

City of Portland

Asset Status and Conditions Report

December 2006



Acknowledgements

City Asset Managers Group

Virgil Adderley, *Environmental Services*
Aaron Beck, *Management & Finance/Business Operations*
Patricia Bugas-Schramm, *Transportation/Maintenance Bureau*
Bob Glascock, *Planning (convener)*
Nancy Gronowski, *Parks*
Louise Lauman, *Portland Development Commission*
Jeff Leighton, *Water*
Rodney O'Dell, *Management & Finance/Accounting*
Thanh Xuan Nguyen, *Management & Finance/Technology Services*
Casey Short and Bob Tomlinson, *Management & Finance/Financial Management*

Portland Planning & Development Directors

Gil Kelley, *Bureau of Planning, Chair*
Susan Anderson, *Office of Sustainable Development*
Rosie Sizer, *Police Bureau*
Ken Rust, *Office of Management and Finance*
Sue Keil, *Portland Department of Transportation*
Dean Marriott, *Bureau of Environmental Services*
Zari Santner, *Parks & Recreation*
Paul Scarlett, *Bureau of Development Services*
David Shaff, *Water Bureau*
Dave Sprando, *Portland Fire and Rescue*
Bruce Warner, *Portland Development Commission*
Will White, *Bureau of Housing and Community Development*

For more information on this report, please contact:

Bob Glascock
Portland Bureau of Planning
1900 SW 4th Avenue, Suite 4100
Portland, OR 97201

Phone: 503.823.7845
Fax: 503.823.7800
TDD: 503.823.6868
E-mail: bglascock@ci.portland.or.us

Table of Contents

| | |
|--|-----------|
| Executive Summary | 1 |
| Introduction | 3 |
| I. Purpose of the Report | 6 |
| II. Improvements from Earlier Reports | 6 |
| III. Policy Drivers | 6 |
| IV. 2006 Findings | 7 |
| V. Recommendations | 8 |
| VI. Appendices | 10 |
| 1. Interim Asset Management Definitions | |
| 2. Current Replacement Values of City Assets | |
| 3. Current Condition of Bureau Assets, by Confidence Level | |
| a. Transportation | |
| b. Environmental Services | |
| c. Water | |
| d. Parks | |
| e. Civic | |
| f. Affordable Housing | |
| 4. Annual Funding Gap Chart | |
| 5. Current Confidence Levels—Summary | |
| 6. Data Sheets | |
| a. Current Replacement Value | |
| b. Current Conditions | |
| c. Projected Conditions | |
| d. Annual Funding Gap | |
| 7. Bureau Observations | |
| a. Transportation | |
| b. Environmental Services | |
| c. Parks | |
| d. Water | |
| e. OMF/Fire/Police | |
| f. Portland Development Commission/Housing and Community Development | |

City of Portland

Asset Status and Conditions Report—December 2006

Executive Summary

This is the fourth year of reporting on the status and condition of the City's physical infrastructure. In 2005, the City changed from focusing on a single condition of assets (deteriorating infrastructure) to a more holistic asset management approach. This approach seeks to ensure that the City's assets are adequate to provide desired levels of service. This report describes the status of built improvements. Land/plants, rights-of-way, and human resources are excluded.

The City's infrastructure bureaus¹ have partnered to collect and analyze data for the report, using internationally recognized asset management (AM) principles and practices to enable informed decisions that best meet customer needs. The City Asset Managers Group (the Group) is developing a coordinated Citywide AM program for all City assets, using a common approach, while allowing each bureau to strategically employ AM for their particular asset groups. This report supports City Council's move toward that 'whole-of-city' decision-making, using readily available information.

Starting with this year's report, affordable housing is added as an asset category. For purposes of this report, affordable housing is defined as multi-family rental housing units with direct City investment (leveraged financing) and a regulatory agreement with the Portland Development Commission. This represents 9,000 housing units.

The report includes current replacement value, current and projected physical condition, and annual funding gaps. Each bureau identifies their confidence in the information presented. In some cases, information is not yet available, or more time is needed for detailed data collection and analysis. Future reports will include information on desired levels of service and stakeholder needs.

General Findings

1. A funding gap exists, both annually and one-time, between available funding and need.
2. Some of our assets will keep deteriorating at current funding levels.
3. Our assets are valued at \$18.9 billion. This report includes, for the first time, affordable housing assets, currently valued at \$1.4 billion.
4. Operations and maintenance costs are not always accounted for in proposed capital projects.
5. Bureaus are phasing in AM practices, addressing different needs.
6. Bureaus are working cooperatively to coordinate asset management methods and practices.

¹ Participating bureaus include the Bureau of Environmental Services (BES), the Office of Management & Finance (OMF) for City-owned buildings, Portland Parks and Recreation, Portland Development Commission (PDC), Portland Office of Transportation (PDOT) and the Water Bureau. The Bureau of Planning organizes the group's meetings and reporting. OMF budget and finance staff attend to ensure overall coordination with City Council priorities and budgeting.

Recommendations

In January 2006, the Planning and Development Directors endorsed seven recommendations for citywide asset management practices (#1-7 below). Those recommendations appeared in last year's report. In June 2006, the Planning and Development Directors discussed three of those recommendations—whole-of-city approach, existing service levels, and affordable housing. In November 2006, the City Asset Managers Group identified a new recommendation (#8 below). An update of these recommendations follows:

1. Continue with 'whole-of-city' approach (supported by Planning and Development Directors)—two parts:
 - bureaus working together, consistent data
 - impact on public and tax base
2. Continue annual asset reports, and improvements.
3. Make the annual asset report available to the Community Visioning team and Citywide Strategic Plan staff.
4. Review service levels—identify options and costs.
5. Pursue community consultation (linked to Community Visioning)—to select service levels.
6. Prepare strategies to match revenues with planned service levels (in Citywide Strategic Plan).
7. Keep reporting on affordable housing in future citywide asset reports (first reported with this report).
8. Track regional discussions on public finance system for infrastructure (Metro New Look process).

Introduction

This fourth report on the status and condition of the City's physical infrastructure takes a holistic approach to ensure that the City's assets are adequate to provide desired levels of service. A wide range of asset categories is tracked over the lifecycle of assets (new, operation, maintenance, and renewal).

Background

In 2003, asset managers from the City's infrastructure bureaus formed a City Capital Maintenance Committee to collaborate on asset management issues and prepare an annual report on the City's physical assets. Their reports to City Council in 2003 and 2004 focused on the current and projected condition of infrastructure, not on the strategies needed to manage assets over their whole life. Efforts to describe assets and needs varied from bureau to bureau as did confidence in the information. This made it difficult for City Council to make decisions using that information.

In 2005, this committee became the City Asset Managers Group, adopting a more holistic approach to asset management and looking for ways to collaborate on common asset management issues. While Transportation had an existing program of asset management, other bureaus were just beginning to adopt asset management principles and techniques. By joining forces, the Group identified common long-term asset management needs and helped frame asset management throughout the City using a consistent approach. The City Asset Managers Group met throughout 2006 to share best practices and to produce this *City of Portland Asset and Conditions Status Report—December 2006*.

In January 2006, the Planning and Development Directors endorsed seven recommendations on citywide asset management. The recommendations appeared in last year's citywide assets report. The updated recommendations sort into current/ongoing and future efforts. The original recommendation number appears in ()s below:

Current and ongoing efforts (2007, 2008)

From 2005

- Use 'whole-of-city' approach (#1)—two parts:
 - Bureaus working together, consistent data
 - Impact on public and tax base
- Added affordable housing, starting with this 2006 asset report (#7)
- Continue annual asset reports (#2)
- Share the annual asset reports with the Community Visioning team (#3)

From 2006

- Define service levels; identify options and costs
- Apply triple bottom line approach to decision-making process and reporting (where possible)
- Clarify annual funding gap, consistent across asset groups and over the years

Efforts for 2009 and beyond

- Define alternative service levels—identify options and costs (#4)
- Pursue community consultation (linked to Community Visioning)—to select service levels (#5)

- Prepare strategies to match revenues with planned service levels (in Citywide Strategic Plan) (#6)
- Track Metro on financing infrastructure

Progress on the immediate recommendations follows:

- 'Whole-of-city' approach. In the short-term, the City Asset Managers Group has focused on sharing information (on managing assets). In June 2006, the City Asset Managers Group briefed the Planning and Development Directors on bureau initiatives in asset management. Initiatives were sorted into three performance measures (processes and practices, data management, and organizational). The Directors group responded that it wants to clarify high-level, citywide asset management goals, such as:
 - improving confidence in asset management data on service delivery
 - giving City Council a sense of priorities/directions on how to invest (multi-year)
 - some uniformity of approach (across bureaus)
- Annual asset reports. This report continues that process. The scope of future reports will reflect progress on the recommendations (including direction from the future Citywide Strategic Plan).
- Make the annual asset report available to the Community Visioning team and Citywide Strategic Plan staff. The visionPDX team has the 2005 report, and this 2006 report will be shared with the Citywide Strategic Plan staff. The Citywide Strategic Plan will frame the vision's implementation.
- Affordable housing in the 2006 asset report. This report adds affordable housing to the annual assets reports. The focus is multi-family rental housing units with direct City investment (leveraged financing) and a regulatory agreement with the Portland Development Commission. The Directors chose not to report on public housing units owned and operated by the Housing Authority or "federal preservation" properties owned and operated privately under regulatory agreements with HUD. Staff from PDC and BHCD worked together, and convened an advisory committee, to provide affordable housing data that fits the key measures of these annual assets reports. More details on affordable housing are found in Appendix 7 of this report.

The City Asset Managers Group has followed discussions at Metro on infrastructure and finance needs. The staff group now proposes to track regional discussions on public finance system for infrastructure (in Metro New Look process).

Goal and Objectives of Asset Management

The goal of strategic asset management is to develop a sustainable asset base that responds to social, economic, and environmental needs. It focuses on how the asset provides an appropriate level of service.

Asset Management informs:

- asset acquisition;
- maintenance and operations;
- renewal and adaptation; and
- asset disposal.

Applying AM principles and practices will:

- reduce dependence on assets (for example, disconnecting downspouts);
- support the efficient delivery of services with assets that are cost-effective, well maintained, accessible, energy efficient and safe;
- improve the ability to make sound business and planning decisions at all levels;
- promote effective use of resources;
- improve bureau support and accountability;
- develop a culture of service throughout the City; and
- improve and coordinate City asset management planning across bureaus.

Asset management activities will differ for each asset type based on maintenance management techniques, scheduling and priorities of activities, failure modes, treatment options, renewal strategies, equipment and practices, and renewal techniques. However, a whole-of-city approach ensures that the most innovative and cost-effective techniques are employed as each bureau's practice improves. Using this cross-bureau effort will continually improve performance-based information that is available to citizens, bureaus, and city leaders as they make choices in the types and levels of service desired.

A prerequisite for sound asset management is relevant, reliable, and timely information about asset resources. As much as possible, information provided in this report is comparable across bureaus and asset groups, and the confidence levels for the information were assigned using a common scale.

Common elements for managing assets include:

- information systems that provide data on asset inventories and their condition;
- good documentation of life cycle costs, and optimum renewal strategies that ensure the lowest life cycle cost;
- a needs assessment to evaluate current practices, asset risks, and opportunities;
- links between service outcomes, bureau programs, asset management plans, and performance measures;
- community engagement to better define desired and affordable levels of service; and
- clear assignment of roles and responsibilities to guide asset management efforts.

In December 2006, the Group's progress and tentative findings were reported to the Planning and Development Directors. The Planning and Development Directors endorsed the Group's work. As asset management improves across the bureaus, so will the ability of City Council, bureau managers, and citizens to make informed decisions about asset-related services.

I. Purpose of the Report

This report seeks to provide coordinated, integrated, fact-based information about the City of Portland's physical assets that will enhance a 'whole-of-city' approach to asset management (AM). It provides an accounting of the number of assets, condition, replacement value, current service levels, and cost of unmet needs. Information in the report will assist the City's efforts to ensure infrastructure is in good condition and that operation, maintenance, rehabilitation, and development programs are as efficient and effective as possible.

II. Improvements from Earlier Reports

This report advances a process started in the FY 2005-06 budget process, to assess the accuracy of data. At the time, City Commissioners asked for better data on the funding gap in capital maintenance. There were questions about the quality and completeness of the data, and doubts about bureaus' stated funding needs.

To address Council's concerns and to reflect the current state of City asset management, this report now includes:

- common definitions for basic asset management terms (see Appendix 1)²;
- confidence levels by asset group (see Appendices 3 and 5);
- bureau 'notes' on the data sheets to provide additional information about the standard data (see Appendix 6); and
- bureau observations on their asset management activities (see Appendix 7).

The City Asset Managers Group continues to work collaboratively on asset management. Aside from this annual report, the group shares training opportunities and AM literature, and participates in a statewide AM user group. Bureaus have invited one another to attend workshops on advanced asset management. In September 2006, PDOT participated in a national scan of best transportation asset management practices. In December 2006, members were invited to hear results of the Water Bureau's benchmarking with international best practices. Bureaus participate in the Pacific Northwest Asset Management Users Group, a peer exchange of asset management case studies and training. Participating bureaus are committed to expanding this collaborative effort and making continuous improvements in the City's AM process.

III. Policy Drivers

In FY 2001–02, City Council set strategic priorities as part of a *Managing for Results* exercise. The Council identified the City's deteriorating physical infrastructure as an immediate strategic priority. The deteriorating infrastructure remains a top Council strategic priority. For the FY 2006–07 budget, full Council named "infrastructure" as a primary Council concern and focus area, and urged bureaus to collaborate and involve stakeholders in the budget process.

² The definitions and confidence levels draw on several AM sources, including GHD Consultants (used by PDOT and Water Bureau), trained bureau staff, and literature searches.

Other policy drivers (federal, state and City) underscore the importance of the condition of municipal infrastructure in supporting a community’s economic health, active neighborhoods, and environmental stewardship:

- State and federal regulations.
- Public Facilities Plan—long-range, citywide plan requires major projects list, for use in annual capital budgets.
- Portland Comprehensive Plan—preserve infrastructure for future generations.
- Municipal bonded debt covenants—BES cites this.
- City CIP budget manual—analyze O&M costs/savings in new projects.
- U.S. Governmental Accounting Standards Board 34—capitalize costs that extend an asset’s useful life.

IV. 2006 Findings

This report includes data on three key measures: current replacement value, current and projected physical condition, and annual funding gap. The confidence level in the data is included. In some cases, data is not available or is pending more detailed data collection and analysis. Most of these “not available” responses are for projected condition.

1. Similar to other countries and U.S. cities facing this challenge, asset management is the best immediate way to ensure maximum use of existing assets, understand tradeoffs, and optimize decision-making and investment planning while other initiatives examine shared services.
2. The bureaus are in different phases of applying asset management:
 - Transportation and Water are integrating stakeholder involvement in choosing affordable levels of service.
 - Parks, Water, Transportation and PDC have assigned AM roles and responsibilities.
 - Parks and Water have completed inventories and determined condition for part of their inventories.
 - Transportation and OMF have completed inventories and initial condition assessments for major asset classes.
 - This year, Water is looking at capital and base budgets as one process.
 - BES applies AM practices of asset inventory, condition assessment and maintenance management to the wastewater collection and treatment system, including pump stations.
3. A gap exists between the funding required to maintain the City’s infrastructure in a sustainable way, and existing funding. For 2006 alone, there is a sustainable level investment gap of \$84 million for these assets.
4. As a City enterprise, the physical infrastructure has a current replacement value of \$18.9 billion, including affordable housing (valued at \$1.4 billion). By bureau, the infrastructure value is: PDOT (\$7.1 billion); BES (\$4.7 billion); Water (\$4.2 billion); Parks (\$0.8 billion); Civic (\$0.8 billion); and Affordable Housing (\$1.4 billion).

5. At current funding levels, Portland's infrastructure will continue to deteriorate. In 10 years, 5 asset groups (from PDOT, Water and Civic) are projected to remain or shift into mostly poor condition. They are traffic signals, the Water Bureau terminal storage, Union Station, the 800 MHz radio system, and IT operations. Transportation pavement, street lights, and curbs shift significantly from good to fair condition.
6. Historically, City bureaus address new capital projects apart from existing system needs. The Water Bureau has begun to integrate capital and operating needs and staff functions. The AM practices will enable bureaus to consider operations, maintenance and new capital needs as program options.
7. The City Budget Guidelines require that bureaus identify ongoing operating and maintenance requirements prior to funding capital projects.
8. Unfunded federal mandates and external funding of capital works drive the expansion of the number and type of physical assets which, although primarily built with leveraged monies, become the long-term obligation of the City to maintain and operate. Typically, there is little or no set-aside for ongoing operating or maintenance funding for these assets prior to their construction.

V. Recommendations

In January 2006, the Planning and Development Directors endorsed seven recommendations for citywide asset management practices. Those recommendations appeared in last year's report. In June 2006, the Planning and Development Directors discussed three of those recommendations--whole-of-city approach, existing service levels, and affordable housing. In November 2006, the City Asset Managers Group identified a new recommendation. An update of recommendations follows (# 1 – 7 are last year's; #8 is from the staff group).

1. Continue with "whole-of-city" approach. The City should use the "whole-of-city" approach to asset management, working across bureaus and systems. This approach will be used for data gathering, analysis, and reporting as well as for the preparation of recommendations on program modifications, funding strategies, and impact analysis.
2. Continue annual reports and improvements. The City Asset Managers Group will continue to produce an annual report on the City's physical assets and the asset management system used to evaluate them. With this report, affordable housing is added as an asset category. Each year, bureaus work to improve confidence levels in the available data.
3. Make the annual asset report available to the Community Visioning team and Citywide Strategic Plan staff to increase the public's understanding of the City's assets and to serve in the development of the future City Strategic Plan.
4. Review service levels. The 2005 and 2006 asset reports assume adopted levels of service, which affects findings of current condition and annual funding gap. The City Asset Managers Group will refine consistent terms and methods for annual funding gap. In future years, the City Asset Managers Group will develop some alternative scenarios

for levels of service as one approach to reducing the funding gap. In addition, the bureaus will develop Operating and Maintenance cost information and alternatives to support decisions about new infrastructure.

5. Pursue community consultation. Setting service levels and/or revising the current service levels can only be done with public involvement. Some infrastructure bureaus discuss service levels in their individual budget plans. Linked to the Community Visioning process, the community can discuss a “whole-of-city” approach to desired service levels and willingness to pay.
6. Prepare strategies. The Planning and Development Directors propose making recommendations to the Council on asset management, service levels and funding reallocation/measures as part of the Citywide Strategic Plan. The recommendations may include strategies to match revenues with planned service levels.
7. Keep reporting on affordable housing. Building on this report, PDC and BHCD should update and improve AM data for future citywide assets reports.
8. Track regional discussions. (New) In October 2006, Metro convened regional leaders to consider a presentation from former Eugene City Manager Mike Gleason. Mr. Gleason used Metro data to estimate a regional \$33 billion funding gap in infrastructure needs (new assets, deferred maintenance and future deferred maintenance). Metro expects the regional population to grow by 1 million by 2035. Metro will discuss regional needs for the infrastructure as part of the New Look process, though Metro President David Bragdon reminded that any form of public infrastructure and debt finance system would likely exceed Metro’s present authority. Portland should participate in these regional discussions.

VI. Appendices

1. Interim Asset Management Definitions
2. Current Replacement Values of City Assets
3. Current Condition of Bureau Assets by Confidence Level
 - a. PDOT
 - b. BES
 - c. Water
 - d. Parks
 - e. Civic
 - f. Affordable Housing
4. Annual Funding Gap Chart
5. Confidence Levels by Bureau (for Current Replacement Value, Current Conditions, and Annual Funding Gap)
6. Data Sheets
 - a. Current Replacement Value
 - b. Current Conditions
 - c. Projected Conditions
 - d. Annual Funding Gap
7. Bureau Observations
 - a. Transportation
 - b. Environmental Services
 - c. Parks
 - d. Water
 - e. OMF/Fire/Police
 - f. Portland Development Commission

Appendix 1: Interim Asset Management Definitions

Asset: A physical component of infrastructure or a facility which has value and has an expected useful life of more than one year, that would be replaced if destroyed, and is not surplus to needs.

Asset Management: The continuous cycle of asset inventory, condition, and performance assessment that has as its goal the cost-effective provision of a desired level of service for physical assets. Investment decisions consider planning, design, construction, maintenance, operation, rehabilitation, and replacing assets on a sustainable basis that considers social, economic, and environmental impacts.

Backlog: The sum of deferred activities, such as maintenance, operations, and rehabilitation, needed to achieve the lowest life cycle cost for an asset. Backlog results from lack of money, materials, or staff to perform the needed work. (See Funding Gap.)

Capital Expansion: Projects or facilities that create new assets, increase the capacity of existing assets beyond their original design capacity or service potential, or increase the size and service capability of a current service area, including service to newly annexed, undeveloped, or under-served areas. Generally increases the total maintenance requirements because it is increasing the total asset base.

Condition Assessment: The method used to quantify the deterioration rate and remaining useful life of an asset. Methods of condition assessment vary by asset classification and range from use of industry estimates for deterioration rates up to documented physical inspection regimens on established cycles that ensure optimum economic life of an asset.

Condition Measure /Rating: A means of classification using information from periodic inspections or measurements to indicate the ability of an asset to deliver a particular level of service.

Confidence Levels (in data/information): The expression of accuracy and reliability in the areas of information (source and reliability), process (ad hoc or repeatable) and documentation (documented or not documented).

The following chart addresses this information:

| | Inventory completeness | Condition assessment method and frequency | Process and documentation | Resulting confidence level |
|---|-------------------------------|---|----------------------------------|-----------------------------------|
| 1 | No inventory | No assessment method | No process | No confidence |
| 2 | Partial inventory | Condition estimate based on manufacturer's estimate or other reliable source | Process not documented | Low confidence |
| 3 | Inventory complete | Condition estimated and certain % tested on regular schedule | Process verbally documented | Moderate confidence |
| 4 | Inventory complete | Condition based on visual inspection by qualified personnel on regular schedule | Process partially documented | High confidence |
| 5 | Inventory complete | Condition based on inspections and testing by qualified personnel on regular schedule | Process well documented | Optimal confidence |

Current Replacement Value (CRV): The CRV is the total cost to replace the entire asset to meet current accepted standards and codes.

Funding Gap: The difference between the funding needed to address infrastructure needs of an asset at a defined condition or level of service and the funding that is currently available. The funding gap varies with the funding level and affects the level of service. The funding gap is the amount of money needed to eliminate the backlog and/or maintain the asset to achieve its useful life. Given a certain funding level, the resulting level of service can be forecast; if a certain level of service is desired, the funds needed to achieve it can be estimated.

Infrastructure: Consists of assets in two general networks that serve whole communities—transportation modalities (roads, rail, etc.) and utilities. These are necessary municipal or public services, provided by the government or by private companies and defined as long-lived capital assets that normally are stationary in nature and can be preserved for a significant number of years. Examples are streets, bridges, tunnels, drainage systems, water and sewer lines, pump stations and treatment plants, dams, and lighting systems. Beyond transportation and utility networks, Portland includes buildings, green infrastructure, communications, and information technology as necessary infrastructure investments that serve the community.

Inventory: A list of assets and their principal components.

Level of Service: A defined standard against which the quality and quantity of service can be measured. A level of service can include reliability, responsiveness, environmental acceptability, customer values and cost.

Life Cycle Cost: The sum of all costs throughout the life of an asset, including planning, design, acquisition, construction, operation, maintenance, rehabilitation/renewal and disposal costs.

Maintenance: Activities that keep an asset operating as designed or prevent it from deteriorating prematurely, excluding rehabilitation or renewal which may extend asset life. Maintenance can be planned or unplanned.

Planned maintenance is:

- Preventive – maintenance conducted at regular scheduled intervals based on average statistical/anticipated lifetime.
- Condition-based – maintenance based on objective evidence of need from tests, measurements and observations.
- Deferred – the shortfall created by postponing prudent but nonessential repairs to save money or materials. Generally, a policy of continuing deferred maintenance results in higher costs when repairs are eventually made, or failure that occurs sooner than if normal maintenance had been performed.

Unplanned maintenance is:

Reactive or Emergency – corrective actions taken upon failure or obvious threat of failure, usually at a higher cost than planned or preventive maintenance.

Operations: The ongoing activities that allow the use of an asset for its intended function.

Performance Indicator: A qualitative or quantitative measure used to compare actual performance against a defined standard. Indicators are commonly used to measure cost, performance, or customer satisfaction.

Performance Monitoring: The periodic assessments of actual performance compared to specific objectives, targets, or standards.

Rehabilitation / Renewal: Maintenance performed on an asset to restore it to its original level of service or capacity and achieve its useful life, which may result in an extension of the asset's service life.

Retirement/Removal: Decommissioning or removal of an asset through disposal, abandonment, demolition, or sale that may involve retiring deteriorated assets and recovering salvage value.

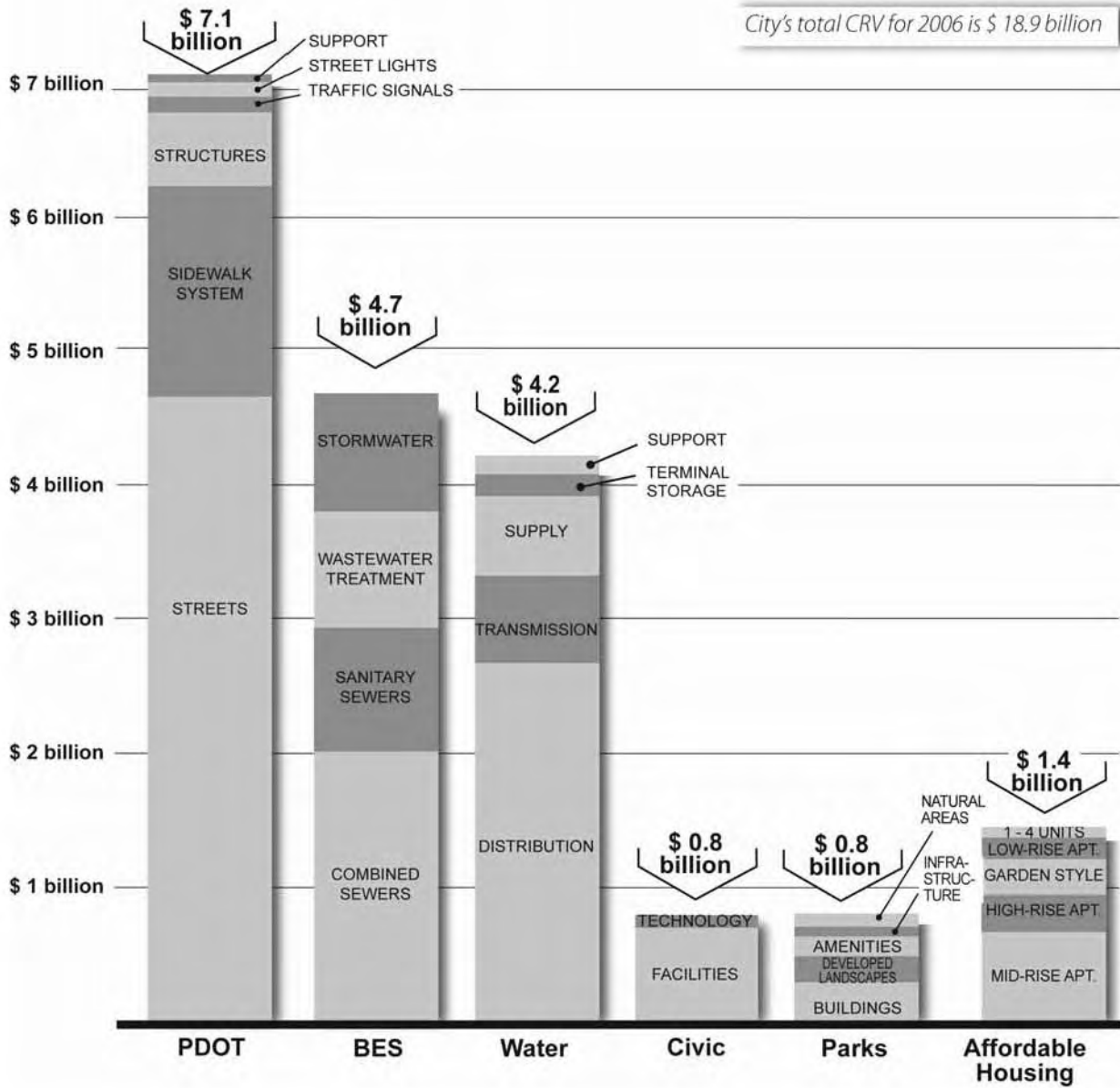
Triple Bottom Line: A method to categorize the benefits and impacts an organization can expect from investing in its assets. The benefits are categorized into Social, Economic, and Environmental benefits to ensure a comprehensive evaluation in the decision-making process (measure, manage and report).

Useful Life: The period of time over which an asset is expected to deliver efficient service with normal or appropriate maintenance (defined as accepted industry standard or documented local experience).

Appendix 2

Current Replacement Values of City Assets

December 2006



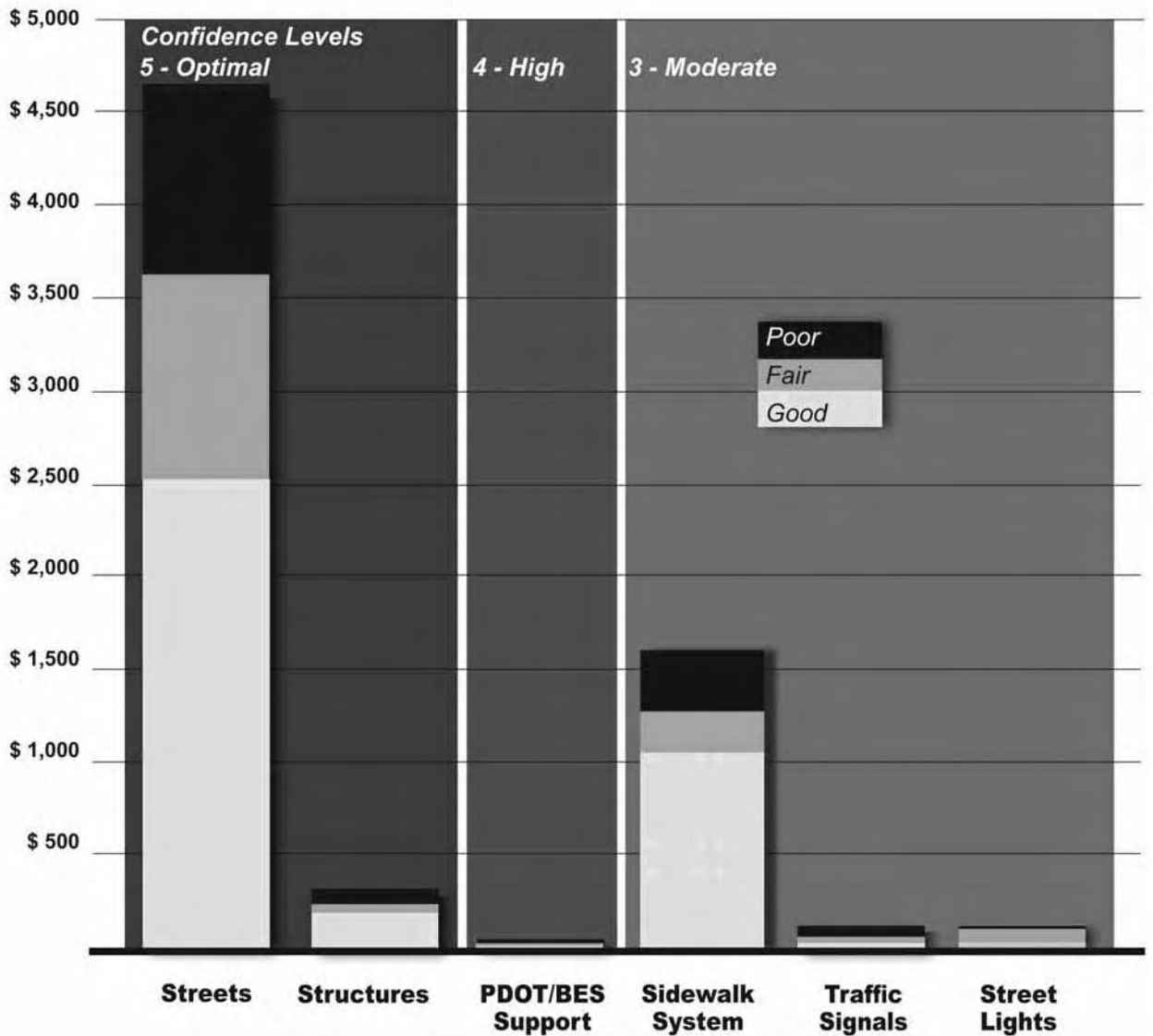
Appendix 3a

Current Condition of Capital Assets

Portland Office of Transportation

December 2006

1. Value is in millions.
2. Conditions rated as Good, Fair or Poor.
3. Confidence levels are Optimal (5) to None (1).



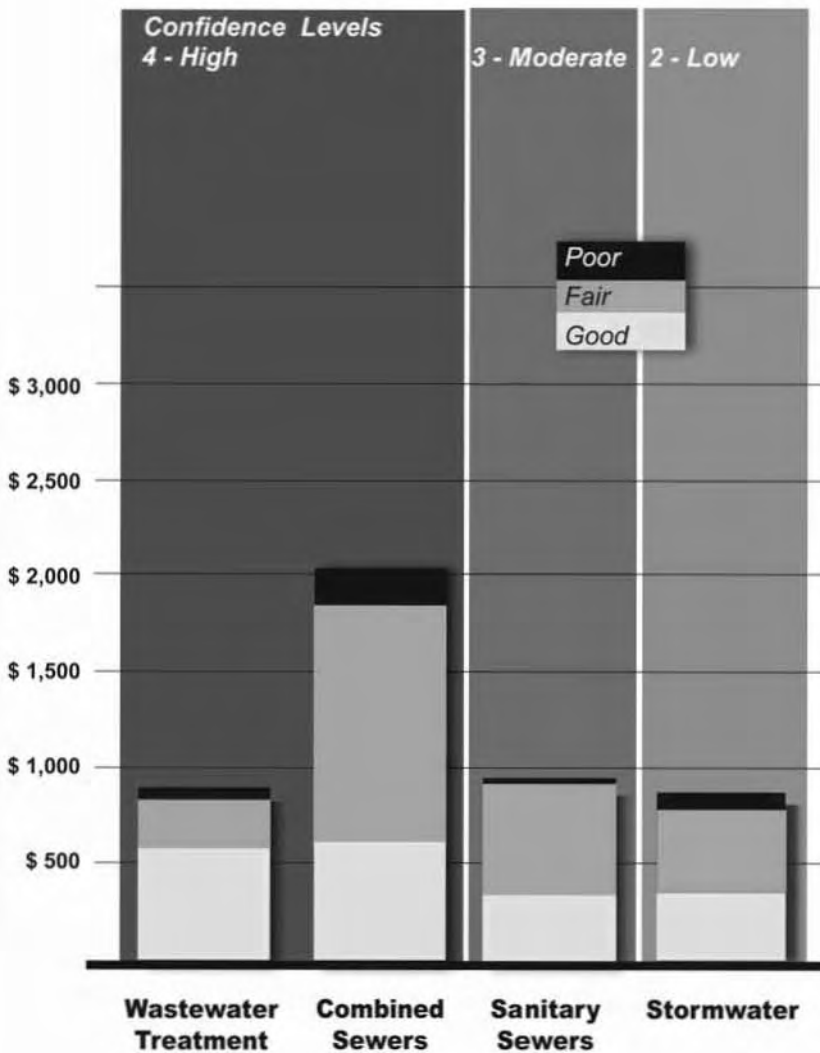
Appendix 3b

Current Condition of Capital Assets

Environmental Services

December 2006

1. Value is in millions.
2. Conditions rated as Good, Fair or Poor.
3. Confidence levels are Optimal (5) to None (1).



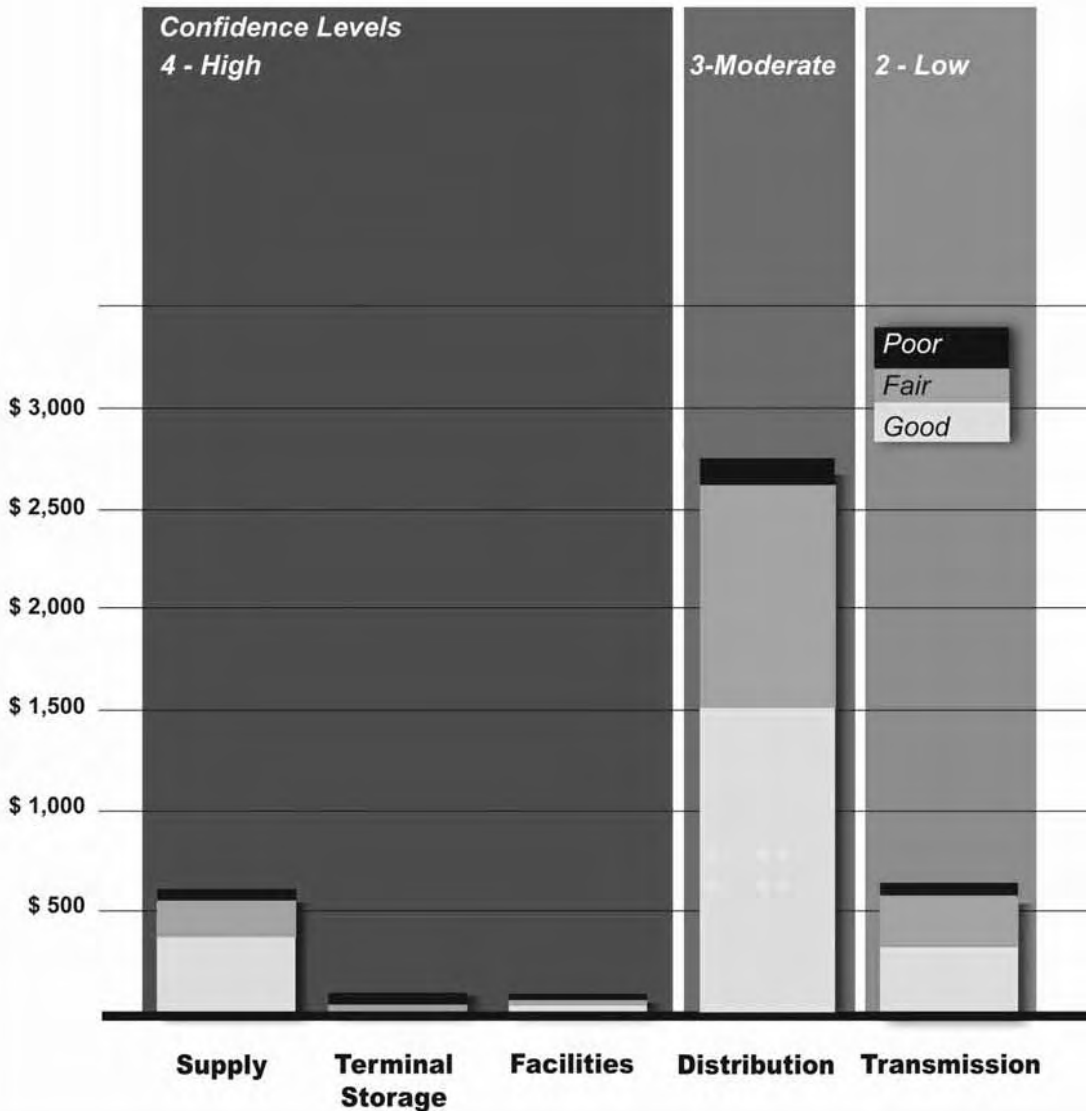
Appendix 3c

Current Condition of Capital Assets

Water Bureau

December 2006

1. Value is in millions.
2. Conditions rated as Good, Fair or Poor.
3. Confidence levels are Optimal (5) to None (1).



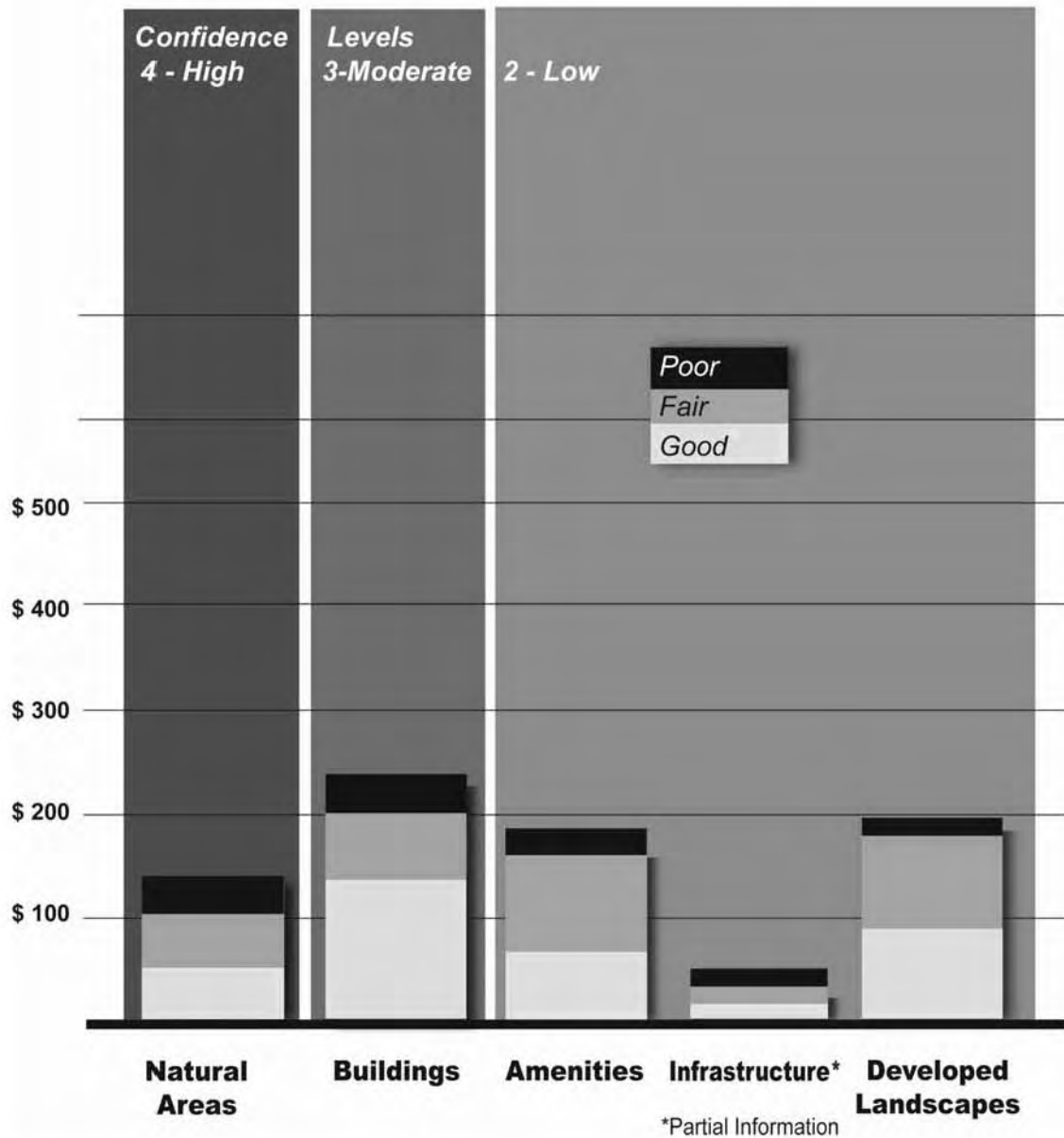
Appendix 3d

Current Condition of Capital Assets

Parks Bureau

December 2006

1. Value is in millions. Dollar value scale for this chart has been enlarged to show relative condition of asset groups.
2. Conditions rated as Good, Fair or Poor.
3. Confidence levels are Optimal (5) to None (1).



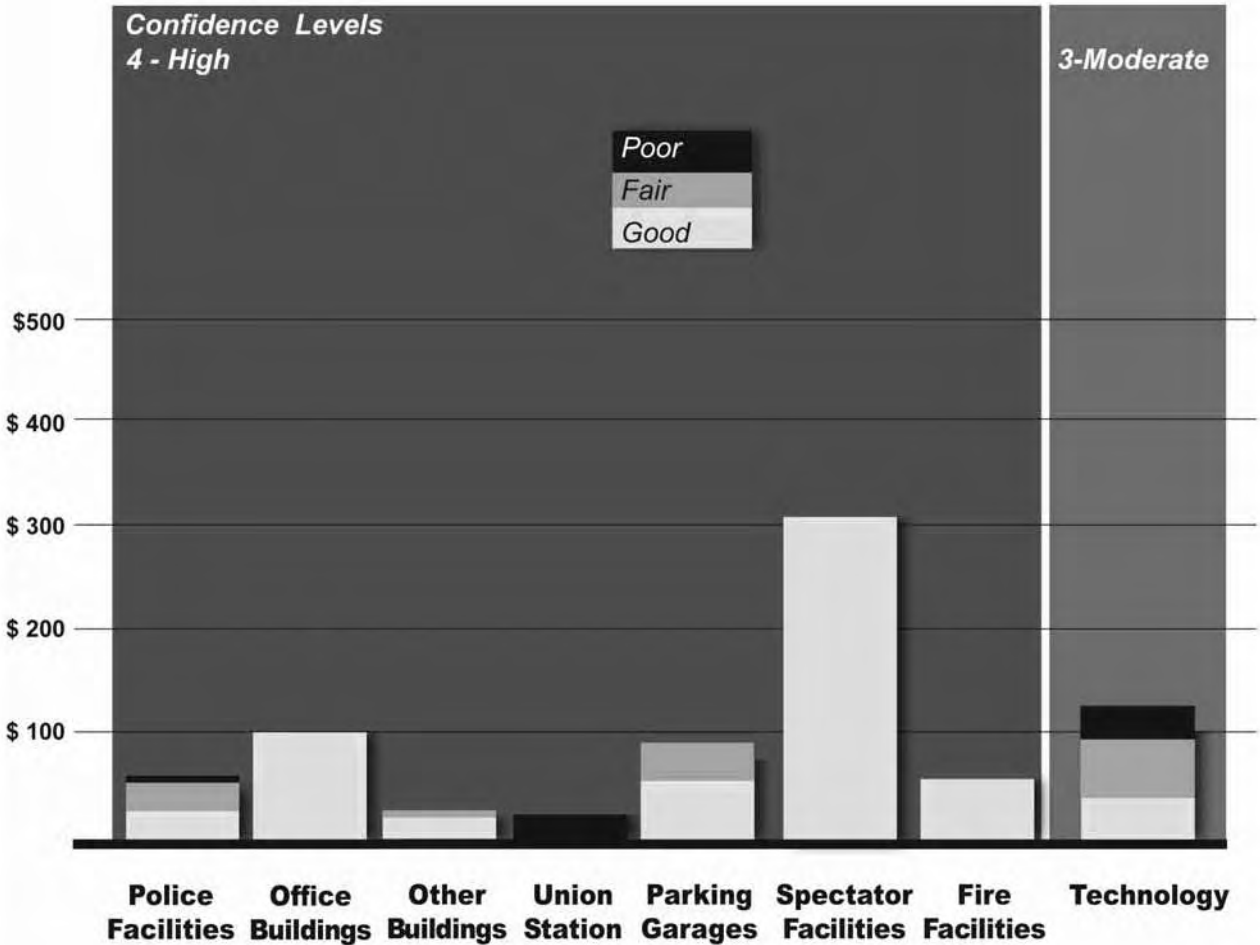
Appendix 3e

Current Condition of Capital Assets

Civic (OMF, Fire)

December 2006

1. Value is in millions. Dollar value scale for this chart has been enlarged to show relative condition of asset groups.
2. Conditions rated as Good, Fair or Poor.
3. Confidence levels are Optimal (5) to None (1).



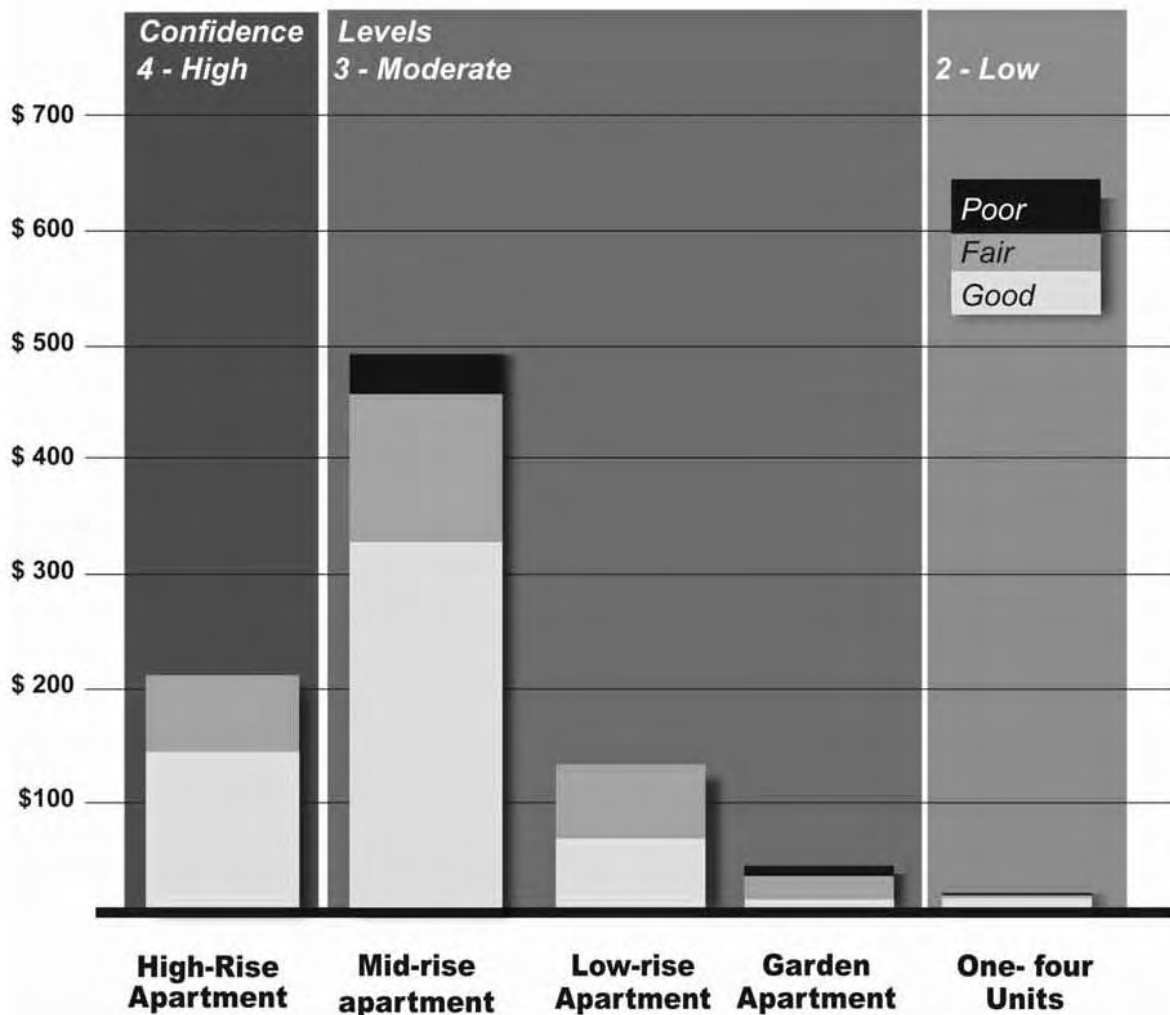
Appendix 3f

Current Condition of Capital Assets

Affordable Housing

December 2006

1. Value is in millions. Dollar value scale for this chart has been enlarged to show relative condition of asset groups.
2. Conditions rated as Good, Fair or Poor.
3. Confidence levels are Optimal (5) to None (1).
4. Based on 127 projects (see the Affordable Housing observations in Appendix 7.F)

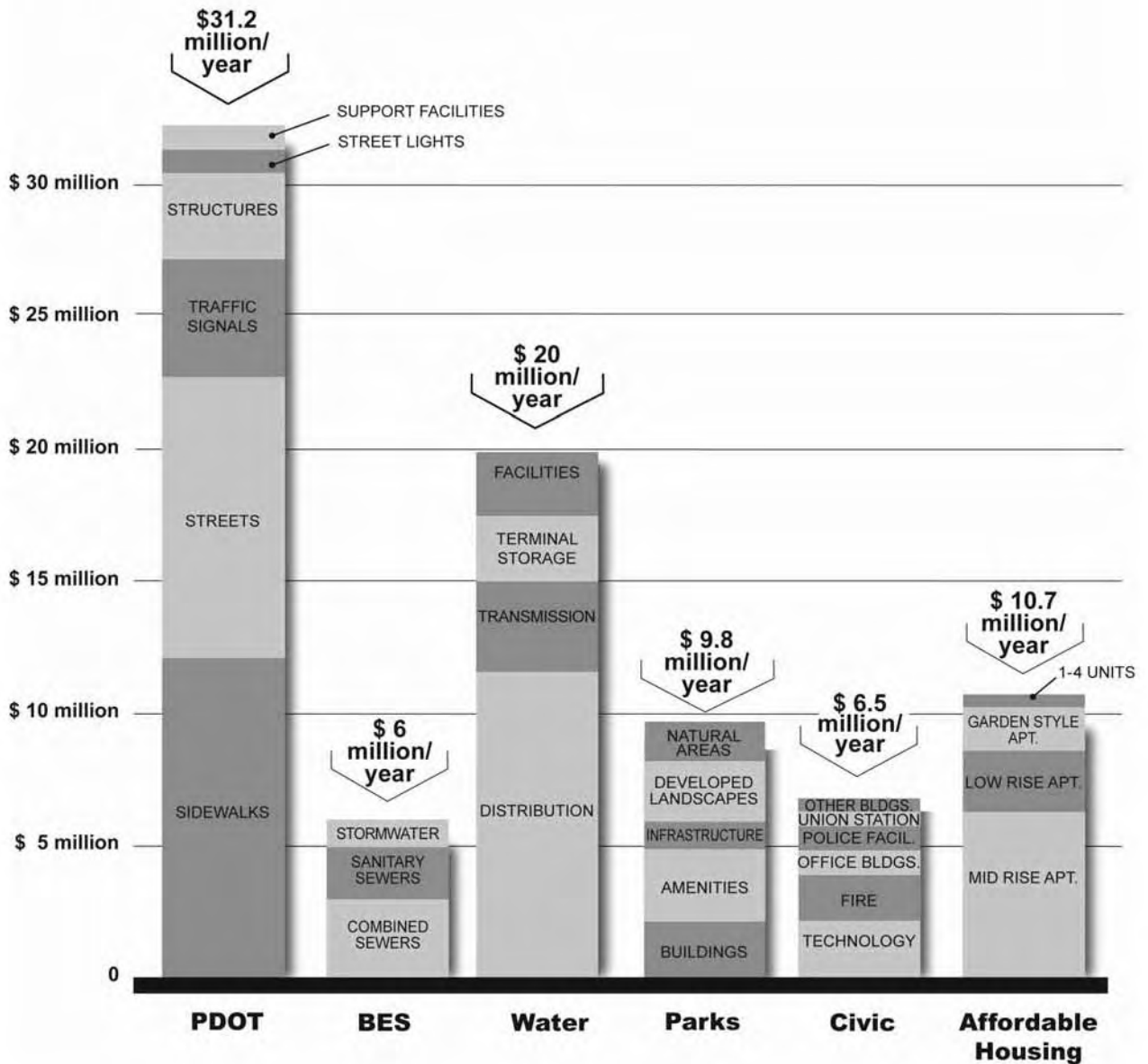


Appendix 4

Annual Funding Gap

in millions per year

December 2006



Appendix 5

Current Confidence Levels: Summary

December 2006

Replacement Value

| | | | |
|----------------|-------------|-----------------|------------|
| 10.7% | 23.0% | 56.7% | 8.6% |
| <i>Optimal</i> | <i>High</i> | <i>Moderate</i> | <i>Low</i> |

Condition Rating

| | | |
|-------------|-----------------|------------|
| 32.4% | 55.9% | 11.7% |
| <i>High</i> | <i>Moderate</i> | <i>Low</i> |

Funding Gap

| | | |
|-------------|-----------------|------------|
| 22.4% | 77.4% | 0.2% |
| <i>High</i> | <i>Moderate</i> | <i>Low</i> |

Appendix 6a: Current Replacement Value of Capital Assets

| Bureau and capital asset type | Value (in millions) | Confidence level * | Notes |
|---|---------------------|--------------------|--|
| PDOT | | | |
| streets (by lane mile, improved) | \$4,678.6 | 3 - Moderate | <--Work in progress to determine ownership of inlet and inlet leads for 2007 report. |
| sidewalk system | | | |
| sidewalks | \$860.6 | 5 - Optimal | |
| curbs | \$648.7 | 5 - Optimal | |
| corners | \$77.0 | 5 - Optimal | |
| structures (bridges only) | \$270.8 | 2 - Low | |
| traffic signals (hardware only) | \$104.4 | 5 - Optimal | |
| street lights | \$101.6 | 2 - Low | |
| support facilities (for PDOT & BES) | \$5.5 | 3 - Moderate | |
| Total Transportation | 7,068.2 | | |
| Environmental Services | | | 2006 values calculated from 2005 values and adding the costs of the completed CIP projects from the past fiscal year final CIP report. Values were then increased using the Construction Cost Index from Engineering News Record magazine (ENR-CCI). For July 2006, the index increased from 7415 to 7700. |
| sanitary sewers | \$949.4 | 3 - Moderate | |
| stormwater system | \$863.3 | 2 - Low | |
| combined sewers | \$2,002.4 | 4 - High | |
| wastewater treatment systems | \$903.8 | 4 - High | |
| Total Environmental Services | \$4,718.9 | | |
| Water | | | 2006 values calculated from 2005 values and increased using the ENR-CCI increase from 7415 to 7700. |
| supply | \$598.0 | 3 - Moderate | |
| transmission | \$635.0 | 3 - Moderate | |
| terminal storage | \$120.0 | 3 - Moderate | |
| distribution | \$2,760.0 | 3 - Moderate | |
| facilities (buildings and support facilities) | \$56.0 | 3 - Moderate | |
| Total Water | \$4,169.0 | | |
| Parks and Recreation | | | Parks used a 4.5 percent inflation factor, based on OMF averages. Infrastructure value is based on partial information. |
| buildings (includes support facilities) | \$203.8 | 3 - Moderate | |
| amenities | \$179.7 | 2 - Low | |
| infrastructure (partial data only) | \$44.9 | 2 - Low | |
| developed landscapes | \$191.2 | 2 - Low | |
| natural areas | \$140.0 | 4 - High | |
| Total Parks | \$759.6 | | |
| Civic | | | |
| <i>Facilities (buildings, structures)</i> | | | |
| police facilities | \$53.7 | 4 - High | |
| office buildings | \$100.6 | 4 - High | |
| other buildings | \$25.1 | 4 - High | |
| Union Station | \$22.7 | 4 - High | |
| parking garages | \$96.8 | 4 - High | |
| spectator facilities | \$309.0 | 4 - High | |
| <i>Fire facilities</i> | \$56.4 | 4 - High | |
| <i>Technology Services</i> | | | |
| 800 MHz radio system | \$50.0 | 2 - Low | |
| telecommunications | \$14.1 | 2 - Low | |
| IT operations | \$3.8 | 2 - Low | |
| strategic technology | \$68.4 | 2 - Low | |
| Total Civic | \$800.4 | | |
| Affordable Housing | | | Confidence Level ⁽¹⁾ |
| high rise apartment | \$285.5 | 3 - Moderate | Based upon historic blend; 1999-2006 |
| mid rise apartment | \$643.1 | 4 - High | Valuation based upon 2005 costs |
| low rise apartment | \$174.3 | 3 - Moderate | Based upon historic blend; 1999-2006 |
| garden style | \$284.0 | 5- Optimal | Valuation based upon 2006 costs |
| one to four units | \$32.3 | 4 - High | Valuation based upon 2005 costs |
| Total Affordable Housing | \$1,392.3 | | ⁽¹⁾ Replacement Value represents the amount it would take to rebuild the exact housing configuration in the 6/30/06 affordable housing portfolio. |
| Total Capital Assets | \$18,908.4 | | |

* Confidence levels measure the accuracy and reliability of information, process and documentation. Level 5 (optimal) is best.

Appendix 6b: Current Condition of Capital Assets

| Bureau and capital asset type | Good (in %) | Fair (in %) | Poor (in %) | Confidence level * | Notes | |
|--|-------------|-------------|-------------|--------------------|--|--|
| PDOT | | | | | | |
| streets (by lane mile, improved) | 54 | 24 | 22 | 5 - Optimal | <-- Working on improved inspection program <-- Sunderland Yard only | |
| sidewalk system | | | | | | |
| sidewalks | tbd | tbd | tbd | tbd | | |
| curbs | 75 | 15 | 10 | 3 - Moderate | | |
| corners | 80 | 15 | 5 | 3 - Moderate | | |
| structures (bridges only) | 65 | 13 | 22 | 5 - Optimal | | |
| traffic signals (hardware only) | 28 | 29 | 43 | 3 - Moderate | | |
| street lights | 22 | 67 | 11 | 3 - Moderate | | |
| support facilities (for PDOT & BES) | 40 | 20 | 40 | 4 - High | | |
| Environmental Services | | | | | | |
| sanitary sewers | 35 | 60 | 5 | 3 - Moderate | | |
| stormwater system | 40 | 50 | 10 | 2 - Low | | |
| combined sewers | 30 | 60 | 10 | 4 - High | | |
| wastewater treatment systems | 63 | 30 | 7 | 4 - High | | |
| Water | | | | | | |
| supply | 59 | 37 | 4 | 4 - High | * Our confidence for pipes is 4; for other elements in the distribution system, it is 2 to 3. | |
| transmission | 50 | 40 | 10 | 2 - Low | | |
| terminal storage | 0 | 34 | 66 | 4 - High | | |
| distribution | 54 | 40 | 6 | 3 - Moderate* | | |
| facilities (buildings and support facilities) | 42 | 22 | 36 | 4 - High | | |
| Parks and Recreation | | | | | | |
| buildings (includes support facilities) | 57 | 28 | 15 | 3 - Moderate | New data from 2005 and 2006 used for major public buildings; other building data is from 2004. Amenities are carried over from 2004 data. Infrastructure is based on partial information only. Landscapes data is carried over from 2003 data. Natural areas condition data is for ecosystem health. | |
| amenities | 36 | 50 | 14 | 2 - Low | | |
| infrastructure (partial information) | na | na | na | 2 - Low | | |
| developed landscapes | 44 | 45 | 11 | 2 - Low | | |
| natural areas | 37 | 40 | 23 | 4 - High | | |
| Civic | | | | | | |
| <i>Facilities (buildings, structures)</i> | | | | | | |
| police facilities | 47 | 45 | 8 | 4 - High | | |
| office buildings (incl. support facilities) | 100 | 0 | 0 | 4 - High | | |
| other buildings | 93 | 7 | 0 | 4 - High | | |
| Union Station | 0 | 0 | 100 | 4 - High | | |
| parking garages | 59 | 41 | 0 | 4 - High | | |
| spectator facilities | 100 | 0 | 0 | 4 - High | | |
| fire facilities | 100 | 0 | 0 | 4 - High | | |
| <i>Technology Services</i> | | | | | | |
| 800 MHz radio system | 100 | 0 | 0 | 3 - Moderate | | |
| Telecommunications | 100 | 0 | 0 | 3 - Moderate | | |
| IT operations | 64 | 26 | 10 | 3 - Moderate | | |
| Strategic technology | 28 | 31 | 41 | 3 - Moderate | | |
| Affordable Housing | | | | | | |
| high rise apartment | 48 | 25 | 0 | 4 - High | Assumes exact housing configuration is rebuilt. 28% TBD | |
| mid rise apartment | 49 | 20 | 5 | 3 - Moderate | | |
| low rise apartment | 37 | 39 | 0 | 3 - Moderate | | |
| garden style | 1 | 8 | 3 | 3 - Moderate | | |
| one to four units | 31 | 10 | 2 | 2 - Low | | |
| * Confidence levels measure the accuracy and reliability of information, process and documentation. Level 5 (optimal) is best. | | | | | | |

Appendix 6c: Projected Condition of Capital Assets

| Bureau and capital asset type | Good (in %) | Fair (in %) | Poor (in %) | Confidence level * | Notes | |
|--|-------------|-------------|-------------|--------------------|---|--|
| PDOT | | | | | | |
| streets (by lane mile, improved) | 40 | 33 | 27 | 3 - Moderate | At Current Service Level | |
| sidewalk system | | | | | | |
| sidewalks | tbd | tbd | tbd | tbd | | |
| curbs | 63 | 14 | 23 | 3 - Moderate | | |
| corners | 73 | 13 | 14 | 3 - Moderate | | |
| structures (bridges only) | tbd | tbd | tbd | tbd | | |
| traffic signals (hardware only) | 13 | 21 | 67 | 3 - Moderate | | |
| street lights | 11 | 65 | 24 | 3 - Moderate | | |
| support facilities (for PDOT & BES) | tbd | tbd | tbd | tbd | | |
| Environmental Services | | | | | | |
| sanitary & combined sewers | 35 | 60 | 5 | 2 - Low | | |
| pump stations | 40 | 50 | 10 | 2 - Low | | |
| underground injection facilities | 30 | 60 | 10 | 3 - Moderate | | |
| wastewater treatment | 65 | 30 | 5 | 4 - High | | |
| Water | | | | | | |
| supply | 46 | 51 | 3 | 4 - High | | |
| transmission | 43 | 45 | 12 | 4 - High | | |
| terminal storage | 10 | 31 | 59 | 4 - High | | |
| distribution | 42 | 45 | 12 | 4 - High | | |
| facilities (buildings and support facilities) | 86 | 11 | 3 | 4 - High | | |
| Parks and Recreation | | | | | | |
| buildings (includes support facilities) | tbd | tbd | tbd | | Parks is currently reassessing methods of determining projected condition of assets. | |
| amenities | tbd | tbd | tbd | | | |
| infrastructure (partial information) | tbd | tbd | tbd | | | |
| developed landscapes | tbd | tbd | tbd | | | |
| natural areas | tbd | tbd | tbd | | | |
| Civic | | | | | | |
| <i>Facilities (buildings, structures)</i> | | | | | | |
| police facilities | 47 | 45 | 8 | 4 - High | The Technology Services programs with conditions at poor in FY 2016 are really beyond poor at that point because without replacement they will become unusable as they are no longer supported by vendors, or will become technologically obsolete. | |
| office buildings (incl. support facilities) | 100 | 0 | 0 | 4 - High | | |
| other buildings | 54 | 46 | 0 | 4 - High | | |
| Union Station | 0 | 0 | 100 | 4 - High | | |
| parking garages | 53 | 46 | 1 | 4 - High | | |
| spectator facilities | 84 | 16 | 0 | 4 - High | | |
| <i>fire facilities</i> | 100 | 0 | 0 | 4 - High | | |
| <i>Technology Services</i> | | | | | | |
| 800 MHz radio system | 0 | 0 | 100 | 3 - Moderate | | |
| telecommunications | 100 | 0 | 0 | 3 - Moderate | | |
| IT operations | 14 | 0 | 86 | 3 - Moderate | | |
| strategic technology | 61 | 8 | 31 | 3 - Moderate | | |
| Affordable Housing | | | | | | |
| high rise apartment | 48 | 25 | 0 | 4 - High | 28% TBD | |
| mid rise apartment | 49 | 20 | 5 | 3 - Moderate | 26% TBD | |
| low rise apartment | 37 | 39 | 0 | 3 - Moderate | 24% TBD | |
| garden style | 1 | 8 | 3 | 3 - Moderate | 88% TBD | |
| one to four units | 31 | 10 | 2 | 2 - Low | 57% TBD | |
| * Confidence levels measure the accuracy and reliability of information, process and documentation. Level 5 (optimal) is best. | | | | | | |

Appendix 6d: Annual Funding Gap in Capital Maintenance

| Bureau and capital asset type | Value (in millions) | Confidence level * | Note |
|--|---------------------|--------------------|---|
| PDOT | | | |
| streets (by lane mile, improved) | \$10.5 | 3 - Moderate | Annual Gap at Sustainable Level |
| sidewalks (corners and curbs) | \$11.8 | 3 - Moderate | |
| structures (bridges only)--for years 1 - 5 | \$3.3 | 3 - Moderate | |
| traffic signals (hardware only) | \$4.4 | 3 - Moderate | |
| street lights | \$1.2 | 3 - Moderate | |
| support facilities (for PDOT & BES) | tbd | tbd | |
| Total Transportation | \$31.2 | | |
| Environmental Services | | | |
| sanitary sewers | \$2.0 | 3 - Moderate | Anticipated maintenance and pipe rehabilitation funding gap to be refined with completion of Systems Plan in 2008. New CSO facilities will also add to maintenance needs. |
| stormwater system | \$1.0 | tbd | |
| combined sewers | \$3.0 | 4 - High | |
| wastewater treatment systems | \$0.0 | 4 - High | |
| Total Environmental Services | \$6.0 | | |
| Water | | | |
| supply | \$0.0 | 3 - Moderate | |
| transmission | \$3.0 | 3 - Moderate | |
| terminal storage | \$2.5 | 3 - Moderate | |
| distribution | \$12.0 | 3 - Moderate | |
| facilities (buildings and support facilities) | \$2.5 | 3 - Moderate | |
| Total Water | \$20.0 | | |
| Parks and Recreation | | | |
| buildings (includes support facilities) | \$2.1 | 3 - Moderate | |
| amenities | \$2.7 | 2 - Low | |
| infrastructure | \$1.1 | 2 - Low | |
| developed landscapes | \$2.2 | 2 - Low | |
| natural resources | \$1.7 | 3 - Moderate | |
| Total Parks | \$9.8 | | |
| Civic | | | |
| <i>Facilities (buildings, structures)</i> | | | In addition to annual (ongoing) funding gap, OMF reports these one-time needs: \$45 M for Union Station renovation, \$7.32 M for Spectator facilities reserves funding, \$35.535 M for 800 MHz core system replacement, \$8.7 M for 800 MHz devices replacement, \$13.0 M for CAD replacement, and \$8.0 M for PPDS replacement. These figures are only intended to provide an order of magnitude since actual costs will depend on project approach. |
| police facilities | \$1.0 | 4 - High | |
| office buildings | \$1.0 | 4 - High | |
| other buildings | \$0.5 | 4 - High | |
| Union Station | \$0.5 | 4 - High | |
| parking garages | \$0.0 | 4 - High | |
| spectator facilities | \$0.0 | 4 - High | |
| <i>Fire facilities</i> | \$1.7 | 4 - High | |
| <i>Technology Services</i> | | | |
| 800 MHz radio system | \$0.9 | 3 - Moderate | |
| telecommunications | \$0.6 | 3 - Moderate | |
| IT operations | \$0.2 | 3 - Moderate | |
| strategic technology | \$0.2 | 3 - Moderate | |
| Total Civic | \$6.5 | | |
| Affordable Housing | | | |
| high rise apartment | \$0.0 | 4 - High | Annual gap is the future value to replace the "poorest" rated units (354 units in 13 projects) that are currently within the 6/30/06 affordable housing portfolio. Confidence Level is defined as stated in 6b. |
| mid rise apartment | \$6.2 | 3 - Moderate | |
| low rise apartment | \$2.5 | 3 - Moderate | |
| garden style | \$1.8 | 3 - Moderate | |
| one to four units | \$0.1 | 2 - Low | |
| Total Affordable Housing | \$10.7 | | |
| Total Capital Assets | \$84.2 | | This excludes the annual funding gap for Parks assets. |
| * Confidence levels measure the accuracy and reliability of information, process and documentation. Level 5 (optimal) is best. | | | |

Appendix 7: Bureau Observations

a. Transportation

Transportation manages transportation assets valued at \$7.1 billion. Improved streets, the sidewalk system, structures, traffic signals, and streetlights make up 99 percent of the dollar value.

The condition of improved streets, bridges and streetlights in good condition held mostly steady between 2005 and 2006, while signal hardware condition declined (from 38 percent to 43 percent in poor condition). There is a substantial difference in arterial and local street condition, 61 percent versus 35 percent in good condition (versus 63 percent and 37 percent, respectively, in 2005). Curb maintenance was eliminated from the FY 2006-2007 budget. Curbs represent 9 percent of the transportation system value and are required to channel water runoff and protect the edge of the pavement. Of the 157 bridges the city owns, 34 bridges are in poor condition, 32 of these are weight-limited.

The transportation maintenance liability continued to increase faster than revenues. The primary source of PDOT's discretionary operating revenue, the gas tax-based State Highway Trust Fund, is not indexed to inflation and has not been increased by the Oregon Legislature since 1991. The result is a continuing loss of general transportation revenue purchasing power over the next five years. Additional parking revenues, while increasing, have been dedicated to streetcar operations and transit mall construction debt service. While funds are identified to build projects, ongoing operating and maintenance costs become the long-term obligation of the City's Office of Transportation.

As of July 2006, \$327 million is needed to address the most cost-effective strategies, a 31 percent increase from 2005. Of this, \$90 million is in pavement needs. As stated by the City Auditor, "the cost of street preservation increases significantly when streets are allowed to deteriorate as they have in the City of Portland."³ Even if current funding levels were maintained, there would be significant reductions in services provided on the City's transportation network over the next 5 years.

AM approach—Transportation is in the twentieth year of annually reporting on the inventory, condition, replacement value, and deferred maintenance.⁴ Since 2001, PDOT's asset teams (which include engineers and operations staff as well as maintenance, finance, and information technology managers) have completed 8 asset management plans in the following areas: streetlights, structures, traffic signals, sidewalks, signs, pavement and pavement markings, and parking. These plans provide ongoing guidance for asset preservation and renewal strategies.

Since 2002, level of service options and targets have been presented in PDOT's Financial Plan. In 2004, a life cycle perspective on level of service options was adopted by Transportation. In 2005, consultation with transportation stakeholders

³ *Street Paving: More Proactive Preventive Maintenance Could Preserve Additional City Streets Within Existing Funding*, Office of the City Auditor, July 2006

⁴ For full transportation data, see PDOT's *Portland Transportation System Status and Condition Report*.

helped management establish budget priorities as Transportation reduced services by \$8 million in FY 2006-07.

Transportation's confidence in the current status of inventory, condition and replacement value information varies from moderate (curbs, corners, lights, signals, street lights) to optimal (pavement, bridges). The confidence of future funding scenarios is moderate for all asset classes. PDOT's asset management practice needs improvement. Improvements include: keeping asset inventories current; developing explicit data maintenance standards, quality assurance protocols for data; conducting condition assessment to a maintenance managed item; and developing deterioration modeling for the major five asset classes—pavements, bridges traffic signals, street lights and the sidewalk system.

Status of AM—Implementing the City Auditor's recommendations will address many of these improvements in pavement management, which accounts for 66 percent of the replacement value of the transportation system. The pavement management system will be replaced with more robust software by the fall of 2008. This will provide greater ability to target future investment needs of the pavement asset class.

In FY 2006-07, \$5.5 million of General Fund one-time money was directed to address safety improvements, and deferred arterial and collector street maintenance. A \$250,000 contract will:

- evaluate PDOT's investment decision-making process for developing new assets as well as maintenance and renewal activities, the capital and operations planning and budgeting process;
- evaluate and develop an improvement plan for PDOT's current asset management efforts; and
- identify strategic performance measures and set targets

Annual funding gap—PDOT's annual \$31.2 million gap breaks out as follows:

Streets: As of July 2006, the maintenance liability was 627 miles and \$90 million. Over the next 10 years, an average annual increase of \$10.5 million is needed to achieve the goal of reducing the backlog to a sustainable level, 250 miles.

Sidewalks: Add sidewalk inspectors and posting support (\$200,000 annually); \$10.8 million additional needed annually to repair curbs based on 60-year expected life cycle; and an additional \$795,000 needed annually to repair/replace corners based on 40-year expected life cycle. Combined, these activities require an additional investment of \$11.8 million annually over the next 10 years.

Bridges: Total cost to replace bridges in Poor condition, \$65 million (divided by 20 years, \$3.3 million annually).

Signals: A total increase of \$4.4 million per year in capital funding needed for 10 years to achieve a hardware condition of 25 percent Poor in 2016.

Street lights: In addition to fully funding the PGE contract, an increase of \$1.2 million per year above CSL (combined capital, operations and maintenance funding) for 10 years would achieve a condition of 10 percent Poor in 2016.

Maintenance Facilities: Kerby and Albina Yards are antiquated and in need of upgrading to modern standards. However, the total need is not defined at this time. These facilities are used to maintain both transportation and storm and wastewater services. Sunderland Yard, used for recycling, has identified needs which are being addressed.

b. Environmental Services

AM approach—To optimize limited budgets, public works agencies worldwide are beginning to adopt an AM approach to infrastructure management. The Bureau of Environmental Services is also beginning to implement elements of AM in its operations and planning functions. The implementation of AM is a long-term process and will be implemented in steps over a period of many years.

Status of AM—BES currently applies AM practices of asset inventory, condition assessment, and computerized maintenance management systems for its treatment and pump stations as well as the collection system. One of the bureau's next steps in this endeavor is to apply AM practices in its planning function.

BES recognizes the value of focused planning and has established a new System Planning Program that provides continuous and coordinated infrastructure planning and integrates the bureau's watershed and wastewater plans. Currently, the bureau is 1 year into a 3-year infrastructure planning effort to upgrade its System Plan. Included will be a sewer rehabilitation plan, updated treatment plan, and updated combined and sanitary sewer system plans.

Uses of AM data—But more important than the delivery of the above-mentioned plans, will be the development of the planning processes, software tools, and the data management systems that will support the bureau's business functions for decades to come. Raw data on the system will be analyzed to provide condition assessments of the system's components. Sewer pipe hydraulic deficiencies and/or structural defects will be addressed in a system-wide perspective. Recommended infrastructure plans will be available for all stages of AM—design construction and maintenance.

The BES System Plan will incorporate an AM context (that ensures expenditures are made at the right time and for the right cost) by a life-cycle cost analysis that looks at the "triple bottom line" ranking of projects that considers financial, social, and environmental benefits of a project. Risk will also be considered in the ranking process as we assess the likelihood of failure and its consequences. The intended result is that project expenditures will result in optimal asset value and customer service for possibly lower costs than in the past.

The System Plan Update Project is driven by the need to address the bureau's aging infrastructure and a desire to provide a prioritized list of potential projects for inclusion in the bureau's capital improvement program after year 2011 (upon the completion of the CSO program). The new sewer rehabilitation plan element will identify the appropriate sewer maintenance routines (and repairs) to enable the individual infrastructure components to reach an optimal useful service life at an overall least cost. The AM-driven sewer rehabilitation program will blend both operational and capital expenditures to optimize the system's performance.

Annual funding gap—At present, BES estimates an annual funding gap of \$6 million. This breaks out as \$3 million in Combined Sewers, \$2 million in Sanitary Sewers, and \$1 million in Stormwater. Anticipated maintenance and pipe rehabilitation funding gap will be refined with completion of the System Plan in 2008. New CSO facilities will also add to maintenance needs.

c. Parks

Parks' restructured AM program includes 5 asset groups: buildings, amenities, infrastructure, developed landscapes, and natural areas.

AM approach—Parks is currently verifying all assets in the inventory and assessing their condition. Parks has adopted industry-accepted methodologies and standards to determine current replacement values, useful life and asset conditions in a documented, repeatable process. This will allow coordinated management of data, accurate asset inventories and up-to-date reports using credible information in an ongoing iterative process that will improve Parks' ability to make informed decisions about assets.

Parks' AM program continues to implement *Parks 2020 Vision* by ensuring the provision of high-quality facilities, providing for long-range capital planning and developing best management practices. It allows Parks to fulfill a major part of its mission of "...developing and maintaining excellent facilities and places for public recreation."

Stakeholder involvement —This work is a direct result of the extensive public involvement process used to produce *Parks 2020 Vision*, which determined that excellent public facilities were a goal. The Service Delivery Strategy, which is underway now, will further involve the public and other stakeholders in determining what services Parks should provide. That will directly guide the provision of assets and the levels of service they provide.

Status of AM—Inventory and condition assessments for all buildings are generally complete, and the health and inventory of Natural Resources are well documented. Inventories for other asset groups are underway.

Data is available for the land component of Parks' 10,500 acres of developed parks and natural areas, although this aspect of asset management is not part of the City infrastructure bureaus' approach to asset management.

Progress since 2005 includes completion of Parks' *Total Asset Management* manual in July and the Draft *Asset Inspection and Condition Assessment Manual*, which is currently being reviewed and approved. Parks established an Asset Management Steering Committee made up of representatives of all departments who meet on a bi-monthly basis to discuss and resolve asset management issues.

Uses of AM—AM data is being utilized in Parks' capital planning and budget preparation to develop consistent maintenance and operations regimes, fulfill City and federal reporting requirements, inform system planning and support financial

forecasting. After the Service Delivery Strategy is complete, Parks will be able to determine acquisition and capital improvement needs, appropriate levels of maintenance, and which assets to dispose of to develop a stable asset portfolio.

Initial results—The assessments for community centers and pools showed that many are in better condition than anticipated. This is due to consistent work by Park staff and the infusion of levy and bond funds into capital improvements as well as new construction for some of these major public buildings. Other buildings have not fared as well, including Park maintenance facilities. While there are many specific problems (serious in some cases), most problems require one-time funding and then sufficient funds for ongoing maintenance.

What is needed is a stable funding source that results in sufficient set-aside funds for these ongoing and, generally, anticipated problems. Without it, Parks is always in the position of seeking special funding for deferred maintenance. While grants, partnerships, and donations are vitally important to Parks' ability to provide and maintain assets, they are not consistent over time.

Service levels and annual funding gap—Parks' Service Delivery Strategy will guide decisions about the appropriate levels of service. When that work is complete, Parks will be able to determine the funding gaps between the current funding level and what is needed to provide the desired level of service.

Given a certain funding level, the resulting level of service can be forecast; or given a desired level of service, the funds needed to achieve it can be estimated.

Deferred maintenance needs—Over the years, funding has been insufficient to keep up with needed repairs and replacement. Specific maintenance needs have been identified, and the most serious are being addressed.

The industry standard for building maintenance is to reinvest from 2 to 4 percent of a building's current replacement value. On average, Parks spends about 1 percent. This is not sustainable in the long run, particularly since Parks' buildings are heavily used. Applying asset management principles will help prioritize projects and the allocation of scarce resources.

Confidence Levels in Parks Data

By December 2007

Buildings – high confidence (inventory complete and assessed on regular schedule [20% each year], process documented)

Amenities and Landscape – moderate confidence (will be verifying inventory and assessing asset, process documented)

By June 2008

Infrastructure (roads and utilities) – moderate confidence (will be verifying inventory and assessing assets, process documented)

By December 2010

Confidence levels in all asset groups will be Optimal. All assets will have been inventoried and assessed and the process will be well documented.

d. Water

AM approach—The Water Bureau has updated its inventory and condition assessment. In preparing the FY 07-08 budget, we expect a funding gap in needed asset improvements.

Status of AM—In 2006, the Bureau continues to make progress in asset management, in understanding the condition of its water system assets, and in defining its budget needs.

Some of the highlights for the year include:

- Comprehensive condition assessment of pump stations and tanks.
- Detailed characterization of the budget needs for meters, mains and valves.
- Mechanical and electrical system benchmarking.

Annual funding gap—Unmet needs amount to \$20 million a year. The following list reflects the Bureau's anticipated system needs beyond the current level of funding.

- **Distribution**
 - **Pump Stations / Tanks / Mains:** Repairs and upgrades have been identified as part of the distribution system master plan.
 - **Hydrants and service lines:** Increased rate of replacements to address those assets reaching the end of their useful life.
 - **Valves:** Replacement of older large valves and installation of valves to address tanks and pump station vulnerability.
 - **Pump mains:** Replacement of critical steel pump main segments in poor condition.
- **Transmission – Conduits**

Major needs are in the areas of replacements of river crossings and upgrading sections of the oldest conduits. Identification of specific conduit segments requiring replacement will be established by upcoming condition assessments.
- **Terminal Storage**

There is a need to seismically upgrade Powell Butte Reservoir 1, and expand the storage capacity at the site.
- **Facilities**

A gap reflects the unfunded needs to replace the Water Bureau's support facility at North Interstate, to address health and safety issues and improvements in functionality.

e. OMF/Fire/Police

Fire Facilities

General Observations

Voters approved a GO bond measure in November of 1998 to rehabilitate, relocate, and construct new City fire stations. The program addresses deferred maintenance in addition to addressing seismic requirements and program changes within Fire. The program is over 60 percent complete and will run through FY 2010.

Fire has no ongoing budget authority for major maintenance projects for these new facilities. Fire does have regular O&M budgets for these facilities. Over the 10-year period of FY 2006 to FY 2016, overall condition won't decrease. However, without saving major maintenance money up for the future when the large needs come due in 20-30 years, no money will be available. The City will find itself in the same position as in 1998 when there was too much deferred maintenance to fund and the buildings hadn't been modified for the changing needs of the bureau. The Fire facilities should be put on the same program of setting aside money for major maintenance in each budget year as is done for Police facilities and office buildings.

Confidence Level

OMF has high confidence in this assessment. It is based on very recent completed projects to rehabilitate and construct new, or projects in progress for which we have gained considerable experience.

Facilities Services

General Observations

Through its rental rates, Facilities Services collects major maintenance money for office buildings (Portland Building, City Hall, and 1900 Building), Police facilities, maintenance facilities, the Portland Communications Center, and the Records Center. Major maintenance money is also carved out from net income of Union Station and parking garages to fund major maintenance projects at these facilities.

While major maintenance is a good practice, OMF collects well below industry standards. Ideally we would collect 3 percent of replacement value per year. In practice, we collect an average of 1.1 percent for facilities used by City bureaus. This allows OMF to cover immediate needs on the 5-year horizon. Over the 10-year period of FY 2006 to FY 2016, overall conditions aren't expected to decrease from the very broad categories of good, fair, and poor. Contributing to this is the relative low age of these facilities.

Since the likelihood of rental rate increases is very low, funding for major maintenance should be increased by directing savings from efficiencies identified to major maintenance until the 3 percent goal is achieved.

This high level analysis masks a large problem with a smaller facility—the Police Property Warehouse. Police Property Warehouse is in a 100-plus year old building that doesn't meet the needs of Police and has gotten to the point where it is cost-prohibitive to renovate. Since the land is better suited to more intense development (it's on the light rail line), OMF and Police are working on a project to relocate this facility. The site is in the process of being sold and the proceeds will be used to make tenant improvements in a new leased facility.

The replacement values in this report are based on replacing each facility with a new facility at like functionality at the standards of today, not the standards of when the facility was originally constructed. So for historic facilities of Union Station and City Hall, OMF has used replacement values based on what it would cost to replace these facilities with facilities that just provide the same functions at today's standards. The cost to replace does not include costs to replace it with the same level of materials and craftsmanship as the original. It would be difficult to even try to quantify this, let alone spend this level of money if the City did have to replace them.

For all facilities, except spectator facilities and Union Station, the funding gap is the annual difference between what is collected in rental rates, or set aside from net income, for major maintenance and the industry standard of 3 percent of replacement value. For spectator facilities the gap is the one-time difference between actual fund reserves for capital maintenance and a target level of \$10 million based on the costs to upgrade Memorial Coliseum and address the long-term capital needs of PGE Park. Union Station's one-time funding gap is \$45 million based on unfunded deferred maintenance, in addition to the annual gap. The annual gap of \$500,000 assumes the \$45 million one-time gap is funded to catch up on deferred maintenance and bring the building up to current standards. In other words, the \$500,000 does not stand on its own.

Confidence Level

OMF has high confidence in this assessment. It is based on a complete inventory of buildings. The conditions are assessed based on visual inspection by qualified personnel on a regular schedule.

Technology Services

General Observations

Establishing replacement values, current conditions, projected conditions, and funding gaps for technology infrastructure requires a different approach than for facilities infrastructure. Unlike buildings, technology infrastructure can quickly become unusable. This is primarily due to the short lives/quick obsolescence and the critical need to stay current with technologies that may not be supported by vendors in the future and render the technology unusable. Below is a discussion of the unique nature of BTS infrastructure replacement values, conditions and funding gaps.

800 MHz Radio System – Core System

The 800 MHz system is a system that has to be replaced prior to FY 2016 because its condition goes beyond Poor by then. The system has to be replaced prior to FY 2016 because after that time Motorola, the system's vendor, will not provide support to it. This is because the technology is becoming obsolete. The underlying component chips are old, it is an analog system, and Motorola is focusing on digital systems. We have included in the funding gap the one-time cost to replace it.

OMF has established a multi-bureau committee to address the replacement of major Public Safety technology systems including the 800 MHz radio system, BOEC CAD, and Portland Police Data System. This work, called the Public Safety Systems Revitalization Project (PSSRP), will address funding, governance, coordination, timing, and other issues related to the replacement of these major systems. The

replacement values of these systems vary depending on the approach planned and so should only be considered orders of magnitude.

800 MHz Radio System-Devices

Just as the core system has to be replaced prior to FY 2016 because the condition goes beyond poor, the system's devices which use the system have to be replaced. The one-time funding gap is the cost of replacement less money that has been collected for replacement so far. This replacement money could be used for a grant match.

Telecommunications – IRNE

The annual capital maintenance funding gap for this new system is 5 percent of replacement value. Five percent of replacement is the industry standard for large technology infrastructure and reflects the shorter life of components compared to buildings. There is currently no money in the rates for this. The original IRNE financial plan assumed that efficiencies as achieved would be retained in the rate base to provide replacement and major maintenance funding; however, the budget reduction requirements over the last few years have necessitated those efficiencies being turned into rate relief as opposed to replacement/major maintenance funding. The replacement value listed doesn't include the fiber provided to the City as part of franchise agreements and CTIC partnerships.

IT Operations

Storage Area Network (SAN) and Data networks – This infrastructure has an average life of 7 years. Our assumption about condition in FY 2016 then is based on the key infrastructure component being replaced once in the 10-year period. BTS should be collecting one-seventh the replacement value per year. However, no money is included in rates for replacement.

Email System

This infrastructure has a life of 5 years. Our assumption about condition in FY 2016 then is based on the infrastructure being replaced twice in the 10-year period. BTS should be collecting one-fifth the replacement value of the hardware per year. However, replacement has not been built into the rates until some operating experience with the new system is complete. The expectation is that the efficiencies will allow the collection of hardware replacement within the rates; however, continuing requirements from bureaus for higher availability and more rapid recovery of e-mail and files systems may require additional hardware beyond that covered within the efficiency gains. Software replacement is covered under maintenance agreements.

Mainframe (core servers)

The amount for replacement of the mainframe is based on a replacement with core servers, instead of a mainframe, as the long-term cost of specialized support for the mainframe is excessive in a mainframe operation of this size. Currently IBIS and PPDS reside on the mainframe and IBIS will go off it once the EBS is implemented. No money has been collected for the change to the core servers which will still be needed for PPDS. There are still some small financial systems that will require migration from the mainframe to allow de-commissioning of the mainframe.

Strategic Technologies - Corporate Applications

The CAD system has to be replaced or rebuilt prior to FY 2016. Doing nothing would cause the system to be unusable prior to FY 2016. The amount for replacement is based on a Louisville implementation. The PPDS system has to be replaced or rebuilt prior to FY 2016. Doing nothing would cause the system to be unusable prior to FY 2016. The amount for replacement is based on a Seattle implementation. The replacement for IBIS is funded through the EBS project and will replace an asset in poor condition with one in good condition in FY 2008. Annual maintenance of GIS and CIS are funded.

As discussed above, the replacement of CAD and PPDS is part of the PSSRP.

Confidence Level

OMF has moderate confidence in this assessment, except in the replacement values assessment where we have a moderate-low confidence level. The replacement value assessment is based on recently completed projects and the experience of other governments, but we have not had an opportunity to analyze their experiences to assess the degree of similarity. The PSSRP will increase confidence levels in major IT and communications systems.

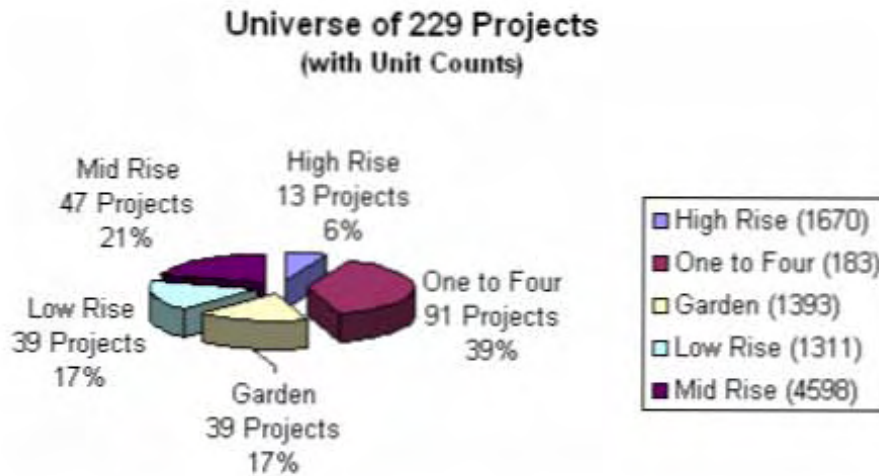
f. Affordable Housing

NOTE: Portland Development Commission/Bureau of Housing and Community Development (herein referred to as CITY)

General Observations— This is the first year the affordable housing industry has been incorporated and reflected in the City Asset Status and Condition Report. A unique feature of Affordable Housing is that the CITY does not own these assets, but has made significant public investment in projects to ensure the stock of affordable units/projects continue to be available to its citizens. It is a goal/policy of the City to implement a 60-year affordability period when public funds are utilized in the development of rental housing.

PDC and BHCD formed an advisory committee to review and validate assumptions and methodology to align Affordable Housing data for this report. This advisory committee met three times in the fall of 2006 to assist in the development of methodologies and refinement our written report. This committee will be utilized in future editions for the same purpose.

The portfolio of projects and units reflected in this report are indicated below. The projects are categorized by construction style:



These 229 projects are identified by construction style and were utilized in the development of the Current Replacement Value, Appendix 2, \$1.4 billion.

AM approach—In February of 2002, the CITY implemented asset management guidelines that were developed with the input of local housing developers. These guidelines detail reporting requirements to be met throughout the various stages of a project. A typical process for the development of an affordable rental housing project with PDC financing includes: application, reservation, commitment, loan closing, construction and asset management. PDC's Asset Management staff works with the Borrower, primarily during the last phase. PDC staff also verifies that projects meet the compliance obligations of Davis Bacon, Minority Women Emerging Small Business (MWESB), and Uniform Relocation Act provisions. At PDC, asset management involves monitoring, tracking, and evaluation for regulatory compliance and project financial performance.

Status of AM—PDC Borrower's Asset Management system has been in place, as stated, since 2002. It is well established and aligns with property and asset management standards and practices within the real estate industry.

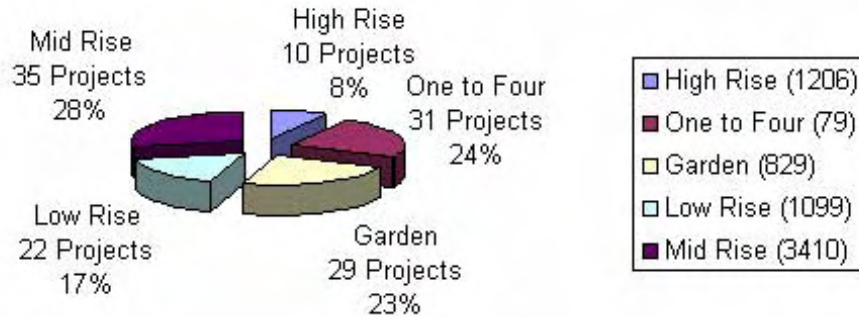
PDC, BHCD and industry partners are discussing an overall asset management policy along with procedures. It is a goal to develop holistic, high-level policy guidelines for the affordable housing portfolio that aligns with City goals. This work will commence in 2007. Current strategic policies are: "60-year" affordability term for projects; production of 20,000 units by year 2011; new construction projects to meet "accessibility" and "green building" standards (LEED); project and borrower compliance to federal regulations; and project financial performance.

Current Condition of Capital Assets (Appendix 3f): The CITY, as a lender, does not perform an in-depth physical inspection or capital needs cost assessment on the 6/30/06 affordable housing portfolio (229 projects). Therefore, for purposes of aligning to the City's report, we have developed a risk analysis methodology that

combines physical and financial conditions of the portfolio. These methodologies extrapolate the existing data on a subset of total projects in the 6/30/06 portfolio.

For 2006, 127 affordable housing projects were evaluated. Projects are in five construction styles.

**Subset of 127 Financial Reporting Projects
(with Unit Count)**



This subset (127 projects) is considered a representative share (72 percent of the 6/30/06 regulated units) of affordable housing portfolio. These units were used to develop Appendix 3f (Current Condition) and Appendix 4 (Annual Funding Gap).

Risk Calculation Methodology: Risk is divided into two categories: physical and financial. Physical Risk is assessed by the length of time, from initial construction or the last rehabilitation, repair, or remodel. Length of time is represented in years, and ranges are assigned a point value. Point values correspond to the level of risk. An incomplete repair, remodel, or rehabilitation is more risky, thus more likely to need additional funding. The CITY has defined \$15,000 per unit as the threshold between full and partial rehabilitation. Financial Condition Risk was based on standard financial ratios and whether the project is currently on or has requested a “corrective action plan” within the past 2 years.

Operating Expense Ratio - Our industry experience indicates that a ratio below 58 percent allows an adequate margin to sustain stable operations. An expense ratio above 70 percent places undue stress to the project. The Owners need to actively and aggressively review revenue and expenses to stabilize the project. This indicator strongly suggests whether the project will need additional funding to stabilize and remedy the situation.

Debt Coverage Ratio - This ratio is equal to net operating income (NOI) divided by regularly scheduled (amortized) loan payments. We anticipate additional financial indicators such as net cash flow and project reserves to be considered and used in future reports.

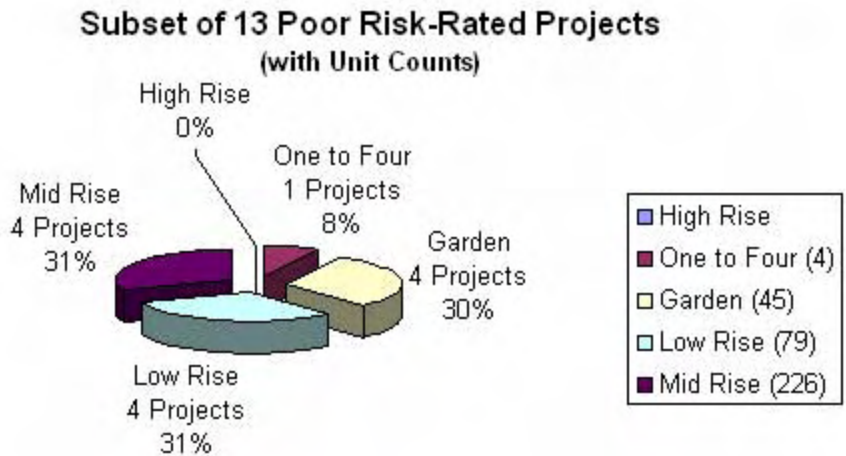
NOTE: In future editions, the CITY will explore other methodologies to generate more accurate depictions of risk and therefore future gap requirements. The affordable housing portfolio is managed as a loan portfolio, along with the additional

scrutiny of borrower compliance to regulatory and loan documentation and project financial performance.

Confidence Levels—

- Current Replacement Value (Appendix 2)—Since the CITY is a lender of public funds, provided to for-profit or nonprofit borrowers for the development and operation of the affordable housing projects, replacement value as represented in Appendix 2 is a reflection of the existing June 30, 2006, portfolio of 229 projects. These projects are broken out by construction style multiplied by the cost to produce the same construction style. The cost to produce is the most current construction cost/unit the Housing Finance Department has available based upon actual projects. The more current the construction cost, the higher the confidence level.
- Condition and Annual Funding Gap (Appendices 6b, 6c and 6d)—In accordance with standard asset management practices, current condition is evaluated by a risk calculation, where risk is categorized by physical and financial factors. An in-depth physical inspection was not necessarily conducted. However, based on the number of units reporting and the following confidence level, indicators were established: Optimal—95 percent projects reporting; High—75-94 percent; Moderate—50-74 percent; Low—less than 50 percent reporting; TBD—represents projects where additional research is required in order to assess risk.

Annual Funding Gap—While an annual funding gap number was developed to align with the City's current report structure, it may not be the most accurate way to depict the affordable housing industry's annual need. We are working to develop more accurate financial ratios and communication links. The significant difference in the funding gap for the affordable housing industry is that it should reflect the potential of any one project requesting financial assistance from the City/PDC. Better financial evaluation of current projects and better communications with our borrowers should provide us more accurate insight into a project's need for financial support to assure future sustainability. This is an ongoing collaborate effort of PDC's Housing Policy & Planning department, PDC's Asset Management department, and industry representatives.



The annual funding gap of \$10.7 million represents an estimate of units that will need additional funding to sustain the existing level of affordable housing units

available to the City. The \$10.7 million value is calculated using the 13 “poorest” risk-rated projects with the goal of improving the projects’ risks, therefore, reducing their future need for additional funding. There are 354 units in this Poor risk pool. The projected 2016 value is calculated using the “Most Current” construction cost, which is inflated by a 7 percent factor.

