


# Applying a Comprehensive Asset Management Strategy Toward Parks & Recreation Infrastructure

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# Overview

- Introduction
- The City of Ottawa Perspective
- Strategic Condition Auditing
- “Measuring Up” (Benchmarking For Life Cycle Renewal Planning)
- Life Cycle Renewal Policy Development
- Strategic Asset Management & Divergence Analysis

# City of Ottawa

## Asset Management Business Philosophy

### KEY ELEMENTS

- Implement a “Centre of Expertise” business model.
- Establish the role of the “Corporate Landlord”.
- Create an organizational structure with distinct business units supporting Property Management and Asset Management functions.
- Align property and asset management budget authority with the Real Property centre of expertise.

# The “Corporate Landlord”

- Assumes the responsibility for the development, management and sustainability of real property assets
  - Portfolio and Corporate Asset Performance Management
  - Facility Performance and Life Cycle Renewal Management
- Acts as the prudent “owner-investor” with respect to real property.
- Ideally retains authority for the allocation and rationalization of the real property asset base
- Establishes a whole-life cost profile of the real property inventory and identifies the implications of client department service delivery on that profile.

# Comprehensive Asset Management Principal Lines of Business



1. Capital Asset, Portfolio and Life-Cycle Renewal Planning
2. Life Cycle Renewal Program Execution
3. Validation, Inspection and Audit
4. Barrier Removal and Accessibility Management
5. Support for Corporate Initiatives
6. Property Solution Analysis and Development
7. Asset Rationalization

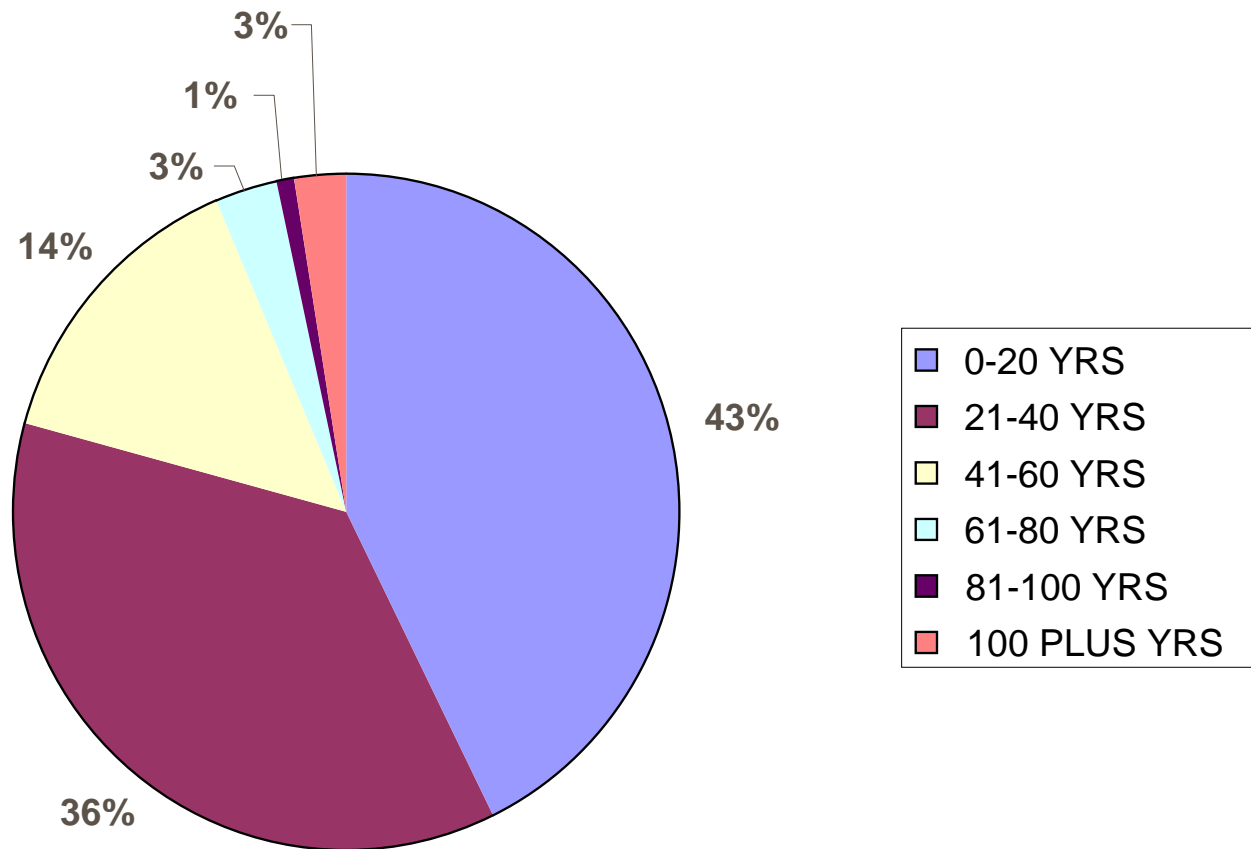
# Current Building Portfolio Distribution

## Primary Building Stock City of Ottawa

FACILITY GROUP	QUANTITY	TOTAL AREA (SQFT)	AVERAGE AGE (YRS)	TOTAL REPLACEMENT VALUE
ARTS AND CULTURE FACILITY	76	503,929	67	\$ 95,780,000
CIVIC ADMINISTRATION FACILITY	22	1,147,689	34	\$ 140,590,000
GENERAL PURPOSE FACILITY	212	1,019,452	31	\$ 135,150,000
PROTECTIVE SERVICES FACILITY	56	853,542	21	\$ 144,450,000
PUBLIC WORKS FACILITY	152	3,380,078	22	\$ 535,840,000
RECREATION FACILITY	158	3,075,385	34	\$ 557,080,000
SOCIAL SERVICES FACILITY	18	523,604	28	\$ 77,010,000
TRANSIT SERVICES FACILITY	35	1,159,489	19	\$ 215,970,000
<b>TOTAL</b>	<b>729</b>	<b>11,663,168</b>		<b>\$ 1,901,870,000</b>

# Building Portfolio Vintage

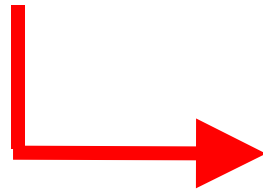
## City of Ottawa



# Capital Reinvestment

## The “TASCU” Factor

- Facility **T**ype (Complexity)
- Facility **A**ge and Projected Lifespan
- Facility **S**ize (Area)
- Facility **C**ondition
- Facility **U**tilization



**LEVEL OF INVESTMENT**



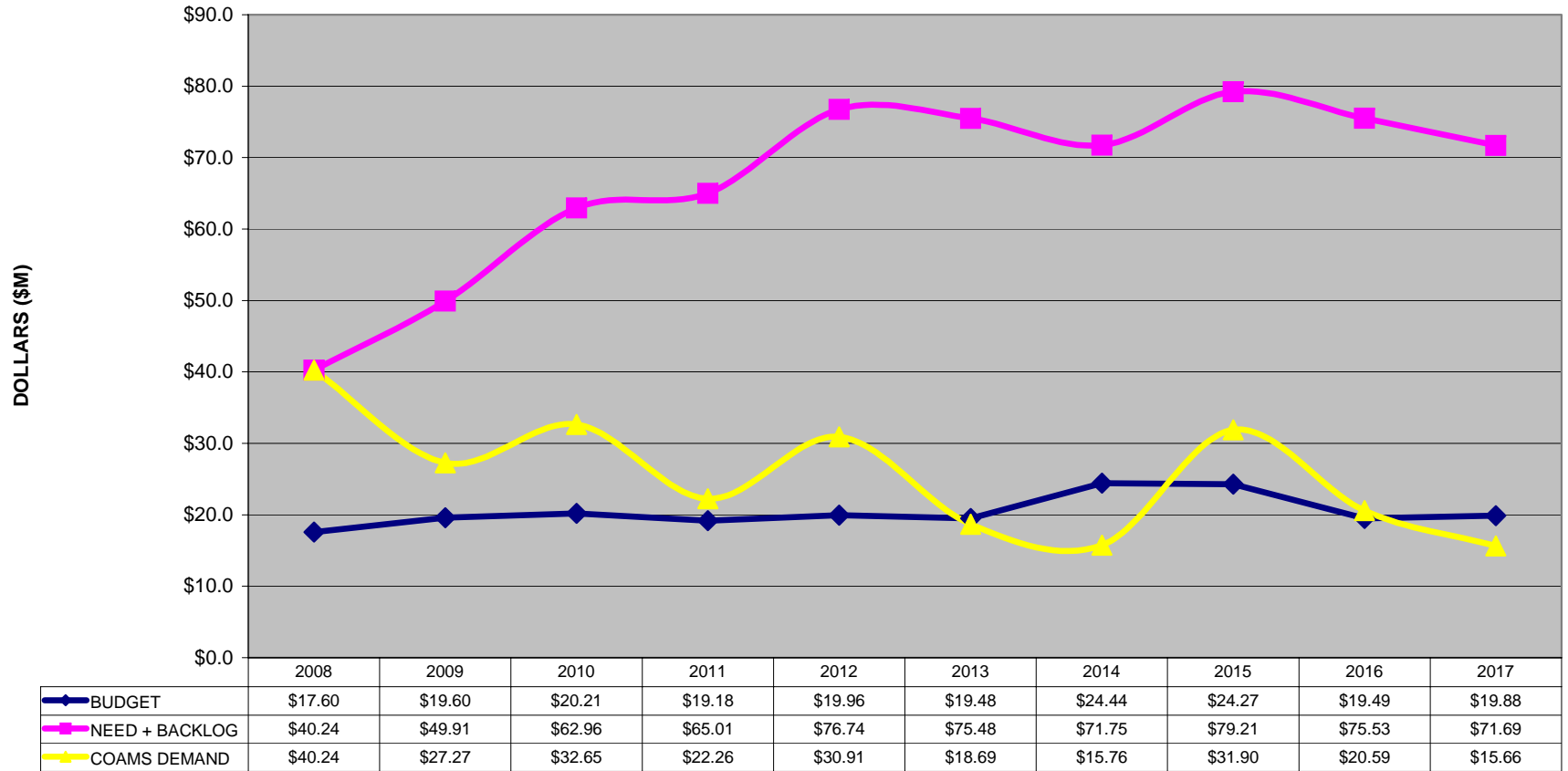
# A Convergence of Crises

The Life Cycle Renewal  
Funding Challenge

# City of Ottawa Life Cycle Renewal Capital Programs

- Life Cycle Renewal – General Buildings
- Life Cycle Renewal – Parks & Sites
- Life Cycle Renewal – Heritage Properties
- Life Cycle Renewal – Transit Facilities
- Life Cycle Renewal – Library Facilities

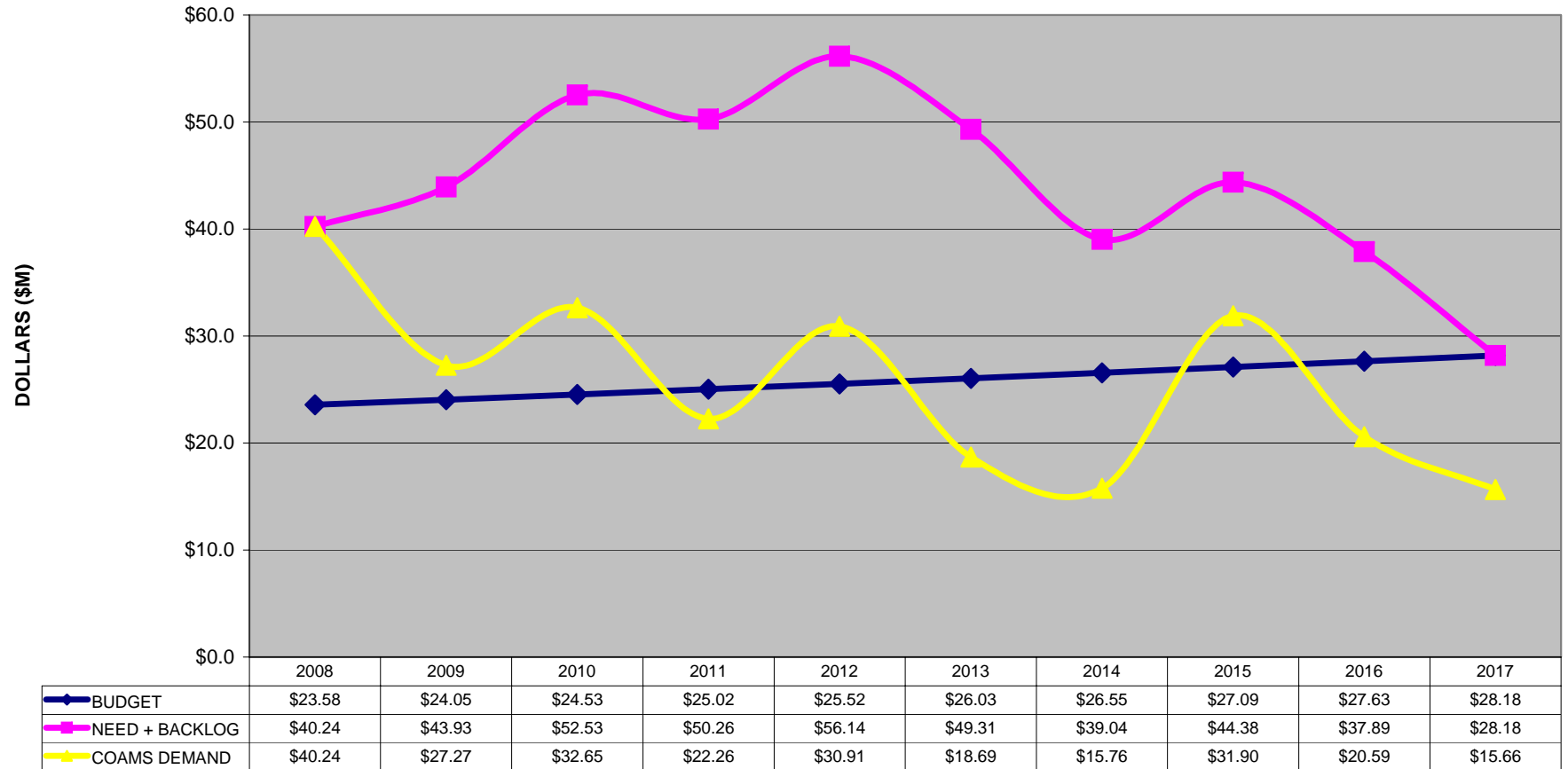
## CURRENT LIFE-CYCLE DEMAND AND FUNDING GENERAL BUILDINGS PORTFOLIO



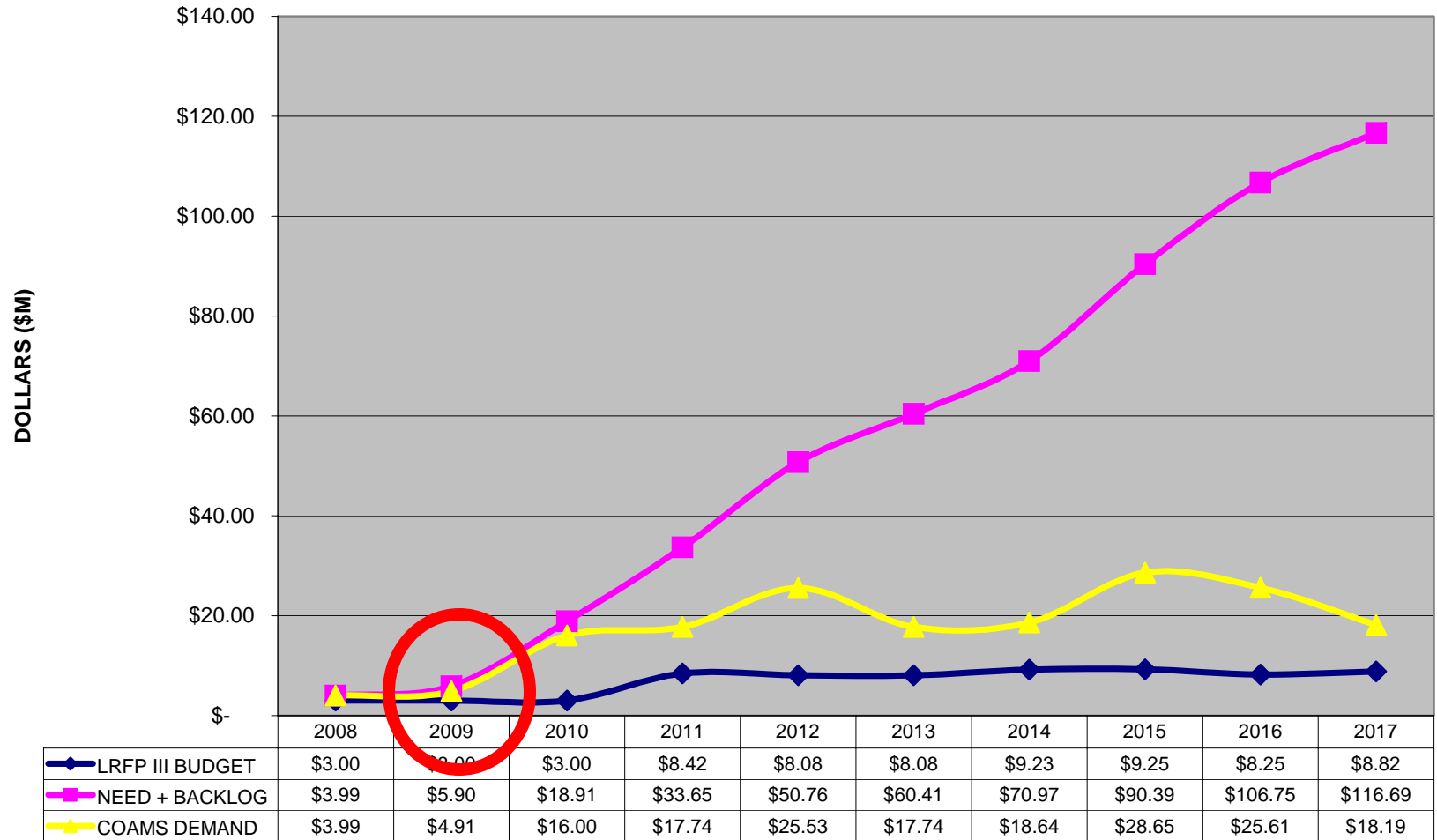
What happens when “deferred load” exceeds funding capacity?



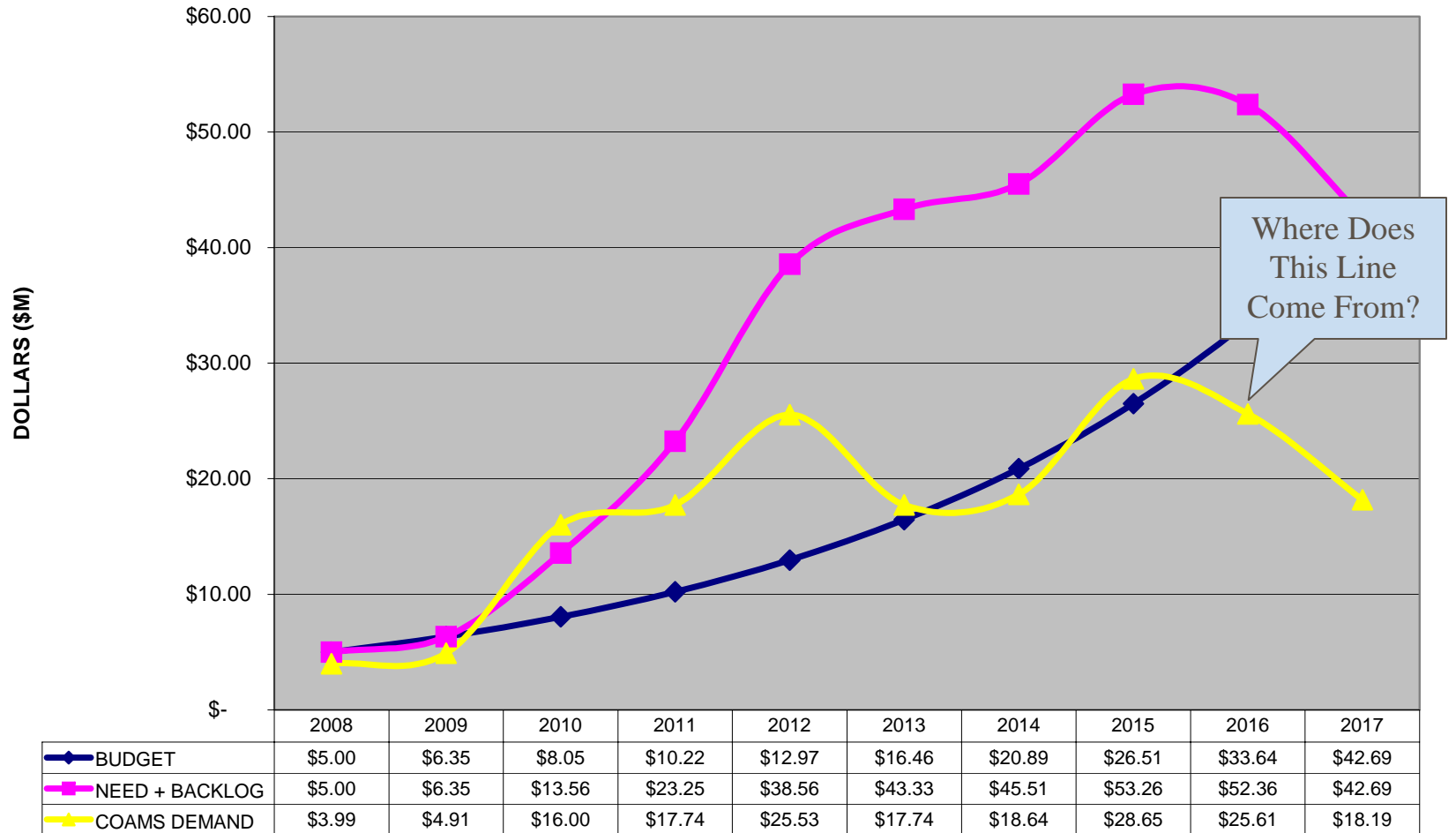
## CORRECTIVE FUNDING PROFILE GENERAL BUILDINGS PORTFOLIO



## CURRENT LIFE-CYCLE DEMAND AND FUNDING PARKS PORTFOLIO



## CORRECTIVE FUNDING PROFILE PARKS PORTFOLIO



# When Can We Expect Sufficient Funding?



# Condition Auditing



Validating and Prioritizing the  
Funding Need

# Condition Auditing

- Condition auditing is a powerful mechanism to validate and logically prioritize competing life-cycle renewal needs.
- Condition auditing supports effective risk assessment and mitigation.
- Condition auditing bases the decision to implement or defer a life-cycle renewal event on the observed condition of the asset and not on a theoretical (modelled) service lifespan interval.

# Building Condition Audit Types

Level	Audit Type	Outcome
1	<b>Type I, II or III, General Building Condition Audit</b>	<ul style="list-style-type: none"> <li>■ 5-15 year capital reinvestment and life-cycle forecast</li> <li>■ Identification of immediate or evolving risks to persons or property</li> <li>■ Identification of code issues.</li> <li>■ Identification of issues associated with maintenance practices.</li> </ul>
2	<b>Category Specific Building Systems Audit (Fire and Life-Safety Systems, e.g.)</b>	<ul style="list-style-type: none"> <li>■ Recommendations and costing data required to ensure continued code-compliance within the CATEGORY</li> <li>■ Provision of affordable refit, renewal or replacement strategies within the CATEGORY.</li> <li>■ Identification of specific systems within the CATEGORY which are non- code compliant or deficient</li> </ul>
3	<b>System Specific Assessment (Fire Alarm System, e.g.)</b>	<ul style="list-style-type: none"> <li>■ Recommendations and costing data required to ensure continued code-compliance for the precise system</li> <li>■ Provision of affordable refit, renewal or replacement strategies for the specific system or assembly.</li> </ul>

# Outcomes of the Condition Audit Program

- The City's 20 year long range capital forecast currently identifies some **\$148 M** in planned life-cycle renewal or remediation works arising directly from the facility condition audit program.
- **65%** of the City building inventory has been subject to comprehensive audit.
- Planned 10-Year Type II-G External Audit Work: **168 Audits, value \$2.952M.**
- Planned 10-Year Type II-H (Heritage) External Audit Work: **59 Audits, value \$311K**
- Planned Fire and Life-safety system renewal projects identified within the next ten years: **174, value \$6.65M**

# “Measuring Up”



Establishing Benchmarks and Indices  
For Effective Life-Cycle Planning

# The Facility Condition Index (FCI)

- At a basic level, the FCI is calculated by dividing the existing Cost of Deferred Maintenance (DM) for a subject facility by the Current Replacement Value (CRV) for that same facility. Specifically;

$$\text{FCI} = \frac{\text{DM}}{\text{CRV}}$$

- The result, usually expressed as a percentage, is the calculated Facility Condition Index for the subject building.

# The Facility Condition Index (FCI)

- It is the position of the Comprehensive Asset Management Division that to be effective the FCI must indicate the true relative condition of the facilities within the Corporate Portfolio.
- To accomplish this, one must consider all major repair and replacement events including those which have been subject to deferral, those which are immediately pending and those which have been planned *and validated (by audit)* within a reasonable strategic planning window (10 Years).

# The Facility Condition Index (FCI)

- The FCI calculation methodology applied at the City of Ottawa is as follows;

$$FCI = \frac{\sum VE}{ERV}$$

- Where  $\sum VE$  equals the total cost of all validated life-cycle renewal and major repair events identified within a ten-year strategic window from the current date, and where;
- ERV equals the effective replacement value of the subject facility.

# Considering “Replacement Value”

- An understanding of replacement value is essential to developing an effective funding strategy for life-cycle renewal. Depending on requirements, there can be three different replacement values for buildings.
- 1. **Reproduction Value (Full Project Cost):** The reproduction value is considered to be the full project cost, in current dollars, required to “copy” the asset on an existing, owned and serviced land mass of appropriate size and configuration.
- 2. **Replacement Value (Comprehensive):** The comprehensive replacement value (CRV) is considered to be the hard construction cost in current dollars, required to replace the operational and functional capability of an existing asset on an owned and serviced land mass of appropriate size and configuration.

# “Effective” Replacement Value

3. **Replacement Value (Effective):** The effective replacement value (ERV) is considered to be the hard construction cost in current dollars, required to replace the substantive and renewable elements of an existing asset on an owned and serviced land mass of appropriate size and configuration.
- The ERV is on the order of 80% of the CRV and excludes foundations and other elements which do not require life-cycle renewal for the service lifespan of the facility. ERV is typically applied only in calculating capital reinvestment requirements.

# The PII Concept

- While the FCI is a generally effective measurement of building condition, and therefore an indicator of required investment level, there is no corresponding concept for developed parks.
- The City of Ottawa is working on the development of a Parks Investment Index (PII) which may serve to support appropriate reinvestment for the Parks Portfolio in the near future.

# The PII Concept

- **Parks Investment Index (P.I.I.):** The Parks Investment Index is a measure of the level of capital reinvestment for a specific park site.
- The PII is the ratio of the planned annual capital investment (averaged over a ten-year period), PCI, to the required annual capital investment, RCI. The ratio can therefore be expressed as;

$$PII = \frac{PCI}{RCI}$$

- The RCI is calculated based on an inventory of the replacement value and normal lifespan of all the renewable assemblies located on the site
- A PII of 1.0 is considered ideal, a PII of less than 1.0 represents an underinvestment profile, while a PII of more than 1.0 represents overinvestment in the park site.

# Life Cycle Renewal



Building the Policy and  
Administrative Framework

“Given the significance of infrastructure, both in terms of the original investment and the costs associated with operating and maintaining it, a local government should provide information about its infrastructure management plans.”

*Guide to Accounting for and Reporting Tangible Capital Assets*

# Comprehensive Asset Management Strategy

- Preventive Maintenance
- Life Cycle Renewal
- Asset Capacity

# Life Cycle Renewal Policy

## Purpose of Policy

- Clarify eligibility for funding
- Govern the capital LCR programs
- Ensure that limited funds are directed to projects of highest priority
- Work to achieve a financially sustainable portfolio
- Achieve solid comprehension of terms

# Life Cycle Renewal Policy

## Key Definitions

- Life cycle renewal = “planned replacement”
- Capital repair = extends life of asset
- Capital rust-out = physical deterioration
- FCI = Facility Condition Index
- Modification = a “betterment”
- Asset vocation = mission of facility
- Asset Capacity = financial sustainability

# Life Cycle Renewal Policy

## Eligibility

- Definition of capital
- Application-specific assets
- Total facility replacement
- Temporary structures

# Life Cycle Renewal Policy

## Asset Management

- Influence of FCI
- Functional audit/obsolescence
- Divergence analysis
- Excessive FCI's
- Role of asset rationalization
- Sharing of proceeds of sale

# Life Cycle Renewal Policy

## Capital Forecasting

- Modeled vs validated data
- COAMS
- Capital prioritization tool
- Due diligence
- Risk Assessment

# Strategic Asset Management Portfolio Planning



A Solution for Effective Life-Cycle  
Planning and Asset Management

# Strategic Asset Management Plans

- Understanding the condition of capital assets
- Assessing the performance of capital assets
- Anticipating the needs for replacements in the short and long term
- Assessing the cost & sustainability of existing programs

# Strategic Asset Management Plans

In the absence of A/M plans, the following problems may occur:

- Poor use of assets
- Failure to rationalize surplus assets
- Significant variation in operating costs between locations
- Inadequate management information
- Deteriorating physical condition of stock
- Continuing maintenance of uneconomic assets

# Divergence Analysis

- Portfolio plans are a logical outcome from A/M work
- DA was developed as a prototype process to deliver effective real property portfolio planning
- Examines property type & functional capacity from a holistic viewpoint

# Divergence Analysis

Three factors are reviewed in DA

1. Design
  2. Affordability
  3. Utilization
- Applicable indices establish the relative profile for the subject properties and ultimately identify the degree to which each property is convergent with a contemporary service delivery and performance standard

# Divergence Analysis

- The design/affordability/utilization indices are Key Performance Indicators (KPI's)
- Could support benchmarking initiatives
- Tangible Capital Assets (TCA) reporting

# Divergence Analysis

- Portfolio Plan Summary from DA serves as a rationalized guideline for the re-investment, replacement or abandonment of subject facilities
- Mechanism to capture costs for capital budgeting and capital forecasting (LRFP)
- Considered to be adaptable & dynamic
- Suitable for application to any real property portfolio

# Arena Divergence Analysis

<b>ITEM</b>	<b>VALUE</b>
<b>Total Number of Facilities</b>	22
<b>Number of Single Pad Seasonal (8 Month or less) Arenas</b>	17
<b>Number of Single Pad Annual (11Month) Arenas</b>	5
<b>Total Portfolio Gross Building Area (SqFt)</b>	665,153 Sf
<b>Total Portfolio Effective Replacement Value (2005 Dollars)</b>	\$117.454M
<b>Average Age of The Portfolio In Years</b>	33 Yrs.
<b>Average Economic Lifespan of the Portfolio (Years)</b>	45 Yrs.
<b>Average Facility Condition Index For The Portfolio</b>	22.1
<b>Nominal Facility Condition Index For Portfolio Type</b>	15-18
<b>Total Annual RPAM Operating Cost For The Portfolio (2005 Dollars)</b>	\$9.814M
<b>Total Annual Cost For The Portfolio (incl. Life-cycle &amp; Program Delivery Costs)</b>	\$12.737M
<b>Total Annual Revenue For The Portfolio (2005 Dollars)</b>	\$5.279M
<b>Average Cost/Revenue Ratio (All Sources) For The Portfolio (2005 Dollars)</b>	2.30:1
<b>Total Life-Cycle Renewal Investment For The Portfolio (10 Yr. Window)</b>	\$25.930M

Portfolio Summary

# Arena Divergence Analysis

- 56 different design criteria were developed, weighted and scored
- For each criteria, a model value was established which would describe that element in terms of contemporary performance requirements and service delivery needs
- Process clearly identified need for City to undertake program rationalization and confirm program horizon

# Arena Divergence Analysis

Some Key Observations:

- On average, the single pad arena portfolio operates at a total cost to revenue ratio of 2.3 to 1
- The portfolio is aging with no single facility having more than 50% of its economic lifespan remaining
- The average facility condition index for the portfolio is 22.
- There is an observed difference in the average utilization profile for single pad arenas within rural, suburban and urban service delivery areas

# Arena Divergence Analysis

Some of the Recommendations:

- City immediately minimize capital re-investment in single pad arenas where 20% of the economic lifespan remains and where the current FCI is greater than 30%.
- Arena “twinning” only be considered for urban and suburban service delivery areas
- ADA report be reviewed and incorporated with the outcomes and findings of the Parks and Recreation “Arena Service Delivery Study”.

# Wrap-Up

Question and Answer Period

