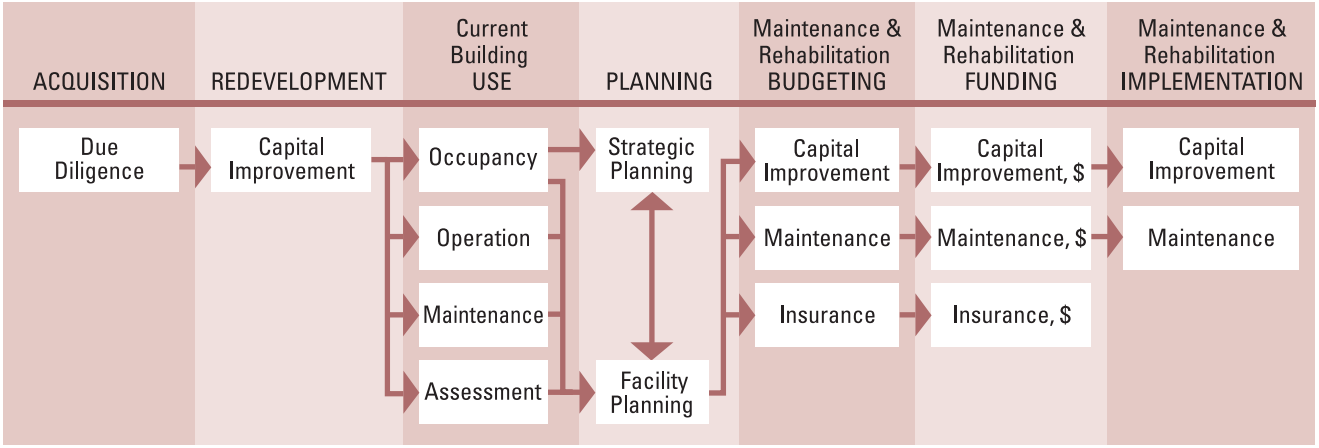
Appendix I. Additional Information on Office Building Facility Management

Introduction: Typical Facility Management for Office Buildings

The typical facility management process for existing office buildings consists of seven phases of activities: Acquisition, Redevelopment, Current Building Use, Planning, Maintenance & Rehabilitation Budgeting, Maintenance & Rehabilitation Funding, and Maintenance & Rehabilitation Implementation, as diagrammed in Figure 1. This process is sequential, progressing from left to right in any given building. An owner of a large inventory of office buildings is likely to have ongoing activities in all of these phases.

This process is generic, and while variations may occur, it is generally followed by office building owners, either explicitly or implicitly.

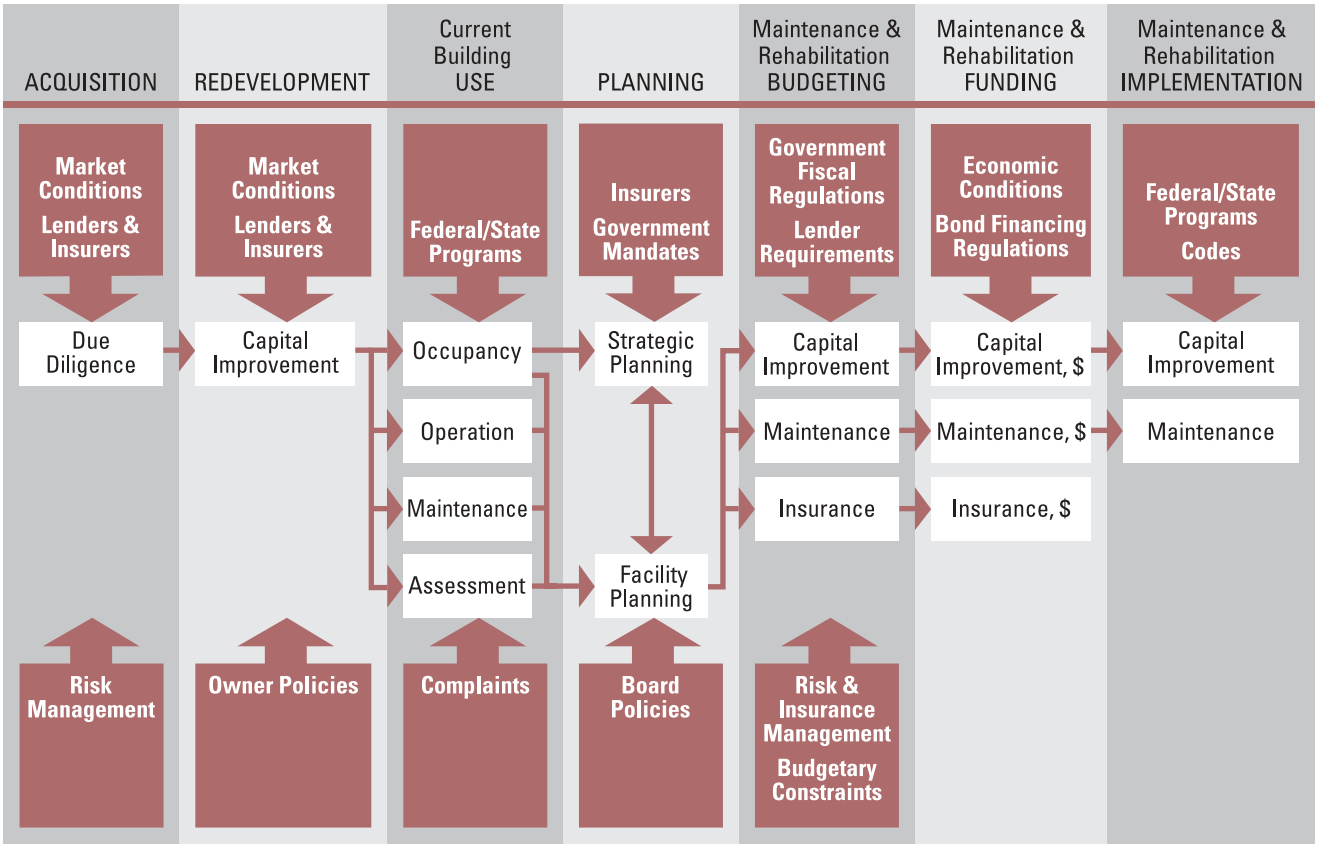
Figure 1: Typical Management Process



Both internal and external factors typically influence the office facility management process in its various phases. Internal factors (represented by up arrows in Figure 2) are generated within the owner organization. External factors (down arrows) are imposed on owners by outside entities.

This Appendix describes the activities and influences within each phase.

Figure 2: Management Process Influences



1. The ACQUISITION Phase of Office Facility Management

Typical Process

The acquisition phase of the typical office facility management process consists of due diligence activities and is influenced by significant internal and external pressures, as depicted in Figure 3.

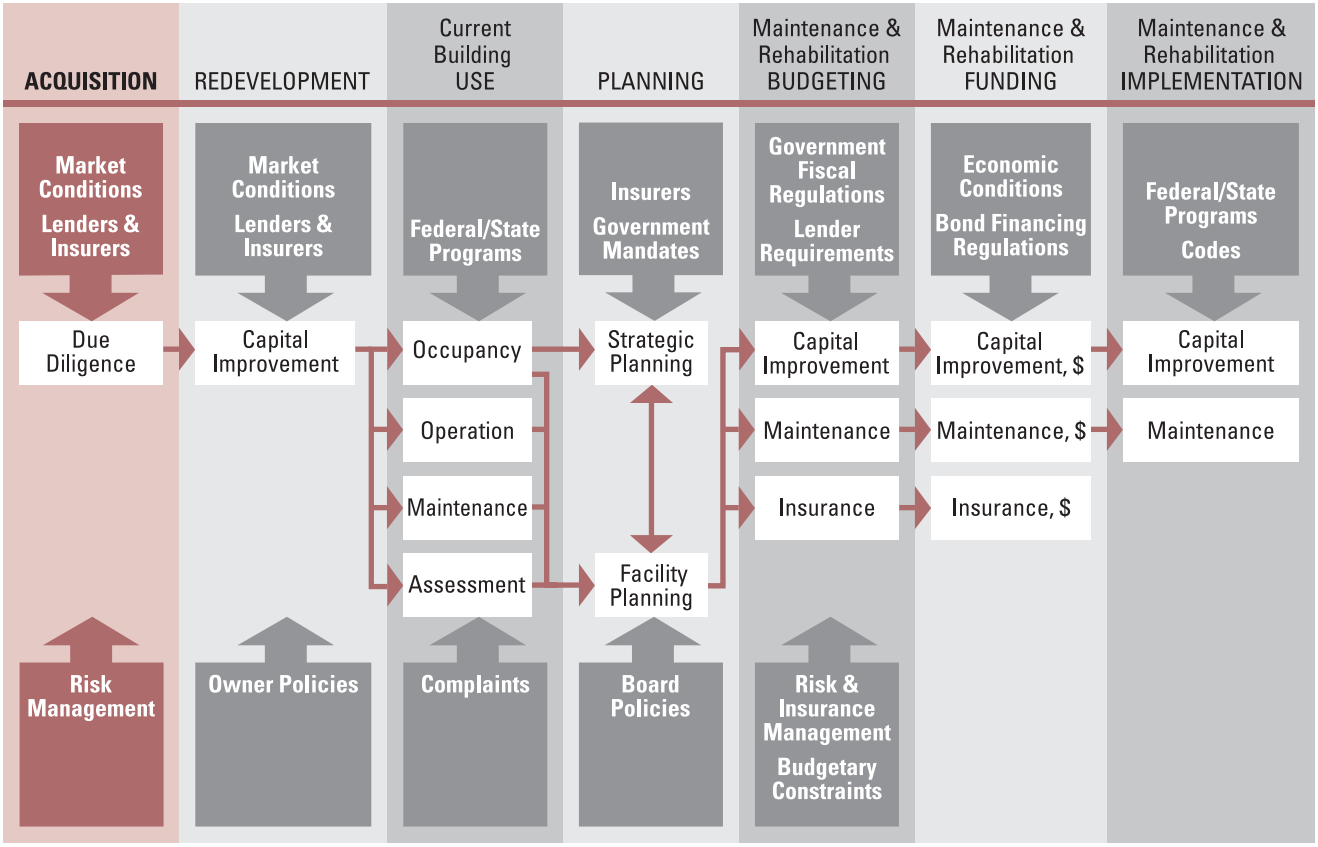
Office building acquisitions initiate the facility management process for all owners who are not also developers or merchant builders. The **due diligence** process that precedes an acquisition is intended to identify, and quantify if possible, all the liabilities or potential liabilities related to the asset being acquired.

For a given acquisition, there may be several due diligence processes carried out by the various participants in the deal:

- owner (buyer)
- lender (if there is one)
- insurer

A multi-discipline team that includes legal, risk management, and engineering experts carries out the due diligence. Specialty consultants may be used. Because of the potential professional liabilities, legal questions are often the driving force in the process. The due diligence process also involves a walk-through of the building. Environmental risks, such as the presence of asbestos, are identified in the due diligence process.

Figure 3: Acquisition



Influences and Related Seismic Considerations

As indicated in Figure 3, two external factors (down arrow) and one internal factor (up arrow) influence acquisition phase decision making.

Market Conditions: External local conditions of the office rental market are the principal factor governing office building acquisition, regardless of the short-term or long-term strategic objectives of the purchaser. This is true for all types of owners, be they real estate investment trusts (REITs), pension fund or other fiduciary institutions, partnerships, or individuals.

Seismic Consideration

Studies in California suggest that regional and local earthquake hazards (presence of faults and their proximity, regional earthquake history, geological and local site factors, etc.) have little if any influence on the levels of office rental rates. Earthquake risk, in general, does not appear to translate into financial cost in the office marketplace.

Lenders and Insurers: Lenders and insurers are important external participants in many office building acquisitions, and each carry out due diligence functions to determine the risks and potential liabilities in any given deal. By their nature, lenders and insurers spread their risks over a wider range of

investments than that presented to an owner in a specific acquisition. The insurability of the acquired property is of great concern to office building owners, but the cost of insurance is of lesser concern because the cost reportedly can be passed on to tenants in office properties.

Seismic Consideration

Lenders and insurers usually employ engineering consultants to perform the seismic portion of the due diligence, and they use proprietary programs to carry out the analysis. The most common analysis used is the Probable Maximum Loss (PML) analysis, which quantifies the percentage of the property that will be lost in a major earthquake. Such an analysis is referred to as deterministic, and it does not consider the damages and losses that could result from more moderate but more frequent earthquakes. Lenders and insurers establish their own proprietary criteria for acceptable PML. Lenders, reportedly, require seismic due diligence in California and the Pacific northwest, and the extent to which it is done in other seismic regions is not known.

Risk Management: Many office building owners have formally established internal risk management functions within their organizations. These risk managers participate in the due diligence analyses carried out prior to acquisition. The rigor of internal due diligence varies from owner to owner.

Seismic Consideration

The owners' internal seismic due diligence, whether carried out by in-house staff or consultants, is the PML analysis. Owners establish their own proprietary criteria for acceptable PML. Some large owners limit their PML analysis to California, Oregon, and Washington. Depending on the deal, the PML leads to one of three decisions about the acquisition:

- **pass on the deal if the PML exceeds a preset threshold**
- **do the deal with an initial rehabilitation**
- **do the deal without rehabilitation**

2. The REDEVELOPMENT Phase of Office Facility Management

Typical Process

The redevelopment phase of the typical office facility management process consists of various types of **capital improvements**, and is influenced by significant internal and external pressures, as depicted in Figure 4.

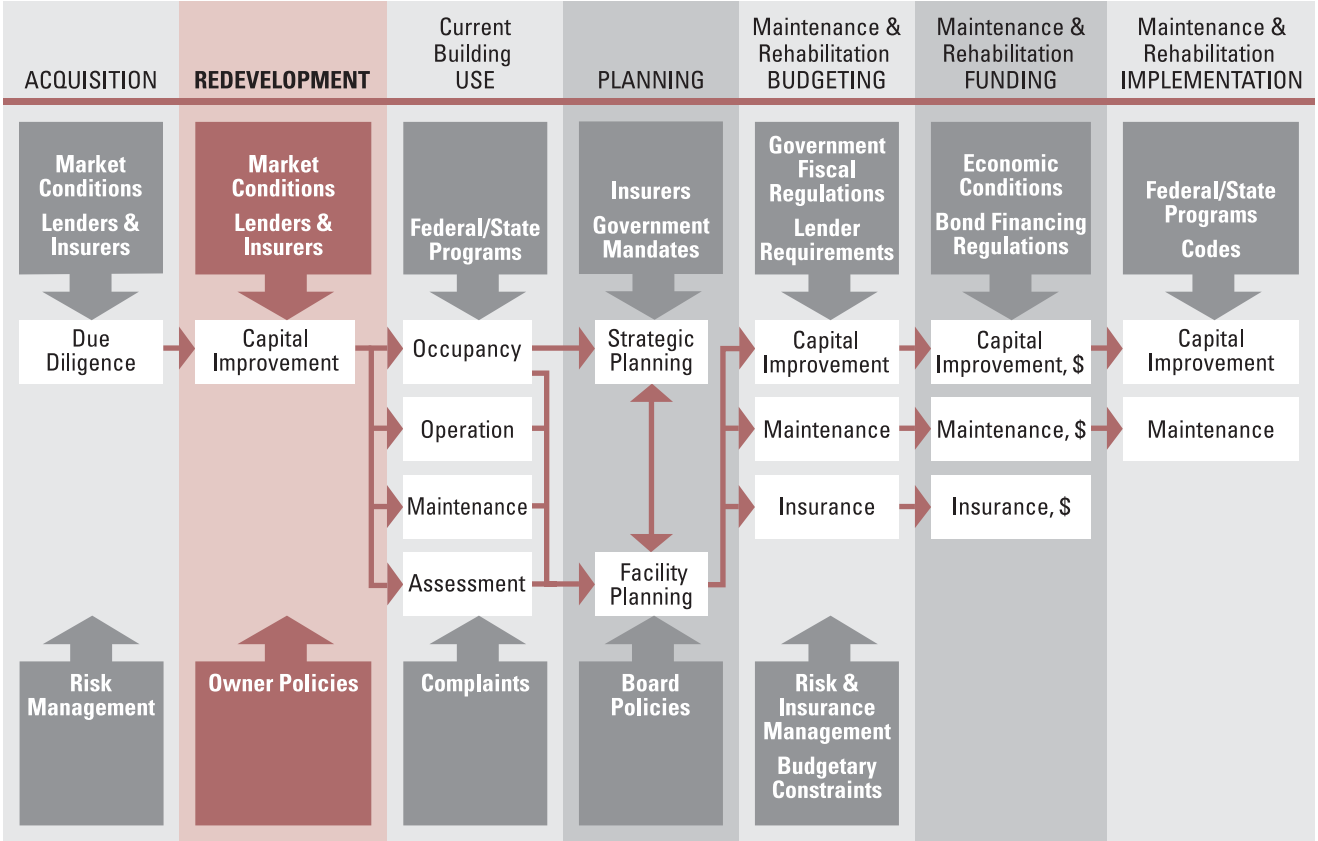
The types of redevelopment phase capital improvement projects vary as a function of the building's classification (A, B, or C.) They generally consist of:

- Architectural upgrading of entrances, lobbies, and public areas
- Architectural upgrading of façades
- Upgrading of the HVAC systems
- Environmental and other risk remediation work identified in the due diligence process
- Upgrading of life safety systems

Influences and Related Seismic Considerations

As indicated in Figure 4, two external factors (down arrow) and one internal factor (up arrow) influence redevelopment phase decision making.

Figure 4: Redevelopment



Market Conditions: Office properties in a given classification must compete with neighboring, similarly classified properties. Local architectural traditions and fashions and historic preservation are significant factors determining the specific nature of various capital improvement projects.

Seismic Consideration

The extent of market-driven seismic improvement in office buildings is not known.

Lenders and Insurers: External lenders and insurers may require specific capital improvements as a condition of the deal. For example, they may require the replacement of a questionable roof or HVAC system. These are generally the direct result of the due diligence analyses.

Seismic Consideration

The extent to which lenders or insurers have required seismic rehabilitation in office buildings is not known.

Owner Policies: Owners' marketing and architectural policies are the principal internal factor governing capital improvement decisions in the redevelopment phase.

Seismic Consideration

Office building owners have not established marketing and architectural policies that feature seismic rehabilitation.

3. The Current Building USE Phase of Office Facility Management

Typical Process

The current building use phase of the typical office facility management process consists of four categories of activities and is influenced by significant internal and external pressures, as depicted in Figure 5.

Occupancy: This category of activity consists of the primary function of occupancy of office space by tenants. Support functions are administrative, such as collecting rents and addressing tenants' concerns. Ancillary functions may be recreational, such as operating a health club, pool, or spa, and social, such as operating a lecture room, restaurant, or similar facility. The specific functions may vary depending on the building classification, A, B, or C.

Occupancy functions are carried out in each building by the tenants and facility managers. Each of these functions is subject to seismic risk and can be disrupted by seismic damage.

Operation: Facility operation consists of all the activities and functions that the facility and its components must perform in order to support the occupancy. Examples are the mechanical functions (heating, cooling, and ventilation), electrical functions (lighting, communications, and alarm), and plumbing functions.

Operation functions may be carried out by custodial staff of the owner and/or by contractors. Each of these functions is subject to seismic risk and can be disrupted by seismic damage.

Maintenance: Maintenance includes all the activities required to enable the occupancy and operation of the building to be carried out continuously over time. They can be broken down into custodial maintenance, routine maintenance, and repair.

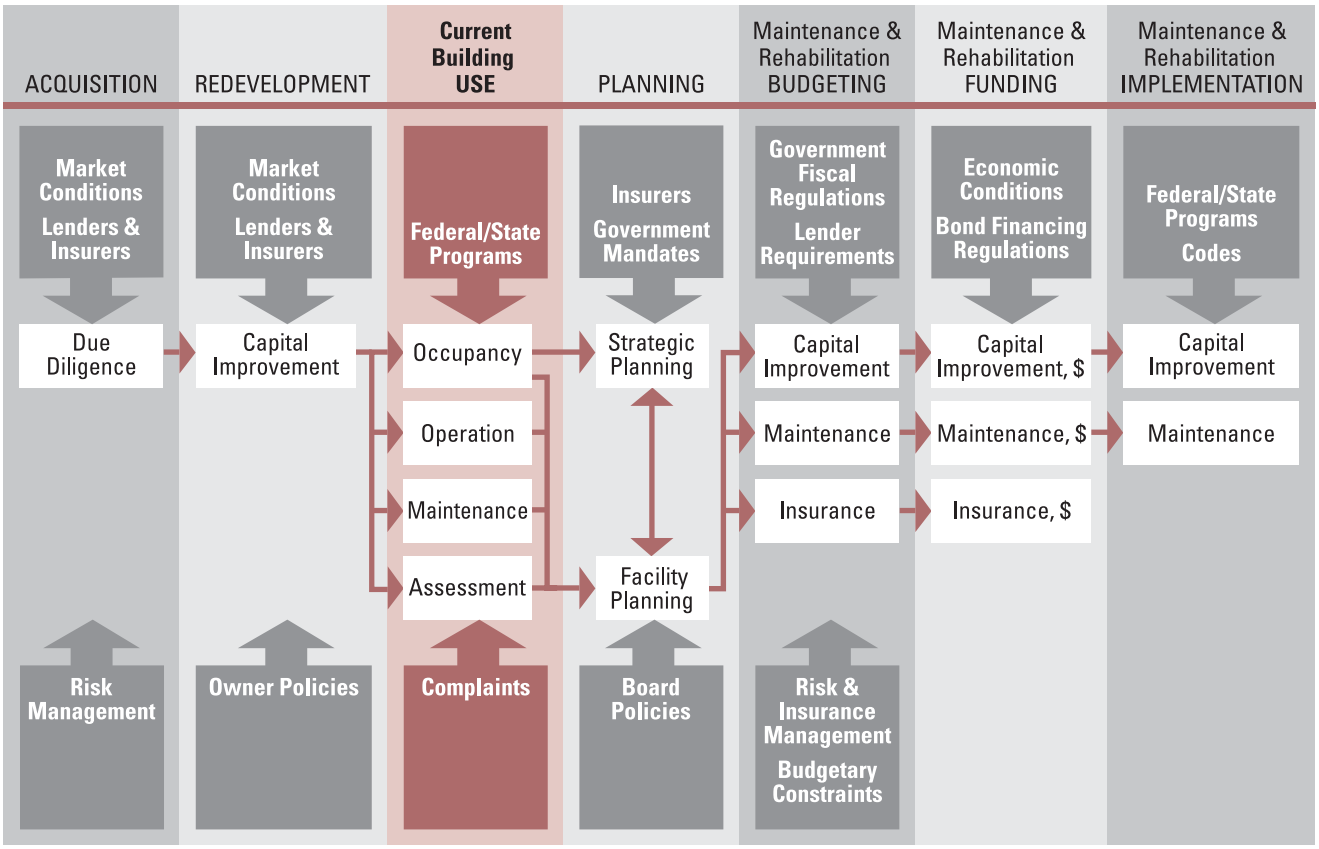
Maintenance functions may be carried out by custodial staff of the owner and/or by contractors. In some cases, some maintenance functions may be carried out by tenants or their contractors.

Facility Assessment: Facility assessment, which less sophisticated office building owners may not carry out systematically, consists of the survey or inspection of the office buildings on a scheduled basis. It may also include a review of documents, such as archival building plans, for retrieving specific information. The purpose(s) of the surveys or inspections is to determine facility conditions in relation to one or more of the following categories:

- user complaints
- maintenance needs
- preventive maintenance needs
- specific environmental hazards
  - asbestos
  - lead paint
  - lead
  - radon
- structural hazards
- fire/life safety
- environmental quality
- energy use/conservation
- accessibility
- other

These surveys may or may not be coordinated as to schedule, content, personnel, etc. Facility managers may or may not use prepared inspection forms or checklists. Finally, facility managers may vary as to the extent and specific nature of their record keeping and reporting.

Figure 5:
Use



Influences and Related Seismic Considerations

As indicated in Figure 5, one external factor (down arrow) and one internal factor (up arrow) influence current building use phase decision making.

Federal and state programs: Various external programs may establish requirements affecting the use of office buildings that have facilities implications (e.g., Americans with Disabilities Act [ADA] and Occupational Safety and Health Administration [OSHA] requirements).

Seismic Consideration

Currently there are no seismic rehabilitation mandates or implications in any federal or state programs related to office buildings, with the exception of California.

Specific surveys or inspections may be mandated by federal, state, or local laws/programs. These surveys/inspections may be carried out by a variety of entities:

- Federal personnel (e.g., from OSHA, Environmental Protection Agency [EPA])
- State/city/county personnel (e.g., fire marshal, code enforcement, environmental, health)
- Office building personnel (e.g., custodial or facility managers)
- Office building contracted personnel (e.g., asbestos inspectors)
- Consultants

Seismic Consideration

Currently there are no seismic survey or inspection mandates or implications in any federal or state programs related to office buildings, with the possible exception of California.

Complaints By Occupants: Internal complaints by tenants are a potentially significant pressure on the facility management process.

Seismic Consideration

Rarely, if ever, have there been complaints about seismic vulnerability generated by office building occupants, with the possible exception of California. This is because seismic risk and seismic damage are not routine experiences in most regions of the United States.

4. The PLANNING Phase of Office Facility Management

Typical Process

The planning phase consists of projecting and forecasting future needs. It can be carried out periodically or continuously, and it may vary as to the time period covered by the projections and forecasts. Planning functions may be carried out by the owner, with or without the assistance of consultants. Planning consists of two separate but related activities—strategic planning and facility planning—and is affected by significant internal and external pressures, as depicted in Figure 6.

Strategic Planning: Strategic planning attempts to formulate future business strategy by analyzing and forecasting financial trends as well as national, regional, and local office space markets. Many owners acquire properties for a limited period of time, and many have an exit strategy in place at the time of acquisition. Strategic planning addresses such issues as:

- Should the property classification (A, B, or C) be upgraded or downgraded?
- Should the exit strategy be accelerated or prolonged?
- Should trends in the insurance market revise current investment programs?
- Should specific major capital investments be considered?

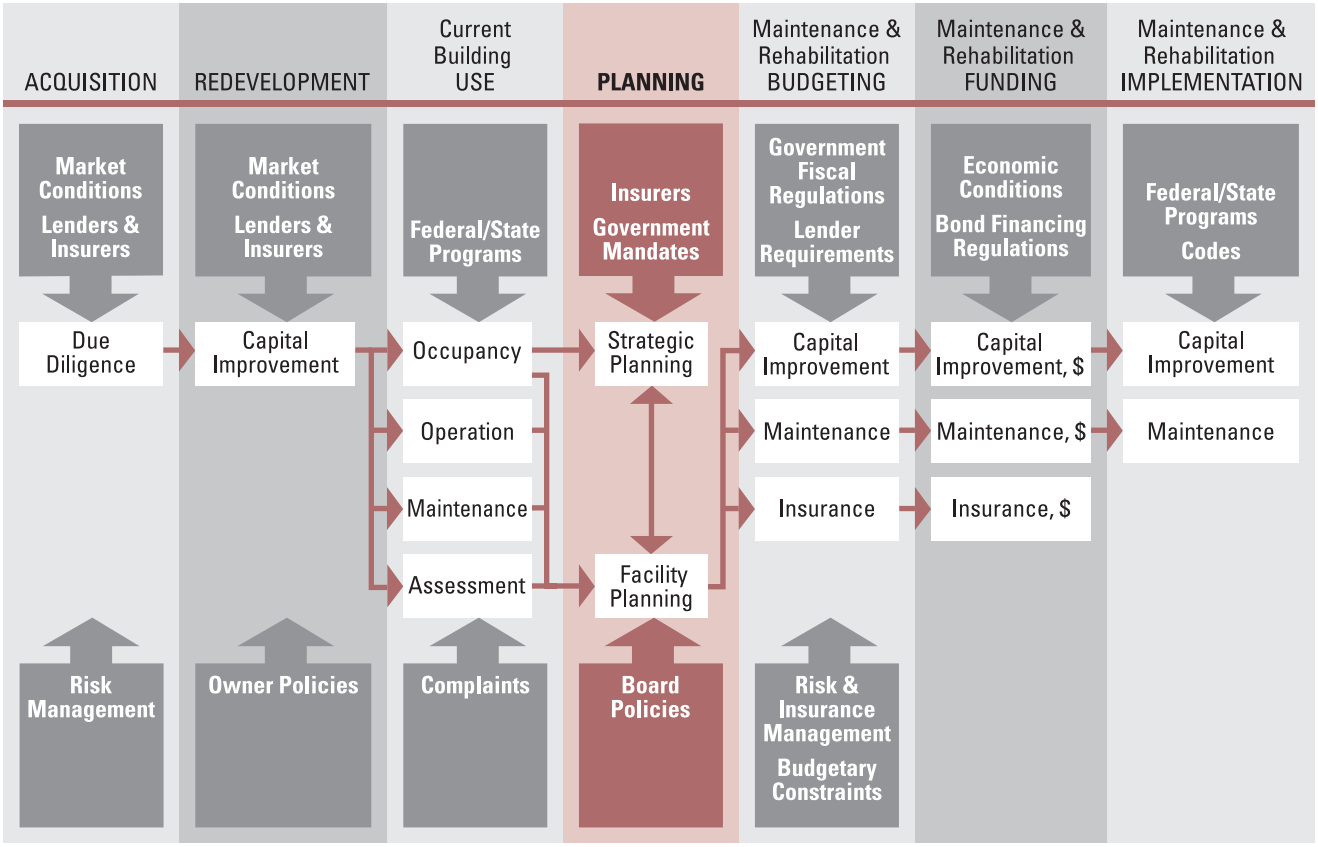
Strategic planning is usually carried out at the owner's headquarters and concerns itself with the owner's entire office building portfolio or large segments of it.

Facility Planning: Facility planning consists of preparing short- and long-range facility plans. It combines the products of two distinct activities—the strategic plan and the facility assessment (see Figure 5)—into a detailed projection of facility requirements. The projection may cover a defined time frame, such as five years.

Different owners may use different classifications of projects in their facility plans, reflecting a variety of legal, administrative, jurisdictional, and other factors. However they may be classified, a comprehensive facility plan should include the following elements:

- New construction
- Additions to existing buildings
- Renovations of existing buildings

Figure 6: Planning



- Building systems replacements
- Building systems repairs
- Scheduled maintenance
- Preventive maintenance
- Building disposition (change of use, sale, demolition)

The plan will identify the time frames in which each project is to be accomplished, and it may include cost estimates.

If effective, the facility plan will be used as a budgeting tool and will provide direct inputs into the budget process. It should be revised and updated on a routine basis so as to reflect:

- Changes in the strategic plan (including market conditions)
- Revised facility assessments
- Budgeting and funding realities

Facility planning usually begins at the individual building or project level and entails the flow of information up the management hierarchy for final capital decision making and budgeting at the owner's headquarters.

Influences and Related Seismic Considerations

As indicated in Figure 6, two external factors (down arrow) and one internal factor (up arrow) influence current planning phase decision making.

Board Policies: In terms of internal influences, boards of directors may occasionally adopt written policies on issues of business and social significance that can impact both strategic and facility planning. These policies guide the actions of the owner organization.

> **Seismic Consideration**
> **Office building owners boards may adopt policies addressing seismic issues, including seismic performance objectives and rehabilitation of office buildings, either as a one-time or recurring incremental program.**

Insurance Carriers and Brokers: External private property and liability insurance companies often require surveys or inspections of office buildings on an annual or other scheduled basis. Insurance carriers are more than willing, when asked, to provide building owners with Loss Control and Prevention Reports that include recommendations for loss prevention. Insurance brokers also employ loss/risk specialists.

> **Seismic Consideration**
> **Property insurers are unlikely to recommend extensive seismic improvements outside of California. In Utah, for example, they have recommended seismic bracing of sprinklers in hospitals as part of the life safety systems, but no other improvements.**

Government Mandates: Federal, state, and local government agencies may establish external requirements affecting facility planning in the planning phase. These requirements may have facility rehabilitation implications.

> **Seismic Consideration**
> **Currently there are no seismic rehabilitation mandates or implications in any federal or state programs, with the exception of California.**

5. The Maintenance and Rehabilitation BUDGETING Phase of Office Facility Management

Typical Process

The budgeting phase consists of the projection of future financial resources required to meet future needs. It is carried out annually (covering a period of one or more years). Each local or regional facility manager initiates it with input from his or her staff. Organization-wide, the Vice President for facilities, or similarly titled position, oversees the budget development. The facility budget is a process that can be thought of as percolating up through the organization. It is affected by external government fiscal regulations and lender requirements, and internal risk management policies and budget constraints, as depicted in Figure 7.

Three elements of the budget are relevant to the discussion of facility management:

- capital
- maintenance
- insurance

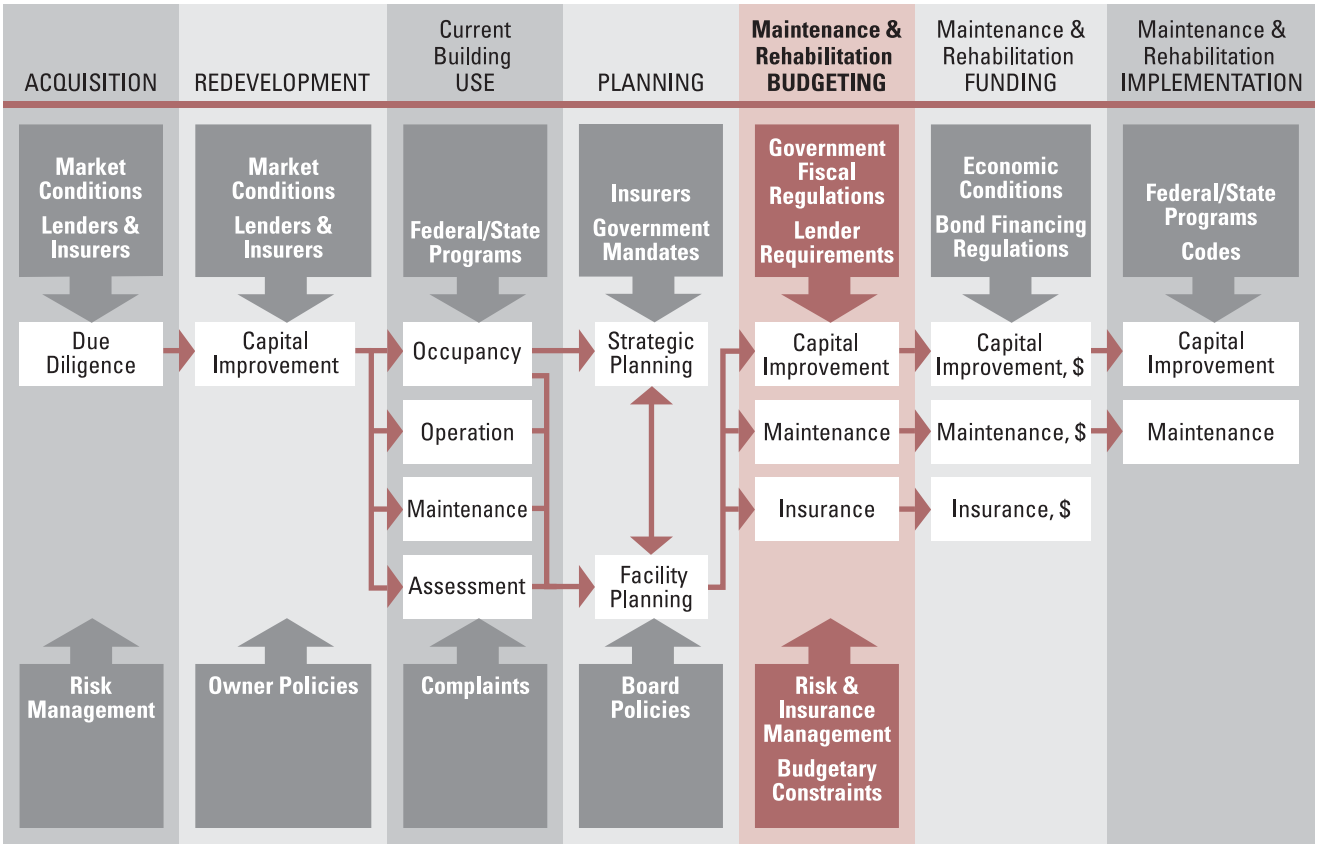
Capital Budgets: Capital budgets generally relate to the acquisition of buildings and major systems, the occurrence of which is not annual or repetitive and which can therefore be amortized. The distinction between capital

and maintenance budgets may vary among different office building owners. At one extreme is a total separation, mandated by law, labor jurisdiction or other factors. At the other extreme is a rather unclear separation between the two funding mechanisms.

Maintenance Budgets: Maintenance budgets generally relate to recurring annual expenditures and address existing inventories of buildings and systems without adding to the inventories.

Insurance Budgets: Financial resources earmarked for insurance may be used in different ways, including the purchase of third-party insurance, and/or the funding of a self-insurance reserve. Property and general liability insurance are relevant to facility management considerations.

Figure 7: Budgeting



Influences and Related Seismic Considerations

As indicated in Figure 7, two external factors (down arrow) and two internal factors (up arrow) influence budgeting phase decision making.

Government Fiscal Regulations: Federal, state, and local government agencies have historically established external requirements dealing with fiscal responsibility of commercial property owners. A variety of Securities and Exchange Commission regulations apply to REITs. Pension funds are subject to a variety of fiduciary requirements. Partnerships are subject to a variety of state and federal regulations. One important objective of these regulations is to ensure the responsible stewardship of someone else's resources. These requirements may have facility rehabilitation implications, if resources are expended in an irresponsible manner. Additionally, these regulations may determine, directly or indirectly, the length of time an acquired

real estate asset must be held and, therefore, what the owner's planning horizon should be.

> **Seismic Consideration**
> As far as is known, there have been no seismic considerations attendant to these fiscal regulations.

Lender Requirements: Commercial lenders impose requirements on building owners who use mortgage financing for capital improvements. Often, the lender requires the purchase of a particular type of insurance coverage.

> **Seismic Consideration**
> In California, lenders sometimes require the purchase of earthquake insurance as a condition of the loan. For some commercial office building loans, this requirement has been waived when the owner includes seismic improvements in the project that reduce the lender's risk below a defined threshold.

Budgetary Constraints: Internally, political and economic conditions may place limits on office building capital and maintenance budgets.The problem is often exacerbated by un-funded mandates imposed on office buildings by federal and state agencies.

> **Seismic Consideration**
> The strategy of integrating incremental seismic rehabilitation with other work, which is an integral part of this facility and financial management model, can provide a method for addressing seismic risk reduction within budget constraints. See full discussion of this opportunity in Section B.2.2.6, Seismic Rehabilitation Planning for Specific Buildings.

Risk and Insurance Management: Internally, the owner organization's risk and insurance management may have a direct or indirect role in the budget phase of the process, regarding the decisions related to insurance.

> **Seismic Consideration**
> In areas of seismic hazard, the risks of building loss or damage, occupant death or injury, and office building owner liability must all be assessed. It must be decided whether to seek earthquake property and liability insurance coverage. Insurance companies that offer such coverage do not usually offer incentives to customers to undertake loss reduction measures in the form of seismic rehabilitation. However, this situation might change, and insurance incentives for seismic rehabilitation may become subject to negotiation.

6. The Maintenance and Rehabilitation FUNDING Phase of Office Facility Management

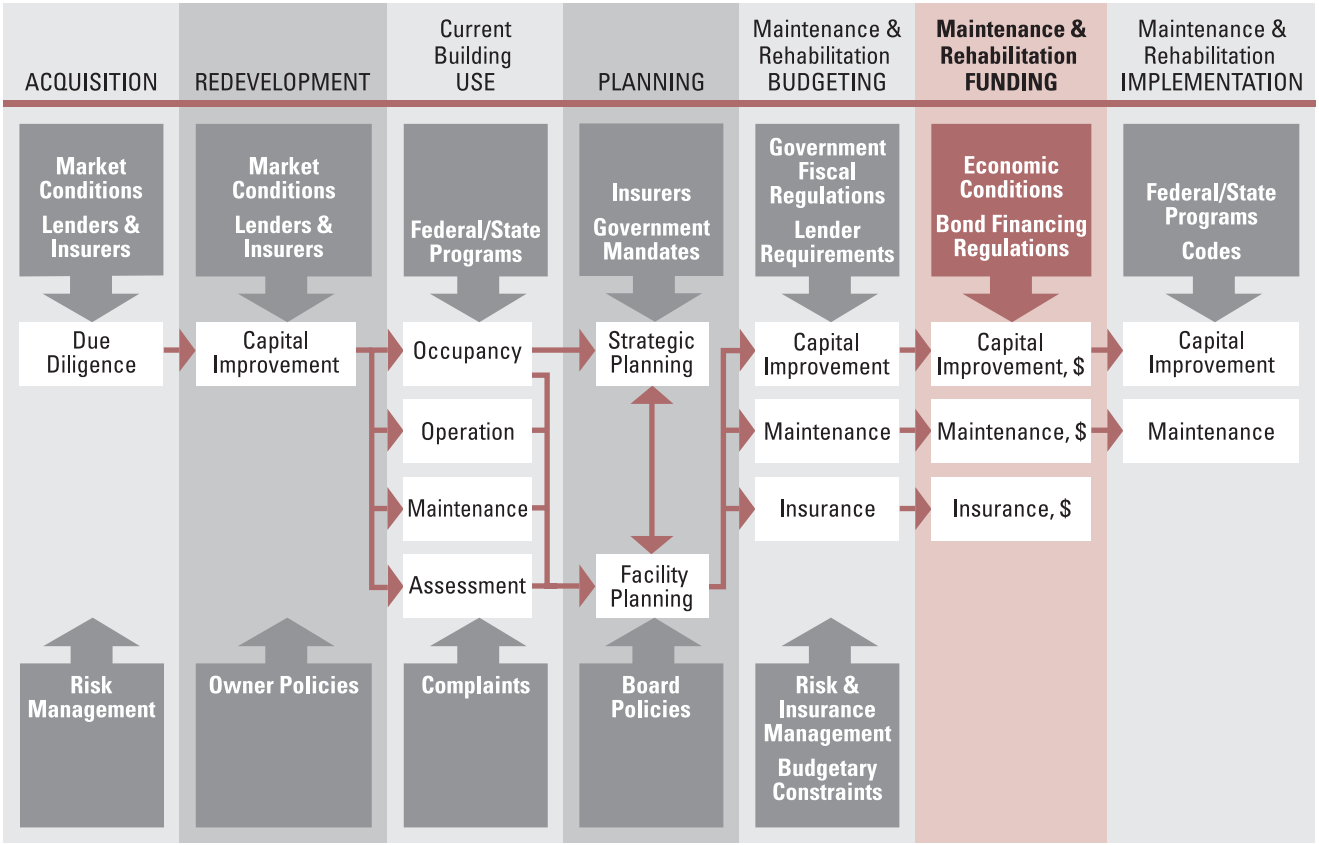
Typical Process

The funding phase consists of those activities required to obtain the financial resources to meet the budgets. It is influenced externally by regional and local economic conditions and bond financing regulations, as depicted in Figure 8.

The funding of office building budgets in general, and of the three budget elements of capital improvement, maintenance, and insurance, varies from one owner organization to another.

Office building owners can fund their budgets by various combinations of equity and debt.

Figure 8: Funding



Influences and Related Seismic Considerations

As indicated in Figure 8, two external factors (down arrow) influence funding phase decision making.

Regional and Local Economic Conditions: Externally, the funding of office building construction is subject to local and national socio-economic conditions well beyond the control of the building owner. Construction funding depends on interest rates, the owner's bond rating, and similar parameters.

Seismic Consideration

Even though seismic rehabilitation is clearly a risk reduction activity, there is no evidence that any building owner has improved its bond rating as the result of undertaking seismic mitigation activities of any kind.

Bond Financing Regulations: Local administrative procedures and structure in place to obtain bond financing will have a significant impact on the ability of office building owners to achieve their objectives, regardless of whether they include seismic risk reduction or not. Certain types of expenditures out of the proceeds of a bond issue, such as operations or maintenance, may be prohibited by the conditions of the bond.

Seismic Consideration

Some seismic rehabilitation increments may be classified as repair or maintenance work, and thereby be precluded from a capital improvement bond. Seattle Public Schools used two types of bonds (Capital Levy Bonds and Capital Improvement Bonds) to cover the funding of its incremental seismic rehabilitation program in response to Washington state law.

7. The Maintenance and Rehabilitation IMPLEMENTATION Phase of Office Facility Management

Typical Process

The implementation phase includes design and construction and can be broken into three categories of projects, all of which are relevant to existing buildings:

- Building acquisition projects
- Capital improvement projects
- Maintenance projects

The implementation phase is primarily affected by external federal and state programs and building code requirements, as depicted in Figure 9.

Acquisition includes new building construction and the acquisition of existing buildings. Acquisition of existing buildings is discussed above as the first phase of the facility management process.

Capital improvement and maintenance projects are managed by the office building owner's staffs, and carried out by these staffs and by contractors. The management of these two categories may be separated or combined, depending on issues of labor jurisdiction and legal authority.

Influences and Related Seismic Considerations

As indicated in Figure 9, two external factors (down arrow) influence implementation phase decision making.

Federal and State Mandates and Programs: Externally, federal and state programs may establish requirements affecting the implementation phase (e.g., ADA and OSHA requirements).

> **Seismic Consideration**
> **Currently there are no seismic rehabilitation mandates or implications in any federal or state programs related to office buildings with the possible exception of California.**

Codes and Code Enforcement: Also externally, building codes impose requirements on the implementation phase, in cases of repair, alteration, or addition to existing buildings.These requirements may be enforced by a state or local agency. Such requirements can add costs to a project and jeopardize feasibility, unless done incrementally.

> **Seismic Consideration**
> **Codes do not mandate seismic rehabilitation in repair and alteration projects, though additions must comply with building code seismic requirements. Incremental seismic rehabilitation is consistent with most building code requirements applicable to existing buildings.**

Figure 9: Implementation