MASON & MASON
CAPITAL RESERVE ANALYSTS, INC.

MEMBER OF community ASSOCIATIONS INSTITUTE

(Final Report, Revised August 11, 2015)

Condition Assessment
&
Reserve Fund Plan Update
2015

Sample

Bethesda, Maryland

Prepared for:
The Sample Towers Mutual Housing Corporation

MASON & MASON
CAPITAL RESERVE ANALYSTS, INC.

MEMBER OF community ASSOCIATIONS INSTITUTE

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August 11, 2015

Mr.., CMCA, AMS, General Manager
The Sample
5225 Road
Bethesda, Maryland 20814-2052

RE: **CONDITION ASSESSMENT AND RESERVE FUND PLAN UPDATE 2015**
The Sample
(Final Report, Revised August 11, 2015)
Bethesda, Maryland
Project No. 7772

Dear Mr.:

Mason & Mason Capital Reserve Analysts, Inc. has completed the report for The Sample

The final report reflects some minor scheduling revisions, changing the Interest Income from 0% to 1% to replicate what has been the practice for the past several years, and the addition of the Deli architectural and MEP assets. These revisions were discussed during staff revision meetings with Walt D'Ascenzo on the 29th of July and with James Mason and N.K. Mason on August 5, 2015.

We genuinely appreciate the opportunity to again work with you, your staff, and The Sample Towers Mutual Housing Corporation.

Sincerely,

Mason & Mason Capital Reserve Analysts, Inc.

James G. Mason, R. S.
Principal

N. K. Mason, R. S.
Principal

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RESERVE FUND PLAN

FOREWORD

PLEASE READ THIS FIRST

This report contains information the Board requires to fulfill its fiduciary responsibilities with respect to the financial health of the Association. Even if you are already familiar with the concepts of capital reserve planning, it requires some study. The information in this report is vital to your Association's financial health. Unless you understand it, your Association may not follow it. This may lead to underfunding and financial stress at some time in the future.

Our years of experience providing reserve analysis to both first-time and multi-update return clients have compelled us to develop a logical funding approach, which is based on generational equity and fairness to common-interest property owners that helps ensure realistic reserve funding levels.

Our approach is neither standard, nor is it necessarily easy to understand without first becoming familiar with some basic concepts. Section 3 explains these concepts in more detail. We want you to understand them because a well-informed Association makes the best decisions for its common-property owners.

SUMMARY OF KEY ISSUES

Different readers will look for different things from this report. Perhaps the *homeowner* will just be looking for the high points. A *prospective buyer* may be looking at the general financial condition of the Association's reserves. A *Board member* should probe deeper in order to understand the financial tools that will be helpful in fulfilling their fiduciary responsibilities to the Association.

The Summary of Key Issues presents a recapitulation of the most important findings of The Sample's Reserve Fund Plan Update. Each is discussed in greater detail in the body of the report. We encourage the reader to "go deeper" into the report, and we have written it in a way that's understandable to a first-time reader.

Between the draft and final submittal, a significant change of including interest income was made to the reserve fund plan. This had a positive effect on reserve funding going forward.

- The reserve fund is approximately **41%** fully funded for the current cycle. **This is a higher level than in 2012 and there have been projects of substantial cost completed in the interim. Our goal is to become fully funded by the end of the 20-year period (2034).**

In order to achieve this goal, the PTMHC should:

- Adjust the **2015** annual contribution in **2016** by **2.23%**, and plan on continuation of these annual adjustments thereafter.

Supporting data are contained in the body of this report, and we encourage the reader to take the time to understand it.

VISUAL EVALUATION METHODOLOGY

The first step in the process is collection of specific data on each of your community's commonly-held components. This information includes quantity and condition of each included component. We collect most of this data during the on-site field survey. When this information is not available in the field, we may obtain it by discussion with those knowledgeable through management or service activities.

The field survey or condition assessment is visual and non-invasive. We don't perform destructive testing to uncover hidden conditions; perform operational testing of mechanical, electrical, plumbing, fire and life safety protection; or perform code compliance analysis.

We make no warranty that every defect has been identified. Our scope of work doesn't include an evaluation of moisture penetration, mold, indoor air quality, or other environmental issues. While we may identify safety hazards observed during the course of the field survey, this report shouldn't be considered a safety evaluation of components.

Replacement costs are sometimes based on published references, such as R. S. Means. However, our opinions of replacement costs usually include removal and disposal and are usually based on experience with similar projects including information provided by local contractors and reported client experience. Actual construction costs can vary significantly due to seasonal considerations, material availability, labor, economy of scale, and other factors beyond our control.

Projected useful service lives are based on statistical data and our opinion of their current visual condition. No guarantee of component service life expectancies is expressed or implied and none should be inferred by this report. Your actual experience in replacing components may differ significantly from the projections in the report, because of conditions beyond our control or that were not visually apparent at the time of the survey.

1. INTRODUCTION

1.1 Background: The Sample is a 1,071-unit apartment cooperative located at 5225 Road in Bethesda, Maryland. It is situated on a rolling, wooded, 24-acre site, with a single main asphalt drive and two secondary drives providing access to the main entrance porte-cochere, three parking garage entrances, service entrances, and multiple outdoor parking areas. The complex is comprised of two, eighteen-story, residential towers and a two-story connecting structure housing the main lobby, management offices, community spaces, retail spaces, and professional spaces. The central section between the towers contains a three-level parking garage, an indoor and an outdoor pool, and a large outdoor plaza. Construction of the complex was completed in 1972.

The structure of the buildings is cast-in-place concrete columns, beams and floor slabs and concrete masonry unit backup walls with brick masonry façade. Balconies are cantilevered extensions of the floor slabs. The two elevated parking garage slabs are post-tensioned, cast-in-place concrete. The grade-level parking garage slab is cast-in-place concrete.

We are providing the Condition Assessment and Reserve Fund Plan Update based on Proposal Acceptance Agreement No. 7772 dated July 25, 2014. Our services are subject to all terms and conditions specified therein.

Mason & Mason did not review the declarations, covenants, or other organization documents pertaining to the establishment and governance of the Sample Towers Mutual Housing Corporation (STMHC). Ultimately, the establishment, management, and expenditure of reserves are within the discretion of the SPTMHC and its Board pursuant to their organizational documents and subject to the laws of the applicable jurisdiction. We are not otherwise financially associated with the Management Company or STMHC, and we therefore do not have any conflicts of interest that would bias this report. Information provided by Management and its staff is deemed reliable. This report is not intended to be an audit or a forensic investigation. This report is not a mandate, but is intended to be a guide for future planning.

Mason & Mason submitted the first Level I Condition Assessment and Reserve Fund Plan for The Sample in 2000, a Level III Administrative Update in 2003, and Level II Condition Assessment and Reserve Fund Plan Updates in 2005, 2009, and 2012. This report is an additional Level II Condition Assessment and Reserve Fund Plan Update for 2015. It is intended to be a stand-alone document and reference to previous reports should not be necessary as narratives and historical data have been brought forward and updated.

On May 13, 2015, James Mason, R. S., and N. K. Mason R. S. conducted an interview with Mr.., General Manager, Mr., Site Manager, and Mr., Chief Engineer to review the work that has been accomplished since the 2012 update, to review any work that has been deferred, and to discuss changes in scheduling and new issues that have developed. The architectural visual condition assessment was conducted for the remainder of the day. An additional meeting was conducted by Mr. Walt D'Ascenzo on May 14, 2015, with Mr., Chief Engineer, Mr., and Mr. to focus specifically on MEP, FLS, and elevator issues and to conduct the visual condition assessment of those specific components and systems.

All costs were reviewed and appropriate increases and decreases were made based on market conditions, actual contracts, and proposals provided by Management. Some older contracts referenced in the narratives have been adjusted by appropriate market cost increases. A second staff revision meeting was held with Walt D'Ascenzo on July 29, 2015 and James Mason and N.K. Mason on August 5, 2015.

The Market/Deli was completely re-fitted in 2009 when the Sample took over responsibility for the operations. The refit included new walk-in refrigerators and freezers and new open and closed refrigerated displays. Also included were static display shelving and upgraded power distribution and mechanical room exhaust. The day to day operations are conducted by an independent business, but the major components such as refrigeration units and interior architectural surfaces are now the responsibility of STMHC. These components have been added to the reserve inventory.

1.2 Principal Findings: As in every previous update, the common assets appear to be in continuing overall improving good condition. The Management team, having been in place for approximately ten years now, functions at a very high level. They have an in-depth knowledge of all the various systems and seek professional guidance when appropriate. They were again quite responsive to our requests for back-up data, required proposals, and evaluations, which add depth and accuracy to the update reports. The Board and Management continue to be very pro-active in the on-going preventive maintenance and restoration activities at The Sample. Representative projects accomplished in recent years, starting about 1995 with many since 2005, include:

- Major elevated garage deck structural restoration
- Balcony repair project including railing post pockets and coatings
- Exterior façade brick tuckpointing and repair
- Masonry soft sealant replacement
- Garage masonry wall restoration including anchoring wall to floor slabs
- Full tennis court restorations
- Tennis court lighting upgrade
- Garage lighting fixtures
- Full window replacement
- Second full elevator modernization
- North and South Tower re-roofing
- Lobby re-roofing
- Residential and commercial centrifugal chiller replacement
- Residential and commercial cooling tower replacement
- Underground storage tank replacement
- Plaza deck and membrane restoration
- Drainage and waterproofing below-grade improvements
- Garage elevated deck coatings
- Purchase of new laundry equipment
- Roof top ventilation fan replacements
- South Tower electrical switchgear replacements
- New upgraded stand-by generators
- Arcade lighting fixtures
- Corridor and elevator lighting fixtures
- Complete fire detection and alarm system
- Domestic water steam-to-hot water heat exchangers and storage tanks
- Corridor air-handling units
- Electric motor phase monitors
- Electric motor variable frequency drives (VFDs)
- Residential fan-coil units and associated HVAC riser piping
- Outdoor swimming pool filtration equipment
- Complete refitting of the Market/Deli refrigeration systems

The Apartment Cooperative is now approaching its 45-year benchmark in terms of major replacement and restoration. Because of the large, complex scale of the facility, restoration projects run continuously.

The asphalt pavement has been scheduled for partial rather than full restoration due to the varying conditions of different areas. This cycle will focus on a major section of the main drivelanes. The west parking lots will be deferred for a few additional years.

The site chain link fencing will require a survey to determine property lines and since the adjacent properties on both the east and west are or will be under development, it would be best to defer replacement of the fencing until these issues are resolved.

The building façade and balcony components have now completed a significantly up-scaled restoration over what was originally anticipated, although some balcony surface coatings are beginning to peel and will require localized remediation prior to the next full project. It would also appear that the window sealants will be capable of additional service and have been rescheduled appropriately.

The focus for the 2015 update will be the full restoration of the corridors, which will also include the Service Lobbies. Two model trial designs are being installed currently. A conservative version is on 2nd Floor North Tower and a costlier version will be completed on 2nd Floor South Tower. Cooperative members will be able to view the two examples. The costs projected for the more expensive design has been included in the reserve fund plan for now.

Full replacement of the domestic water piping has been considered, but the repair frequency so far does not justify that approach. Another option worth considering, and we have programmed it in this update, would be the refinishing and coating of the interior of all the domestic water piping with epoxy (essentially a potable-water-rated plastic resin). The estimated cost to perform this work, as provided by one of three known companies providing the service, runs approximately 45% of the full replacement cost and is much less intrusive.

The scheduled fan coil replacement project was completed in 2014. We understand that there are about 82 hydronic black steel insulated risers that were replaced with type M copper risers along with fan-coil unit replacements as finishes were opened to enable access. Any required asbestos abatement was also conducted as part of the project. As part of the project, Management arranged a plan where all of the fan coils were purchased at the beginning of the first phase year and insured and stored at the supplier's warehouse until needed.

The elevator modernization included replacement lift machinery powered by A.C. motors controlled by variable frequency drives (VFDs) with a hybrid electronic/electrical relay control system for each elevator. The scope of work also brought the elevators into compliance with the Americans with Disabilities Act (ADA).

The fire alarm and detection system involved full replacement and upgrade to modern standards including all peripheral devices. The scope of work included ADA compliant voice evacuation and strobes, corridor smoke detectors, and fire fighter telephone communications. The system includes emergency dial-out over dedicated telephone lines to emergency services. Due to the proprietary nature of addressable systems and the fact that all of the peripherals have electronic circuits that are poled by the control panel, the next replacement cycle will probably require full system replacement.

In order to maintain the physical attributes that preserve property values and promote a safe environment for occupants, guests, employees, and service personnel, a series of additional large first- and repeating-cycle capital expenditures should be anticipated over the course of the next twenty years. Consequently, we have scheduled near-, mid-, and late-term restoration and replacement projects based on the direction of Management and anticipated need from our experience with similar properties.

Generally, our approach is to group appropriately related component replacement items into projects. This creates a more realistic model and allows a grouping time line that is more convenient to schedule and logical to accomplish. Please see the **Table 1 Discussion, Column 17, and the Air Handler and Exhaust Fan Schedule in Section 6**, for specific information.

2. FINANCIAL ANALYSIS

We track the annual inflation rate among our clients based on their reported costs for typical services. A 3.5% annual rate reflects their general pre-recession experience. However, currently we are seeing somewhat lower rates and we are using 3%. Interest income has dropped substantially, and many smaller Associations and Condominiums are reduced to savings accounts or certificates of deposit, which are yielding only 1% or less. Interest income has been included for the first time in the final report.

2.1 Calculation Basics: The Sample is on a calendar fiscal year. Management reported that the un-audited reserve fund balance, including cash and securities, as of **December 31, 2014,** was **$6,288,289**. We have used a **1%** annual interest income factor and a **3.0%** inflation factor in the calculations. The total expenditures for the twenty-year period for both the **Cash Flow Method** and **Component Method** are projected to be **$65,862,042**.

2.2 Current Funding Analysis, Cash Flow Method (Table 3): The 2015 annual contribution to reserves has been set at **$4,216,380 with a presumed 3% annual increase**. At this level, the total for all annual contributions for the twenty-year period would be **$113,295,710**, and the total interest income is projected to be **$6,146,049**. **This funding results in slightly higher balances throughout the twenty-year period and exceeds the fully-funded goal.**

2.3 Alternative Funding Analysis, Cash Flow Method, Hybrid Approach (Table 3.1): This plan provides the annual contributions necessary to maintain balances more consistent with the **fully funded goal by providing an annual adjustment factor of 2.23%. This plan allows for a gradual increase over time and addresses generational equity issues going forward.** The total for all annual contributions for the twenty-year period would be **$104,830,517** and the total interest income is projected to be **$5,612,353**. The **fully funded** balance in **2034** is **$50,869,117.**

2.4 Funding Analysis, Component Method (Table 4): This method of funding would require variable annual contributions, averaging **$5,164,816** over the twenty-year period. The total for all annual contributions would be **$103,296,318**, and the total interest income is projected to be **$7,146,552**. The **fully funded** balance in **2034** is **$50,869,117**. The Component Method model considers the current reserve fund balance in computing individual component contributions for current cycles. The Component Method model distributes the current reserve fund balance proportionally to all components prior to calculating the individual component contributions for each component cycle.

3. METHODS OF FUNDING

Once the data are compiled, our proprietary software produces two distinct funding methods. These are the **Component Method and Cash Flow Method**. Each of these methods is used in analyzing your Association's reserve status and each plays a role in the Board's decision on how to fund reserves. While we provide the guidance, the choice of funding method is ultimately the prerogative of the Board. Considering the vulnerability of the Association's assets, its risk tolerance, and its ability to fund contributions, the Board should decide how the Association will fund its reserves and at what level.

3.1 Component Method: As reserve analysts, we recognize the value of Component Method calculations as they address both future replacement costs and the time remaining to fund them. **This is the foundation of the savings concept. You will see the term "fully funded." This simply means you are on schedule, in any given year, to accrue sufficient funds by the component's replacement date. It does not mean you must have 100% of the funds ahead of time.** Simplified Example: A component projected to cost $1,000 at the end of its 10-year life cycle would require a $100 annual contribution in each of the 10 years. As long as you follow this contribution plan, the component is "fully funded."

Prior to determining the actual required annual contribution, a complex calculation apportions the existing reserve fund to each component. Each component's remaining unfunded balance forms the basis for the required contribution going forward.

Funds set aside for replacement of individual components are not normally used for the replacement of other components, even though the funds reside in the same bank account. In rare cases where a reserve fund is actually overfunded, $0 will be displayed on the Component Method tables, indicating that the component is fully funded for that cycle.

While the time basis for the report is a 20-year period, the Component Method allows for inclusion of long-life components that may require replacement after the specified period. **This allows for funding of long-life components contemporaneously, which is fundamentally fair if they are serving the current owners. This is in contrast to saying "if it doesn't require replacement within our 20-year period, we're going to ignore it."**

Due to replacement cycle time and cost differentials, the Component Method typically results in annual contribution fluctuations, which often makes it difficult for a Board to implement. **However, its guidance is essential and invaluable for understanding funding liabilities and making informed recommendations.** Table 4 shows these calculations, as well as projects interest income, expenses with inflation, and yearly balances, which will be "fully funded."

3.2 Cash Flow Method: The Cash Flow Method is easier to implement. It is a simple 20-year spread sheet that includes the starting balance, current contribution, interest income, inflation rate, projected expenses, and resulting yearly balances. The Cash Flow Method pools the contributions allocated to each of the Association's common components into a single "account."

Table 3 shows these calculations. This table reflects the information you provided on your reserve fund balance and current contribution. It also shows projected yearly positive or negative balances. **The Cash Flow Method doesn't include replacement funding for anything beyond the 20-year period, thus leaving a potential shortfall in funding and failing to address generational equity if not specifically set to do so.** It doesn't provide any real guidance beyond the basic information. There are several variations on cash flow goals such as Threshold Funding (just enough to stay positive) and Percentage Funding (a predetermined level based on some arbitrary percentage), but these schemes don't address the reality of fully funding, and typically are just a way of passing the obligation on to the next generation.

3.3 Hybrid Approach: Please note that this is not a method, rather a way (approach) for us to utilize the Cash Flow Method, while insuring the appropriate funding levels are achieved long-term. Our Hybrid Approach uses the projected fully funded balance at the end of the 20-year period from Table 4 as a funding goal. We then set up Cash Flow funding plans. Table 3 is your "*where we are now*" Cash Flow spreadsheet modeling your reserve balance and current contribution. Table 3.1 (and possibly others) provides alternative(s) to this that meet the fully funded goal from Table 4.

We usually establish a new Cash Flow contribution that requires only small annual inflationary increases to reach the fully funded goal at the end of the 20-year period. This has the added effect of establishing a funding plan that addresses inflation. The contribution in the first year, adjusted for inflation, is equal to the contribution in the last year, based on inflated dollars (future value of money). This approach will also allow underfunded Associations the time to catch up, mitigating undue hardships. It balances the risk of temporary underfunding with the benefit of consistent predictable increasing contributions. The combination of the Component and Cash Flow Methods (Hybrid Approach) provides the advantages of both methods.

4. RESERVE PROGRAMMING

The Mason & Mason proprietary software used to produce the financial tables (Tables 1 through 4) have been under continual refinement for over a decade. It is unique in the industry as it provides comprehensive modeling through Microsoft Access and Excel that addresses the many challenges of reserve funding, allows analysts and clients to run "what if" scenarios, provides an easy to understand matrix of views and functions, and is easily provided to clients through e-mail.

4.1 Interest Income on Reserve Funds: Most Associations invest at least part of their reserve funds. Small Associations may simply use a savings account or certificates of deposit, while large Associations may have multiple investments with short-, medium-, and long-term instruments. One issue that is difficult to quantify is the percentage of funds invested. Some Associations invest a fairly substantial portion, while others hold back due to current cash outflow obligations. Some Associations do not reinvest the investment proceeds in their reserves; rather they divert the cash into their operations fund. We do not agree with this approach as it has the effect of requiring additional reserve contributions to make up for the difference. There is also the issue of changing rates over the 20-year period. In the recent past we have seen large swings in relatively short time periods. While reserve funds are not usually taxable by the IRS, the investment income generated by the reserve fund is taxable in most

situations. Even with all these potential pitfalls, investment income still represents a substantial source of additional funds and for this reason should not be ignored. There is no way to make "one size fits all" with any accuracy for the individual Association. Our approach to this dilemma is to use lower approximations that compensate for less than 100% of funds invested. We feel this is still better than not recognizing it, and periodic updates allow for adjustments based on experience. The rate can be set at any level, including zero, for Associations desiring to not recognize interest. **The rate should reflect, as accurately as possible, the actual composite rate of return on all securities and other instruments of investment including allowances for taxes.**

The interest income displayed on Table 3 and Table 4 is the summation of the beginning reserve fund interest accrual and the interest earned on the contributions minus the interest lost by withdrawing the capital expenditures. This method of calculation, while not exact, approximates the averages of the three principal components of a reserve fund for each twelve-month period.

4.2 Future Replacement Costs (Inflation): Inflation is a fact of life. In order to replicate future financial conditions as accurately as possible, inflation on replacement costs should be recognized. The financial tables have been programmed to calculate inflation based upon a pre-determined rate. This rate can be set at any level, including zero. **A plan that doesn't include inflation is a 1-year plan, and any data beyond that first year won't reflect reality.**

4.3 Simultaneous Funding: This is a method of calculating funding for multiple replacement cycles of a single component over a period of time from the same starting date. Simple Example: Funding for a re-roofing project, while, at the same time, funding for a second, subsequent re-roofing project. This method serves a special purpose if multiple-phase projects are all near-term, but will result in higher annual contribution requirements and leads to generational equity issues otherwise. We use this type of programming only in special circumstances.

4.4 Sequential Funding: This is a method of calculating funding for multiple replacement cycles of a single component over a period of time where each funding cycle begins when the previous cycle ends. Simple Example: Funding for the second re-roofing project begins after the completion of the initial re-roofing project. This method of funding appears to be fundamentally equitable. We use this type of programming except in special circumstances.

4.5 Normal Replacement: Components are scheduled for complete replacement at the end of their useful service lives. Simple Example: An entrance sign is generally replaced all at once.

4.6 Cyclic Replacement: Components are replaced in stages over a period of time. Simple Example: Deficient sidewalk panels are typically replaced individually as a small percentage, rather than the complete system.

4.7 Minor Components: A minimum component value is usually established for inclusion in the reserve fund. Components of insignificant value in relation to the scale of the Association shouldn't be included and should be deferred to the operations budget. A small Association might exclude components with aggregate values less than $1,000, while a large Association might exclude components with aggregate values of less than $10,000. Including many small components tends to over complicate the plan and doesn't provide any relative value or utility.

4.8 Long Life Components: Almost all Associations have some components with long or very long useful service lives typically ranging between thirty and sixty years. Traditionally, this type of component has been ignored completely. Simple Example: Single replacement components such as entrance monuments should be programmed for full replacement at their statistical service life. This allows for all common property owners to pay their fair share during the time the component serves them. This also has the added effect of reducing the funding burden significantly as it is carried over many years.

4.9 Projected Useful Service Life: Useful service lives of components are established using construction industry standards and our local experience as a guideline. Useful service lives can vary greatly due to initial quality and installation, inappropriate materials, maintenance practices or lack thereof, environment, parts attrition, and obsolescence. By visual observation, the projected useful service life may be shortened or extended due to the present condition. The projected useful service life is not a mandate, but a guideline, for anticipating when a component will require replacement and how many years remain to fund it.

4.10 Generational Equity: As the term applies to reserves, it is the state of fairness between and over the generations relating to responsibility for assets you are utilizing during your time of ownership. It is neither reasonable, nor good business to defer current liabilities to future owners. This practice is not only unfair; it can also have a very negative impact on future property values.

5. UPDATING THE RESERVE FUND PLAN

A reserve fund plan should be periodically updated to remain a viable planning tool. Changing financial conditions and widely varying aging patterns of components dictate that revisions should be undertaken periodically from one to five years, depending upon the complexity of the common assets and the age of the community. Weather, which is unpredictable, plays a large part in the aging process.

Full Updates (Level II) include a site visit to observe current conditions. These updates include adjustments to the component inventory, replacement schedules, annual contributions, balances, replacement costs, inflation rates, and interest income.

We encourage Associations that are undergoing multiple simultaneous or sequential costly restoration projects (usually high rise buildings) to perform Level III Administrative Updates. Administrative updates do not include a condition assessment. They are accomplished by comparing original projections with actual experience during the interim period as reported by Management. These updates can be performed annually and include adjustments to the replacement schedules, contributions, balances, replacement costs, inflation rates, and interest income. The Level III Administrative Update can be a cost-effective way of keeping current between Level II Full Update cycles. Full Updates (Level II) and Administrative Updates (Level III) help to ensure the integrity of the reserve fund plan.

6. AIR HANDLER AND EXHAUST FAN SCHEDULE

AIR HANDLING UNITS, FAN-COIL UNITS, AND SPLIT-SYSTEM A/C UNITS

Area Served	Unit Location	AHU Number	Manufacturer	Fan Motor H.P. or Unit Size	Replacement Date
South Corridor	Penthouse	2	Carrier	5	2001
South Corridor	Basement	3	Trane	5	2005
North Corridor	Basement	4	Trane	5	2005
North Corridor	Penthouse	5	Carrier	5	2001
North Corridor	Basement	6	Trane	5	2005
South Laundry	Penthouse	7	Carrier	7½	2001
North Laundry	Penthouse	8	Carrier	7½	2001
North Party Rm.	-----	10	Trane	3	2001
North Offices	-----	11	Trane	1	2005
Entrance Guard Station	Guard Station	-----	Mitsubishi	2	2014
Market/Deli	-----	17	Trane	5	2005
South Restaurant	-----	19	Trane	2	2005
South Restaurant	-----	20	Trane	⅓	2005
South Prof. Office	-----	24	Trane	1½	2006
South Prof. Office	Fan-coil Unit	2 units	1st Company	Fractional hp	2005
South Prof. Office	Split-System A/C	3 units	Daiken	2½-tons each	2012
Health Club	-----	-----	Magicaire	10-tons	1996
Health Club	Fan-coil Unit	2 units	-----	Fractional hp	2002
Ostrows	Fan-coil Unit	-----	Trane	⅓	2002
Dry Cleaners	Fan-coil Unit	-----	Trane	¼	Original
Travel Agent	-----	-----	Magicaire	2½	2001
Massage Therapy	-----	-----	McQuay	⅓	2006
Creations Shop	-----	2 units	Trane	1	Unknown
North Card Room	-----	30	Trane	1	2005
Beauty Salon	Fan-coil Unit	-----	Trane	¼	2005
Beauty Salon	-----	-----	Trane	Unknown	1997
South Rest Rooms	-----	-----	Magicaire	Unknown	2008 Overhaul

EXHAUST FANS

Area Served	Unit Location	Quantity	Type	Replacement Date
Building Exhaust	Rooftop	28	Domed Centrifugal	2007/2008
Garage Exhaust	Parking Garage	12	Propeller	Original
Commercial Chiller	Mechanical Room	1	Propeller	2001
Laundry & Tiers	Penthouse	6	Utility Centrifugal	2004
Market/Deli	Refrigeration Room	1	Propeller	2009
Restaurant	-------	1	Kitchen Exhaust	Unknown
Cell Phone Room	Penthouse	1	Propeller	Unknown
Main Boiler Room	Main Boiler Room	1	Propeller	2006

COMPONENT DATA AND ASSET REPLACEMENT SCHEDULE
TABLE 1 EXPLANATION

This table lists the common assets included in the reserve fund plan and provides details of the replacement schedules. A narrative discussion is provided adjacent to each component. Photo references and maintenance protocol reference numbers are also provided. An explanation of each column in the table follows:

Column **1** **Component No.** is consistent throughout all tables.

Column **2** **Component** is a brief description of the component.

Column **3** **Quantity** of the component studied, which may be an exact number, a rough estimate, or simply a (1) if the expenditure forecast is a lump sum allowance for replacement of an unquantified component.

Column **4** **Unit of Measurement** used to quantify the component:

SY = Square Yards
SF = Square Feet
LF = Linear Feet
EA = Each
LS = Lump Sum
PR = Pair
CY = Cubic Yards

Column **5** **Unit Cost** used to calculate the required expenditure. This unit cost includes removal of existing components and installation of new components, including materials, labor, and overhead and profit for the contractor.

Column **6** **Total Asset Base** is the total value of common assets included in the study in current dollars. In addition to capital assets, this figure includes one cycle of maintenance liability.

Column **7** **Typical Service Life (Yrs) or Cycle** is the typical life expectancy of similar components in average conditions or the length of years between replacement cycles, and does not necessarily reflect the conditions observed during the field evaluation. This number is furnished for reference and is not necessarily computed in the system.

Column **8** **1st Cycle Year** is the scheduled year of the first projected replacement or repair.

Column **9** **Percentage of Replacement** is the percentage of component value to be replaced in the first replacement cycle.

Column **10** **Cost for 1st Cycle** is the future cost (with inflation) of the replacement. It is the product of Column 6 times Column 9 in future dollars.

Column **11** **2nd Cycle Year** is the scheduled year of the second projected replacement or repair. If a second cycle is not listed, it is because the first cycle is beyond the end of the study.

Column **12** **Percentage of Replacement** is the percentage of component value to be replaced in the second replacement cycle. This can vary from the percentage of the first cycle for various reasons, such as the increased age of a component may require a larger amount of repair.

Columns **13** Through **16** **Cycles, Percentage, and Cost** repeat as itemized above. Although not shown on the tables, the cycles continue throughout the study period and beyond.

Column **17** **Discussion** is the description and observed condition of the component and the methodology employed in the decision-making process. Includes the photo reference, **(Photo #1, #2, etc.)** and Maintenance Protocol reference numbers **(7.1, 7.2 etc.)** if applicable.

Reserve Fund Plan for
THE Sample
Bethesda, Maryland

COMPONENT DATA AND ASSET REPLACEMENT SCHEDULE
TABLE 1
2015 Through 2034

MASON & MASON
CAPITAL RESERVE ANALYSTS, INC.
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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1 SITE FEATURES																
1.1	Asphalt Restoration Project	23,860	SY	$16.00	$381,760	20	2020	60%	$265,539	2025	20%	$102,611	2040	100%	$799,321	The entrance drive, the access to the porte-cochere, the access to the three parking garage levels, and the multiple surface parking lots are constructed of asphalt pavement. Quantities were measured during the original site evaluation. The thickness of the pavement could not be visually determined. The pavement was overlaid in 1998 and appears to be in generally aging fair condition. 1,376 square yards (516 linear feet) of new overlay repair was accomplished in 2008 at the rear drivelane. Management plans an additional 4,000 square yards of repairs in 2015, which will address an area extending from the rear drive around and past the Gatehouse as well as part of the entrance drive adjacent to the Gatehouse. The three large parking lots and the commercial parking lot are not being addressed. We are extending the projected restoration dates of these areas by five years, and other areas by ten years. A full useful service life is dependent on preventative maintenance being performed as scheduled in Items 1.2 and 1.3 below.
1.2	Asphalt Rejuvenator	23,860	SY	$1.50	$35,790	5	2020	100%	$41,490	2025	100%	$48,099	2030	100%	$55,760	We understand that the pavement was rejuvenated in 2013. In order to help extend the useful service life of the pavement, and maintain curb appeal, we have scheduled additional seal coating projects every five years except in the year of the pavement restoration project.
1.3	Asphalt Repair & Crack Sealing Allowance	1	LS	$205,000.00	$205,000	5	2015	100%	$205,000	2020	50%	$118,826	2025	25%	$68,876	As pavement ages, random surface cracking, alligator cracking, and deflection, indicative of sub-base failure, is anticipated. Consequently, full-depth repairs and crack sealing are scheduled every five years throughout the study period, including the year of the asphalt restoration project. A large localized overlay was performed in 2008 at the rear service drive. Several large localized areas of severe deflection have now developed on the main drivelane leading to the entrance and surface parking lots. An additional 4,000 square yards of repairs are scheduled 2015.
1.4	Concrete Sidewalks	11,560	SF	$11.50	$132,940	1	2016	1%	$1,369	2017	1%	$1,410	2018	1%	$1,453	Concrete sidewalks throughout the community site are generally 4' wide with a few areas of 6' and 9' width. Concrete steps with metal handrailings provide access at grade differentials. The thickness of the concrete could not be visually determined. Quantities were measured during the original site evaluation. Major concrete sidewalk repairs including replacement steps were accomplished in 2007/08, as well as in 2013/14. The concrete components now appear to be in generally good condition with one trip hazard observed and no other significant damage noted. Metal handrailing bases may be problematic throughout their service life and should have diligent maintenance. Annual repairs to sidewalks are scheduled as liability and insurance concerns dictate prompt action on safety issues. Replacement of some of the more severely scaled sections should be addressed each year. Due to the apparent low deficiency ratio, the annual percentage rate was reduced 2% to 1%.
1.5	Concrete Curbs & Gutters Allowance	11,000	LF	$40.00	$440,000	5	2017	1%	$4,668	2022	1%	$5,411	2027	1%	$6,273	The drivelanes and parking bays are lined with standard-profile or curb-and-swale, cast-in-place, concrete curbs. Curb repairs were are ongoing, and they generally appear to be in continuing good condition with no current significant damage noted. One repair is included with the asphalt repair work. Cyclic repairs are scheduled as full replacement of all curbs at one time is not appropriate or anticipated. Due to the apparent low deficiency ratio, the annual percentage was from 2% to 1%.
1.6	Retaining Wall & Erosion Control Allowance	1	LS	$6,000.00	$6,000	5	2016	100%	$6,180	2021	100%	$7,164	2026	100%	$8,305	This category includes the two keystone block retaining walls at the service area of the North Building, a wood retaining wall at the tennis court area, and several concrete retaining walls at various locations. The concrete wall at the south end of the South Building was repaired in 2000. This category also covers localized periodic surface drainage improvements and erosion control projects, which appear to have mitigated the most problematic areas. The near-term allowance is scheduled to address upgraded landscaping generally in erosion prone areas.
1.7	Gatehouse Restoration Allowance	1	LS	$17,500.00	$17,500	25	2030	100%	$27,264	2055	100%	$57,086				A 2014 restoration project included new air conditioning, wiring, interior furnishings and finishes, and glass doors. The future restoration is scheduled after a statistical service life.
1.8	Site Fencing	4,200	LF	$35.00	$147,000	40	2018	100%	$160,631	2058	100%	$523,984				A six-foot-high, standard galvanized chain link fence with three-strand barbed wire is constructed at the perimeter property line. Periodic repairs are performed as necessary under the repair allowance in 1.9 below. Vegetation is still pervasive and makes it almost impossible to view it in many places. The adjacent property is being developed over the next few years, which may require removal and replacement of the fencing. We have deferred replacement until after this project is anticipated to be completed.
1.9	Site Fencing Annual Repairs	1	LS	$2,000.00	$2,000	1	2016	100%	$2,060	2017	100%	$2,122	2020	100%	$2,319	Management requested an annual allowance to address on-going repairs for damage resulting from falling vegetation. Management requested that we reduce this budget in consideration of adjacent construction activities and pending replacement.
2 BUILDING EXTERIORS																
2.1	Re-Roofing Project, Towers	71,300	SF	$18.00	1,283,400	20	2019	100%	1,444,478	2039	100%	2,608,888				An insulated roof membrane assembly (IRMA) was installed on both towers in 1998 by Prospect Waterproofing of Sterling, Virginia. The roof has a fifteen-year labor and material warranty, which has now expired. The system includes a two-coat, 125 mil. each, Monsey Eakor rubberized, hot fluid membrane applied directly to the concrete deck. A 6 mil. poly sheet is embedded to the surface of the membrane. 2" extruded polystyrene insulation with filter cloth is installed over the membrane. Ballast is a combination of ASTM gradation #2 crushed stone and 2' x 2' concrete pedestrian pavers in traffic areas. All base and wall flashing, expansion joint flashing, and parapet coping was replaced. Quantities: North Tower - 35,850 SF, South Tower - 35,450 SF. A 20-year useful service life was projected by the roofing contractor. With proper life-extension maintenance, this roof may provide several additional years of service beyond the projected life. The Sample currently has a preventive maintenance agreement in place with Remington Construction. The roofing systems appear to be in continuing good condition.
2.2	Re-Roofing Project, Lobby	11,500	SF	$12.00	$138,000	20	2020	100%	$159,980	2040	100%	$288,941				The Lobby built-up roofing was replaced with an IRMA roof, similar to the towers, in 2000. The Sample has a preventive maintenance agreement with Remington Construction. The roofing systems appear to be in continuing good condition.

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2.3	Facade & Balcony Restoration Allowance	1	LS	2,327,458	2,327,458	20	2030	100%	3,626,104	2050	100%	6,549,147				There is approximately 375,000 sf of brick surface on the building facade. We understand that at least one tuckpointing and repair project was conducted between 1996 and 1998. It was observed in 2009 that the brick veneer, was bulging at floor slabs, which was indicative of developing compression stresses resulting from possibly inadequate support due to original construction. Building sealants and control joints were also exhibiting deterioration from age. Small percentages of concrete delaminations and spalls were occurring throughout the balconies. This had been an on-going issue addressed under operations pre-2009. A condition survey was conducted by SK&A in 2007 (see report and cost estimates) that recommends full restoration of the facade, balconies, and building sealants. A peer review was performed by Tadjer-Cohen-Edelson to verify costs and scope of work. We have combined the facade, balcony, and building sealant into a single operation, which was completed in 2010 three years ahead of schedule. The cost is from total contracts and includes engineering. Interim balcony coatings are scheduled at ten-year intervals from this date below. The next full restoration is expected to be similar in scope and cost.
2.4	Window Sealant	1	LS	1,188,100	1,188,100	15	2020	100%	1,377,334	2030	100%	1,851,021	2045	100%	2,883,831	The masonry soft sealant and control joints are included in Component 2.3 above. Sealants at all windows and sliding glass doors were installed as part of the 1999 full window replacement project. We estimate approximately 75,000 linear feet of window and door sealant. A 2012 evaluation confirmed that the sealants should remain on the original schedule. SK&A is scheduled to do an additional evaluation near-term to determine current conditions and the possibility of extending the service life to 2020 coinciding with the balcony restoration project. These projects represent a complete removal and replacement of all soft sealants at the interface of all window and door frames and masonry. The window sealant project will now be out of phase with the Component 2.3 above and will not facilitate the use of common drop scaffolding and a single mobilization unless as stated previously, the project is deferred.
2.5	Interim Balcony Coatings	1	LS	$802,240.00	$802,240	10	2015	3%	$24,067	2016	3%	$24,789	2017	3%	$25,533	A balcony coating project was accomplished in 1998, and new coatings were applied in 2010. Currently, approximate six to eight balconies require re-coating due to peeling and delamination, which are scheduled near-term. Additional partial projects are scheduled in 2017, 2018, and 2019 with the full project scheduled in 2020. The contractor supplied the current pricing. In order to achieve maximum protection of the balconies, we have re-scheduled coating cycles at ten-year intervals alternating with Component 2.3 above.
2.6	Overhead Doors	1	LS	$55,000.00	$55,000	15	2018	100%	$60,100	2033	100%	$93,634	2048	100%	$145,878	Five steel overhead, roll-up doors provide access at the north and south service entrances and loading docks. All doors replaced in the past appear to be in continuing generally good condition having had numerous damage repairs. They are scheduled for replacement after a few more years of service.
2.7	Sub-Grade Waterproofing Allowance	1	LS	$136,250.00	$136,250	25	2016	50%	$70,169	2030	100%	$212,273	2055	100%	$444,453	Currently, there are reported problems with water infiltration into the South Building elevator pit, the stairwell at the G-3 level, and the G-3 passageway. Remediation may include excavation, waterproof membrane installation, installation of French drains, and possibly a sump pump system. T
3 PARKING GARAGE																
3.1	Garage Exterior Wall Restoration	1	LS	$30,000.00	$30,000	15	2015	100%	$30,000	2030	100%	$46,739	2045	100%	$72,818	An extensive concrete masonry unit garage exterior wall restoration project was accomplished in 1998 including stabilization of pargeting, installation of wall-to-floor slab anchors, and application of a masonry coating system. Additional repairs were necessary in 2011 resulting from earthquake damage. A project costing approximately $15,000 was accomplished in 2014, which included the water infiltration problems at the G-3 level. Additional remediation projects are anticipated for 2015.
3.2	Interim Elevated Garage Deck Repair & Coatings Allowance	236,000	SF	$6.54	1,543,440	15	2022	100%	1,898,237	2037	100%	2,957,391				Elevated parking garage decks (G-1 & G-2) have now been sealed with a urethane traffic bearing coating to protect the concrete and reinforcing steel and tendons (post-tension) within, from damage due to exposure to chlorides brought in by automobiles during the winter months. Additional or renewal traffic bearing coatings will be required at ten-year intervals between major garage restorations. The coatings appear to be holding up well with average wear noted for the in service years. Traffic directional markings on the floors should be periodically reapplied under Operations.
3.3	Garage Restoration Project Allowance	1	LS	2,400,000	2,400,000	20	2027	100%	3,421,826	2047	100%	6,180,199				The elevated parking garage decks are conventional reinforced and post-tension concrete, which is a system that can be inherently problematic. A delamination and tendon repair project was accomplished in 1988. In 2000 we recommended a survey be conducted within the next few years. A survey was conducted by SK&A. Their recommendation was to proceed with a full restoration project spread over a four-year period. The project would address all levels within quadrants so as to minimize utilization issues and simplify support and construction procedures in a given area. Refer to the SK&A Garage Condition Survey dated March 2, 2005, for specific details. A peer review was conducted by Tadjer-Cohen-Edelson to verify costs and scope of work. The full project was eventually accomplished in a single year in 2007. There have not been any significant problems reported since that time.
3.4	Garage Interior Surface Restoration	1	LS	$236,530.00	$236,530	10	2016	100%	$243,626	2026	100%	$327,413	2036	100%	$440,015	Previously, garage interior surface projects have been funded from Operations. No significant painting was included in the garage restoration, and the interior is dark, dirty, and many areas are water stained or bare concrete with unsightly patches. Management has requested that this project now be included within reserves and scheduled near-term. The budget is based on a recent proposal provided by Palmer Brothers.
4 BUILDING INTERIORS																
4.1	Carpeting	23,000	SY	$41.83	$962,090	15	2015	25%	$240,523	2016	50%	$495,476	2017	25%	$255,170	The carpet throughout the corridors of both buildings appears to be in somewhat worn condition but, with no significant damage or discoloration observed. Coinciding with the corridor refurbishment in 4.2 below, Management established the current budget and requested scheduling in 2015 (25%), 2016 (50%), and 2017 (25%). Replacement costs are generally discretionary. The costs are for a good-quality, commercial carpet to be accomplished over a two-year period. This cost has been deducted from the total restoration cost so that future replacement cycles can be included independently.

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4.2	Corridor Refurbishment Allowance	1	LS	2,595,598	2,595,598	30	2015	25%	$648,900	2016	50%	1,336,733	2017	25%	$688,417	Management established the current budget and requested scheduling in 2015 (25%), 2016 (50%), and 2017 (25%) for the near-term refurbishment project, which has begun on the 2nd floor of each tower. Replacement costs are generally discretionary. Management requested the establishment of periodic corridor refurbishment projects to address general repairs and refurbishment of interior surfaces. Detachable plastic crown molding was installed in 2008 by Verizon, which contains FiOs, Comcast, and fire alarm wiring. This project will include refinishing walls, installation of top hat lighting fixtures over unit doors, crown molding, drywall ceilings, wood baseboard, and painting. New lighting will also be included, but is included in the electrical section. Door refinishing is also included below.
4.3	Lobby Furnishings Allowance	1	LS	$231,080.00	$231,080	10	2016	9%	$21,421	2024	100%	$301,507	2034	100%	$405,200	This category includes all furnishings in the lobby. Benches and chairs were re-upholstered in 2008 and 2009 and are in continuing good condition. We have budgeted a near-term allowance for additional minor refurbishments, such as repairs and reupholstering of individual pieces as necessary. Periodic repair activities of these high-quality furnishings will extend the service life of the entire set. Replacement timing and cost is generally discretionary.
4.4	Office Equipment & Furnishings Allowance	1	LS	$184,210.00	$184,210	8	2015	16%	$29,474	2023	32%	$74,673	2031	16%	$47,296	We understand that the computer server was replaced in 2011 with a Dell system. Carpet and kitchen tile were replaced in 2011 as well as refurbishment to the kitchen area and restrooms. The allowance addresses upgrades and replacements of office equipment including computers, copiers, printers, fax, and telephone system and furnishings including desks, chairs, fixtures, and carpeting for the main office and the engineer's office.
4.5	Arcade Refurbishment Allowance	1	LS	$200,000.00	$200,000	20	2018	100%	$218,545	2038	100%	$394,717				Wall covering in the Arcade elevator lobbies was replaced in 2004, and the flooring has been repaired as necessary over time due to settlement of the base structure. Management requested a near-term allowance for a refurbishment project, the extent of which is not yet established. Replacement timing and cost is generally discretionary.
4.6	Service Lobbies Refurbishment	38	EA	$4,150.00	$157,700	15	2015	25%	$39,425	2016	50%	$81,216	2017	25%	$41,826	Management established the budget and requested service lobbies refurbishment projects, which will consist of replacement of flooring, lighting, and interior surfaces refurbishment scheduled over a three-year period coinciding with the Corridor Refurbishment Projects. Replacement cost and timing is generally discretionary.
4.7	Laundry Room Refurbishment Allowance	38	EA	$1,053.00	$40,014	15	2015	25%	$10,004	2016	50%	$20,607	2017	25%	$10,613	Management reported that laundry rooms will be repainted and have new flooring installed near-term. This component covers future cycles after the near-term refurbishment.
4.8	Laundry Equipment Purchase Allowance	1	LS	$236,000.00	$236,000	8	2015	100%	$236,000	2023	100%	$298,958	2031	100%	$378,711	New washers and all dryers were purchased and installed in 2015. Management provided the budget based on the actual installation cost. We have established an allowance for additional replacement cycles. The machine maintenance is currently performed by in-house staff.
4.9	Garage Elevator Lobbies Refurbishment	5	EA	$5,500.00	$27,500	10	2017	100%	$29,175	2027	100%	$39,208	2037	100%	$52,693	The parking garage elevator lobbies refurbishment project consist of replacement of flooring, wall covering, interior finishes, and lighting, Replacement is scheduled near-term as requested by Management.
4.10	Professional & Commercial Refurbishments	1	LS	$143,000.00	$143,000	7	2018	100%	$156,260	2025	100%	$192,180	2032	100%	$236,357	Management requested an increase in this budget, which might include carpet, floor tile, ceiling tiles, wall covering, and rearrangement of some spaces. In 2011 new carpet, paint, and ceilings and fixtures were installed within the units and ceiling tile was replaced in retail corridors. Since this will be an on-going requirement, we have scheduled an allowance periodically to address replacements.
4.11	Resident Storage Refurbishment	550	EA	$570.00	$313,500	40	2043	100%	$717,265							Replacement of the 550 wood storage bins with metal bins began in 1999 on a room-by-room basis and was completed ahead of schedule.
4.12	Fire-Rated Interior Door Replacement Allowance	500	EA	$1,978.00	$989,000	2	2015	10%	$98,900	2017	10%	$104,923	2019	10%	$111,313	Common doors providing access to stairwells, service and storage areas, restrooms, trash rooms, laundry rooms, parking garage, elevator lobbies, and mechanical rooms are metal, fire-rated doors. We have provided an allowance to periodically replace deteriorated or damaged doors as required based on historical experience reported by Management. The cost is based on the most recent replacements.
4.13	Public Restroom Renovations	4	EA	$7,886.00	$31,544	20	2015	100%	$31,544	2035	100%	$56,972				Management reported that the two public restrooms on the Arcade level were renovated in 2013, including flooring, wall tile, plumbing fixtures, toilet partitions, and lighting. Two additional restrooms in the card room area were renovated in 2002. We have scheduled additional periodic renovation projects. The cost is based on the current project.
4.14	Mailboxes	1	LS	$185,000.00	$185,000	50	2025	100%	$248,625	2075	100%	1,089,947				Mailbox doors were replaced in 2001. They appear to be in continuing good condition. Because of current good condition, we extended the service life at the request of Management.
4.15	Unit Door Refurbishment Allowance	1,072	EA	$465.00	$498,480	30	2015	25%	$124,620	2016	50%	$256,717	2017	25%	$132,209	The lockset replacement project was completed prior to the 2012 evaluation. Hereafter, homeowners will bear the cost of lockset replacement. Consequently, we have reduced the budget of future projects. The doors are scheduled for refinishing coinciding with the Corridor Restoration Project.
5 MECHANICAL, ELECTRICAL, & PLUMBING																
5.1	Central Boilers Replacement	3	EA	$390,000.00	1,170,000	35	2026	100%	1,619,554	2061	100%	4,557,201				Three Clever Brooks CB 500-600, 600-BHP, fire tube Scotch Marine, dual fuel oil/gas, forced draft boilers provide low pressure steam to three shell-and-tube heat exchangers. All boilers are original and all have had full re-tube projects. Q45:Q69Boiler #1-1992, Boiler #2-1999, and Boiler #3-1995. Boilers #1 and #3 have replacement burners with Boiler #3 fitted with a burner upgrade that eliminated the modulation dampers with a VFD-controlled fan motor at reported cost of about $50,000. Boilers #2 still has the original burner. We have scheduled full replacement of the boilers and common breeching in 2026. Although Scotch Marine boilers as a generic type have an expected service life of about 35 years, the robust construction of these boilers together with diligent maintenance should extend their life cycle to 2026; however, we view that as the life cycle limit.

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5.2	Interim Boiler Remediation	1	LS	$150,000.00	$150,000	10	2019	50%	$84,413	2036	50%	$139,522				In order to achieve the maximum service life of the original boilers, we have provided an allowance for boiler repairs prior to full replacement. The projects are discretionary and could include retubing, burner repairs or replacements, refractory work, and boiler end sheet replacements as necessary. The projects have been scheduled to coincide with the previous re-tube projects based on a 10-year useful service life of re-tube projects. All three replacement projects have been extended by three or four years. The second cycle of repairs follows the full replacement scheduled in 2026.
5.3	Heat Exchanger Full Replacement	3	EA	$70,000.00	$210,000	30	2032	100%	$347,098	2062	100%	$842,498				The three shell-and-tube heat exchangers were replaced in 2001 and 2002 and 2004. The reported coppernickle tube-bundle replacements generally provide an extended service life of thirty years. Costs are based on historical data provided by Management. The next replacement cycle should include full replacement including the shells and associated steam fittings.
5.4	Domestic Hot Water Storage Tanks	4	EA	$8,000.00	$32,000	30	2032	100%	$52,891	2062	100%	$128,381				Domestic hot water is provided by four plate-and-frame, Superchanger heat exchangers. Storage for domestic hot water is provided by four 350-gallon holding tanks. The tanks were installed in 2001 and 2002, and the heat exchangers were replacements installed in 2006 and 2007 that were upgrades designed for the higher temperatures and pressures realized.
5.5	Domestic Hot Water Heat Exchangers Overhaul	4	EA	$6,000.00	$24,000	10	2015	100%	$24,000	2025	100%	$32,254	2035	100%	$43,347	An allowance has been provided for maintenance near-term that involves opening the plate stacks, cleaning the plate stacks, and replacement of the plate gaskets. Management requested the timing for these projects. The allowance provides for the purchase of plate pack kits to allow in-house overhaul of the heat exchangers sequentially to limit reduced hot water production and down time.
5.6	Domestic Hot Water Heat Exchangers Replacement	4	EA	$56,000.00	$224,000	30	2037	100%	$429,207							Eventually the plate & frame heat exchangers will require full replacement. The service life of about thirty years in domestic water service is considered the limit of their service life.
5.7	Residential Centrifugal Chillers	2	EA	$600,000.00	1,200,000	35	2031	100%	1,925,648	2066	100%	5,418,508				Two Trane, CVHE 960-ton centrifugal chillers with R-123 refrigerant, provide chilled water for the main air conditioning systems. The units were replacements installed in 1996. The original units were similar and provided 24 years of service; however, centrifugal chillers have an expected service life of about 35 years with an interim overhaul. Management reported that the chillers have been running since the last reserve study with issues and eddy current diagnostic testing is now conducted at three-year intervals.
5.8	Interim Residential Centrifugal Chiller Re-Builds	2	EA	$40,000.00	$80,000	10	2019	100%	$90,041	2041	100%	$172,527				Interim chiller overhaul is typically scheduled on a 15 to 20 year interval. Both chillers were overhauled after 12 years of service in 2008/2009.
5.9	Residential Cooling Towers	2	EA	$240,000.00	$480,000	35	2021	30%	$171,944	2031	100%	$770,259	2066	100%	2,167,403	Two Baltimore Air Coil, 1020-ton, counterflow cooling towers, provide condensing water for the chilled water return loop for the residential chillers. The cooling towers were replacements installed in 1996. The original units were similar and provided 24 years of service. Management reported that Balticoat (anti-corrosion treatment) is being applied at prescribed intervals to maximize useful service life. Yaskawa variable frequency drives (VFDs) were retrofitted to the fan motors for capacity control and soft starting. VFDs control electric motors directly at varying rotational speeds to control cooling capacity. Galvanized cooling towers having a protective coating have an expected useful of about 35 years with an interim overhaul that includes removal and replacement of fan snouts, baffles, strainer hoods and supports, and strainers with new galvanized steel components further protected with a corrosion resistant coating. Refinishing that remains includes internal and external sheet-metal components of the cold water sump, below the overflow level, and coating with a cold galvanizing compound and an overlay of a urethane based protective coating. It was reported to Mason & Mason that an interim limited overhaul was performed in 2010 and 2012 that only included the fans, fan shafts, and shaft bearings. The work also included refinishing the steel support dunnage that was reported to cost about $15,000. Material and labor costs have increased dramatically for steel cooling towers since the last reserve study, and the increase is reflected in the reserve funding.
5.10	Commercial Chiller	1	EA	$170,000.00	$170,000	20	2021	100%	$202,989	2041	100%	$366,621				Chilled water for the commercial zones is provided by a replacement rotary screw compressor water chiller located in the penthouse mechanical room and installed in 2001. The unit is under continuous duty, and the service life has been reduced accordingly.
5.11	Commercial Cooling Tower	1	EA	$125,000.00	$125,000	20	2021	100%	$149,257	2041	100%	$269,574				Condensing water for the commercial chiller is provided by a replacement cooling tower located within the penthouse mechanical area and installed in 2001. The unit is under continuous duty, and the service life has been reduced accordingly. The cost is based on the original contract. Yaskawa variable frequency drives (VFDs) were retrofitted to the fan motors for capacity control and soft starting. VFDs control electric motors directly at varying rotational speeds to control cooling capacity. Material and labor costs have increased dramatically for steel cooling towers since the last reserve study, and the increase is reflected in the reserve funding. The water basin was refinished in 2008 including replacing the fan shaft and bearing and replacing the make-up water float valve with an electronic make-up water control system.
5.12	Penthouse Corridor & Laundry Rooftop AHUs	4	EA	$45,000.00	$180,000	30	2031	100%	$288,847	2061	100%	$701,108				These units provide 100% outside make-up air for cooling and heating for the residential corridors and laundry rooms, are located in the penthouse mechanical rooms, and were replaced in 2001. General information for this equipment is provided in the Air Handler & Exhaust Fan Schedule, Section 6, of the report. Costs are based on current pricing conventions.

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5.13	Basement Corridor AHUs	4	EA	$44,000.00	$176,000	30	2036	100%	$327,412							These replacement air handling units (2006) provide 100% outside make-up air for cooling and heating the residential corridors. General information for this equipment is provided in the Air Handler & Exhaust Fan Schedule, Section 6, of the report. The units are located in southeast G-2, southwest A, northwest A, and northeast C. They are scheduled for replacement after a statistical service life. Costs are based on current pricing conventions.
5.14	Retail Space AHU Allowance	1	LS	$350,000.00	$350,000	30	2017	17%	$63,124	2021	17%	$71,046	2025	45%	$211,667	Approximately twenty various sized air handling units ranging from about 1,000-cfm to about 9,400-cfm that provide heating and cooling for the retail spaces, professional spaces, administrative offices, health club, and party room. Replacement of the units has been on-going for several years at the rate of 14% of the total asset allowance each year. The remaining original unit that we believe is the unit serving the dry cleaners should be scheduled for replacement. The reserve schedule values are based on installation dates. General information for this equipment is provided in the Air Handler & Exhaust Fan Schedule, Section 6, of the report.
5.15	Indoor Pool Dehumidifier	1	EA	$80,000.00	$80,000	15	2018	100%	$87,418	2033	100%	$136,195	2048	100%	$212,187	The indoor pool air handler unit was replaced with a now discontinued Dectron DS040 indoor swimming pool area dehumidifier, in 2003. The cost is based on the presumed capacity with replacement scheduled near-term. Funding is based on current pricing conventions.
5.16	Penthouse Rooftop Package Units	8	EA	$7,500.00	$60,000	20	2018	100%	$65,564	2038	100%	$118,415				The residential penthouses units are reportedly heated and cooled with 3-ton packaged rooftop heat-pump systems. The units were replaced in 1998 with Frazier Johnson systems.
5.17	Residential Fan Coil Units Including Finishes	1	LS	6,900,000	6,900,000	20	2034	48.50%	5,868,108	2035	44%	5,483,354	2036	7.50%	$962,702	All condominium units are provided with heating and cooling by vertical fan-coil units built in to the wall finishes. There are approximately 1,460 units throughout the property. The units range in size from .75-tons to 2-tons, and from 300-CFM to 800-CFM. The units have all been replaced as of April 2014 including the HVAC hydronic riser piping. The scope of work included replacing the black steel piping with type M copper piping. At the request of Management, we have scheduled the next full replacement project to be accomplished beginning again with approximately 92 units being replaced in 2034 and the balance to be replaced over the two year period in 2035 and 2036. The scope of work will include riser replacement and wall repairs and finishes. Vertical concealed fan-coil units have an expected service life of about 20 years.
5.18	Hydronic Piping System Allowance	1	LS	2,300,000	2,300,000	40	2054	100%	7,284,162							The type M copper system would be replaced on an as-needed basis when the fan-coil units will eventually be replaced again. Funding allows for replacement along with the fan-coil units on an as-needed basis and may be much higher due to difficulties associated with construction and access problems. We understand that there are 82 risers, and the separated funding is based on the estimated proportional cost of the fan-coil unit replacement project completed in 2014. The piping will be replaced in sections along with fan-coil unit replacements on an as-needed basis as finishes are opened to enable fan-coil unit replacement and piping evaluation.
5.19	Tennis Building 4-Ton HVAC System	1	EA	$10,000.00	$10,000	15	2022	100%	$12,299	2037	100%	$19,161				The tennis building is heated and cooled with a Trane, 4-Ton, split system, heat pump Model #RAS104A. A new air handler and compressor were installed in 2007. Three additional through-the-wall package units provide additional heating and cooling for this building that would be refurbished or replaced under the operations budget and not funded from reserves.
5.20	Rooftop Exhaust Ventilation Fans	1	LS	$55,000.00	$55,000	20	2043	100%	$125,836							Building ventilation for condominium units, common areas, garages, laundries, and the main boiler room is provided by a variety of exhaust fans. General information for this equipment is provided in the Air Handler & Exhaust Fan Schedule, Section 6, of the report. The 28 belt-driven domed rooftop centrifugal fans out of a total of approximately 53 exhaust fans were replaced in 2007 and 2008. The fans were reported to be replaced generally on an as-needed basis.
5.21	Underground Storage Tank	1	LS	$300,000.00	$300,000	30	2028	100%	$440,560	2058	100%	1,069,355				Management reported that a fiberglass, double-wall, 40,000 gallon, underground storage tank with self-testing and spill and overflow protection was installed in 1998. The self-tester was replaced in 2003. Fiberglass tanks of the type installed do not have issues with corrosion and may far exceed the 30-year expected service life typical of steel tanks. No problems have been reported.
5.22	South Tower Electrical Main Switchgear Modernization	1	LS	2,600,000	2,600,000	50	2062	100%	10,430,927							Base building secondary electrical service for the property is 277/480-volt, four-wire, three-phase, 4,000-amp. service provided by PEPCO. The South Tower has two main switchboards having fused disconnect switches. The South Tower switchboard was completely replaced with Cutler Hammer equipment in 2007. With proper preventive maintenance on at least a five-year cycle the South Tower switchgear should provide reliable service to the limits of its expected service life.
5.23	North Tower Electrical Main Switchgear Modernization	1	LS	3,000,000	3,000,000	50	2016	50%	1,545,000	2017	50%	1,591,350	2067	100%	13,952,658	Base building secondary electrical service for the property is 277/480-volt, four-wire, three-phase, 4,000-amp. service provided by PEPCO. The North Tower has a main switchboard consisting of two 4,000-amp Type 40 PL disconnects and two 1,600-amp disconnects. The equipment was manufactured by Federal Pacific, which is now out of business. Parts acquisition is reportedly more difficult due to obsolescence. The North Tower and Penthouse replacement equipment is scheduled for 2017 and shall include replacing step-down transformers in both towers. A proposal for this work is forthcoming and should be included when available.
5.24	Electrical Service Transformers-6 Assorted Sizes	1	LS	$400,000.00	$400,000	50	2016	50%	$206,000	2017	50%	$212,180	2067	100%	1,860,354	Base building secondary electrical service for the property is 277/480-volt, four-wire, three-phase, service provided by PEPCO. The step-down transformers provide 120/208-volt, four-wire, three-phase general use service for common areas and residences. The transformers are all original to the building construction and replacement was recommended as a direct result of testing and to enable efficient switchgear replacement. The transformer replacement was recommended and will be included with the switchgear replacement described in section 5.23. The North Tower and Penthouse replacement transformers are scheduled to start in 2015 and will be a two-year project with completion scheduled for 2016. The design effort including specifications and drawings was completed in 2015.

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5.25	Electrical Service Preventive Maintenance	1	LS	$33,000.00	$33,000	5	2017	50%	$17,505	2022	100%	$40,586	2027	100%	$47,050	Three-year inspections using infrared imaging techniques and preventative maintenance (PM) service on components identified is currently being conducted and should be continued after modernization to maximize the useful service life of the replacement systems. Costs for these services were previously funded from Operations. Management requested that this item be included in reserves. However, infrared imaging alone does not guarantee that connection issues are all identified at the time the imaging is performed. A preventive maintenance program of checking and inspection of all switchgear, panelboards and connections, cleaning (where required) and re-torqueing all electrical equipment connections should be instituted and performed every three to five years by a licensed electrician. The overcurrent devices should be checked for smooth operation, cleaned and lubricated as required. Fusible switch units should be checked to ensure all fuses within the switch unit are from the same manufacturer and are of the same class and rating. (It is important to note that arcing failures occur where connections have loosened as a result of thermal cycling.)
5.26	Arcade Lighting	1	LS	$60,000.00	$60,000	30	2042	100%	$133,277							Lighting in the Arcade consists of ceiling-mounted fixtures and two types of wall-mounted fixtures. Replacement cost and timing are generally discretionary. The Arcade lighting has been upgraded with light emitting diode (LED) luminaires.
5.27	Corridor Lighting	1	LS	$540,000.00	$540,000	30	2015	25%	$135,000	2016	50%	$278,100	2017	25%	$143,222	Corridor lighting consists of approximately (29) corridor fixtures, and (25) recessed fixtures at unit entry doorways at each floor. The scope of work includes extending junction boxes for exit signs and demolition of original fixtures. The lighting work shall be performed at the time of the corridor renovations and is included in the total scope of work. Funding based on the renovation proposal dated may 4, 2015. The fixtures will typically last the life of the building. Architectural changes often result in fixture changes for aesthetics before the fixtures need replacement.
5.28	Garage & Sight Lighting Luminaires	1	LS	$83,000.00	$83,000	25	2040	100%	$173,784							(462) ceiling-mounted fluorescent fixtures provide lighting throughout the parking garage. We understand the fixtures were previously replaced under an energy program by PEPCO at no cost to The Sample. Lighting appears to be in continuing good condition. The garage lighting was upgraded to light emitting diode (LED) fixtures for more efficient illumination in 2015. The upgrade to LED scope of work includes all site lighting luminaires. (18) flood lights -- (102) pole-mounted fixtures -- (3) PAR30 lamps -- (2) A1(style lamps.
5.29	Tennis Court Lighting Luminaires	1	LS	$48,000.00	$48,000	25	2039	100%	$97,574							(32) pressure sodium luminaires were replaced with metal halide luminaires in 2014 including the complete heads. The cost is based on a proposal dated August 14, 2014.
5.30	Tennis Court & Site Lighting Poles	1	LS	$800,000.00	$800,000	25	2017	5%	$42,436	2022	80%	$787,119	2035	15%	$216,733	The parking lots, drivelanes, and tennis courts were constructed with 15' or 20' coated steel poles with one, two, or four fixtures per pole. The tennis court pole lights were replaced in 1990. With periodic maintenance and replacement of defective or deteriorated parts, lighting can be a long-life component. At the request of Management, we have scheduled a refurbishment project due to observed current conditions including peeling and deteriorated paint and apparent aging and damage of some fixtures. The cost is only an allowance as actual cost have not yet been determined. The base asset reserve amount includes full replacement including replacement footings but not including luminaires (re: Section 5.24). Replacement costs reflect current industry practice. A complete inventory of site and tennis court lighting as reported by Management is as follows: Tennis Courts – 4 poles with single luminaires; 8 poles with twin luminaires; and 3 poles with quad luminaires. Site & roadways – 74 poles with single luminaires; and 14 poles with twin luminaires.
5.31	Cable Television Wiring Upgrade	1	LS	$250,000.00	$250,000	50	2017	100%	$265,225	2067	100%	1,162,721				The cost for wiring for television distribution for both buildings was based on the original National Television Standards Committee (NTSB) specifications and distribution wiring was based on RG-59 75-ohm coaxial cable that is limited to very high frequencies (VHF). Modern over-the-air broadcasts and cable television is now based on the Advanced Television Standards Committee (ATSB) specifications and is for the most part broadcast on Ultra High Frequencies (UHF) and requires cable that has minimal loss at the frequency extremes with the long cable runs associated with high-rise condominiums. The wiring upgrade is scheduled at an estimated cost of about $6,900 per floor.
5.32	Electrical Phase Monitors	1	LS	$35,000.00	$35,000	15	2020	100%	$40,575	2035	100%	$63,214				Phase monitors for single-phase (24) and three-phase (37) electric motors were installed in 2005. These devices protect three-phase motors from damage should a power phase drop out due to storms or other phenomenon.
5.33	Variable Frequency Drives	1	LS	$88,000.00	$88,000	15	2020	100%	$102,016	2035	100%	$158,938				Seven variable frequency drives (VFDs) manufactured by Yaskawa, were installed on the residential and commercial cooling towers in 2005. Two more drives were added in 2014 to make the total nine units. These devices control fan motor speed directly in response to temperature and air conditioning load requirements.
5.34	Pumps, Valves, & Fittings Allowance	1	LS	$40,000.00	$40,000	3	2016	100%	$41,200	2019	100%	$45,020	2022	100%	$49,195	This category includes the numerous pumps, valves, and fittings which serve the various plumbing and mechanical systems throughout the complex. Pumps are a long-life component requiring periodic motor replacement and re-building. Valves and fittings are replaced as necessary, and we have scheduled an allowance throughout the study period for replacements.
5.35	Domestic Water Riser Internal Coating Allowance	1	LS	2,700,000	2,700,000	55	2020	100%	3,130,040							These copper pipe systems are usually not replaced all at one time, but are addressed as failures occur. Replacement of these systems can be expensive and disruptive, so it is prudent to begin accruing replacement funds. The initial planning was based on a four-phase approach. Phase 1 was completed in 2006 and involved replacement of 244 riser shut-off valves ranging in size from 1" to 2". Phase 2 was completed in 2007 and addressed replacement of ball and check valves. Phase 3 (full replacement) has been deferred indefinitely due to minimal required repairs over the life of the property. The system consists of approximately 120 hot and cold water three-pipe risers. The projected cost is approximately $6,000,000 for full riser replacement. However, as an alternative and programmed here, is the refinishing and coating the interior of all the domestic water piping with epoxy (essentially a plastic resin). The estimated cost to perform this work as provided by one of three known companies providing the service, runs approximately 45% of the full replacement cost and is much less intrusive. Economic and practical considerations justify repairing the piping as leaks occur. This will minimize the intrusion on residents or tenants and the financial impact. Piping repairs typically are funded from the operations budget.

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5.36	Waste & Vent Riser Repair Allowance	1	LS	1,300,000	1,300,000	55	2015	5%	$65,000	2016	5%	$66,950	2017	5%	$68,959	The waste and vent lines are cast-iron, bell and spigot. These systems are usually not replaced all at one time, but are addressed as failures occur. Waste lines can clog with wall mineral and waste deposits as buildings age requiring intense efforts to keep the lines clear. Damage to piping can result from aggressive efforts to clear clogs, which has been a problem at The Sample. Replacement of waste systems can be expensive and disruptive, so it is prudent to begin accruing replacement funds. Cast iron waste and vent piping does not usually require full replacement. In order to facilitate camera investigation, TY fittings were installed in 2005. We have reduced the cyclic percentage by 50% to reflect the recent lower failure rate.
5.37	Condenser Water Piping Allowance	1	LS	$98,000.00	$98,000	30	2032	100%	$161,979	2062	100%	$393,166				The condenser water piping is Schedule 40, 8" black steel. The system runs in a closed loop from the north and south towers to the site cooling towers on the northwest side of the property. This system has been problematic with many localized repairs over the past few years. The interior of all the condensing water piping was coated with epoxy (essentially a plastic resin) to effectively seal the piping. The condensing water piping routes chemically treated water and has an expected useful of about 50 years or better.
5.38	Trash Compactors	2	EA	$12,000.00	$24,000	20	2015	100%	$24,000	2035	100%	$43,347				Each tower has a trash chute serving every floor. A trash compactor is installed at the base of each chute. They are electric hydraulic units replaced in 2015 and appear to be in continuing good condition.
5.39	Generator Room Ventilation	1	LS	$21,800.00	$21,800	35	2040	100%	$45,644							In order to facilitate proper ventilation for the South Tower generator room for the replacement generator, a ventilation improvement project was accomplished in 2005. The modifications included the installation of three new louvers and a 15,000 CFM inline centrifugal fan. Costs are based on contract, and are scheduled for replacement after a statistical service life.
6 FIRE & LIFE SAFETY																
6.1	Emergency Exit Signs	176	EA	$440.00	$77,440	30	2016	50%	$39,882	2045	100%	$187,967				Ceiling-mounted emergency exit lights appear to be installed at all proper locations throughout the building. New signs were installed in 1998, which appear to be in continuing good condition. Exit lighting in residential common areas are scheduled for upgrade to edge lit LED types. The upgraded fixtures represent (132) of the total (176) fixtures.
6.2	Fire Alarm Modernization Project	1	LS	1,300,000	1,300,000	20	2032	100%	2,148,702	2052	100%	3,880,795				The original fire alarm system did not meet current code requirements and was replaced in 2010 with a modern addressable system including the installation of voice evacuation loud speakers in each residence. The scope of work included new speakers and strobes (ADA compliant voice and strobes), corridor smoke detectors, fire fighter telephone communications, new fire alarm control panels and annunciator panel, and all other fire detection and alarm peripherals including addressable pull stations. The system includes emergency dial-out over dedicated telephone lines to emergency services. Due to the proprietary nature of addressable systems and the fact that all of the peripherals have electronic circuits that are poled by the control panel, the next replacement cycle will require full system replacement.
6.3	Main Emergency Generators	2	EA	$85,000.00	$170,000	40	2047	100%	$437,764							Two Cummins 250 kW generators with self contained day tanks with leak detection were installed in 2007 replacing the original smaller natural gas generators. The generators are reportedly exercised for fifteen minutes on Mondays. The north tower generator had an exhaust mitigation project in 2008 to re-route exhaust.
6.4	Original Emergency Generator	1	EA	$50,000.00	$50,000	40	2019	100%	$56,275	2059	100%	$183,573				One of the original 100 kW natural gas generators has been installed in the north tower boiler room to handle power outages to the arcade lighting and office computers. The other original generator is stored to be used for parts.
6.5	Fire Suppression System Booster Pump	1	EA	$40,000.00	$40,000	50	2022	100%	$49,195	2072	100%	$215,666				The dry sprinkler system in the parking garage (G-3 level only) and standpipes located in the stairwells are supplied with water by an original Allis-Chalmers, Model #F2L2, 40-hp electric auxiliary pump. No problems were reported. Duty cycles are usually minimal, and these systems typically require little maintenance. Replacement is usually required due to parts attrition and obsolescence. Repairs to sprinkler piping, heads, and standpipes should be funded from Operations.
6.6	Portable Defibrillators	4	EA	$3,000.00	$12,000	10	2015	100%	$12,000	2025	100%	$16,127	2035	100%	$21,673	Management purchased and installed four portable defibrillators in 2004. The cost is based on the actual purchase price. We understand that several people on staff have been trained on the equipment. Recent maintenance has justified moving the next replacement to mid-term. Current literature suggests that portable defibrillators reach the end of their expected 5 to 10-year lifetimes without ever having been used. We expect that a ten-year replacement cycle shall be the extreme limit of the unit's life cycle.
6.7	Dry Pipe Sprinkler System, G-3 Garage Level	1	LS	$800,000.00	$800,000	50	2016	50%	$412,000	2017	50%	$424,360	2067	100%	3,720,709	Management, working with the Montgomery County Fire Marshal, has established this project and timing. The specifications and drawings have been completed in 2015 and currently in review as of August 2015.
6.8	Garage Stairwell Standpipes	4	EA	$4,100.00	$16,400	50	2022	100%	$20,170	2072	100%	$88,423				Management, working with the Montgomery County Fire Marshal, has established this project and timing. The specifications and drawings have been completed in 2015 and currently in review as of August 2015.
6.9	Install Heat Tape, Stairwell Standpipes, & G-3 Level	1	LS	$42,000.00	$42,000	10	2022	100%	$51,655	2032	100%	$69,420	2042	100%	$93,294	This project was completed in 2012 to lower the likelihood of freeze damage to the wet pipe system.

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6.10	Storage Room Sprinklers	6	EA	$9,600.00	$57,600	50	2016	33%	$19,578	2017	34%	$20,777	2018	33%	$20,771	Management, working with the Montgomery County Fire Marshal, has established this project and timing. The specifications and drawings have been completed in 2015 and currently in review as of August 2015.
6.11	Trash Room Sprinklers	2	EA	$4,400.00	$8,800	50	2062	100%	$35,305							Management, working with the Montgomery County Fire Marshal, has established this project and timing. The work was completed in 2012.
6.12	Trash Chute Sprinkler Risers	2	EA	$6,100.00	$12,200	50	2062	100%	$48,945							Management, working with the Montgomery County Fire Marshal, has established this project and timing. The work was completed in 2012.
7 ELEVATORS																
7.1	Passenger Elevator Modernization	6	EA	$250,000.00	1,500,000	20	2028	100%	2,202,801	2048	100%	3,978,503				Six passenger elevators provided vertical transportation for the two buildings. Controls and lift machinery were located in rooftop elevator machine rooms. Each North Tower passenger elevator made 22 stops and each South Tower passenger elevator made 23 stops. The geared-traction elevators were powered by a A.C. motors controlled by variable frequency drives (VFDs) with a hybrid electronic/electrical relay control system for each elevator. The passenger elevators each had a 2,500 pound lift rating. The elevator equipment included machine room air conditioning, multi-beam, infrared proximity detectors, a passenger intercom, illuminated push-button control panels with Braille labeling, in-car direction lanterns and car position indicators. The passenger elevator cars have stained wood paneling, satin brass finishes on hoist-way doors, and vinyl composition floor tiles. The passenger elevators were fully modernized in 2008 that included lift machinery, controllers, car controls, ADA compliance features, and car mechanical equipment. The elevator machine rooms appeared to be clean and well maintained as was the lift machinery and controllers. However, the lift ropes were not observable as they are contained within protective guards. Operating the elevators resulted in a smooth run with no evidence of leveling issues noted.
7.2	Service Elevator Modernization	2	EA	$250,000.00	$500,000	20	2028	100%	$734,267	2048	100%	1,326,168				Two service elevators provided utility vertical transportation for the two buildings. Controls and lift machinery were located in rooftop elevator machine rooms. The service elevators were limited to 20 stops and did not go down to the parking garage levels. The geared-traction elevators were powered by a A.C. motors controlled by variable frequency drives (VFDs) with a hybrid electronic/electrical relay control system for each elevator. The service elevators each had a 3,000 pound lift rating. The elevator equipment included machine room air conditioning, multi-beam, infrared proximity detectors, a passenger intercom, illuminated push-button control panels with Braille labeling, in-car direction lanterns and car position indicators. The service elevators were fully modernized in 2008 that included lift machinery, controllers, car controls, ADA compliance features, and car mechanical equipment. The elevator machine rooms appeared to be clean and well maintained as was the lift machinery and controllers. However, the lift ropes were not observable as they are contained within protective guards. Operating the elevators resulted in a smooth run with no evidence of leveling issues noted.
7.3	Accessibility Lift	1	EA	$17,500.00	$17,500	20	2017	100%	$18,566	2037	100%	$33,532				In 1997 an accessible lift was installed in the North Tower G-2 level elevator lobby, providing access from the parking garage. The lift is a Carrier-Lift manufactured by Access Industries, Inc. and has a 450-pound rating. Cost is based on contract. It appears to be in continuing good condition, and no problems were reported.
8 RECREATIONAL FACILITIES																
8.1	Tennis Court Restoration Project	7	EA	$25,000.00	$175,000	20	2031	100%	$280,824	2051	100%	$507,199				All courts had a surface restoration accomplished in 2011 and appear to be in continuing good condition. All courts will now be on the same schedule. The full service life of the tennis courts is dependent on preventative maintenance being performed. Because net post footing cracking is the most common cause of court damage, residents should be advised that tension on the nets should be released when not in use, and nets should not be over-tensioned when in use.
8.2	Tennis Court Color Coat	5	EA	$6,000.00	$30,000	5	2016	100%	$30,900	2021	100%	$35,822	2026	100%	$41,527	New color coat was installed in 2011 as part of the restoration project. Color coat generally has a five-year service life and is re-scheduled appropriately. Tennis court color coat seals the surface and helps prevent water infiltration into the court structure.
8.3	Tennis Court Fencing	1,000	LF	$30.00	$30,000	40	2016	100%	$30,900	2056	100%	$100,797				Twelve-foot-high chain link fencing is installed around the perimeter of the tennis courts. It appears to be in aging and weathered fair condition with peeling paint on the support posts. The replacement schedule was requested by Management.
8.4	Tennis Observation Deck Coating & Repairs	4,224	SF	$13.30	$56,179	10	2016	100%	$57,865	2026	100%	$77,765	2036	100%	$104,510	The tennis building concrete roof deck, which measures approximately 33' by 128', is designed to provide an observation surface for tennis spectators with a concrete stair and perimeter railing. Specifications for the 2007 restoration project were provided by SK&A and included removal of plywood, and spalled concrete, installation of a urethane waterproofing membrane, railings and pitch pockets were removed, and surface-mounted railings were installed. Work was performed by Choice Restoration. The replacement schedule was requested by Management.
8.5	Pool Plaza Restoration	1	LS	2,725,000	2,725,000	30	2033	100%	4,639,130	2063	100%	11,260,386				This major 2003/2004 project consisted of removal of the plaza topping slab and landscaping features, and the replacement of the waterproof membrane and reinforcing the garage roof to accommodate the higher loading. A new plaza topping slab, expansion joints, and internal drains were installed with extensive landscaping amenities. Structural enhancement was included to carry the increased load with the installation of steel I-beams and the surface attachment of carbon fiber reinforcing strips (battens) on the underside of the plaza deck (garage ceiling). The plaza appears to be in continuing good condition, and no current problems were reported. Because so much of the work performed in the previous project should not require repeating, we have reduced the cost of future projects.

Reserve Fund Plan for
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Bethesda, Maryland

COMPONENT DATA AND ASSET REPLACEMENT SCHEDULE
TABLE 1
2015 Through 2034

MASON & MASON
CAPITAL RESERVE ANALYSTS, INC.
www.masonreserves.com 800-776-6980 Fax 800-776-6408

Component No.	Component	Quantity	Unit of Measurement	Unit Cost	Total Asset Base	Typical Service or Cycle Life in Yrs	1st Cycle Year	Percentage of Replacement	Cost For 1st Cycle	2nd Cycle Year	Percentage of Replacement	Cost For 2nd Cycle	3rd Cycle Year	Percentage of Replacement	Cost For 3rd Cycle	DISCUSSION
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
8.6	Outdoor Pool Waterproofing & Restoration	1	LS	$509,000.00	$509,000	30	2040	100%	1,065,733							The outdoor pool is a cast-in-place concrete structure supported by the parking garage concrete frame. The shell is visible from the garage. The project in 2009/10 addressed problems with pool water leaking into the parking garage from the pool skimmers, cracks, and various plumbing connections. The cost is based on the contract amount from Choice Restoration Services. Currently there appears to be some minor new leaking, but this could not be confirmed as old or new.
8.7	Outdoor Pool White Coat	6,700	SF	$6.89	$46,163	5	2015	100%	$46,163	2020	100%	$53,516	2025	100%	$62,039	Pool white coating seals the pool surface and helps prevent water infiltration into the structure of the pool. White coat was replaced in 2015 and is scheduled after a statistical service life thereafter. The cost was based on proposal.
8.8	Outdoor Pool Equipment	1	LS	$36,000.00	$36,000	15	2027	100%	$51,327	2042	100%	$79,966				This category includes an older 10hp ITT/Marlow metal pump and strainer assembly and a bank of six Triton TRII-160 permanent media filters, new skimmers, and chlorination system. The exact age of the pump and filter equipment is not known, but the system should be operable for a few additional years. All equipment appears to be in continuing good condition with no problems reported. We understand that some pumps have been replaced. Though funding is scheduled at statistical intervals, expenditures may be made, as they have been historically, to replace/repair equipment as necessary.
8.9	Observation Deck Membrane	7,200	SF	$19.00	$136,800	25	2020	100%	$158,589	2045	100%	$332,050				The roof over the indoor pool area, measuring approximately 180' by 40', has a membrane covered with concrete pedestrian pavers, which was installed in 1994. It was inspected in 2006 and found to be in continuing good condition. The service life was previously extended because of the current good condition.
8.10	Pool Furniture Allowance	1	LS	$89,000.00	$89,000	3	2016	25%	$22,918	2019	25%	$25,043	2022	25%	$27,365	The pool furniture was replaced or restored in 2004 coinciding with the pool restoration project. Most furniture is in continuing good condition and the service life has been extended. New umbrellas are schedule for 2016. Management requested that a three-year partial replacement cycle be established.
8.11	Indoor Pool Restoration	1	LS	$55,000.00	$55,000	40	2031	100%	$88,259	2071	100%	$287,904				The indoor pool is a concrete slab on grade. It appears to be in continuing good condition and no problems were reported. Future restoration projects would address coping, waterline tiles, white coat, skimmers, plumbing, then current ADA modifications and any structural repairs that might be required. It is prudent to plan for restoration because of the large expense involved when required.
8.12	Indoor Pool White Coat	1,100	SF	$6.89	$7,579	7	2021	100%	$9,050	2028	100%	$11,130	2035	100%	$13,689	Pool white coating seals the pool surface and helps prevent water infiltration into the structure of the pool. The last application was accomplished in 2014 and included waterline tiles. It appears to be in good condition.
8.13	Indoor Pool Equipment	1	LS	$19,600.00	$19,600	15	2016	100%	$20,188	2031	100%	$31,452	2046	100%	$49,002	The spa equipment includes two, 3 hp, Premier pumps and strainers, a Nautilus FNS 36 filter, chlorinator systems, and a Spa-Pak, Ray-Pak, electric water heater, The indoor pool equipment includes one Triton TR100, permanent media, PacFab filter, a 2-hp pump, and a plate and frame water heater. All equipment appears to be in continuing good condition with no problems reported.
8.14	Indoor Whirlpool Refurbishment	1	LS	$41,000.00	$41,000	15	2015	24%	$9,840	2030	100%	$63,877	2045	100%	$99,518	The whirlpool was refurbished in 2015 ahead of schedule. Management requested that the service life be shortened to 15 years. The cost is based on the actual cost.
8.15	Indoor Pool Deck Restoration	3,000	SF	$25.50	$76,500	5	2016	100%	$78,795	2021	100%	$91,345	2026	100%	$105,894	The indoor pool deck exposed aggregate surface was replaced with Miracoat in 2001 and again in 2011, which provides an attractive and comfortable walking surface. Unfortunately, the coating has not held up well and recent repairs were unsuccessful. Management requested the near-term replacement project and a shorter life cycle.
8.16	Fitness Equipment	1	LS	$223,000.00	$223,000	10	2020	50%	$129,259	2025	50%	$149,847	2030	50%	$173,713	Replacements are scheduled at 50% of the calculated total value every five years to address partial replacements as necessary. All equipment appears to be in currently good condition. We understand that new purchase were made in 2014.
8.17	Community Room Furnishings Allowance	1	LS	$25,000.00	$25,000	10	2016	50%	$12,875	2026	50%	$17,303	2036	50%	$23,254	This category includes the tables, chairs, and interior appointments in the community room. Replacement timing and cost is generally discretionary. All furnishings appear to be in serviceable condition. The replacement schedule was requested by Management.
8.18	Locker Room Renovation	1	LS	$149,000.00	$149,000	20	2031	100%	$239,101	2051	100%	$431,843				A locker room renovation project was completed in 2011, which included new tile, plumbing fixtures, showers, lockers, dry deck flooring, finishes, lighting, mirrors, and ADA compliance modifications. All appears to be in continuing good condition. Replacement costs and timing are often discretionary.
8.19	Sauna Refurbishment	4	EA	$15,000.00	$60,000	20	2023	100%	$76,006	2043	100%	$137,276				Management reported that two of the four saunas were refurbished in 2000. We understand that the other two saunas have very low utilization and have been given an extended service life. All equipment is in continuing good condition.
8.20	Pool Accessibility Lifts	2	EA	$7,600.00	$15,200	10	2015	50%	$7,600	2016	15%	$2,348	2025	50%	$10,214	The indoor pool and the outdoor pool are each equipped with an accessibility lift. One was replaced in 2015 and the other is scheduled near-term. Future replacements are scheduled after a statistical service life.
9 SUPPORT VEHICLES																
9.1	Garage Sweeper	1	EA	$51,000.00	$51,000	20	2018	100%	$55,729	2038	100%	$100,653				The Tennant garage sweeper was put in service in 1996. The cost is based on the purchase price. The unit is reported to be in continuing good condition, and the service life was previously extended based on the condition.
9.2	Multi-Purpose Truck	1	EA	$40,000.00	$40,000	10	2020	100%	$46,371	2030	100%	$62,319	2040	100%	$83,751	The 2009 GMC Sierra pickup truck was purchased in 2010. The cost is based on the purchase price and is reportedly still serviceable.

Reserve Fund Plan for
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COMPONENT DATA AND ASSET REPLACEMENT SCHEDULE
TABLE 1
2015 Through 2034

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Component No.	Component	Quantity	Unit of Measurement	Unit Cost	Total Asset Base	Typical Service or Cycle Life in Yrs	1st Cycle Year	Percentage of Replacement	Cost For 1st Cycle	2nd Cycle Year	Percentage of Replacement	Cost For 2nd Cycle	3rd Cycle Year	Percentage of Replacement	Cost For 3rd Cycle	DISCUSSION
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
9.3	Skid Loader with Snow Blower	1	EA	$68,000.00	$68,000	20	2031	100%	$109,120	2051	100%	$197,083				The New Holland L190 Skid Loader with snow blower attachment was purchased in 2011. The cost is based on the purchase price and is reportedly still in good, serviceable condition.
9.4	Utility Vehicle	1	EA	$19,526.00	$19,526	10	2022	100%	$24,015	2032	100%	$32,274	2042	100%	$43,373	The Kubota RTV1100 was purchased in 2012. The cost is based on the purchase price. The unit is no longer used for snow plowing, and is reportedly still in good, serviceable condition.
10 MARKET & DELI																
10.1	Market & Deli Annual Preventive Maintenance Allowance for Refrigeration Equipment	1	LS	$7,000.00	$7,000	1	2015	100%	$7,000	2016	100%	$7,210	2017	100%	$7,426	Preventive maintenance was provided by an outside contractor and some tasks are performed internally to maintain the on-going integrity and viability of the display and walk-in refrigeration systems. The reserve allowance includes the cost of the service contract plus possible in-house expenditures beyond the contracted service.
10.2	Market & Deli Refrigeration Equipment Replacement Allowance	1	LS	$100,000.00	$100,000	25	2019	40%	$45,020	2029	40%	$60,504	2034	60%	$105,210	Market/Deli refrigeration systems were provided by Bush Refrigeration. New Electrical service was necessary in the initial installation and is included here. According to current literature, they should achieve approximately 12 to 14 years useful life for a given commercial refrigerator or freezer with the average noted to be about 10 years. We expect that the complete self-contained systems such as the seven self-contained display refrigerators and freezers will require complete replacement and the three walk-in refrigerators and freezers will only require refrigeration equipment replacements within that period. The insulated walk-in boxes themselves should have a life cycle of at least 25 years.
10.3	Market & Deli Resilient Vinyl Flooring	2,000	SF	$9.25	$18,500	20	2016	100%	$19,055	2036	100%	$34,415				Resilient vinyl flooring is installed throughout this area. It is worn and damaged and is scheduled for replacement near-term.
10.4	Market & Deli Shelving Allowance	1	LS	$17,750.00	$17,750	20	2034	100%	$31,125	2054	100%	$56,215				Standard market shelving is installed throughout the market. Pricing is based on standard purchase costs plus removal, disposal, and installation.
10.5	Market & Deli Acoustical Tile Ceiling	2,000	SF	$6.50	$13,000	45	2036	100%	$24,184							Standard acoustical tile ceiling tiles suspended on painted metal grid are installed throughout this area. The ceiling appear to be in good condition with no deterioration or damage observed. Replacement is scheduled after a statistical service life.
10.6	Market & Deli Lighting Allowance	1	LS	$18,300.00	$18,300	45	2036	100%	$34,043							This category includes the fluorescent fixtures installed in the acoustical ceiling installation and two sets of exit/emergency lights.
10.7	Market & Deli Plumbing Allowance	1	LS	$9,750.00	$9,750	35	2049	100%	$26,636							This includes the restroom fixtures, two stainless steel sink modules, and a scrub sink.
10.8	Market & Deli Millwork	1	LS	$7,500.00	$7,500	20	2034	100%	$13,151	2054	100%	$23,753				Three millwork modules finished with plastic laminate are provided for counter space for the cashier area and the coffee/condiment area. They appear to be in serviceable condition.

CALENDAR OF EXPENDITURES
TABLE 2 EXPLANATION

This table is a yearly plan of action of replacements and costs. A description of the columns in the table follows:

Column **1** **Year** is the year of the projected replacement and expenditure.

Column **2** **Component No.** itemizes the components and is consistent throughout the tables.

Column **3** **Component** is a brief description of the component.

Column **4** **Present Cost** is the cost for the cycle in today's dollars.

Column **5** **Future Cost (Inflated)** is the cost for the cycle in future dollars.

Column **6** **Total Annual Expenditures** gives the total expenditures by year.

Column **7** **Action** is an area provided for the Board to make notations as to action taken on each component.

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Reserve Fund Plan for
THE Sample
Bethesda, Maryland

CALENDAR OF EXPENDITURES
TABLE 2
2015 Through 2034

MASON & MASON
CAPITAL RESERVE ANALYSTS, INC.
www.masonreserves.com 800-776-6980 Fax 800-776-6408

YEAR	COMPONENT NO.	COMPONENT	PRESENT COST 2015	FUTURE COST (INFLATED)	TOTAL ANNUAL EXPENDITURES	ACTION
1	2	3	4	5	6	7
2015					2015	
	1.3	Asphalt Repair & Crack Sealing Allowance	$205,000	$205,000	TOTAL EXPENDITURES	
	2.5	Interim Balcony Coatings	$24,067	$24,067		
	3.1	Garage Exterior Wall Restoration	$30,000	$30,000		
	4.1	Carpeting	$240,523	$240,523		
	4.2	Corridor Refurbishment Allowance	$648,900	$648,900		
	4.4	Office Equipment & Furnishings Allowance	$29,474	$29,474		
	4.6	Service Lobbies Refurbishment	$39,425	$39,425		
	4.7	Laundry Room Refurbishment Allowance	$10,004	$10,004		
	4.8	Laundry Equipment Purchase Allowance	$236,000	$236,000		
	4.12	Fire-Rated Interior Door Replacement Allowance	$98,900	$98,900		
	4.13	Public Restroom Renovations	$31,544	$31,544		
	4.15	Unit Door Refurbishment Allowance	$124,620	$124,620		
	5.5	Domestic Hot Water Heat Exchangers Overhaul	$24,000	$24,000		
	5.27	Corridor Lighting	$135,000	$135,000		
	5.36	Waste & Vent Riser Repair Allowance	$65,000	$65,000		
	5.38	Trash Compactors	$24,000	$24,000		
	6.6	Portable Defibrillators	$12,000	$12,000		
	8.7	Outdoor Pool White Coat	$46,163	$46,163		
	8.14	Indoor Whirlpool Refurbishment	$9,840	$9,840		
	8.20	Pool Accessibility Lifts	$7,600	$7,600		
	10.1	Market & Deli Annual Preventive Maintenance Allo	$7,000	$7,000		
					2,049,058	
2016					2016	
	1.4	Concrete Sidewalks	$1,329	$1,369	TOTAL EXPENDITURES	
	1.6	Retaining Wall & Erosion Control Allowance	$6,000	$6,180		
	1.9	Site Fencing Annual Repairs	$2,000	$2,060		
	2.5	Interim Balcony Coatings	$24,067	$24,789		
	2.7	Sub-Grade Waterproofing Allowance	$68,125	$70,169		
	3.4	Garage Interior Surface Restoration	$236,530	$243,626		
	4.1	Carpeting	$481,045	$495,476		
	4.2	Corridor Refurbishment Allowance	1,297,799	1,336,733		
	4.3	Lobby Furnishings Allowance	$20,797	$21,421		
	4.6	Service Lobbies Refurbishment	$78,850	$81,216		
	4.7	Laundry Room Refurbishment Allowance	$20,007	$20,607		
	4.15	Unit Door Refurbishment Allowance	$249,240	$256,717		
	5.23	North Tower Electrical Main Switchgear Moderniza	1,500,000	1,545,000		
	5.24	Electrical Service Transformers-6 Assorted Sizes	$200,000	$206,000		
	5.27	Corridor Lighting	$270,000	$278,100		
	5.34	Pumps, Valves, & Fittings Allowance	$40,000	$41,200		
	5.36	Waste & Vent Riser Repair Allowance	$65,000	$66,950		
	6.1	Emergency Exit Signs	$38,720	$39,882		
	6.7	Dry Pipe Sprinkler System, G-3 Garage Level	$400,000	$412,000		
	6.10	Storage Room Sprinklers	$19,008	$19,578		
	8.2	Tennis Court Color Coat	$30,000	$30,900		
	8.3	Tennis Court Fencing	$30,000	$30,900		
	8.4	Tennis Observation Deck Coating & Repairs	$56,179	$57,865		
	8.10	Pool Furniture Allowance	$22,250	$22,918		
	8.13	Indoor Pool Equipment	$19,600	$20,188		
	8.15	Indoor Pool Deck Restoration	$76,500	$78,795		
	8.17	Community Room Furnishings Allowance	$12,500	$12,875		
	8.20	Pool Accessibility Lifts	$2,280	$2,348		
	10.1	Market & Deli Annual Preventive Maintenance Allo	$7,000	$7,210		
	10.3	Market & Deli Resilient Vinyl Flooring	$18,500	$19,055		
					5,452,127	

Reserve Fund Plan for
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CALENDAR OF EXPENDITURES
TABLE 2
2015 Through 2034

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YEAR	COMPONENT NO.	COMPONENT	PRESENT COST 2015	FUTURE COST (INFLATED)	TOTAL ANNUAL EXPENDITURES	ACTION
1	2	3	4	5	6	7
2017					2017	
	1.4	Concrete Sidewalks	$1,329	$1,410	TOTAL EXPENDITURES	
	1.5	Concrete Curbs & Gutters Allowance	$4,400	$4,668		
	1.9	Site Fencing Annual Repairs	$2,000	$2,122		
	2.5	Interim Balcony Coatings	$24,067	$25,533		
	4.1	Carpeting	$240,523	$255,170		
	4.2	Corridor Refurbishment Allowance	$648,900	$688,417		
	4.6	Service Lobbies Refurbishment	$39,425	$41,826		
	4.7	Laundry Room Refurbishment Allowance	$10,004	$10,613		
	4.9	Garage Elevator Lobbies Refurbishment	$27,500	$29,175		
	4.12	Fire-Rated Interior Door Replacement Allowance	$98,900	$104,923		
	4.15	Unit Door Refurbishment Allowance	$124,620	$132,209		
	5.14	Retail Space AHU Allowance	$59,500	$63,124		
	5.23	North Tower Electrical Main Switchgear Moderniza	1,500,000	1,591,350		
	5.24	Electrical Service Transformers-6 Assorted Sizes	$200,000	$212,180		
	5.25	Electrical Service Preventive Maintenance	$16,500	$17,505		
	5.27	Corridor Lighting	$135,000	$143,222		
	5.30	Tennis Court & Site Lighting Poles	$40,000	$42,436		
	5.31	Cable Television Wiring Upgrade	$250,000	$265,225		
	5.36	Waste & Vent Riser Repair Allowance	$65,000	$68,959		
	6.7	Dry Pipe Sprinkler System, G-3 Garage Level	$400,000	$424,360		
	6.10	Storage Room Sprinklers	$19,584	$20,777		
	7.3	Accessibility Lift	$17,500	$18,566		
	10.1	Market & Deli Annual Preventive Maintenance Allo	$7,000	$7,426		
					4,171,195	
2018					2018	
	1.4	Concrete Sidewalks	$1,329	$1,453	TOTAL EXPENDITURES	
	1.8	Site Fencing	$147,000	$160,631		
	2.5	Interim Balcony Coatings	$24,067	$26,299		
	2.6	Overhead Doors	$55,000	$60,100		
	4.5	Arcade Refurbishment Allowance	$200,000	$218,545		
	4.10	Professional & Commercial Refurbishments	$143,000	$156,260		
	5.15	Indoor Pool Dehumidifier	$80,000	$87,418		
	5.16	Penthouse Rooftop Package Units	$60,000	$65,564		
	5.36	Waste & Vent Riser Repair Allowance	$65,000	$71,027		
	6.10	Storage Room Sprinklers	$19,008	$20,771		
	9.1	Garage Sweeper	$51,000	$55,729		
	10.1	Market & Deli Annual Preventive Maintenance Allo	$7,000	$7,649		
					$931,446	
2019					2019	
	1.4	Concrete Sidewalks	$1,329	$1,496	TOTAL EXPENDITURES	
	2.1	Re-Roofing Project, Towers	1,283,400	1,444,478		
	2.5	Interim Balcony Coatings	$24,067	$27,088		
	4.12	Fire-Rated Interior Door Replacement Allowance	$98,900	$111,313		
	5.2	Interim Boiler Remediation	$75,000	$84,413		
	5.8	Interim Residential Centrifugal Chiller Re-Builds	$80,000	$90,041		
	5.34	Pumps, Valves, & Fittings Allowance	$40,000	$45,020		
	5.36	Waste & Vent Riser Repair Allowance	$65,000	$73,158		
	6.4	Original Emergency Generator	$50,000	$56,275		
	8.10	Pool Furniture Allowance	$22,250	$25,043		
	10.2	Market & Deli Refrigeration Equipment Replaceme	$40,000	$45,020		
					2,003,346	

Reserve Fund Plan for
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CALENDAR OF EXPENDITURES
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1	2	3	4	5	6	7
2020					2020	
	1.1	Asphalt Restoration Project	$229,056	$265,539	TOTAL EXPENDITURES	
	1.2	Asphalt Rejuvenator	$35,790	$41,490		
	1.3	Asphalt Repair & Crack Sealing Allowance	$102,500	$118,826		
	1.4	Concrete Sidewalks	$1,329	$1,541		
	1.9	Site Fencing Annual Repairs	$2,000	$2,319		
	2.2	Re-Roofing Project, Lobby	$138,000	$159,980		
	2.4	Window Sealant	1,188,100	1,377,334		
	2.5	Interim Balcony Coatings	$681,904	$790,514		
	5.32	Electrical Phase Monitors	$35,000	$40,575		
	5.33	Variable Frequency Drives	$88,000	$102,016		
	5.35	Domestic Water Riser Internal Coating Allowance	2,700,000	3,130,040		
	5.36	Waste & Vent Riser Repair Allowance	$65,000	$75,353		
	8.7	Outdoor Pool White Coat	$46,163	$53,516		
	8.9	Observation Deck Membrane	$136,800	$158,589		
	8.16	Fitness Equipment	$111,500	$129,259		
	9.2	Multi-Purpose Truck	$40,000	$46,371		
	10.1	Market & Deli Annual Preventive Maintenance Allo	$7,000	$8,115		
					6,501,374	
2021					2021	
	1.4	Concrete Sidewalks	$1,329	$1,587	TOTAL EXPENDITURES	
	1.6	Retaining Wall & Erosion Control Allowance	$6,000	$7,164		
	1.9	Site Fencing Annual Repairs	$2,000	$2,388		
	4.12	Fire-Rated Interior Door Replacement Allowance	$98,900	$118,092		
	5.9	Residential Cooling Towers	$144,000	$171,944		
	5.10	Commercial Chiller	$170,000	$202,989		
	5.11	Commercial Cooling Tower	$125,000	$149,257		
	5.14	Retail Space AHU Allowance	$59,500	$71,046		
	5.36	Waste & Vent Riser Repair Allowance	$65,000	$77,613		
	8.2	Tennis Court Color Coat	$30,000	$35,822		
	8.12	Indoor Pool White Coat	$7,579	$9,050		
	8.15	Indoor Pool Deck Restoration	$76,500	$91,345		
	10.1	Market & Deli Annual Preventive Maintenance Allo	$7,000	$8,358		
					$946,655	
2022					2022	
	1.4	Concrete Sidewalks	$1,329	$1,635	TOTAL EXPENDITURES	
	1.5	Concrete Curbs & Gutters Allowance	$4,400	$5,411		
	1.9	Site Fencing Annual Repairs	$2,000	$2,460		
	3.2	Interim Elevated Garage Deck Repair & Coatings A	1,543,440	1,898,237		
	5.19	Tennis Building 4-Ton HVAC System	$10,000	$12,299		
	5.25	Electrical Service Preventive Maintenance	$33,000	$40,586		
	5.30	Tennis Court & Site Lighting Poles	$640,000	$787,119		
	5.34	Pumps, Valves, & Fittings Allowance	$40,000	$49,195		
	5.36	Waste & Vent Riser Repair Allowance	$65,000	$79,942		
	6.5	Fire Suppression System Booster Pump	$40,000	$49,195		
	6.8	Garage Stairwell Standpipes	$16,400	$20,170		
	6.9	Install Heat Tape, Stairwell Standpipes, & G-3 Leve	$42,000	$51,655		
	8.10	Pool Furniture Allowance	$22,250	$27,365		
	9.4	Utility Vehicle	$19,526	$24,015		
	10.1	Market & Deli Annual Preventive Maintenance Allo	$7,000	$8,609		
					3,057,891	

Reserve Fund Plan for
THE Sample
Bethesda, Maryland

CALENDAR OF EXPENDITURES
TABLE 2
2015 Through 2034

MASON & MASON
CAPITAL RESERVE ANALYSTS, INC.
www.masonreserves.com 800-776-6980 Fax 800-776-6408

YEAR	COMPONENT NO.	COMPONENT	PRESENT COST 2015	FUTURE COST (INFLATED)	TOTAL ANNUAL EXPENDITURES	ACTION
1	2	3	4	5	6	7
2023					2023	
	1.4	Concrete Sidewalks	$1,329	$1,684	TOTAL EXPENDITURES	
	1.9	Site Fencing Annual Repairs	$2,000	$2,534		
	4.4	Office Equipment & Furnishings Allowance	$58,947	$74,673		
	4.8	Laundry Equipment Purchase Allowance	$236,000	$298,958		
	4.12	Fire-Rated Interior Door Replacement Allowance	$98,900	$125,284		
	5.36	Waste & Vent Riser Repair Allowance	$65,000	$82,340		
	8.19	Sauna Refurbishment	$60,000	$76,006		
	10.1	Market & Deli Annual Preventive Maintenance Allo	$7,000	$8,867		
					$670,345	
2024					2024	
	1.4	Concrete Sidewalks	$1,329	$1,735	TOTAL EXPENDITURES	
	1.9	Site Fencing Annual Repairs	$2,000	$2,610		
	4.3	Lobby Furnishings Allowance	$231,080	$301,507		
	5.36	Waste & Vent Riser Repair Allowance	$65,000	$84,810		
	10.1	Market & Deli Annual Preventive Maintenance Allo	$7,000	$9,133		
					$399,795	
2025					2025	
	1.1	Asphalt Restoration Project	$76,352	$102,611	TOTAL EXPENDITURES	
	1.2	Asphalt Rejuvenator	$35,790	$48,099		
	1.3	Asphalt Repair & Crack Sealing Allowance	$51,250	$68,876		
	1.4	Concrete Sidewalks	$1,329	$1,787		
	1.9	Site Fencing Annual Repairs	$2,000	$2,688		
	4.10	Professional & Commercial Refurbishments	$143,000	$192,180		
	4.12	Fire-Rated Interior Door Replacement Allowance	$98,900	$132,913		
	4.14	Mailboxes	$185,000	$248,625		
	5.5	Domestic Hot Water Heat Exchangers Overhaul	$24,000	$32,254		
	5.14	Retail Space AHU Allowance	$157,500	$211,667		
	5.34	Pumps, Valves, & Fittings Allowance	$40,000	$53,757		
	5.36	Waste & Vent Riser Repair Allowance	$65,000	$87,355		
	6.6	Portable Defibrillators	$12,000	$16,127		
	8.7	Outdoor Pool White Coat	$46,163	$62,039		
	8.10	Pool Furniture Allowance	$22,250	$29,902		
	8.16	Fitness Equipment	$111,500	$149,847		
	8.20	Pool Accessibility Lifts	$7,600	$10,214		
	10.1	Market & Deli Annual Preventive Maintenance Allo	$7,000	$9,407		
					1,460,346	
2026					2026	
	1.4	Concrete Sidewalks	$1,329	$1,840	TOTAL EXPENDITURES	
	1.6	Retaining Wall & Erosion Control Allowance	$6,000	$8,305		
	1.9	Site Fencing Annual Repairs	$2,000	$2,768		
	3.4	Garage Interior Surface Restoration	$236,530	$327,413		
	5.1	Central Boilers Replacement	1,170,000	1,619,554		
	5.36	Waste & Vent Riser Repair Allowance	$65,000	$89,975		
	8.2	Tennis Court Color Coat	$30,000	$41,527		
	8.4	Tennis Observation Deck Coating & Repairs	$56,179	$77,765		
	8.15	Indoor Pool Deck Restoration	$76,500	$105,894		
	8.17	Community Room Furnishings Allowance	$12,500	$17,303		
	8.20	Pool Accessibility Lifts	$7,600	$10,520		
	10.1	Market & Deli Annual Preventive Maintenance Allo	$7,000	$9,690		
					2,312,555	

Reserve Fund Plan for
THE Sample
Bethesda, Maryland

CALENDAR OF EXPENDITURES
TABLE 2
2015 Through 2034

MASON & MASON
CAPITAL RESERVE ANALYSTS, INC.
www.masonreserves.com 800-776-6980 Fax 800-776-6408

YEAR	COMPONENT NO.	COMPONENT	PRESENT COST 2015	FUTURE COST (INFLATED)	TOTAL ANNUAL EXPENDITURES	ACTION
1	2	3	4	5	6	7
2027					2027	
	1.4	Concrete Sidewalks	$1,329	$1,895	TOTAL EXPENDITURES	
	1.5	Concrete Curbs & Gutters Allowance	$4,400	$6,273		
	1.9	Site Fencing Annual Repairs	$2,000	$2,852		
	3.3	Garage Restoration Project Allowance	2,400,000	3,421,826		
	4.9	Garage Elevator Lobbies Refurbishment	$27,500	$39,208		
	4.12	Fire-Rated Interior Door Replacement Allowance	$98,900	$141,008		
	5.25	Electrical Service Preventive Maintenance	$33,000	$47,050		
	5.36	Waste & Vent Riser Repair Allowance	$65,000	$92,674		
	8.8	Outdoor Pool Equipment	$36,000	$51,327		
	10.1	Market & Deli Annual Preventive Maintenance Allo	$7,000	$9,980		
					3,814,095	
2028					2028	
	1.4	Concrete Sidewalks	$1,329	$1,952	TOTAL EXPENDITURES	
	1.9	Site Fencing Annual Repairs	$2,000	$2,937		
	5.21	Underground Storage Tank	$300,000	$440,560		
	5.34	Pumps, Valves, & Fittings Allowance	$40,000	$58,741		
	5.36	Waste & Vent Riser Repair Allowance	$65,000	$95,455		
	7.1	Passenger Elevator Modernization	1,500,000	2,202,801		
	7.2	Service Elevator Modernization	$500,000	$734,267		
	8.10	Pool Furniture Allowance	$22,250	$32,675		
	8.12	Indoor Pool White Coat	$7,579	$11,130		
	10.1	Market & Deli Annual Preventive Maintenance Allo	$7,000	$10,280		
					3,590,798	
2029					2029	
	1.4	Concrete Sidewalks	$1,329	$2,011	TOTAL EXPENDITURES	
	1.9	Site Fencing Annual Repairs	$2,000	$3,025		
	4.12	Fire-Rated Interior Door Replacement Allowance	$98,900	$149,595		
	5.14	Retail Space AHU Allowance	$73,500	$111,175		
	5.36	Waste & Vent Riser Repair Allowance	$65,000	$98,318		
	10.1	Market & Deli Annual Preventive Maintenance Allo	$7,000	$10,588		
	10.2	Market & Deli Refrigeration Equipment Replaceme	$40,000	$60,504		
					$435,217	
2030					2030	
	1.2	Asphalt Rejuvenator	$35,790	$55,760	TOTAL EXPENDITURES	
	1.3	Asphalt Repair & Crack Sealing Allowance	$102,500	$159,692		
	1.4	Concrete Sidewalks	$1,329	$2,071		
	1.7	Gatehouse Restoration Allowance	$17,500	$27,264		
	1.9	Site Fencing Annual Repairs	$2,000	$3,116		
	2.3	Facade & Balcony Restoration Allowance	2,327,458	3,626,104		
	2.4	Window Sealant	1,188,100	1,851,021		
	2.7	Sub-Grade Waterproofing Allowance	$136,250	$212,273		
	3.1	Garage Exterior Wall Restoration	$30,000	$46,739		
	5.36	Waste & Vent Riser Repair Allowance	$65,000	$101,268		
	8.7	Outdoor Pool White Coat	$46,163	$71,920		
	8.14	Indoor Whirlpool Refurbishment	$41,000	$63,877		
	8.16	Fitness Equipment	$111,500	$173,713		
	9.2	Multi-Purpose Truck	$40,000	$62,319		
	10.1	Market & Deli Annual Preventive Maintenance Allo	$7,000	$10,906		
					6,468,043	

Reserve Fund Plan for
THE Sample
Bethesda, Maryland

CALENDAR OF EXPENDITURES
TABLE 2
2015 Through 2034

MASON & MASON
CAPITAL RESERVE ANALYSTS, INC.
www.masonreserves.com 800-776-6980 Fax 800-776-6408

YEAR	COMPONENT NO.	COMPONENT	PRESENT COST 2015	FUTURE COST (INFLATED)	TOTAL ANNUAL EXPENDITURES	ACTION
1	2	3	4	5	6	7
2031					2031	
	1.4	Concrete Sidewalks	$1,329	$2,133	TOTAL EXPENDITURES	
	1.6	Retaining Wall & Erosion Control Allowance	$6,000	$9,628		
	1.9	Site Fencing Annual Repairs	$2,000	$3,209		
	4.1	Carpeting	$962,090	1,543,872		
	4.4	Office Equipment & Furnishings Allowance	$29,474	$47,296		
	4.8	Laundry Equipment Purchase Allowance	$236,000	$378,711		
	4.12	Fire-Rated Interior Door Replacement Allowance	$98,900	$158,705		
	5.7	Residential Centrifugal Chillers	1,200,000	1,925,648		
	5.9	Residential Cooling Towers	$480,000	$770,259		
	5.12	Penthouse Corridor & Laundry Rooftop AHUs	$180,000	$288,847		
	5.34	Pumps, Valves, & Fittings Allowance	$40,000	$64,188		
	5.36	Waste & Vent Riser Repair Allowance	$65,000	$104,306		
	8.1	Tennis Court Restoration Project	$175,000	$280,824		
	8.10	Pool Furniture Allowance	$22,250	$35,705		
	8.11	Indoor Pool Restoration	$55,000	$88,259		
	8.13	Indoor Pool Equipment	$19,600	$31,452		
	8.15	Indoor Pool Deck Restoration	$76,500	$122,760		
	8.18	Locker Room Renovation	$149,000	$239,101		
	9.3	Skid Loader with Snow Blower	$68,000	$109,120		
	10.1	Market & Deli Annual Preventive Maintenance Allo	$7,000	$11,233		
					6,215,258	
2032					2032	
	1.4	Concrete Sidewalks	$1,329	$2,197	TOTAL EXPENDITURES	
	1.5	Concrete Curbs & Gutters Allowance	$4,400	$7,273		
	1.9	Site Fencing Annual Repairs	$2,000	$3,306		
	4.6	Service Lobbies Refurbishment	$157,700	$260,654		
	4.7	Laundry Room Refurbishment Allowance	$40,014	$66,137		
	4.10	Professional & Commercial Refurbishments	$143,000	$236,357		
	5.3	Heat Exchanger Full Replacement	$210,000	$347,098		
	5.4	Domestic Hot Water Storage Tanks	$32,000	$52,891		
	5.36	Waste & Vent Riser Repair Allowance	$65,000	$107,435		
	5.37	Condenser Water Piping Allowance	$98,000	$161,979		
	6.2	Fire Alarm Modernization Project	1,300,000	2,148,702		
	6.9	Install Heat Tape, Stairwell Standpipes, & G-3 Leve	$42,000	$69,420		
	9.4	Utility Vehicle	$19,526	$32,274		
	10.1	Market & Deli Annual Preventive Maintenance Allo	$7,000	$11,570		
					3,507,292	
2033					2033	
	1.4	Concrete Sidewalks	$1,329	$2,263	TOTAL EXPENDITURES	
	1.9	Site Fencing Annual Repairs	$2,000	$3,405		
	2.6	Overhead Doors	$55,000	$93,634		
	4.12	Fire-Rated Interior Door Replacement Allowance	$98,900	$168,371		
	5.15	Indoor Pool Dehumidifier	$80,000	$136,195		
	5.36	Waste & Vent Riser Repair Allowance	$65,000	$110,658		
	8.5	Pool Plaza Restoration	2,725,000	4,639,130		
	10.1	Market & Deli Annual Preventive Maintenance Allo	$7,000	$11,917		
					5,165,572	

Reserve Fund Plan for
THE Sample
Bethesda, Maryland

CALENDAR OF EXPENDITURES
TABLE 2
2015 Through 2034

MASON & MASON
CAPITAL RESERVE ANALYSTS, INC.
www.masonreserves.com 800-776-6980 Fax 800-776-6408

YEAR	COMPONENT NO.	COMPONENT	PRESENT COST 2015	FUTURE COST (INFLATED)	TOTAL ANNUAL EXPENDITURES	ACTION
1	2	3	4	5	6	7
2034					2034	
	1.4	Concrete Sidewalks	$1,329	$2,331	TOTAL EXPENDITURES	
	1.9	Site Fencing Annual Repairs	$2,000	$3,507		
	4.3	Lobby Furnishings Allowance	$231,080	$405,200		
	5.17	Residential Fan Coil Units Including Finishes	3,346,500	5,868,108		
	5.25	Electrical Service Preventive Maintenance	$33,000	$57,866		
	5.34	Pumps, Valves, & Fittings Allowance	$40,000	$70,140		
	5.36	Waste & Vent Riser Repair Allowance	$65,000	$113,978		
	8.10	Pool Furniture Allowance	$22,250	$39,016		
	10.2	Market & Deli Refrigeration Equipment Replaceme	$60,000	$105,210		
	10.4	Market & Deli Shelving Allowance	$17,750	$31,125		
	10.8	Market & Deli Millwork	$7,500	$13,151		
					6,709,632	

CURRENT FUNDING ANALYSIS CASH FLOW METHOD
TABLE 3.0 EXPLANATION

and, if applicable,

ALTERNATIVE FUNDING ANALYSIS CASH FLOW METHOD
TABLE 3.1, 3.2, 3,3 (etc.) EXPLANATION

Table 3.0 shows the financial picture over the twenty-year study period, using the current annual contribution and the reserve fund balance reported at the beginning of the study year. If the results of the study indicate a need to increase the annual contribution to maintain adequate balances throughout the study period, Table 3.1, and possibly, 3.2 will be provided for consideration. Alternatives might also be provided if a community is over-funded and desires to adjust the annual contribution downward.

Alternative funding may be achieved by increasing the annual contribution to a fixed yearly amount or by applying an annual escalation factor to increase contributions over time, or a combination of both methods. An inflation factor and interest income factor may be included in the calculations on this page.

A description of the columns in the table follows:

Column **1** **Year**

Column **2** **Total Asset Base** of all common capital assets included in the reserve fund with costs adjusted for inflation.

Column **3** **Beginning Reserve Fund Balance** is the reserve fund balance after all activity in the prior year is completed.

Column **4** **Annual Contribution,** on Table 3, is the amount contributed annually to the reserve fund as reported by the Board of Directors. On the Alternative Funding Analysis tables (3.1, 3.2, etc.), the annual contribution is projected to maintain positive balances throughout the study period.

Column **5** **Interest Income,** which is indicated in the heading of the table, is applied to the reserve fund balance and is accrued monthly throughout each year after the yearly expenditures are deducted. The interest income percentage may be varied to reflect actual experience of the community investments.

Column **6** **Capital Expenditures** are annual totals of expenditures for each year of the study period adjusted by the inflation percentage listed in the heading of the table.

Column **7** **Ending Reserve Fund Balance** is the result of the beginning reserve fund balance plus the annual contribution, plus interest income, less capital expenditures for the year.

Reserve Fund Plan for
THE Sample
Bethesda, Maryland

CURRENT FUNDING ANALYSIS
CASH FLOW METHOD
TABLE 3

MASON & MASON
CAPITAL RESERVE ANALYSTS, INC.
www.masonreserves.com 800-776-6980 Fax 800-776-6408

In Dollars	Beginning Reserve Fund Balance:	Annual Contribution To Reserves:	Contribution Percentage Increase:	Annual Inflation Factor:	Annual Interest Income Factor:
	6,288,289	4,216,380	3.00%	3.00%	1.00%

YEAR	TOTAL ASSET BASE	BEGINNING RESERVE FUND BALANCE	ANNUAL CONTRIBUTION	INTEREST INCOME	CAPITAL EXPENDITURES	ENDING RESERVE FUND BALANCE
1	2	3	4	5	6	7
2015	54,179,211	6,288,289	4,216,380	74,965	2,049,059	8,530,575
2016	55,804,588	8,530,575	4,342,871	79,716	5,452,125	7,501,037
2017	57,478,725	7,501,037	4,473,158	77,030	4,171,195	7,880,030
2018	59,203,087	7,880,030	4,607,352	99,142	931,446	11,655,079
2019	60,979,180	11,655,079	4,745,573	132,002	2,003,345	14,529,309
2020	62,808,555	14,529,309	4,887,940	137,249	6,501,377	13,053,121
2021	64,692,812	13,053,121	5,034,578	153,350	946,655	17,294,394
2022	66,633,596	17,294,394	5,185,616	185,325	3,057,893	19,607,441
2023	68,632,604	19,607,441	5,341,184	222,359	670,346	24,500,638
2024	70,691,582	24,500,638	5,501,420	273,854	399,795	29,876,117
2025	72,812,329	29,876,117	5,666,462	322,999	1,460,348	34,405,230
2026	74,996,699	34,405,230	5,836,456	364,799	2,312,554	38,293,931
2027	77,246,600	38,293,931	6,011,550	396,670	3,814,093	40,888,058
2028	79,563,998	40,888,058	6,191,896	424,922	3,590,798	43,914,079
2029	81,950,918	43,914,079	6,377,653	473,449	435,216	50,329,965
2030	84,409,446	50,329,965	6,568,983	506,215	6,468,043	50,937,120
2031	86,941,729	50,937,120	6,766,052	514,757	6,215,256	52,002,673
2032	89,549,981	52,002,673	6,969,034	541,254	3,507,293	56,005,668
2033	92,236,480	56,005,668	7,178,105	573,608	5,165,573	58,591,808
2034	95,003,575	58,591,808	7,393,448	592,382	6,709,632	59,868,006
STUDY PERIOD TOTALS			113,295,710	6,146,049	65,862,042	

Reserve Fund Plan for
THE Sample
Bethesda, Maryland

ALTERNATIVE FUNDING ANALYSIS
CASH FLOW METHOD
HYBRID APPROACH
TABLE 3.1

MASON & MASON
CAPITAL RESERVE ANALYSTS, INC.
www.masonreserves.com 800-776-6980 Fax 800-776-6408

In Dollars	Beginning Reserve Fund Balance:	Annual Contribution To Reserves:	Contribution Percentage Increase:	Annual Inflation Factor:	Annual Interest Income Factor:
	6,288,289	4,216,380	2.23%	3.00%	1.00%

YEAR	TOTAL ASSET BASE	BEGINNING RESERVE FUND BALANCE	ANNUAL CONTRIBUTION	INTEREST INCOME	CAPITAL EXPENDITURES	ENDING RESERVE FUND BALANCE
1	2	3	4	5	6	7
2015	54,179,211	6,288,289	4,216,380	74,965	2,049,059	8,530,575
2016	55,804,588	8,530,575	4,310,422	79,540	5,452,125	7,468,411
2017	57,478,725	7,468,411	4,406,561	76,341	4,171,195	7,780,119
2018	59,203,087	7,780,119	4,504,845	97,582	931,446	11,451,100
2019	60,979,180	11,451,100	4,605,321	129,191	2,003,345	14,182,267
2020	62,808,555	14,182,267	4,708,038	132,785	6,501,377	12,521,713
2021	64,692,812	12,521,713	4,813,046	146,808	946,655	16,534,911
2022	66,633,596	16,534,911	4,920,396	176,254	3,057,893	18,573,668
2023	68,632,604	18,573,668	5,030,140	210,284	670,346	23,143,746
2024	70,691,582	23,143,746	5,142,332	258,272	399,795	28,144,555
2025	72,812,329	28,144,555	5,257,027	303,380	1,460,348	32,244,613
2026	74,996,699	32,244,613	5,374,279	340,582	2,312,554	35,646,921
2027	77,246,600	35,646,921	5,494,147	367,267	3,814,093	37,694,242
2028	79,563,998	37,694,242	5,616,688	389,712	3,590,798	40,109,844
2029	81,950,918	40,109,844	5,741,962	431,778	435,216	45,848,369
2030	84,409,446	45,848,369	5,870,031	457,396	6,468,043	45,707,752
2031	86,941,729	45,707,752	6,000,956	458,066	6,215,256	45,951,518
2032	89,549,981	45,951,518	6,134,801	475,932	3,507,293	49,054,958
2033	92,236,480	49,054,958	6,271,631	498,857	5,165,573	50,659,872
2034	95,003,575	50,659,872	6,411,513	507,363	6,709,632	50,869,117
STUDY PERIOD TOTALS			104,830,517	5,612,353	65,862,042	FULLY FUNDED BALANCE GOAL

FUNDING ANALYSIS COMPONENT METHOD
TABLE 4 EXPLANATION

Table 4 is a yearly list of annual contributions toward each component, which must be made to achieve 100% funding. The reserve fund balance is the balance at the beginning of the study year. The beginning reserve fund balance is applied, proportionately, to each component prior to calculating the yearly contribution for each component. Future costs (inflation) are factored into the replacement cycles. The annual contribution for each year is calculated in the bottom row of the study labeled **Annual Component Contribution Totals.** Interest and inflation are calculated at the same annual rates as the Cash Flow Method (Table 3).

Column **1**	**Component Number** is consistent throughout the tables.
Column **2**	**Component** is a brief description of the component.
Columns **3 - 22**	**Years** lists the annual contribution amount toward each component throughout the twenty-year study period, which is totaled at the bottom of the component table.

COMPONENT METHOD SUMMARY

The component method summary computes the beginning reserve fund balance, the annual component contribution, the annual expenditures, and interest income. It then provides the ending reserve fund balance for each year of the study.

Reserve Fund Plan for
THE Sample
Bethesda, Maryland

FUNDING ANALYSIS
COMPONENT METHOD
TABLE 4

MASON & MASON
CAPITAL RESERVE ANALYSTS, INC.
www.masonreserves.com 800-776-6980 Fax 800-776-6408

Beginning Reserve Fund Balance:

In Dollars 6,288,289

Component Number	COMPONENT	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
1 SITE FEATURES																					
1.1	Asphalt Restoration Project	36,529	36,529	36,529	36,529	36,529	20,005	20,005	20,005	20,005	20,005	49,372	49,372	49,372	49,372	49,372	49,372	49,372	49,372	49,372	49,372
1.2	Asphalt Rejuvenator	8,089	8,089	8,089	8,089	8,089	9,377	9,377	9,377	9,377	9,377	10,871	10,871	10,871	10,871	10,871	12,603	12,603	12,603	12,603	12,603
1.3	Asphalt Repair & Crack Sealing Allowance	144,872	23,167	23,167	23,167	23,167	13,428	13,428	13,428	13,428	13,428	31,134	31,134	31,134	31,134	31,134	54,139	54,139	54,139	54,139	54,139
1.4	Concrete Sidewalks	1,362	1,403	1,445	1,488	1,533	1,579	1,626	1,675	1,725	1,777	1,830	1,885	1,942	2,000	2,060	2,122	2,185	2,251	2,319	2,388
1.5	Concrete Curbs & Gutters Allowance	1,740	1,740	1,055	1,055	1,055	1,055	1,055	1,223	1,223	1,223	1,223	1,223	1,418	1,418	1,418	1,418	1,418	1,644	1,644	1,644
1.6	Retaining Wall & Erosion Control Allowance	4,145	1,397	1,397	1,397	1,397	1,397	1,619	1,619	1,619	1,619	1,619	1,877	1,877	1,877	1,877	1,877	2,176	2,176	2,176	2,176
1.7	Gatehouse Restoration Allowance	1,501	1,501	1,501	1,501	1,501	1,501	1,501	1,501	1,501	1,501	1,501	1,501	1,501	1,501	1,501	2,009	2,009	2,009	2,009	2,009
1.8	Site Fencing	36,452	36,452	36,452	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650
1.9	Site Fencing Annual Repairs	2,049	2,110	761	761	761	2,375	2,446	2,520	2,595	2,673	2,754	2,836	2,921	3,009	3,099	3,192	3,288	3,386	3,488	3,593
2 BUILDING EXTERIORS																					
2.1	Re-Roofing Project, Towers	243,804	243,804	243,804	243,804	117,790	117,790	117,790	117,790	117,790	117,790	117,790	117,790	117,790	117,790	117,790	117,790	117,790	117,790	117,790	117,790
2.2	Re-Roofing Project, Lobby	22,008	22,008	22,008	22,008	22,008	13,046	13,046	13,046	13,046	13,046	13,046	13,046	13,046	13,046	13,046	13,046	13,046	13,046	13,046	13,046
2.3	Facade & Balcony Restoration Allowance	199,687	199,687	199,687	199,687	199,687	199,687	199,687	199,687	199,687	199,687	199,687	199,687	199,687	199,687	199,687	295,692	295,692	295,692	295,692	295,692
2.4	Window Sealant	249,659	249,659	249,659	249,659	249,659	175,932	175,932	175,932	175,932	175,932	175,932	175,932	175,932	175,932	175,932	178,128	178,128	178,128	178,128	178,128
2.5	Interim Balcony Coatings	39,185	25,395	26,157	26,941	786,242	75,838	75,838	75,838	75,838	75,838	75,838	75,838	75,838	75,838	75,838	75,838	75,838	75,838	75,838	75,838
2.6	Overhead Doors	13,496	13,496	13,496	5,784	5,784	5,784	5,784	5,784	5,784	5,784	5,784	5,784	5,784	5,784	5,784	5,784	5,784	5,784	9,011	9,011
2.7	Sub-Grade Waterproofing Allowance	45,168	14,120	14,120	14,120	14,120	14,120	14,120	14,120	14,120	14,120	14,120	14,120	14,120	14,120	14,120	15,643	15,643	15,643	15,643	15,643
3 PARKING GARAGE																					
3.1	Garage Exterior Wall Restoration	20,998	2,887	2,887	2,887	2,887	2,887	2,887	2,887	2,887	2,887	2,887	2,887	2,887	2,887	2,887	4,498	4,498	4,498	4,498	4,498
3.2	Interim Elevated Garage Deck Repair & Coat	261,691	261,691	261,691	261,691	261,691	261,691	261,691	182,672	182,672	182,672	182,672	182,672	182,672	182,672	182,672	182,672	182,672	182,672	182,672	182,672
3.3	Garage Restoration Project Allowance	223,104	223,104	223,104	223,104	223,104	223,104	223,104	223,104	223,104	223,104	223,104	223,104	279,034	279,034	279,034	279,034	279,034	279,034	279,034	279,034
3.4	Garage Interior Surface Restoration	155,739	31,119	31,119	31,119	31,119	31,119	31,119	31,119	31,119	31,119	31,119	41,822	41,822	41,822	41,822	41,822	41,822	41,822	41,822	41,822
4 BUILDING INTERIORS																					
4.1	Carpeting	638,955	253,791	102,698	102,698	102,698	102,698	102,698	102,698	102,698	102,698	102,698	102,698	102,698	102,698	102,698	102,698	148,570	148,570	148,570	148,570
4.2	Corridor Refurbishment Allowance	1,714,751	684,697	192,818	192,818	192,818	192,818	192,818	192,818	192,818	192,818	192,818	192,818	192,818	192,818	192,818	192,818	192,818	192,818	192,818	192,818
4.3	Lobby Furnishings Allowance	13,694	36,186	36,186	36,186	36,186	36,186	36,186	36,186	36,186	38,513	38,513	38,513	38,513	38,513	38,513	38,513	38,513	38,513	38,513	51,758
4.4	Office Equipment & Furnishings Allowance	26,400	8,962	8,962	8,962	8,962	8,962	8,962	8,962	5,676	5,676	5,676	5,676	5,676	5,676	5,676	5,676	14,382	14,382	14,382	14,382
4.5	Arcade Refurbishment Allowance	48,272	48,272	48,272	17,821	17,821	17,821	17,821	17,821	17,821	17,821	17,821	17,821	17,821	17,821	17,821	17,821	17,821	17,821	17,821	17,821
4.6	Service Lobbies Refurbishment	104,578	41,600	16,100	16,100	16,100	16,100	16,100	16,100	16,100	16,100	16,100	16,100	16,100	16,100	16,100	16,100	16,100	25,083	25,083	25,083
4.7	Laundry Room Refurbishment Allowance	26,535	10,555	4,085	4,085	4,085	4,085	4,085	4,085	4,085	4,085	4,085	4,085	4,085	4,085	4,085	4,085	4,085	6,365	6,365	6,365
4.8	Laundry Equipment Purchase Allowance	177,884	35,881	35,881	35,881	35,881	35,881	35,881	35,881	45,452	45,452	45,452	45,452	45,452	45,452	45,452	45,452	57,578	57,578	57,578	57,578
4.9	Garage Elevator Lobbies Refurbishment	9,805	9,805	3,727	3,727	3,727	3,727	3,727	3,727	3,727	3,727	3,727	3,727	5,008	5,008	5,008	5,008	5,008	5,008	5,008	5,008
4.10	Professional & Commercial Refurbishments	39,237	39,237	39,237	26,494	26,494	26,494	26,494	26,494	26,494	26,494	32,584	32,584	32,584	32,584	32,584	32,584	32,584	40,074	40,074	40,074
4.11	Resident Storage Refurbishment	22,190	22,190	22,190	22,190	22,190	22,190	22,190	22,190	22,190	22,190	22,190	22,190	22,190	22,190	22,190	22,190	22,190	22,190	22,190	22,190
4.12	Fire-Rated Interior Door Replacement Allowa	110,030	51,917	55,079	55,079	58,433	58,433	61,992	61,992	65,767	65,767	69,772	69,772	74,022	74,022	78,529	78,529	83,312	83,312	88,386	88,386
4.13	Public Restroom Renovations	21,236	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572
4.14	Mailboxes	17,046	17,046	17,046	17,046	17,046	17,046	17,046	17,046	17,046	17,046	16,796	16,796	16,796	16,796	16,796	16,796	16,796	16,796	16,796	16,796
4.15	Unit Door Refurbishment Allowance	335,343	131,495	37,030	37,030	37,030	37,030	37,030	37,030	37,030	37,030	37,030	37,030	37,030	37,030	37,030	37,030	37,030	37,030	37,030	37,030

Reserve Fund Plan for
THE Sample
Bethesda, Maryland

FUNDING ANALYSIS
COMPONENT METHOD
TABLE 4

MASON & MASON
CAPITAL RESERVE ANALYSTS, INC.
www.masonreserves.com 800-776-6980 Fax 800-776-6408

Beginning Reserve Fund Balance:

In Dollars 6,288,289

Component Number	COMPONENT	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
5 MECHANICAL, ELECTRICAL, & PLUMBING																					
5.1	Central Boilers Replacement	139,228	139,228	139,228	139,228	139,228	139,228	139,228	139,228	139,228	139,228	139,228	108,709	108,709	108,709	108,709	108,709	108,709	108,709	108,709	108,709
5.2	Interim Boiler Remediation	20,676	20,676	20,676	20,676	7,526	7,526	7,526	7,526	7,526	7,526	7,526	7,526	7,526	7,526	7,526	7,526	7,526	7,526	7,526	7,526
5.3	Heat Exchanger Full Replacement	15,315	15,315	15,315	15,315	15,315	15,315	15,315	15,315	15,315	15,315	15,315	15,315	15,315	15,315	15,315	15,315	15,315	24,073	24,073	24,073
5.4	Domestic Hot Water Storage Tanks	2,664	2,664	2,664	2,664	2,664	2,664	2,664	2,664	2,664	2,664	2,664	2,664	2,664	2,664	2,664	2,664	2,664	3,668	3,668	3,668
5.5	Domestic Hot Water Heat Exchangers Overh	17,554	3,066	3,066	3,066	3,066	3,066	3,066	3,066	3,066	3,066	4,120	4,120	4,120	4,120	4,120	4,120	4,120	4,120	4,120	4,120
5.6	Domestic Hot Water Heat Exchangers Repla	15,382	15,382	15,382	15,382	15,382	15,382	15,382	15,382	15,382	15,382	15,382	15,382	15,382	15,382	15,382	15,382	15,382	15,382	15,382	15,382
5.7	Residential Centrifugal Chillers	93,888	93,888	93,888	93,888	93,888	93,888	93,888	93,888	93,888	93,888	93,888	93,888	93,888	93,888	93,888	93,888	129,255	129,255	129,255	129,255
5.8	Interim Residential Centrifugal Chiller Re-Bu	16,641	16,641	16,641	16,641	7,009	7,009	7,009	7,009	7,009	7,009	7,009	7,009	7,009	7,009	7,009	7,009	7,009	7,009	7,009	7,009
5.9	Residential Cooling Towers	19,634	19,634	19,634	19,634	19,634	19,634	73,210	73,210	73,210	73,210	73,210	73,210	73,210	73,210	73,210	73,210	51,702	51,702	51,702	51,702
5.10	Commercial Chiller	23,179	23,179	23,179	23,179	23,179	23,179	16,553	16,553	16,553	16,553	16,553	16,553	16,553	16,553	16,553	16,553	16,553	16,553	16,553	16,553
5.11	Commercial Cooling Tower	17,043	17,043	17,043	17,043	17,043	17,043	12,171	12,171	12,171	12,171	12,171	12,171	12,171	12,171	12,171	12,171	12,171	12,171	12,171	12,171
5.12	Penthouse Corridor & Laundry Rooftop AHU	13,411	13,411	13,411	13,411	13,411	13,411	13,411	13,411	13,411	13,411	13,411	13,411	13,411	13,411	13,411	13,411	20,033	20,033	20,033	20,033
5.13	Basement Corridor AHUs	12,169	12,169	12,169	12,169	12,169	12,169	12,169	12,169	12,169	12,169	12,169	12,169	12,169	12,169	12,169	12,169	12,169	12,169	12,169	12,169
5.14	Retail Space AHU Allowance	23,528	23,528	17,402	17,402	17,402	17,402	51,844	51,844	51,844	51,844	27,231	27,231	27,231	27,231	7,766	7,766	7,766	7,766	7,766	7,766
5.15	Indoor Pool Dehumidifier	20,066	20,066	20,066	8,412	8,412	8,412	8,412	8,412	8,412	8,412	8,412	8,412	8,412	8,412	8,412	8,412	8,412	8,412	13,106	13,106
5.16	Penthouse Rooftop Package Units	14,917	14,917	14,917	5,346	5,346	5,346	5,346	5,346	5,346	5,346	5,346	5,346	5,346	5,346	5,346	5,346	5,346	5,346	5,346	5,346
5.17	Residential Fan Coil Units Including Finishe	280,330	280,330	280,330	280,330	280,330	280,330	280,330	280,330	280,330	280,330	280,330	280,330	280,330	280,330	280,330	280,330	280,330	280,330	280,330	5,453,722
5.18	Hydronic Piping System Allowance	150,769	150,769	150,769	150,769	150,769	150,769	150,769	150,769	150,769	150,769	150,769	150,769	150,769	150,769	150,769	150,769	150,769	150,769	150,769	150,769
5.19	Tennis Building 4-Ton HVAC System	1,324	1,324	1,324	1,324	1,324	1,324	1,324	1,184	1,184	1,184	1,184	1,184	1,184	1,184	1,184	1,184	1,184	1,184	1,184	1,184
5.20	Rooftop Exhaust Ventilation Fans	3,537	3,537	3,537	3,537	3,537	3,537	3,537	3,537	3,537	3,537	3,537	3,537	3,537	3,537	3,537	3,537	3,537	3,537	3,537	3,537
5.21	Underground Storage Tank	24,466	24,466	24,466	24,466	24,466	24,466	24,466	24,466	24,466	24,466	24,466	24,466	24,466	30,555	30,555	30,555	30,555	30,555	30,555	30,555
5.22	South Tower Electrical Main Switchgear Mo	168,482	168,482	168,482	168,482	168,482	168,482	168,482	168,482	168,482	168,482	168,482	168,482	168,482	168,482	168,482	168,482	168,482	168,482	168,482	168,482
5.23	North Tower Electrical Main Switchgear Mod	1,027,895	1,582,751	215,014	215,014	215,014	215,014	215,014	215,014	215,014	215,014	215,014	215,014	215,014	215,014	215,014	215,014	215,014	215,014	215,014	215,014
5.24	Electrical Service Transformers-6 Assorted S	137,053	211,033	28,669	28,669	28,669	28,669	28,669	28,669	28,669	28,669	28,669	28,669	28,669	28,669	28,669	28,669	28,669	28,669	28,669	28,669
5.25	Electrical Service Preventive Maintenance	7,462	7,462	7,913	7,913	7,913	7,913	7,913	9,173	9,173	9,173	9,173	9,173	7,977	7,977	7,977	7,977	7,977	7,977	7,977	20,754
5.26	Arcade Lighting	4,099	4,099	4,099	4,099	4,099	4,099	4,099	4,099	4,099	4,099	4,099	4,099	4,099	4,099	4,099	4,099	4,099	4,099	4,099	4,099
5.27	Corridor Lighting	363,275	142,448	40,115	40,115	40,115	40,115	40,115	40,115	40,115	40,115	40,115	40,115	40,115	40,115	40,115	40,115	40,115	40,115	40,115	40,115
5.28	Garage & Sight Lighting Luminaires	6,116	6,116	6,116	6,116	6,116	6,116	6,116	6,116	6,116	6,116	6,116	6,116	6,116	6,116	6,116	6,116	6,116	6,116	6,116	6,116
5.29	Tennis Court Lighting Luminaires	3,529	3,529	3,529	3,529	3,529	3,529	3,529	3,529	3,529	3,529	3,529	3,529	3,529	3,529	3,529	3,529	3,529	3,529	3,529	3,529
5.30	Tennis Court & Site Lighting Poles	14,025	14,025	153,459	153,459	153,459	153,459	153,459	15,606	15,606	15,606	15,606	15,606	15,606	15,606	15,606	15,606	15,606	15,606	15,606	15,606
5.31	Cable Television Wiring Upgrade	90,285	90,285	17,918	17,918	17,918	17,918	17,918	17,918	17,918	17,918	17,918	17,918	17,918	17,918	17,918	17,918	17,918	17,918	17,918	17,918
5.32	Electrical Phase Monitors	5,787	5,787	5,787	5,787	5,787	3,905	3,905	3,905	3,905	3,905	3,905	3,905	3,905	3,905	3,905	3,905	3,905	3,905	3,905	3,905
5.33	Variable Frequency Drives	14,549	14,549	14,549	14,549	14,549	9,817	9,817	9,817	9,817	9,817	9,817	9,817	9,817	9,817	9,817	9,817	9,817	9,817	9,817	9,817
5.34	Pumps, Valves, & Fittings Allowance	29,743	14,777	14,777	14,777	16,147	16,147	16,147	17,644	17,644	17,644	19,280	19,280	19,280	21,068	21,068	21,068	23,022	23,022	23,022	25,156
5.35	Domestic Water Riser Internal Coating Allow	610,240	610,240	610,240	610,240	610,240															
5.36	Waste & Vent Riser Repair Allowance	104,649	68,586	70,643	72,763	74,946	77,194	79,510	81,895	84,352	86,883	89,489	92,174	94,939	97,787	100,721	103,742	106,855	110,060	113,362	116,763
5.37	Condenser Water Piping Allowance	7,147	7,147	7,147	7,147	7,147	7,147	7,147	7,147	7,147	7,147	7,147	7,147	7,147	7,147	7,147	7,147	7,147	11,234	11,234	11,234
5.38	Trash Compactors	17,142	1,957	1,957	1,957	1,957	1,957	1,957	1,957	1,957	1,957	1,957	1,957	1,957	1,957	1,957	1,957	1,957	1,957	1,957	1,957
5.39	Generator Room Ventilation	1,403	1,403	1,403	1,403	1,403	1,403	1,403	1,403	1,403	1,403	1,403	1,403	1,403	1,403	1,403	1,403	1,403	1,403	1,403	1,403

Reserve Fund Plan for
THE Sample
Bethesda, Maryland

FUNDING ANALYSIS
COMPONENT METHOD
TABLE 4

MASON & MASON
CAPITAL RESERVE ANALYSTS, INC.
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Beginning Reserve Fund Balance:

In Dollars 6,288,289

Component Number	COMPONENT	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
6 FIRE & LIFE SAFETY																					
6.1	Emergency Exit Signs	25,938	5,585	5,585	5,585	5,585	5,585	5,585	5,585	5,585	5,585	5,585	5,585	5,585	5,585	5,585	5,585	5,585	5,585	5,585	5,585
6.2	Fire Alarm Modernization Project	94,810	94,810	94,810	94,810	94,810	94,810	94,810	94,810	94,810	94,810	94,810	94,810	94,810	94,810	94,810	94,810	94,810	175,217	175,217	175,217
6.3	Main Emergency Generators	11,604	11,604	11,604	11,604	11,604	11,604	11,604	11,604	11,604	11,604	11,604	11,604	11,604	11,604	11,604	11,604	11,604	11,604	11,604	11,604
6.4	Original Emergency Generator	9,443	9,443	9,443	9,443	3,731	3,731	3,731	3,731	3,731	3,731	3,731	3,731	3,731	3,731	3,731	3,731	3,731	3,731	3,731	3,731
6.5	Fire Suppression System Booster Pump	4,789	4,789	4,789	4,789	4,789	4,789	4,789	3,323	3,323	3,323	3,323	3,323	3,323	3,323	3,323	3,323	3,323	3,323	3,323	3,323
6.6	Portable Defibrillators	8,657	1,533	1,533	1,533	1,533	1,533	1,533	1,533	1,533	1,533	2,060	2,060	2,060	2,060	2,060	2,060	2,060	2,060	2,060	2,060
6.7	Dry Pipe Sprinkler System, G-3 Garage Leve	280,541	422,067	57,337	57,337	57,337	57,337	57,337	57,337	57,337	57,337	57,337	57,337	57,337	57,337	57,337	57,337	57,337	57,337	57,337	57,337
6.8	Garage Stairwell Standpipes	1,963	1,963	1,963	1,963	1,963	1,963	1,963	1,363	1,363	1,363	1,363	1,363	1,363	1,363	1,363	1,363	1,363	1,363	1,363	1,363
6.9	Install Heat Tape, Stairwell Standpipes, & G-	6,221	6,221	6,221	6,221	6,221	6,221	6,221	6,598	6,598	6,598	6,598	6,598	6,598	6,598	6,598	6,598	6,598	8,867	8,867	8,867
6.10	Storage Room Sprinklers	13,331	20,664	20,658	4,235	4,235	4,235	4,235	4,235	4,235	4,235	4,235	4,235	4,235	4,235	4,235	4,235	4,235	4,235	4,235	4,235
6.11	Trash Room Sprinklers	570	570	570	570	570	570	570	570	570	570	570	570	570	570	570	570	570	570	570	570
6.12	Trash Chute Sprinkler Risers	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791	791
7 ELEVATORS																					
7.1	Passenger Elevator Modernization	135,004	135,004	135,004	135,004	135,004	135,004	135,004	135,004	135,004	135,004	135,004	135,004	135,004	179,628	179,628	179,628	179,628	179,628	179,628	179,628
7.2	Service Elevator Modernization	45,001	45,001	45,001	45,001	45,001	45,001	45,001	45,001	45,001	45,001	45,001	45,001	45,001	59,876	59,876	59,876	59,876	59,876	59,876	59,876
7.3	Accessibility Lift	6,037	6,037	1,514	1,514	1,514	1,514	1,514	1,514	1,514	1,514	1,514	1,514	1,514	1,514	1,514	1,514	1,514	1,514	1,514	1,514
8 RECREATIONAL FACILITIES																					
8.1	Tennis Court Restoration Project	14,761	14,761	14,761	14,761	14,761	14,761	14,761	14,761	14,761	14,761	14,761	14,761	14,761	14,761	14,761	14,761	22,900	22,900	22,900	22,900
8.2	Tennis Court Color Coat	20,723	6,984	6,984	6,984	6,984	6,984	8,096	8,096	8,096	8,096	8,096	5,304	5,304	5,304	5,304	5,304	5,304	5,304	5,304	5,304
8.3	Tennis Court Fencing	20,558	2,049	2,049	2,049	2,049	2,049	2,049	2,049	2,049	2,049	2,049	2,049	2,049	2,049	2,049	2,049	2,049	2,049	2,049	2,049
8.4	Tennis Observation Deck Coating & Repairs	38,124	7,391	7,391	7,391	7,391	7,391	7,391	7,391	7,391	7,391	7,391	9,933	9,933	9,933	9,933	9,933	9,933	9,933	9,933	9,933
8.5	Pool Plaza Restoration	195,230	195,230	195,230	195,230	195,230	195,230	195,230	195,230	195,230	195,230	195,230	195,230	195,230	195,230	195,230	195,230	195,230	195,230	321,742	321,742
8.6	Outdoor Pool Waterproofing & Restoration	37,509	37,509	37,509	37,509	37,509	37,509	37,509	37,509	37,509	37,509	37,509	37,509	37,509	37,509	37,509	37,509	37,509	37,509	37,509	37,509
8.7	Outdoor Pool White Coat	37,840	10,434	10,434	10,434	10,434	12,095	12,095	12,095	12,095	12,095	14,022	14,022	14,022	14,022	14,022	16,255	16,255	16,255	16,255	16,255
8.8	Outdoor Pool Equipment	3,166	3,166	3,166	3,166	3,166	3,166	3,166	3,166	3,166	3,166	3,166	3,166	4,939	4,939	4,939	4,939	4,939	4,939	4,939	4,939
8.9	Observation Deck Membrane	22,617	22,617	22,617	22,617	22,617	11,687	11,687	11,687	11,687	11,687	11,687	11,687	11,687	11,687	11,687	11,687	11,687	11,687	11,687	11,687
8.10	Pool Furniture Allowance	16,544	8,220	8,220	8,220	8,982	8,982	8,982	9,815	9,815	9,815	10,725	10,725	10,725	11,719	11,719	11,719	12,806	12,806	12,806	13,993
8.11	Indoor Pool Restoration	3,881	3,881	3,881	3,881	3,881	3,881	3,881	3,881	3,881	3,881	3,881	3,881	3,881	3,881	3,881	3,881	5,852	5,852	5,852	5,852
8.12	Indoor Pool White Coat	1,374	1,374	1,374	1,374	1,374	1,374	1,534	1,534	1,534	1,534	1,534	1,534	1,534	1,887	1,887	1,887	1,887	1,887	1,887	1,887
8.13	Indoor Pool Equipment	12,905	1,943	1,943	1,943	1,943	1,943	1,943	1,943	1,943	1,943	1,943	1,943	1,943	1,943	1,943	1,943	3,027	3,027	3,027	3,027
8.14	Indoor Whirlpool Refurbishment	10,172	3,946	3,946	3,946	3,946	3,946	3,946	3,946	3,946	3,946	3,946	3,946	3,946	3,946	3,946	6,147	6,147	6,147	6,147	6,147
8.15	Indoor Pool Deck Restoration	50,370	17,809	17,809	17,809	17,809	17,809	20,645	20,645	20,645	20,645	20,645	23,934	23,934	23,934	23,934	23,934	27,746	27,746	27,746	27,746
8.16	Fitness Equipment	25,201	25,201	25,201	25,201	25,201	29,214	29,214	29,214	29,214	29,214	33,868	33,868	33,868	33,868	33,868	39,262	39,262	39,262	39,262	39,262
8.17	Community Room Furnishings Allowance	8,230	1,645	1,645	1,645	1,645	1,645	1,645	1,645	1,645	1,645	1,645	2,210	2,210	2,210	2,210	2,210	2,210	2,210	2,210	2,210
8.18	Locker Room Renovation	12,568	12,568	12,568	12,568	12,568	12,568	12,568	12,568	12,568	12,568	12,568	12,568	12,568	12,568	12,568	12,568	19,498	19,498	19,498	19,498
8.19	Sauna Refurbishment	6,908	6,908	6,908	6,908	6,908	6,908	6,908	6,908	6,198	6,198	6,198	6,198	6,198	6,198	6,198	6,198	6,198	6,198	6,198	6,198
8.20	Pool Accessibility Lifts	6,924	1,084	1,084	1,084	1,084	1,084	1,084	1,084	1,084	1,084	10,463	2,914	2,914	2,914	2,914	2,914	2,914	2,914	2,914	2,914

Reserve Fund Plan for
THE Sample
Bethesda, Maryland

FUNDING ANALYSIS
COMPONENT METHOD
TABLE 4

MASON & MASON
CAPITAL RESERVE ANALYSTS, INC.
www.masonreserves.com 800-776-6980 Fax 800-776-6408

Beginning Reserve Fund Balance:

In Dollars **6,288,289**

Component Number	COMPONENT	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
9 SUPPORT VEHICLES																					
9.1	Garage Sweeper	12,309	12,309	12,309	4,544	4,544	4,544	4,544	4,544	4,544	4,544	4,544	4,544	4,544	4,544	4,544	4,544	4,544	4,544	4,544	4,544
9.2	Multi-Purpose Truck	7,173	7,173	7,173	7,173	7,173	5,923	5,923	5,923	5,923	5,923	5,923	5,923	5,923	5,923	5,923	7,960	7,960	7,960	7,960	7,960
9.3	Skid Loader with Snow Blower	5,736	5,736	5,736	5,736	5,736	5,736	5,736	5,736	5,736	5,736	5,736	5,736	5,736	5,736	5,736	5,736	8,898	8,898	8,898	8,898
9.4	Utility Vehicle	2,892	2,892	2,892	2,892	2,892	2,892	2,892	3,067	3,067	3,067	3,067	3,067	3,067	3,067	3,067	3,067	3,067	4,122	4,122	4,122
10 MARKET & DELI																					
10.1	Market & Deli Annual Preventive Maintenanc	11,270	7,386	7,608	4,015	4,015	8,313	8,563	8,819	9,084	9,357	9,637	9,926	10,224	10,531	10,847	11,172	11,507	11,853	6,256	6,256
10.2	Market & Deli Refrigeration Equipment Repl	7,519	7,519	7,519	7,519	5,751	5,751	5,751	5,751	5,751	5,751	5,751	5,751	5,751	5,751	20,512	20,512	20,512	20,512	20,512	8,959
10.3	Market & Deli Resilient Vinyl Flooring	12,162	1,554	1,554	1,554	1,554	1,554	1,554	1,554	1,554	1,554	1,554	1,554	1,554	1,554	1,554	1,554	1,554	1,554	1,554	1,554
10.4	Market & Deli Shelving Allowance	1,453	1,453	1,453	1,453	1,453	1,453	1,453	1,453	1,453	1,453	1,453	1,453	1,453	1,453	1,453	1,453	1,453	1,453	1,453	2,538
10.5	Market & Deli Accoustical Tile Ceiling	812	812	812	812	812	812	812	812	812	812	812	812	812	812	812	812	812	812	812	812
10.6	Market & Deli Lighting Allowance	1,143	1,143	1,143	1,143	1,143	1,143	1,143	1,143	1,143	1,143	1,143	1,143	1,143	1,143	1,143	1,143	1,143	1,143	1,143	1,143
10.7	Market & Deli Plumbing Allowance	648	648	648	648	648	648	648	648	648	648	648	648	648	648	648	648	648	648	648	648
10.8	Market & Deli Millwork	614	614	614	614	614	614	614	614	614	614	614	614	614	614	614	614	614	614	614	1,072
	ANNUAL COMPONENT CONTRIBUTION TOTALS	9,809,872	7,859,514	5,127,939	5,005,172	5,615,911	4,182,689	4,269,782	4,057,778	4,069,975	4,075,236	4,132,142	4,111,750	4,177,188	4,249,212	4,252,415	4,394,361	4,518,374	4,638,648	4,776,030	9,972,330

COMPONENT METHOD SUMMARY	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
BEGINNING RESERVE FUND BALANCE	6,288,289	14,165,573	16,757,972	17,910,927	22,191,780	26,057,796	24,023,610	27,611,276	28,910,589	32,622,766	36,648,076	39,710,486	41,930,952	42,737,980	43,848,825	48,129,632	46,563,334	45,358,775	46,971,005	47,079,281
PLUS ANNUAL COMPONENT CONTRIBUTION	9,809,872	7,859,514	5,127,939	5,005,172	5,615,911	4,182,689	4,269,782	4,057,778	4,069,975	4,075,236	4,132,142	4,111,750	4,177,188	4,249,212	4,252,415	4,394,361	4,518,374	4,638,648	4,776,030	9,972,330
CAPITAL EXPENDITURES	2,049,059	5,452,125	4,171,195	931,446	2,003,345	6,501,377	946,655	3,057,893	670,346	399,795	1,460,348	2,312,554	3,814,093	3,590,798	435,216	6,468,043	6,215,256	3,507,293	5,165,573	6,709,632
SUBTOTAL	14,049,102	16,572,962	17,714,716	21,984,653	25,804,346	23,739,108	27,346,737	28,611,161	32,310,218	36,298,207	39,319,870	41,509,682	42,294,047	43,396,394	47,666,024	46,055,950	44,866,452	46,490,130	46,581,462	50,341,979
PLUS INTEREST INCOME @ 1.00%	116,471	185,010	196,211	207,127	253,450	284,501	264,539	299,429	312,548	349,869	390,616	421,270	443,932	452,431	463,608	507,384	492,323	480,875	497,818	527,139
FULLY FUNDED RESERVE FUND BALANCE	14,165,573	16,757,972	17,910,927	22,191,780	26,057,796	24,023,610	27,611,276	28,910,589	32,622,766	36,648,076	39,710,486	41,930,952	42,737,980	43,848,825	48,129,632	46,563,334	45,358,775	46,971,005	47,079,281	50,869,117

FULLY FUNDED BALANCE GOAL

PERCENT FUNDED FOR CURRENT CYCLE	41%	TOTAL EXPENDITURES	65,862,042	TOTAL CONTRIBUTIONS	103,296,318	STUDY PERIOD TOTAL INTEREST	7,146,552	AVERAGE ANNUAL CONTRIBUTION	5,164,816

PHOTOGRAPHS
WITH
DESCRIPTIVE NARRATIVES

MASON & MASON
CAPITAL RESERVE ANALYSTS, INC.

PHOTO #1
Some localized damage and tree root heaving is present in the parking lots. With localized repairs, the lots should be capable of additional service years.

PHOTO #2
Some lots are in better condition than others. Typically, transverse and longitudinal cracking is present and will be crack filled this year.

PHOTO #3
Localized areas like this are the final stages of deflection and pavement failure. All areas like this will be addressed with the pavement repair project scheduled this year.

PHOTO #4
Here is the final stage of pavement failure where the deflected pavement is worn down to a pot hole. These areas will be completely re-built during the pavement repair project. Note the poor pavement condition above the pot holes where an overlay restoration was performed without benefit of removal of the older deflected pavement.

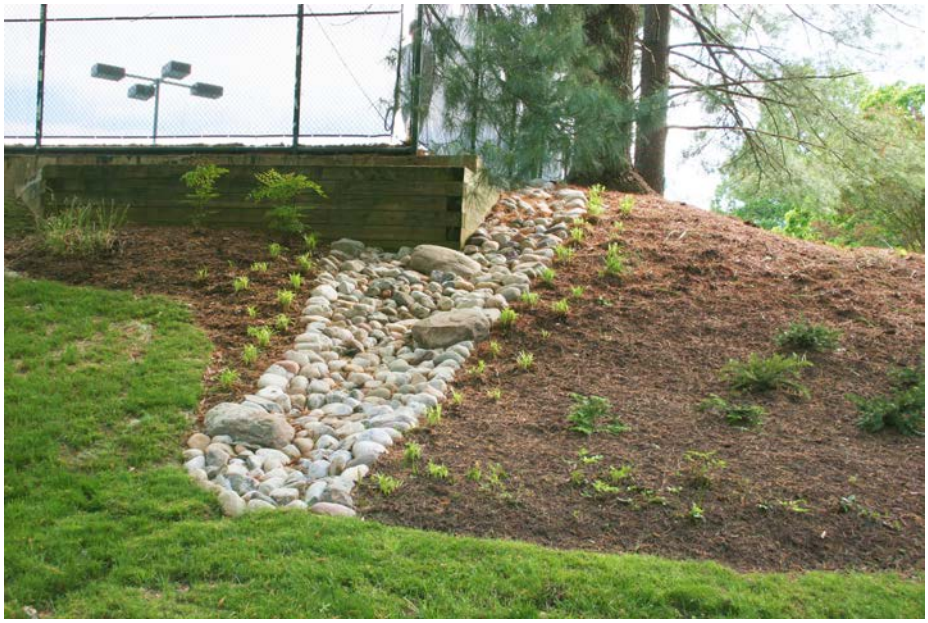

PHOTO #5
Erosion control measures have been accomplished through the site and are attractive and functional.

PHOTO #6
This impact damage to the Gatehouse roof was present in 2012 and has not yet been repaired. While a minor issue, it should be addressed.

PHOTO #7
Overview of the 1998 roof field showing ballasted roofing and pedestrian pavers. Generally the roofing appears to be holding up well and may be capable of additional service years beyond the projected twenty.

PHOTO #8
The galvanized metal parapet copings are in continuing good condition, but are beginning to rust from exposure to weather.

PHOTO #9
Filter cloth and insulation has been disturbed here leaving the membrane exposed. Areas like this should be addressed under the preventive maintenance contract.

PHOTO #10
Generally the balcony soffits and edge coatings appear to be in continuing good condition.

PHOTO #11
This cracking in the aggregate coated precast structure at the entrance side elevation should be evaluated. It may be just a surface issue, but it could also be an indication of a more serious problem.

PHOTO #12
The precast components have been exposed to weather for over 40 years now and are beginning to show their age. Rust on the panel (red arrow), and on the metal columns should be addressed.

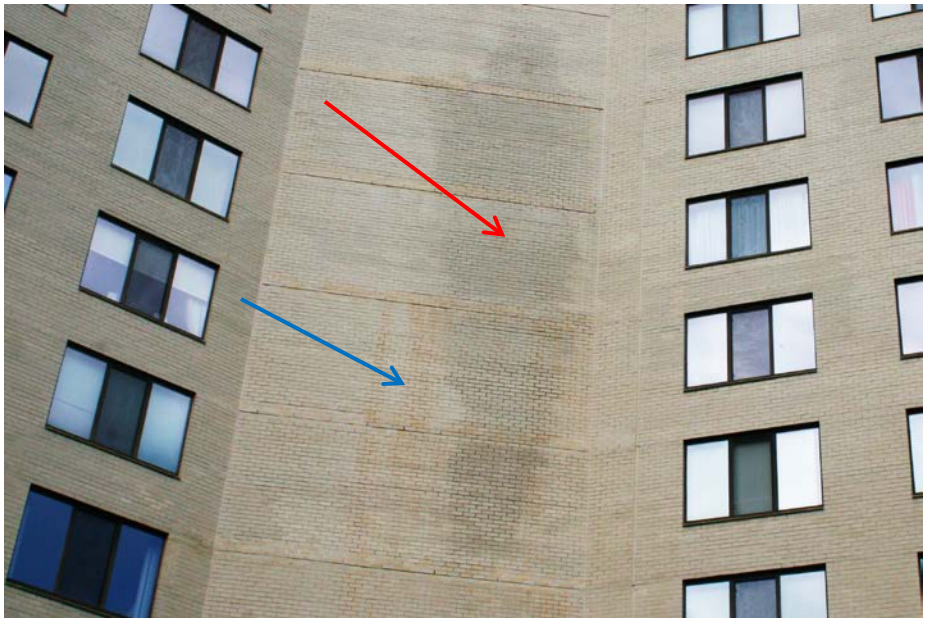

PHOTO #13
It had not rained at the site for several days and the dark area (red), appears to be wet. Also, rust stains (blue), appear to be extending down from each floor shelf angle. This area of the façade was repaired a few years back and may require additional investigation.

PHOTO #14
Coping joints and embedded post pockets at railing mountings appear to be in well-maintained condition.

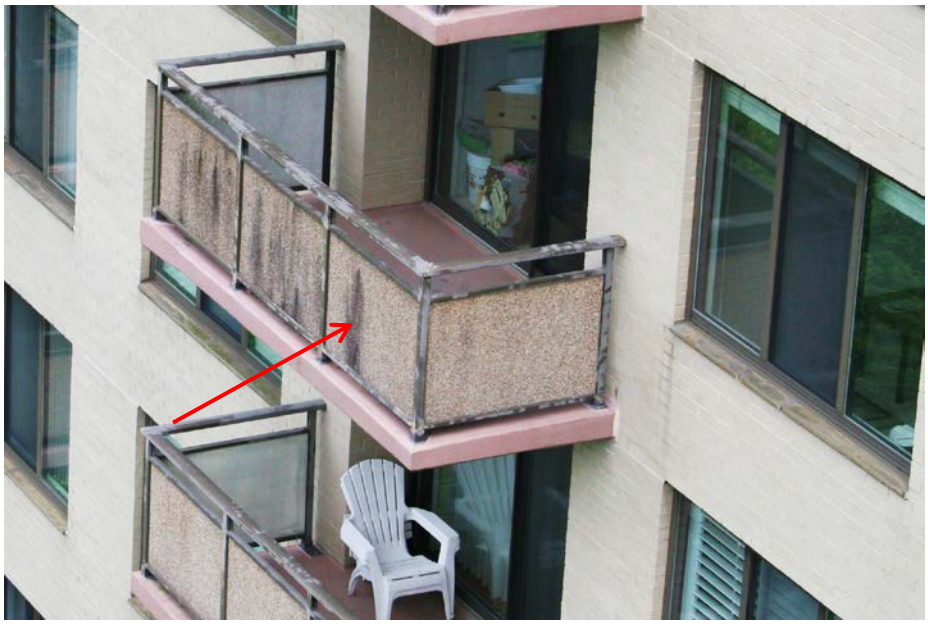

PHOTO #15
Some of the aggregate balcony panels are weathered and stained. Many railings appear to be tired and weathered. This condition should be addressed at some point in the future, possibly as part of the next interim balcony coating project.

PHOTO #16
The façade masonry here appears to be sound and no veneer bulging is visually evident.

PHOTO #17
Soft sealants at window frames/masonry interfaces appear to be holding up better than anticipated. We have extended the service life. However, this presents a timing problem due to coordination with other exterior projects in the future.

PHOTO #18
The balcony coatings are beginning to peel on some balconies. We have scheduled a small percentage of interim coating renewals annually until the full project, which is scheduled in five years. This condition was not anticipated and should not be occurring.

PHOTO #19
This area is above the Party Room and is the site of apparent water infiltration. A project to investigate the basement wall and perform appropriate waterproofing and/or other mechanical systems is scheduled near-term.

PHOTO #20
The garage wall has had numerous repairs over the years. This corner area now appears to be deflected and should be investigated.

PHOTO #21
The garage elevated decks have been coated with a urethane traffic bearing coating. The coating appears to be holding up well with no significant wear or peeling observed.

PHOTO #22
As part of the corridor restoration project, "top hat" lighting fixtures will be installed above all unit doors. This will be a welcome improvement to the overall lighting situation of the corridors.

PHOTO #23
The garage elevator lobbies and the service lobbies will also be upgraded near-term.

PHOTO #24
All unit doors will be retained in the corridor refurbishment project, but will be carefully re-finished.

PHOTO #25
The tennis courts were all restored a few years back and appear to be in continuing good condition.

PHOTO #26
The tennis observation deck coating is weathered and scheduled for near-term renewal.

PHOTO #27
The indoor pool deck pedestrian coating has been problematic and attempts to repair have not been successful. A full removal and re-application has been scheduled near-term.

Photo #28
Typical of four domestic hot water heat exchangers – two per tower and their associated indirect-fired domestic water heaters. The heat exchangers are due for maintenance and Management has advised of the purchase of rebuild kits to limit down time.

Photo #29
One of three original Cleaver Brooks Scotch Marine steam boilers in continuing viable condition with upgraded burners.

Photo #30
One of two replacement emergency power generators. The automatic transfer switches were rated at 250kW; however, the generators (based on nameplate date) are rated at 300-kW.

Photo #31
Domestic water booster-pump system typical for both towers. Since they are not pressure regulated systems and are due for replacement, they will require replacement with modern packaged systems utilizing VFD pump motor drives.

Photo #32
Fire suppression standpipe water booster pump system. These pumps appear to be well maintained and were only serving as a pressure boosting system for the standpipe hose connections.

Photo #33
Replacement fire alarm system control panel that was part of a full fire detection and alarm system replacement and upgrade to an addressable system with voice evacuation and fire-fighter communications.

Photo #34
North Tower electric service entrance switchgear – typical of two switchboards that have reached the end of their expected service life and scheduled for replacement.

Photo #35
South Tower electric service entrance switchgear – typical of two switchboards that were replaced in 2012.

Photo #36
Typical common area central-station air-handling unit as an example of units replaced in 2001 and appearing to be in good overall condition.

Photo #37
The commercial retail area water-cooled screw-compressor water chiller. It was replaced in 2001 and appears to be in good overall condition.

Photo #38
Typical rooftop exhaust fans that were replacements installed in 2008. All appeared to be in good overall condition.

Photo #39
Main cooling tower. The tower was a replacement installed in 1996 and has reportedly served with no problems or issues. The cooling tower is scheduled for water basin refinishing.

Photo #40
One of two main water chillers. They were replaced in 1996 and appear to be in good overall condition.

Photo #41
Elevator lift machinery – typical for six elevators – three per tower. An elevator modernization was performed in 2008 that included lift machinery replacement. The equipment appeared to in good overall condition.

Photo #42
Elevator controllers – typical for six elevators – three per tower. An elevator modernization was performed in 2008 including upgrade to A.C. lift motors controlled by VFDs. The equipment appeared to in good overall condition.