<td>Programs to satisfy long-term need for qualified employees</td>
<td>22</td>
</tr>
<tr>
<td>Programs to meet customer satisfaction</td>
<td>26</td>
</tr>
<tr>
<td>Programs to align with agency goals &amp; objectives</td>
<td>24</td>
</tr>
</tbody>
</table>

Yes = the number of respondents that have implemented this category of training programs
No = the number of respondents that have not implemented this category of training programs

Information and Technology Resource Utilization

Fixed Asset Management Information

The cornerstone of information and technology resource utilization consists of fixed asset information and the means by which information is obtained and managed. As is discussed in Chapter 8, by consolidating fixed asset data into a fixed asset information system, such as FRPP at the federal government, government could improve decision-making with respect to fixed asset management with accurate and reliable governmentwide data. On this basis, the mail survey investigated the establishment of a fixed asset database system and its effects on asset acquisition,
disposition, financial input, and financial reporting. Specifically, the mail survey intended to reveal what kind of data is consolidated into the fixed asset management information system, and if the consolidated data serves expected roles in fixed asset decision-making. Twenty-six elements are identified as the major categories of management information (see Table 28). As shown in Table 28, surveyed states have considerable difference between their fixed asset management information systems. Only two of the twenty-six identified elements are found in the information system of every surveyed state. These two elements are “fixed asset category” and “location of real properties.” Besides these two elements, eight elements are used by more than seventy percent (70%) of the valid respondents (see Table 28). These first ten elements in Table 28 are the fundamental categories of the fixed asset management information in the system.

In contrast, twelve elements are used by fewer than fifty percent (50%) of the valid respondents in their management information system (see Table 28). Among these elements, special land elements are not given sufficient attention. The element of “tax” suggests that the fixed assets registered in the information system are mostly for governmental purposes rather than for business purposes from the perspective of a financial report. In addition, zoning is the responsibility of local governments. State government does not consider zoning issues when managing their real properties. The low frequency of the use of “annual cost of ownership,” “percent utilized,” and “annual operating expenses” suggests that a state financial report does not need these categories of property information; and that life-cycle management is not considered when
building a fixed asset management information system.

**Table 28 Inventory of Fixed Assets**

<table>
<thead>
<tr>
<th>Major components of real properties contained in an information system</th>
<th>Is this component contained in your information system?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Fixed asset category</td>
<td>Yes</td>
</tr>
<tr>
<td>2. Location of real properties</td>
<td>Yes</td>
</tr>
<tr>
<td>3. Age</td>
<td>Yes</td>
</tr>
<tr>
<td>4. Acquisition cost</td>
<td>Yes</td>
</tr>
<tr>
<td>5. Size</td>
<td>Yes</td>
</tr>
<tr>
<td>6. Current status</td>
<td>Yes</td>
</tr>
<tr>
<td>7. Date of occupancy</td>
<td>Yes</td>
</tr>
<tr>
<td>8. Legal ownership</td>
<td>Yes</td>
</tr>
<tr>
<td>9. Estimated current value</td>
<td>Yes</td>
</tr>
<tr>
<td>10. Rent of leased property</td>
<td>Yes</td>
</tr>
<tr>
<td>11. Transfer history</td>
<td>Yes</td>
</tr>
<tr>
<td>12. Cost of leasehold improvement</td>
<td>Yes</td>
</tr>
<tr>
<td>13. Total value of fixed assets</td>
<td>Yes</td>
</tr>
<tr>
<td>14. Original useful life</td>
<td>Yes</td>
</tr>
<tr>
<td>15. Remaining useful life</td>
<td>Yes</td>
</tr>
<tr>
<td>16. Insurance</td>
<td>Yes</td>
</tr>
<tr>
<td>17. Annual operating expenses</td>
<td>Yes</td>
</tr>
<tr>
<td>18. Total value of investment assets</td>
<td>Yes</td>
</tr>
<tr>
<td>19. Percent utilized</td>
<td>Yes</td>
</tr>
<tr>
<td>20. Annual cost of ownership</td>
<td>Yes</td>
</tr>
<tr>
<td>21. Hazards (land)</td>
<td>Yes</td>
</tr>
<tr>
<td>22. Flooding condition (land)</td>
<td>Yes</td>
</tr>
<tr>
<td>23. Environmental services (land)</td>
<td>Yes</td>
</tr>
<tr>
<td>24. Taxes</td>
<td>Yes</td>
</tr>
<tr>
<td>25. Zoning</td>
<td>Yes</td>
</tr>
<tr>
<td>26. Soil mechanical condition (land)</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Note: 1. This table contains the same elements as the survey question, but in different order. 2. Yes: the number of respondents that use these elements in their information system. 3. No: the number of respondents that do not include these elements in their information system

The mail survey revealed that the fixed asset management information system does not have strong positive effects on fixed asset acquisition, disposition, financial input,
and financial reporting (see Table 29). Twenty-eight percent (28%) of valid respondents reported that their fixed asset information system did not produce an effect on the fixed asset acquisition in their states. The case of disposition is similar to that of acquisition. In addition, thirty-two percent (32%) of valid respondents said that their information system did not have an effect on financial input in fixed asset management. The possible cause of this phenomenon is that fixed asset managers cannot obtain any information to determine how much money is needed for maintenance, repair, and replacement. Comparatively, only twenty-one percent (21%) of the valid respondents claimed that their information system did not have an effect on financial reporting. The cause for this fact is similar to that of financial input. In a word, the low frequency of about half of the identified elements in the fixed asset management information system has reduced the positive effect of the fixed asset data on fundamental functions of fixed asset management, such as acquisition, disposition, final input, and financial reporting.

**Table 29 Effect of Fixed Asset Management Information System**

<table>
<thead>
<tr>
<th></th>
<th>Acquisition</th>
<th>Disposition</th>
<th>Financial Input</th>
<th>Financial Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes¹</td>
<td>72%</td>
<td>74%</td>
<td>68%</td>
<td>79%</td>
</tr>
<tr>
<td>No²</td>
<td>28%</td>
<td>26%</td>
<td>32%</td>
<td>21%</td>
</tr>
</tbody>
</table>

Notes: 1. Yes: percentage of respondents perceiving information system as effective 2. No: percentage of respondents perceiving information system as ineffective

Timely data updating ensures that data are accurate and reliable and that the information system functions appropriately. The mail survey showed that forty-three percent (43%) of the survey participants update their data of fixed asset management information system every six or fewer months, forty percent (40%) of respondents every twelve or fewer months, the remaining seventeen percent (17%) every
twenty-four or more months. Considering the fact that U.S. state governments have annual or biennial budgeting cycle, reliable and accurate information should be available for financial reporting and fixed asset management if state governments update their fixed asset data every twelve or fewer months.

**Assessment of Fixed Asset Management Performance**

When fixed asset management is assessed appropriately against expected standards, fixed asset management can be promoted to meet executive and legal requirements. The survey of state government websites found that a number of states have established standards and criteria for fixed asset management. They regularly assess their fixed asset management and provide a performance results summary online. Detailed real estate annual reports were found on the state government websites of New York, Florida, California, Maryland, Connecticut, and New Mexico, among other states. The mail survey was intended to present measures the survey participants have employed to assess their fixed asset management performance. Of thirty-seven mail survey participants, only twenty-six (70%) selected certain measures from a list of commonly-used fixed asset management performance measures (see Table 30). This is a low rate compared with the response rate for other questions.

The mail survey results show that among the eighteen identified measures, only ten are used by more than fifty percent (50%) of respondent states. These measures include (in order of percentage of respondents using the measure from high to low) cost per square foot (owned), cost per square foot (leased), operating cost per square foot, deferred maintenance, vacancy rate, current replace value, customer satisfaction,
usable square feet per employee, facility condition index, and number of days to proceed leases. These measures are highlighted in Table 30. They are the measures mostly related to costs, fixed asset service delivery, and physical condition of fixed assets.

Table 30 Measurement of Fixed Asset Management Performance

<table>
<thead>
<tr>
<th>Measures for Real Property Performance Evaluation</th>
<th>Do you use this measure?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes¹</td>
</tr>
<tr>
<td>1. Cost per square foot (owned)</td>
<td>24</td>
</tr>
<tr>
<td>2. Cost per square foot (leased)</td>
<td>24</td>
</tr>
<tr>
<td>3. Vacancy rate</td>
<td>19</td>
</tr>
<tr>
<td>4. Utilization rate</td>
<td>6</td>
</tr>
<tr>
<td>5. Average cost per employee</td>
<td>8</td>
</tr>
<tr>
<td>6. Customer satisfaction</td>
<td>15</td>
</tr>
<tr>
<td>7. Real property disposal time</td>
<td>6</td>
</tr>
<tr>
<td>8. Percent of leases not to be renewed</td>
<td>6</td>
</tr>
<tr>
<td>9. Number of days to process lease</td>
<td>14</td>
</tr>
<tr>
<td>10. Usable square feet per employee</td>
<td>15</td>
</tr>
<tr>
<td>11. Savings from audits</td>
<td>7</td>
</tr>
<tr>
<td>12. Number of utility trouble calls</td>
<td>9</td>
</tr>
<tr>
<td>13. Facility condition index</td>
<td>15</td>
</tr>
<tr>
<td>14. Percent of tenant renovations on time and on budget</td>
<td>11</td>
</tr>
<tr>
<td>15. Operating cost per square foot</td>
<td>20</td>
</tr>
<tr>
<td>16. Number of emergency contracts</td>
<td>8</td>
</tr>
<tr>
<td>17. Current replace value</td>
<td>18</td>
</tr>
<tr>
<td>18. Deferred maintenance</td>
<td>20</td>
</tr>
</tbody>
</table>

Notes: 1. Yes: the number of respondents that use this measure; 2. No: the number of respondents that do not use this measure

In contrast, the mail survey results show that the majority of the other measures are employed by fewer than forty percent (40%) of the respondent states (see Figure 17). These measures include (in order of percentage of respondents that use the measure from low to high) real property disposal time, percent of leases not to be renewed,
utilization rate, savings from audits, average cost per employee, number of emergency contracts, and number of utility trouble calls. These identified measures are rarely used either because the relevant fixed asset management elements are not given sufficient attention or because the relevant fixed asset management programs are not commonly initiated throughout state governments.

**Figure 17 Distribution of Fixed Asset Management Performance Measures**

Note: The numbers on X-axis represent the measures listed in Table 30. Percentage of Y-axis refers to percentage of respondents that use the measure (Yes) or do not use the measure (No).

With regard to how much effect the assessment of fixed asset management performance has on the improvement of fixed asset management performance, respondents have different perceptions toward whether or not the assessment of fixed asset management performance has any effects. Even two of the surveyed states that did not select any assessment measures commented that assessment of fixed asset management performance had no effect on the improvement of fixed asset management performance. Three respondents selected a number of assessment measures but provided no response to the effect of assessment of fixed asset management
performance. Another three valid respondents commented that assessment of fixed asset management performance did not produce any effect on management performance improvement. However, about eighty-seven percent (87%) of valid respondents perceived the assessment of fixed asset management performance as of moderate effect or much effect.

**Monitoring, Integrity, and Transparency**

As discussed in Chapter 9, the whole process of public fixed asset management needs to be monitored to ensure that public fixed assets function efficiently and effectively. The major areas that are usually put under monitoring and oversight include compliance of laws and regulations, effectiveness of policies and processes, contract implementation, performance measurement, and financial accountability. The survey of state government websites found that legal and regulatory requirements, professional manuals, guidelines, policies, and standards were enacted and enforced by state governments or agencies. Some examples include Alabama Building Commission Administrative Code, Alaska State Property Handbook, Alaska Building Authority Manual, Alaska State Space Standards, State of Florida Statewide Financial Statement Capital Asset Policy, Florida Public Asset Management Policy, Florida Code of Ethics, Massachusetts Facilities Operation and Management Manual for Beginners, Missouri Aircraft Policy, Missouri Leasing Policy, Maryland Lease Compliance and Enforcement Guidelines, Maryland Procedure Manual for Professional Services, Maryland Office Area Standard, Ohio Fleet Manager’s Guide, Ohio General Services Policies, and Virginia Code of Ethics. These documents provide part of monitoring and
oversight at different levels.

### Table 31 Monitoring and Oversight Programs at the U.S. State Government

<table>
<thead>
<tr>
<th>Monitoring and Oversight Programs</th>
<th>Do you have it in your monitoring programs?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Contract Monitoring (cost, schedule, performance, quality)</td>
<td>27</td>
</tr>
<tr>
<td>Financial accountability monitoring (purpose, time, amount)</td>
<td>20</td>
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<tr>
<td>Performance measurement monitoring</td>
<td>15</td>
</tr>
<tr>
<td>Monitoring of effectiveness of policies &amp; processes</td>
<td>16</td>
</tr>
<tr>
<td>Monitoring of compliance of laws and regulations</td>
<td>25</td>
</tr>
</tbody>
</table>

Note: Yes: the number of respondents that have the monitoring and oversight program; No: the number of respondents that do not have the monitoring and oversight program

The mail survey asked survey participants to identify the monitoring and oversight programs they have established from a list (see Table 31). The mail survey results showed that seventy-nine percent (79%) of respondent states have initiated and implemented monitoring programs in contract management. Seventy-five percent (76%) of the valid respondents have monitoring and oversight programs in compliance with laws and regulations. Sixty-nine percent (63%) of the valid respondents have monitoring and oversight programs in financial accountability. Comparatively, fewer respondent states monitor their performance measurement and effectiveness of policies and processes. Generally, performance is assessed at the agency level. Policies and processes are mostly implemented at lower levels of management. The mail survey results revealed that lower levels of management have not paid sufficient attention to monitoring performance assessment and the implementation of policies and processes. Even though very few survey participants reported that their monitoring and oversight programs had not produced sufficient effect on the improvement of fixed asset
management performance, a very small number of respondents (19%) perceived that monitoring and oversight programs are of high effect. Seventy-eighty percent (78%) of survey participants considered their monitoring programs as moderately effective.

In the twenty-first century, constructing a transparent government that abides by the principles of integrity, efficiency, and effectiveness is the goal of each government. The survey of state government websites did not provide much information about integrity in public fixed asset management except the professional code of ethics. Integrity is seldom discussed in fixed asset management reports. Websites of major departments responsible for real properties or capital assets at each government are mostly descriptive rather than interactive. Although more than eighty percent (80%) of websites provide information for private businesses, fewer websites of state departments responsible for major categories of fixed assets present information for the general public. In addition, fixed asset services for government agencies are not interactive from the perspective of service users. A few websites of state general service departments or departments in charge of major categories of fixed assets do not provide detailed information regarding the operation and outcomes of fixed asset management. These facts suggest that state governments have not explored the potential of the Internet to improve government transparency.

The mail survey results show that in the process of maintaining integrity and transparency of fixed asset management, ninety-seven percent (97%) of the respondent states have paid close attention to internal control and audit system. Anti-corruption is also considered as a frequently-used measure (see Table 32). Ninety percent (90%) of
the respondent states have adopted this measure to maintain government integrity and transparency in the process of fixed asset management. In addition, professional code of ethics is employed in eighty-four percent (84%) of the survey participants. In comparison to the high percentage of respondents that adopted internal audit and control, the percentage of respondents that used external audit and oversight system is rather low (71%). As Figure 18 shows, in contrast with these four measures, publication and distribution of information and efficient appeals system are not employed as measures to maintain integrity and transparency in a high percentage of respondent states.

Table 32 Integrity and Transparency at the U.S. State Government

<table>
<thead>
<tr>
<th>Measures taken to maintain integrity and transparency of fixed asset management</th>
<th>Do you take this measure?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>1</td>
<td>Effective internal control &amp; audit system</td>
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<td>2</td>
<td>Effective external audit &amp; oversight system</td>
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<tr>
<td>3</td>
<td>Efficient appeals mechanism</td>
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<td>4</td>
<td>Publication &amp; distribution of information through available media</td>
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<tr>
<td>5</td>
<td>Professional code of ethics</td>
</tr>
<tr>
<td>6</td>
<td>Anti-corruption measures based on legal &amp; regulatory guidelines</td>
</tr>
</tbody>
</table>

Note: Yes = the number of respondents that take this measure; No = the number of respondents that do not take this measure

Twenty-two percent (22%) of survey participants did not answer the question regarding the effect of integrity and transparency measures; the remaining participants provided a positive answer to the question. Sixty percent (60%) of the survey participants perceived that integrity and transparency measures have moderate effects on the achievement of effective and efficient public fixed asset management; thirty-seven percent (37%) of the survey participants estimated that the effect is more
than moderate.

Figure 18 Measures Taken to Maintain Integrity and Transparency

Note: Yes = the number of respondents that take this measure; No = the number of respondents that do not take this measure

In summary, the results from both the survey of state government websites and the mail survey have answered the questions raised in Chapter 1 with regard to fixed asset management at state government level. The questions investigate different areas of fixed asset management. The survey results showed that each cornerstone of the public asset management system is correlated with each other cornerstone.

States’ Comparison with Standards of the Public Asset Management System

The mail survey results show that the state governments in the United States demonstrated variance in each area of public fixed asset management. The variance suggests that an individual state government may be extremely strong in one area or in a few areas of public fixed asset management with every identified element applied in practice. Meanwhile the variance also indicates that an individual state government
may be quite weak in an area or in certain areas of fixed asset management. For example, Connecticut is strong in regulating each area of fixed asset management and in monitoring and auditing relevant fixed asset management programs. However, it is weak in the management process throughout the life cycle of assets and information resources management (see Table 33). In comparison with the standards established by the public asset management system elaborated in Chapter 3 of this dissertation, a number of states are at a leading position in fixed asset management. These states, such as Oklahoma, Indiana, Michigan, and Florida, have more than seventy-five (75%) of the elements identified in the fixed asset management system.

Besides, survey results also demonstrate that generally speaking, the state governments in the United States performed well in human resources management and fixed asset management regulations. Comparatively, the state governments need to improve efficiency and effectiveness in the management process throughout the life cycle of assets and construction of a comprehensive reliable database of fixed asset management information.
Table 33 Current Status of Fixed Asset Management by U.S. States

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</tbody>
</table>

Notes: 1. In this column are the respondent states. 2. This row includes six cornerstones identified and used in this research. The number in each bracket refers to the number of the total identified elements in the area of the cornerstone. C1 = legal and regulatory requirements, C2 = organization structure, C3 = the management process throughout the life cycle of assets, C4 = human resource strategies, C5 = information and technology resources, C6 = monitoring, integrity, and transparency. 3. Y stands for yes. The numbers in the column represent the numbers of elements the state has in its fixed asset management practice. 4. N stands for no. The numbers in the column represent the number of elements the state does not have in its fixed asset management practice.
CHAPTER 12. RELATIONSHIPS BETWEEN CORNERSTONES

This chapter provides an overall analysis of the mail survey results with regard to the six cornerstones of the public asset management system and includes a number of implications from the mail survey’s results.

Relationship of Legal and Regulatory Requirements with other Cornerstones

Generally speaking, both the survey of the state government websites and the mail survey show that legal and regulatory requirements have covered each cornerstone of the public fixed asset management system. Table 19 and Table 21 show that legal and regulatory requirements regulate major areas of fixed asset management and have moderate or much guidance in a high percentage of respondent states. Among the eighteen surveyed areas, there are only four areas where legal and regulatory requirements have a low level of guidance and are used by a low percentage of respondents. In a fewer respondent states these four areas of fixed asset management are regulated by laws and regulations. The low level of guidance in fixed asset performance evaluation, at least in part, contributes to low percentage of surveyed states that have asset performance measures (see Table 24) and low performance in management assessment (see Table 30) throughout the surveyed states. The low level of guidance of laws and regulations in centralized registration leads to insufficient attention to construction of the fixed asset management information system (see Table
Conversely, there are four other areas of fixed asset management where laws and regulations have extremely high-level guidance. In more than ninety percent (90%) of respondent states, these areas are regulated by laws and regulations. The high-level guidance in “fixed asset disposal” leads to establishment of a separate division of surplus property in about fifty percent (50%) of all state governments. Generally speaking, state governments have a very low percentage of surplus properties. However, “real property disposal time” is not used as a major measure to assess fixed asset management in most of the respondent states. This indirectly shows that in practice real property disposal is not effectively managed by state government.

The high-level guidance of laws and regulations in “regular reporting of fixed assets” determines that a number of frequently used financial elements are employed in the fixed asset management information system (e.g. estimated current value, total value of fixed assets, and acquisition cost as listed in Table 28) and in the management assessment mechanism (e.g. current replacement value in Table 30). As a result, about eighty percent (80%) of respondents deemed that the fixed asset management information system has a positive effect on financial reporting.

The high-level guidance of laws and regulations in “leasing real property from the private sector” contributes to a centralized leasing division or program in almost every state government. Also closely related to the positive guidance is the total area of leased building space which is considered as a measure to assess fixed asset management in the cornerstone of information and technology resource utilization. In addition, the fact
that an average of fifty-nine percent (59%) of total building space the state government uses and controls is leased from the private sector reveals a trend of depending more on leasing real properties. This trend is similar to the general trend of leasing properties at the federal government. Federal budgeting scorekeeping rules require that for ownership and capital leases, the full cost of government commitment be recorded in the first year’s budget; in contrast, for operating property leases, only the yearly lease payment and cancellation costs are registered in the annual budget (GAO, 2008). Chances are that like the federal government, state governments have budget policies that encourage operating leasing rather than acquiring properties through construction. From a budgeting perspective, reliance more on leasing, rather than acquiring real properties, temporarily relieves financial pressure on state government. But on a long-term basis, it costs more money. Therefore, those states that have a very high percentage of leased building space for long-term purposes need to consider the long-term cost of leasing properties from the private sector. Meanwhile, state government needs to amend legal and regulatory requirements if these requirements encourage over-reliance on long-term costly leasing. Overall, compared with federal government, state government has a much lower percentage of excess properties. An average of five percent of surplus properties suggests that state government has more efficiently utilized its real properties.

The high-level guidance of laws and regulations in the area of “fixed asset acquisition” has a positive impact on fixed asset planning. Fixed asset planning focuses more on acquisition strategies rather than fixed asset operation planning (see Table 24).
In addition, a fixed asset inventory records the original data of fixed assets at acquisition. Current status, acquisition cost, and original useful life are frequently-used elements in fixed asset management information system.

**Relationships of Organization Structure with Other Cornerstones**

Organization forms of fixed asset management are closely related to how fixed assets are managed. High percentages of centralization approach and mixture of centralization and decentralization (see Table 22) contribute to privatization of certain fixed asset management programs. The most frequently privatized programs, as shown in Table 25, are those that may have a scale large enough for privatization under the centralized and mixed management structure. In addition, the mixture characteristics of land, building, and infrastructure management suggest that a comprehensive complete management information system is difficult to construct. Table 22 shows that more than ten elements of the fixed asset management information system are rarely used at state government.

Capacity building of fixed asset management focuses on three of five identified areas (see Table 23). Risk management and emergency management may increase short-term leasing of building space. Generally, risk management and emergency management may also encourage partnership between the public sector and the private sector because in some cases public resources are not sufficient for handling overwhelming emergencies. But the mail survey does not support this supposition. The low-level effect of public-private partnership is consistent with the unwillingness of
government to privatize some categories of public asset management programs (see Table 25). “Encouraging high efficiency and effectiveness” as an element of capacity building has a close relationship with employee training. As can be seen from Table 27, most valid respondents use the identified programs for employee development training. These programs have achieved expected effects on improvement of employee performance.

Capacity building measures do not prioritize promoting organization progress (see Table 23). This suggests that state government lacks long-term strategic planning and measures for monitoring the achievement of long-terms goals. The lack of strong performance measurement monitoring and monitoring of effectiveness of policies and processes (see Table 31) indirectly reflects a problem in capacity building of fixed asset management.

**The Relationship of Management Process with Other Cornerstones**

The management process throughout the life cycle of assets is a process of enforcing laws and regulations of fixed asset management. The major components of a management process throughout the life cycle of assets, such as planning, acquisition, asset use, operation and maintenance, planning, and disposal, are under legal and regulatory constraints. Among these components, fixed asset acquisition, use, and disposal are highly regulated while fixed asset operation and maintenance and fixed asset planning are comparatively not (see Table 19). During the planning phase, mission statement and asset performance measures are not given sufficient attention.
This suggests that the measure of “encouraging high efficiency and effectiveness” is not effectively implemented; and “promotion of organization progress” is not prospectively coordinated from various respects. In addition, some measurements of management process are not properly recorded. In the management information system, remaining useful life, insurance, and annual operating costs are not used by a high percentage of respondents. Moreover, the fixed asset management process is not sufficiently audited and overseen.

The Relationships of Human Capital Strategies with Other Cornerstones

Generally, human capital management is regulated by laws and regulations, and it is correlated with capacity building, management process, and monitoring and integrity. The mail survey results demonstrate that state governments have addressed the major issues of human capital planning (see Table 26) and human capital needs (see Table 27). Overall, strategic human capital planning enhances and supplements organizational goal setting and fulfillment of management objectives. But the low response rate to “employee involvement in goal setting and planning” suggests that state governments have not exerted sufficient efforts to motivate their employees during their tenure. In addition, the states that have implemented sustainable employee development training found significant effects of training programs on the achievement of goals and objectives of fixed asset management. However, more than 20% of surveyed states do not have sustainable employee development programs. This is consistent with insufficient efforts of state government in building management capacity.
The Relationships of Information Resource with Other Cornerstones

The mail survey results show that constructing an effective fixed asset management information system is dependent on legal and regulatory requirements and organization forms of fixed asset management. Seventy-four percent (74%) of respondents have legal and regulatory requirements for a centralized record management system of all fixed assets (see Table 19). The major categories of fixed assets are managed in a mixed approach of centralization and decentralization. These characteristics determine that the fixed asset management information system of state government may not collect sufficient reliable data. Table 28 shows that only eight of twenty-six elements of the information system are used by more than eighty percent (80%) of the respondent states. It turns out that the information system has moderate effects on fixed asset management acquisition, disposition, and financial input.

The Relationships of Monitoring and Transparency with Other Cornerstones

The mail survey results show that monitoring, integrity, and auditing depend on legal and regulatory requirements and, in return, oversee compliance with laws and regulations. They are correlated with the management process, information collection, and human resources management. Currently, monitoring at state governments focuses on contract monitoring, financial accountability monitoring, and compliance with laws and regulations (see Table 31). These areas are related to different cornerstones of the public asset management system: management process, information resources, and legal and regulatory framework.
Integrity and transparency are concerned with the fixed asset management process, human development training, and organization structure. The mail survey results demonstrate that current measures for maintaining integrity and transparency focus on internal control and audit system, professional ethics, and anti-corruption measures. The measures may encourage agency-level auditing. They may also enhance human development training to abide by professional ethics and anti-corruption mandates.

Overall, the surveys illustrate close relationships between the six cornerstones of the public fixed asset management system. The relationships prove that the cornerstones are appropriate to constitute a system of public asset management. The survey results also show that the components of each cornerstone in the fixed asset management system are not all appropriately used and effectively implemented in the practice of fixed asset management at the U.S. state government level.
CHAPTER 13. CONCLUSION AND SUGGESTIONS FOR FUTURE RESEARCH

Public asset management has been undergoing a transitional period in the United States. With a variety of driving forces, governments at different levels are exerting efforts to effectively and efficiently manage fixed assets by implementing strategic approaches. The U.S. federal government has enacted and enforced laws and regulations to reform its property asset management through establishing a new organization system, creating an information system, and devolving authorities. Similarly, state and local governments are urged to reexamine their fixed asset management practices. These efforts are intended to make efficient and effective use of limited public financial resources to provide fixed asset needs for public service delivery and public goods production. Of course, it is also expected that disasters such as the collapse of the Mississippi Bridge in Minneapolis and eruption of New York steam pipe will never happen again due to management neglect. For these above purposes, this dissertation has tried to propose a public fixed asset management system based on available literature. It also has intended to explore the fixed asset management practice at the U.S. state government level compared to the standard of public fixed asset management system.

Current literature analysis reveals that like private businesses, public asset management intends to maximize the value to a property or portfolio of properties within the objectives defined by the owner where the property or portfolio of
properties are either considered as a commercial investment or as an assisting mechanism for the owner to fulfill major objectives. On this basis, public fixed asset management is first of all susceptible to mandatory requirements which may include laws, regulations, norms and guidance, policies, and procedures. These mandatory requirements are implemented at different levels of government or different levels of management. Decisions are made at different levels of management to organize activities concerning public fixed assets in different approaches, centralization, decentralization, or a mixture of both. To ensure that fixed asset management is sustainable, government develops its capacity in a variety of dimensions. Then specifically, fixed assets are acquired, utilized, maintained, repaired, and disposed of throughout the life cycle of assets. Fixed asset services are provided for government departments and agencies to fulfill their goals and objectives.

Human resources are needed to implement decisions concerning fixed asset management. Financial and leadership investment is made to obtain a workforce for various tasks. Employee development training is provided to improve performance of fixed asset management. In addition, a fixed asset management information system is constructed as a database of fixed assets to provide information for relevant decision-making. Asset information and financial information is obtained in different approaches and managed with up-to-date technologies. Finally, to ensure that every dimension of fixed asset management works appropriately on the right track, monitoring and oversight are implemented. Measures must be taken to maintain integrity and transparency throughout the process of public fixed asset management.
These interrelated and interdependent cornerstones constitute the framework of the public fixed asset management system. This management system provides standards for all levels of government to effectively, efficiently, and fairly manage various categories of fixed assets for public service delivery. Surveys of the U.S. state governments show that state fixed asset management fundamentally operates on the basis of the standards of the public asset management system proposed in accordance with current literature on asset/property management in both the public sector and the private sector. However, the surveys also reveal a number of issues that need improvement in fixed asset management by state governments. These are listed in order of importance as follows:

- Certain areas of fixed asset management are not intensely regulated. Such areas include fixed asset management performance evaluation, fixed asset allocation, centralized registration, and anti-corruption. In addition, in some areas laws and regulations do not have much guidance, such as fixed asset use and fixed asset operation and maintenance.
- Capacity building of fixed asset management does not pay sufficient attention to organization improvement and establishing partnerships with private business.
- Fix asset planning does not pay sufficient attention to a mission statement and asset performance measures. Privatization programs are implemented in only a few areas of fixed asset management.
- Human resource strategies, like human capital planning and employee
development training, are not initiated in more than twenty percent (20%) of surveyed states.

- The fixed asset management information system at state government is not comprehensive. A variety of key elements are not covered in the information system. In addition, the assessment of a fixed asset management performance did not cover a number of frequently used measures.

- State monitoring and oversight programs have not served expected roles in performance measurement and effectiveness of policies and processes. State fixed asset management is not transparent in the appeals mechanism and publication and distribution of relevant information.

A major contribution of this research is the development of a fixed asset management system model that is composed of interdependent elements across six boundary components. Analyses of original data collected from state governments demonstrate that fixed asset management at the state government level supports various dimensions of the public fixed asset management model. Each state government may compare its asset management programs to the findings of this research. However, since the population of this research is comparatively small and some variables are missing in certain cases, the number of the valid cases is not big enough to conduct advanced quantitative analysis. This research is not able to arrive at conclusions based on statistical significance. In addition, only one survey response was collected and analyzed from each state. The respondents relied on personal estimates when answering certain survey questions. This may affect the validity of the research results.
Further research can be conducted to analyze fixed asset management at individual state governments by using the system model this research has proposed. Data can be collected from various departments and agencies through interviews. In addition, the system model can be applied to examine fixed asset management at local governments. Because local government has particular characteristics in public asset management, an adaptable model may be proposed for local fixed asset management.
NOTES

1. These agencies include the Department of Defense (DOD), the U.S. Post Office (USPS), General Services Administration (GSA), the Department of Veterans Affairs (VA), the Department of Energy (DOE), the Department of Homeland Security (DHS), the Department of State, National Aeronautics and Space Administration (NASA), and Department of the Interior (DOI).

2. Some examples of general management laws enacted by the federal government include Administrative Procedures Act, the Federal Managers Financial Integrity Act, the Prompt Payment Act, the Government Performance and Results Act, the Chief Financial Officers Act, the “Budget and Accounting Act, the Government Corporation Control Act, the Paperwork Reduction Act, the Freedom of Information Act, and the Inspector General Act.


5. In a unitary state, centralized property management is a system in which central government is granted authority, responsibility, and control of activities concerning property asset management throughout the country while decentralized property management is a system in which local government is delegated authority to manage properties it uses and controls.
### APPENDICES

#### Appendix A. Code of Respondent States

<p>| | | |</p>
<table>
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<tr>
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### Appendix B. Differences between Capital Budget and Operating Budget

<table>
<thead>
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<th>Capital budget</th>
<th>Operating Budget</th>
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<tr>
<td>Appropriations are for assets that have a long-term life and provide benefits in future years.</td>
<td>Appropriations are for consumable goods and services that are purchased and used during any one fiscal year.</td>
</tr>
<tr>
<td>Spending occurs over one to several years: a typical road construction project might take four years. Re-appropriations for projects originally appropriated in prior years, but still under construction, will make up the majority of capital dollars appropriated in any given budget year.</td>
<td>Spending occurs over the course of one given fiscal year with occasional, usually minor, amounts re-appropriated into the next fiscal year.</td>
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<tr>
<td>Funding sources can include general revenues but are more likely to including bond transfers or federal grants because of the one-time, large, and occasional nature of capital expenditures, and dedicated revenue sources.</td>
<td>Funding resources usually include general revenues (e.g., taxes, fees, etc.) because of the usually current, ongoing and regular nature of operating expenditures.</td>
</tr>
<tr>
<td>Financing is more likely to be from long-term bond proceeds that are paid back in increments over the life of the bonds, or other long-term means. Financing can be spread anywhere from 5 to 30 years which generally is less than the useful lifespan of the assets they finance.</td>
<td>Financing is from current revenue streams – the time frame of revenue received usually matches the time frame of the services or commodities purchased – i.e., within a single fiscal year. The operating budget balances spending with revenues annually.</td>
</tr>
<tr>
<td>Impact on the operating budget: increase in the operating budget by capital investment can include, e.g., increased need for operating spending, increased debt service requirements, or creating eventual future maintenance and replacement needs. Decrease in the operating budget caused by capital expenditures can include, e.g., reduction in future maintenance by investing in more durable assets, lowering utility costs by installing efficient lighting or windows, or allowing more efficient staffing patterns by changing a building layout.</td>
<td>Impacting on the capital budget: Increases in the capital budget caused by operating spending can include need for expanded facilities to accommodate expanded services; increased wear and tear on assets by increased use; different facilities needed to match changes in how services are delivered, etc. Decreases in the capital budget caused by changes in operating spending can occur, e.g., due to implementation of more efficient staffing patterns, service reductions, outsourcing of functions, and by regular and conscientious maintenance which can prevent larger and more expensive structural repairs from being needed.</td>
</tr>
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### Appendix C. State Fixed Asset (Property) Management Agencies and Responsibilities (Transportation Department not Included)

<table>
<thead>
<tr>
<th>State</th>
<th>Major Department Responsible for Asset (Property) Management</th>
<th>Major Responsibilities Related to Asset (Property) Management</th>
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<tbody>
<tr>
<td>Alaska</td>
<td>Department of Administration <a href="http://doa.alaska.gov/">http://doa.alaska.gov/</a></td>
<td>leasing, purchasing, facility, and property, risk management</td>
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<tr>
<td>Arizona</td>
<td>Department of Administration, <a href="http://www.azdoa.gov/">http://www.azdoa.gov/</a></td>
<td>fleet management, building &amp; planning, construction services, facility operation &amp; maintenance, surplus property, risk management, state procurement</td>
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<td>California</td>
<td>Department of General Services <a href="http://www.dgs.ca.gov/default.htm">http://www.dgs.ca.gov/default.htm</a></td>
<td>real estate services, fleet and asset management, procurement, risk &amp; insurance management, state architect</td>
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<tr>
<td>Colorado</td>
<td>Department of Personnel &amp; Administration <a href="http://www.colorado.gov/dpa">http://www.colorado.gov/dpa</a></td>
<td>buildings and facilities management, grounds maintenance, fleet management, centralized procurement</td>
</tr>
<tr>
<td>Florida</td>
<td>Department of Management Services <a href="http://dms.myflorida.com/">http://dms.myflorida.com/</a></td>
<td>state purchasing, real estate development and management, state-owned air fleet, vehicles</td>
</tr>
<tr>
<td>Georgia</td>
<td>Department of Administrative Services <a href="http://doas.ga.gov/Pages/Home.aspx">http://doas.ga.gov/Pages/Home.aspx</a> State Properties Commission <a href="http://gspc.georgia.gov">http://gspc.georgia.gov</a></td>
<td>fleet management, surplus property (equipment), state purchasing, risk management, real property division leasing division</td>
</tr>
<tr>
<td>Hawaii</td>
<td>Department of Accounting and General Services <a href="http://hawaii.gov/dags">http://hawaii.gov/dags</a></td>
<td>public works, automobile management, land survey, risk management,</td>
</tr>
<tr>
<td>State</td>
<td>Agency Name</td>
<td>Services</td>
</tr>
<tr>
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<tr>
<td>Idaho</td>
<td>Department of Administration</td>
<td>facilities and construction, risk management, purchasing services</td>
</tr>
<tr>
<td>Illinois</td>
<td>Department of Central Management Services</td>
<td>state-owned buildings management, space leasing or purchasing, disposition of surplus real property, physical inventory management of state property, strategic sourcing &amp; procurement (fleet &amp; purchasing)</td>
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<tr>
<td>Indiana</td>
<td>Department of Administration</td>
<td>facility management, public works, real estate leasing, state land, fleet services, procurement, surplus property management, greening the government program</td>
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<tr>
<td>Iowa</td>
<td>Department of Administrative Services</td>
<td>architectural &amp; engineering, building &amp; monuments, fleet and mail services, lease &amp; space management, maintenance services, procurement services, state surplus property</td>
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<td>Kansas</td>
<td>Department of Administration</td>
<td>building management, facilities planning, real estate &amp; leasing, state agency vehicle usage, statehouse ground use, procurement, surplus property (state &amp; federal)</td>
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<tr>
<td>Kentucky</td>
<td>Kentucky Finance and Administration Cabinet</td>
<td>fleet management, surplus properties, real properties management, historical properties, facility development &amp; efficiency, building &amp; mechanical services, green bank program (to promote energy efficiency)</td>
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<td>Louisiana</td>
<td>Division of Administration</td>
<td>facility planning &amp; control, state buildings, state land, risk management, state purchasing, fleet management, surplus property</td>
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<tr>
<td>Maine</td>
<td>Department of Administrative and Financial Services</td>
<td>central fleet management, surplus property, central warehouse, planning, design, &amp; construction, leased space management, property management (state-owned property), purchases, and risk management</td>
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<td>Maryland</td>
<td>Department of General Services</td>
<td>facilities operations &amp; maintenance, facilities planning, design &amp; construction, procurement and logistics, real estate, inventory management, and fleet management</td>
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<td>Massachusetts No. 21</td>
<td>Executive Office for Administration &amp; finance</td>
<td>procurement, state vehicle management, surplus property, property management &amp; construction, facilities maintenance and management, leasing &amp; office planning, planning, design, &amp; construction, real estate management</td>
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<td>State</td>
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<td>Department of Technology, Management &amp; Budget</td>
<td>real estate services, state &amp; federal surplus property management, risk management, facility management</td>
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<td>Minnesota</td>
<td>Department of Administration</td>
<td>construction services for state agencies, facility &amp; grounds services, insurance and risk management, real estate leasing, space management, real property acquisition/disposition, state purchasing, surplus properties, state vehicles management</td>
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<td>Department of Finance &amp; Administration</td>
<td>buildings, grounds, and real property management, purchasing, fleet management, surplus property, capitol facilities, airport transport</td>
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<td>Office of Administration</td>
<td>facilities management, design &amp; construction, state fleet management, risk management, purchasing, material management</td>
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<td>Montana</td>
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<td>state procurement, facility management, property and supply, architecture &amp; engineering, risk management</td>
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<tr>
<td>Nebraska</td>
<td>Department of Administrative Services</td>
<td>Buildings management, state-owned motor vehicles, building renewal (deferred repair, energy conservation), material management (office supply, purchasing, surplus property), risk management</td>
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<td>state public works projects, building &amp; Grounds management, purchasing, property management program, motor pool, risk management</td>
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<td>Department of Treasury</td>
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<tr>
<td>New Mexico</td>
<td>General Services Department</td>
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<td>Office of General Services</td>
<td>building administration, real property management &amp; development, design &amp; construction, fleet management</td>
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<td>Department of Administration</td>
<td>facility management, surplus property, motor fleet management, state construction, state property</td>
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