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October 17, 2011

**Beacon Hill Townhome Condominium
Wilmington, Delaware**

EXECUTIVE SUMMARY

At the direction of the Board that recognizes the need for proper reserve planning, we have conducted a *Precision 20/20 Full Reserve Study* of Beacon Hill Townhome Condominium (Beacon Hill) located in Wilmington, Delaware and submit our findings in this report. The effective date of this study is the date of our visual, noninvasive inspection, June 23, 2011. This Reserve Study is a budget planning tool that identifies the current status of the reserve fund and a stable and equitable Reserve Funding Plan to offset the anticipated future major common area expenditures.

This study is in compliance with and exceeds the standards set forth by Community Associations Institute (CAI) and the Association of Professional Reserve Analysts (APRA) fulfilling the requirements of a "Full Reserve Study." For brevity, we use the term Reserve Study herein. A Reserve Study comprises two parts:

Physical Analysis

- Component Inventory
- Condition Assessment
- Estimated Useful Life, Remaining Useful Life and Replacement Cost

Financial Analysis

- Fund Status
- Funding Plan

Exhibit B presents the numerical data of the Physical and Financial Analyses.

Beacon Hill Townhome Condominium is a townhome style development of 72 units in nine buildings. The exteriors of the buildings comprise asphalt shingle roofs, brick masonry and vinyl siding. The buildings were built in the 1979. The development contains asphalt pavement parking areas. We identify 12 major common elements that are likely to require capital repair or replacement during the next 30 years.

The unaudited cash status of the reserve fund, as of July 31, 2011, as reported by Management is \$111,172. If the Association were to continue to fund reserves at its 2011 budgeted amount of \$48,240, the reserve fund would incur a potential shortage by 2030.

The Funding Goal of this Reserve Study is to keep the reserve balance above an adequate, not excessive threshold when reserves are needed the most due to one or more years of significant expenditures. Our recommended Funding Plan recognizes this threshold or critical point in 2014.

Beacon Hill can fund capital repairs and replacements in any combination of the following:

- 1) Increases in the operating budget during years when the shortages occur
- 2) Loans using borrowed capital for major replacement projects
- 3) Level monthly reserve assessments annually adjusted upward for inflation to increase reserves to fund the expected major future expenditures
- 4) Special assessments

We do not advocate special assessments or loans unless near term circumstances dictate otherwise. Although loans provide a gradual method of funding a replacement, the costs are

higher than if the Association were to accumulate reserves ahead of the actual replacement. Interest earnings on reserves also accumulate in this process of saving or reserving for future replacements, thereby defraying the amount of gradual reserve collections. We advocate the third method of *Level Monthly Reserve Assessments* with relatively minor annual adjustments. The method ensures that owners pay their “fair share” of the weathering and aging of the commonly owned property each year. Level reserve assessments preserve the property and enhance the resale value of the homes.

This Reserve Study applies the Cash Flow Method to compute the Reserve Funding Plan. The Reserve Funding Plan determines adequate, not excessive, Reserve Contributions through a 30-year Cash Flow Analysis that incorporates the current reserve funds, future interest earned, and projected Reserve Expenditures.

The Reserve Expenditures reflect current and future *local* costs of replacement, projected earned interest, the average annual fund balances and anticipated inflation. Sources for *local* costs of replacement include our proprietary database, historical costs and published sources, i.e., R.S. Means, Incorporated.

We identified the anticipated Reserve Expenditures for Reserve Components during the next 30 years as either near term or long term. *Near term* expenditures relate to capital needs from now through 2016, the next five years beyond this current fiscal year. These *near term* expenditures comprise \$306,117, or about thirteen percent (13.3%), of the next 30 years of **Exhibit B Reserve Expenditures**. Expenditures within the next five years are more important when compared with the future needs of Beacon Hill and tend to govern the amounts of

recommended Reserve Contributions. The current Reserve Expenditures relate primarily to replacement of the remaining asphalt shingle roofs.

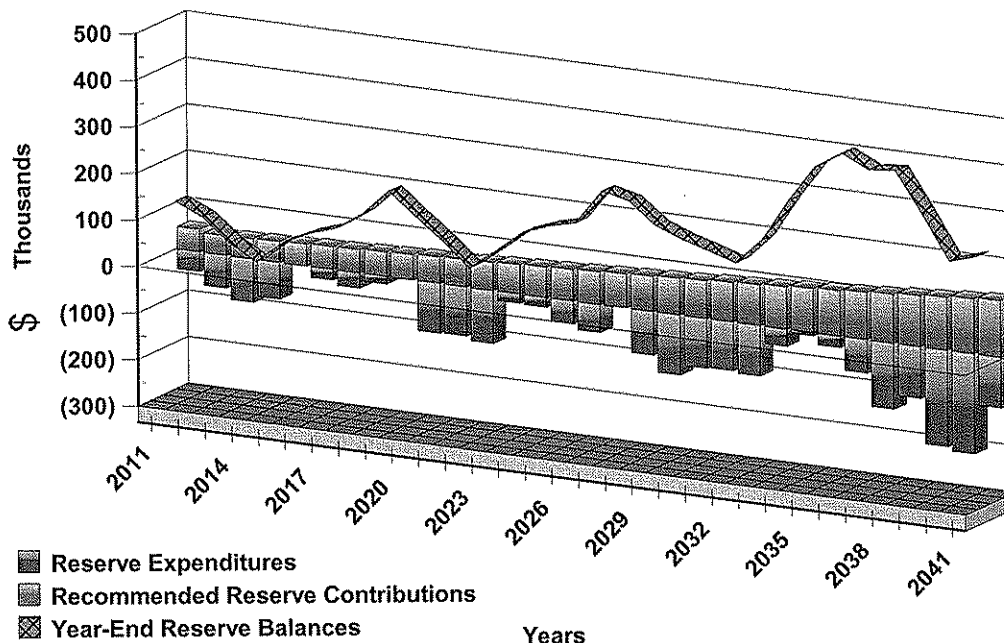
The Association budgeted \$48,240 for Reserve Contributions in 2011. The Association may adopt a reduced reserve budget of \$42,000 in 2012. Afterwards, the Association should budget gradual annual increases in reserve funding, that in part consider the effects of inflation. This recommended contribution of \$42,000 is equivalent to an average monthly contribution of \$48.61 per unit owner. These contributions will maintain a Reserve Fund for the major expenditures as identified in **Exhibit B. Exhibit B Reserve Funding Plan** enumerates the details regarding recommended annual Reserve Contributions and projected year end reserve balances.

Based on the investigation and analysis as detailed in the accompanying narrative, we recommend the following Reserve Funding Plan (Reserve Contributions) to offset the anticipated future Reserve Expenditures of the subject Reserve Components during the next 30 years.

Recommended Reserve Contributions

Year	\$	Year	\$	Year	\$
2012	42,000	2022	60,700	2032	87,700
2013	43,600	2023	63,000	2033	91,000
2014	45,200	2024	65,400	2034	94,400
2015	46,900	2025	67,900	2035	97,900
2016	48,700	2026	70,400	2036	101,600
2017	50,500	2027	73,000	2037	105,400
2018	52,400	2028	75,700	2038	109,400
2019	54,400	2029	78,500	2039	113,500
2020	56,400	2030	81,400	2040	117,800
2021	58,500	2031	84,500	2041	122,200

Recommended Reserve Funding Plan Beacon Hill Townhome Condominium



Ongoing Board reviews and an Update of this Reserve Study in two- to three- years are necessary to ensure an equitable funding plan since a Reserve Study is a snapshot in time. Many variables change after the study is conducted that may result in significant overfunding or underfunding the reserve account. Examples include deferred or accelerated projects based on Board discretion, interest rate changes on reserve investments and *local* construction inflation rate changes. We have not investigated any liabilities against the property.

Respectfully submitted on October 17, 2011 by
RESERVE ADVISORS, INC.

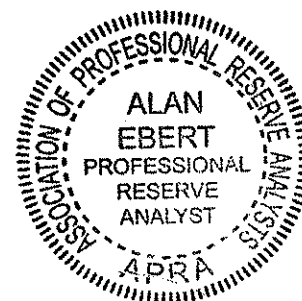
Jayme Radomski

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¹ PRA (Professional Reserve Analyst) is the professional designation of the Association of Professional Reserve Analysts. Learn more about APRA at <http://www.apra-usa.com>.

² RS (Reserve Specialist) is the reserve provider professional designation of the Community Associations Institute (CAI) representing America's more than 300,000 condominium, cooperative and homeowners associations.

NARRATIVE REPORT

At the direction of the Board that recognizes the need for proper reserve planning, we have conducted a *Precision 20/20 Full Reserve Study* of certain property exhibited to us as that of

Beacon Hill Townhome Condominium

Wilmington, Delaware

and submit our findings in this report. The effective date of this study is the date of our visual, noninvasive inspection, June 23, 2011.

Reserves for replacement are the amounts of money required for future expenditures to repair or replace Reserve Components that wear out before the entire facility or project wears out. Reserving funds for future repair or replacement of the Reserve Components is also one of the most reliable ways of protecting the value of the property's infrastructure and marketability.

This Reserve Study uses a 30-year Cash Flow Analysis to project and illustrate the Reserve Funding Plan. National standards³ require a Reserve Component to have a "predictable remaining Useful Life." Estimating Remaining Useful Lives and Reserve Expenditures beyond 30 years is often indeterminate and may involve more than one life cycle for a particular Reserve Component. Construction inflation can also vary greatly over many years.

³ Identified in the APRA "Standards - Terms and Definitions" and the CAI "Terms and Definitions".

Manner of Report Presentation

Our report comprises an Executive Summary, Narrative, Conclusion, Supplementary Information, Definitions and Exhibits. The Executive Summary identifies the property, fiscal considerations, recommended reserve funding and projections concerning reserve funding. The Narrative sets forth the nature and extent of the investigation and includes the following sections:

- Manner of Report Presentation
- Considerations and Methodology
- Identification of Reserve Components
- Condition Assessment
- Explanation of the Exhibits
- Conclusion
- Supplementary Information for Financial Statements

Supplementary Information for Financial Statements contains significant unaudited information from the Reserve Expenditures about Reserve Component categories and estimated current and future replacement costs. Definitions contains terms and definitions used throughout this Reserve Study and the industry. **Exhibits A, B, C, D and E** contain pertinent information relating to the analysis.

Exhibit A *Photographs* documents the conditions of various property components as of the date of our visual inspection, June 23, 2011. The Condition Assessment contains references to these photographs.

Exhibit B presents two tables. The first table Reserve Expenditures includes the Reserve Component Inventory, Reserve Expenditures, estimates of future costs and anticipated times of

replacements during the next 30 years. The second table Reserve Funding Plan includes Reserve Contributions for the next 30 years based on Reserve Expenditures.

Exhibit C *Reserve Funding Graphs* contains two graphs and one pie chart. The graph Recommended Reserve Funding Plan shows the future fund balances based on the anticipated Reserve Expenditures and recommended annual Reserve Contributions during the next 30 years. The second graph Reserve Balances compares the recommended year end amounts of accumulated reserves with the potential shortage of reserves if the Association were to continue contributing to reserves at its current budgeted amount for the next 30 years. The pie chart Estimated Future Reserve Expenditures illustrates the relative importance of Reserve Expenditures and relative funding during the next 30 years.

Exhibit D describes Assumptions of the Reserve Study of how we collect and analyze data. The statement of Professional Service Conditions identifies the general manner of professional services provided, as stated in the original authorized Confirmation of Services for this Reserve Study.

Exhibit E *Credentials* contains the Qualifications of the Firm, Responsible Advisor and Review Coordinator, and resources we use in our analysis, i.e., published sources of cost data.

Considerations and Methodology

This Reserve Study is in compliance with and exceeds the standards set forth by Community Associations Institute (CAI) and the Association of Professional Reserve Analysts (APRA) fulfilling the requirements of a "Full Reserve Study." For brevity, we use the term Reserve Study herein. We considered the following factors in our analysis:

Information Furnished by the Association	
July 31, 2011 unaudited Cash Status of the Reserve Fund	\$111,172
Remaining 2011 Budgeted Reserve Contributions	\$48,240
Anticipated Interest on Reserve Fund	\$856
Less Anticipated Reserve Expenditures	(\$42,254)
Projected 2011 Year-End Reserve Balance	\$118,014

The Cash Flow Method to compute the 30-year Reserve Funding Plan

The identification of individual Reserve Components with their anticipated year of replacement as detailed in **Exhibit B Reserve Expenditures**

Local⁴ costs of material, equipment and labor

The current and future costs of replacement for the Reserve Components

The costs of removal of the worn out elements as part of the cost of replacement

Local economic conditions and a historical perspective to arrive at our estimate of long term future inflation for *construction costs* in Wilmington, Delaware at an annual inflation rate of 3.8%

The past and current maintenance practices of Beacon Hill and their effects on remaining useful lives

The Funding Plan excludes necessary operating budget expenditures. It is our understanding that the current operating budget and future operating budgets will provide for the ongoing normal maintenance of Reserve Components or property elements unless specifically identified in the *Reserve Component Inventory* of **Exhibit B Reserve Expenditures**. Beacon Hill should continue to include these costs of maintenance in the operating budget.

⁴ See **Exhibit E Credentials** for addition information on our use of published sources of cost data.

The anticipated effects of appreciation of the reserves over time in accord with an anticipated future return or yield on investment of your cash equivalent assets at an annual rate of 1.8% (We did not consider the costs, if any, of Federal and State Taxes on income derived from interest and/or dividend income)

Interest rates on reserves are steady or increasing in concert with the certificates of deposit and money market rates. Slight increases exist in the savings rates of one, two or three-year CDs. Without significant differences in these savings rates, shorter term investments are the choice of many investors. We recommend consultation with a professional investment adviser before investing reserves to determine an appropriate investment strategy to maximize a safe return on reserve savings.

Updates to this Reserve Study will continue to monitor historical facts and trends concerning the external market conditions. The following table summarizes rates of inflation and key rates for government securities, generally considered as safe investment alternatives.

Interest Rate and Inflation Data								
Average or Last Actual = (A)	<u>2009:1 (A)</u>	<u>2009:2 (A)</u>	<u>2009:3 (A)</u>	<u>2009:4 (A)</u>	<u>2010:1 (A)</u>	<u>2010:2 (A)</u>	<u>2010:3 (A)</u>	<u>2010:4 (E)</u>
90-Day Treasury Bill	0.250%	0.25%	0.25%	0.05%	0.05%	0.10%	0.1%	0.2%
1-Year Treasury Bill	0.95	0.90	0.30	0.30	0.30	0.34	0.26	0.22
10-Year Treasury Note	2.75	2.84	3.20	3.45	3.50	3.30	2.67	2.50
30-Year Treasury Bond	3.70	3.70	4.00	4.45	4.50	4.20	3.79	3.90
Consumer Price Index	0.00	0.5%	0.0%	0.2%	1.0%	1%	1%	1%
Residential Construction Inflation, Bureau of Labor Statistics (2-year ave.)			\$0	2.2%	1.4%	1.9%	-0.6%	-0.6%
National Market Savings Rates as found	0.87%	for Money Market Savings			1.5%	for 2-Year Certificate of Deposit		
in http://www.bankrate.com	1.0%	for 1-Year Certificate of Deposit			1.8%	for 3-Year Certificate of Deposit		
Estimated Near Term Yield Rate for Reserve Savings				1.8%				
Estimated Near Term Inflation Rate for Future Capital Expenditures				3.8%				
10/19/2010								

With localized exceptions, the inflation rates for construction materials and labor are steady or trending higher. Isolated or regional markets of greater construction (development) activity may experience slightly greater rates of inflation for both construction materials and labor.

Identification of Reserve Components

Beacon Hill Townhome Condominium is a townhome style development of 72 units in nine buildings. The exteriors of the buildings comprise asphalt shingle roofs, brick masonry and vinyl siding. The buildings were built in the 1979. The development contains asphalt pavement parking areas. We identify 12 major common elements that are likely to require capital repair or replacement during the next 30 years.

Our investigation included Reserve Components or property elements as set forth in your Declaration. Our analysis began by segregating the property elements into several areas of responsibility for repair and replacement. We derived these segregated classes of property from our review of the information provided to us and through conversations with Management. These classes of property include:

- 1) Reserve Components
- 2) Long-Lived Property Elements
- 3) Operating Budget Funded Repairs and Replacements
- 4) Property Maintained by Homeowners

We advise that the Board conduct an annual review of these classes of property to confirm its policy concerning the manner of funding, i.e., from reserves or the operating budget. The following pages briefly describe these classes.

Reserve Components are defined as property elements with: 1) Beacon Hill responsibility; 2) limited Useful Life expectancies; 3) predictable Remaining Useful Life expectancies; and 4) a replacement cost above a minimum threshold.

The Reserve Components comprise 12 line items likely to require Reserve Expenditures during the next 30 years. **Exhibit B *Reserve Expenditures*** details this first class of property which we summarize as follows:

Exterior Building Elements (Line Items 1.240 through 1.920)

- Gutters and Downspouts
- Light Fixtures
- Roofs, Asphalt Shingles
- Shutters
- Walls, Masonry
- Walls, Vinyl Siding

Property Site Elements (Line Items 4.020 through 4.140)

- Asphalt Pavement
- Catch Basins
- Concrete, Flatwork

In addition to the Reserve Components listed above, we list the following Long-Lived Property Elements, defined as those items without predictable Remaining Useful Life expectancies:

- Electrical Systems
- Foundations
- Pipes, Subsurface Utilities
- Structural Frames

Long-Lived Property Elements (without predictable Remaining Useful Lives) may require infrequent repairs due to abuse, normal wear and tear or unknown construction defects. Beacon Hill should fund the cost of these infrequent replacements from the operating budget. Funding untimely or unexpected replacements from reserves will necessitate adjustments to future Reserve Contributions. An update of this Reserve Study will help determine the merits of adjusting the Reserve Funding Plan.

The operating budget provides money for the repair and replacement of certain Reserve

Components. Operating Budget Funded Repairs and Replacements relate to:

- General Maintenance to the Common Elements
- Expenditures less than \$4,000 (*These relatively minor expenditures have a limited effect on the recommended Reserve Contributions.*)
- Balcony Fascia Board, Metal
- Catch Basins
- Chimney Caps
- Gutters and Downspouts
- Landscape
- Paint Finishes, Touch Up
- Signage, Street and Traffic
- Other Repairs normally funded through the Operating Budget

Certain items have been designated as the responsibility of the homeowner to repair or replace. Property Maintained by Homeowners relates to unit:

- Balconies, Decks and Railings
- Fences, Privacy
- Heating, Ventilating and Air Conditioning (HVAC) Units
- Interiors
- Light Fixtures, Front and Rear Entry Doors
- Mailboxes
- Sealants, Windows and Doors
- Stoops, Brick
- Windows and Doors

Condition Assessment

The Condition Assessment of this *Precision 20/20 Full Reserve Study* includes *Enhanced Solutions and Procedures (ESP)* for select significant components. These narratives describe the Reserve Components, document specific problems and conditions, and may include detailed solutions and procedures for necessary capital repairs and replacements for the benefit of current and future board members. We advise the Board use this information to help define the scope and procedures for repair or replacement when soliciting bids or proposals from

contractors. *However, the Report in whole or part is not and should not be used as a design specification or design engineering service.*

Exterior Building Elements

Gutters and Downspouts - Approximately 4,700 linear feet of aluminum gutters and downspouts drain storm water from the sloped roofs of Beacon Hill. The useful life of gutters and downspouts is up to 25 years. These gutters and downspouts are in good overall condition at various ages. We include the following solutions and procedures for gutter and downspout maintenance and replacements for present and future board members.

The most common and economical type of gutter profile is the metal roll-formed seamless K-style. The five-inch wide K-style gutter is standard but six-inch wide K-style gutters should be used on larger roofs. The size of the gutter is determined by the *roof's watershed area*, a *roof pitch factor* and the *rainfall intensity number* of the Association's region. We recommend sloping gutters 1/16 inch per linear foot and providing fasteners a maximum of every three feet.

Downspouts can drain 100 square feet of roof area per one square inch of downspout cross sectional area. Downspouts should be of the same material as the gutters. We recommend the use of downspout extensions and splash blocks at the downspout discharge to direct storm water away from the foundations. Downspouts that discharge directly onto roofs cause premature deterioration of the roofs due to the high concentration of storm water. We recommend either routing these downspouts directly to the ground, connecting the downspouts to the gutters of the lower roof or distributing the storm water discharge over a large area.

Maintenance of the gutters and downspouts should include semiannual inspections, repairs at seams and fastening points, verification that the downspouts discharge away from foundations and cleaning. More frequent maintenance may be required for gutters and downspouts in areas of concentrated landscape growth. The Association should fund these expenses through the operating budget. A lack of maintenance resulting in misdirected storm water will result in deterioration of soffits, fascia, siding, foundations, and the gutters and downspouts themselves.

Based on the good overall condition, we recommend the Association budget for the phased replacement of the gutters and downspouts beginning by 2023 and concluding by 2026. We depict this information on Line Item 1.240 of **Exhibit B Reserve Expenditures**.

Light Fixtures - Beacon Hill maintains approximately 30 exterior wall mounted light fixtures. The light fixtures are in good overall condition at an unknown age. The useful life of exterior light fixtures of this type and quality is up to 25 years. We recommend that the Association plan for replacement of the light fixtures by 2020. The Association should aggregate the replacement of the light fixtures to ensure their availability and to maintain aesthetic continuity throughout the community. We include this information on Line Item 1.260 of **Exhibit B Reserve Expenditures**.

Roofs, Asphalt Shingles - Approximately 652 *squares*⁵ of asphalt shingles comprise the roofs of Beacon Hill over nine townhome buildings. The roofs are in fair to poor overall condition at various ages. Management informs us that the roofs of eight units were replaced in

⁵We quantify the roof area in *squares* where one square is equal to 100 square feet of surface area.

2010. Management also informs us that the roofs of eight units will be replaced in 2011. See “**2011 Reserve Expenditures**” for our inclusion of this cost. Our visual inspection from the ground notes shingle lift, curled shingles and loose shingles. See Pages 2 and 3 of **Exhibit A Photographs** for examples of these conditions. The useful life of asphalt shingle roofs in Wilmington is from 15- to 20-years. We include the following solutions and procedures pertaining to the *components* of an asphalt shingle roof system, *times* of replacement, recommended *method of replacement* and *coordination* of other related work for the benefit of present and future board members.

Insulation and ventilation are two major *components* of a sloped roof system. Together, proper insulation and ventilation help to control attic moisture and maintain an energy efficient building. Both insulation and ventilation prevent moisture buildup which can cause wood rot, mold and mildew growth, warp sheathing, deteriorate shingles, and eventually damage building interiors. Sufficient insulation helps to minimize the quantity of moisture that enters the attic spaces and adequate ventilation helps to remove any moisture that enters the attic spaces. These two roof system components also help to reduce the amount of energy that is required to heat and cool a building. Proper attic insulation minimizes heat gain and heat loss between the residential living spaces and attic spaces. This reduces energy consumption year-round. Proper attic ventilation removes excessive heat from attic spaces that can radiate into residential living spaces and cause air conditioners to work harder. Properly installed attic insulation and ventilation work together to maximize the useful life of sloped roof systems.

In addition to moisture control and energy conservation, proper attic insulation and ventilation are essential components to prevent the formation of ice dams. Ice dams occur when

warm air accumulates at the peak of an attic while the roof eaves remain cold. Warm air from the attic melts the snow at the ridge of the roof and the water runs down the slope of the roof. At the cold roof eaves, the water refreezes and forms a buildup of snow and ice. This buildup often traps water that can prematurely deteriorate asphalt shingles and ultimately seep under the shingles and cause water damage to the roof deck and building interiors. Proper insulation minimizes the amount of heat that enters attic spaces in the winter and adequate ventilation helps to remove any heat that enters the attic spaces. Together, these components prevent ice dams with a cold roof deck that melts snow and ice evenly.

Roof vents provide ventilation to the attic space through the combined use of soffit vents, gable vents and square hood box vents. The Association should periodically ensure that the soffit vents are clear of debris and are not blocked from above by attic insulation. If the soffit vents are blocked from above, the Association should install polystyrene vent spaces or baffles between the roof joists at these locations to ensure proper ventilation. Beacon Hill should fund this ongoing maintenance through the operating budget.

Certain characteristics of condition govern the *times of replacement*. Replacement of an asphalt shingle roof becomes necessary when there are multiple or recurring leaks and when the shingles begin to cup, curl and lift. These conditions are indications that the asphalt shingle roof is near the end of its useful life. Even if the shingles are largely watertight, the infiltration of water in one area can lead to permanent damage to the underlying roof sheathing. This type of deterioration requires replacement of saturated sections of sheathing and greatly increases the cost of roof replacement. Roof leaks may occur from interrelated roof system components, i.e., flashings. Therefore, the warranty period, if any, on the asphalt shingles, may exceed the useful

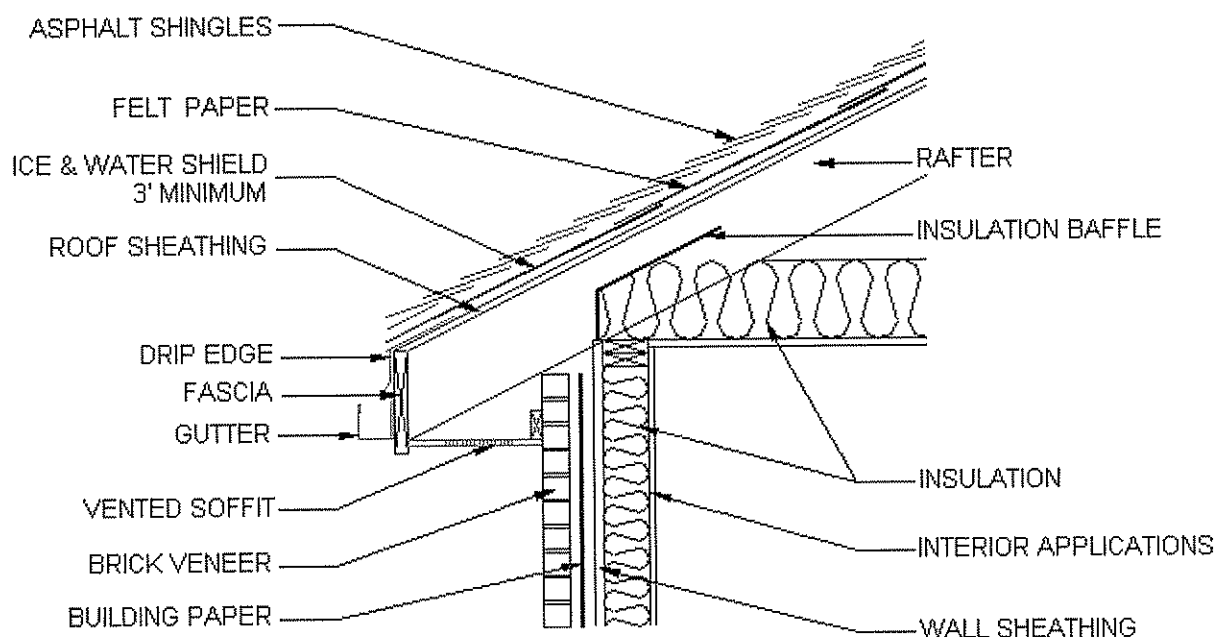
life of the roof system. Our estimate of remaining useful life considers this possibility and the Association should anticipate the need for capital repairs to the shingles and other roof system components to achieve or maximize the remaining useful life of the roofs. The Association should fund ongoing roof repairs as normal maintenance from the operating budget.

Contractors use one of two *methods of replacement* for sloped roofs, either an *overlayment* or a *tear-off*. *Overlayment* is the application of new shingles over an existing roof. Although this method is initially more economical, the following disadvantages exist for this type of replacement:

1. Overlaid shingles hide condition defects of the roof system and do not allow for replacement of critical flashings, underlayments and ventilation.
2. Additional layers of shingles absorb and store more heat resulting in premature deterioration of the new shingles and continued deterioration of the underlying shingles and other roof system components.
3. New shingles installed over deteriorated shingles may result in an uneven appearance.

The above disadvantages result in a shorter useful life of 10- to 15-years for overlaid roofs. This shortened useful life and the inevitable eventual replacement of both shingle layers will actually result in increased long-term replacement costs. The costs of an eventual total replacement are deferred onto future homeowners thereby conflicting with the purpose of a reserve study to ensure that homeowners pay their "fair share" of the weathering and aging of this commonly owned property. Therefore, we recommend only the tear-off method of replacement. The advantages of the tear-off method include the correction of hidden or latent defects and extend the useful life of the new roof.

The *tear-off* method of replacement includes removal of the existing shingles, flashings if required and underlayments. The contractor should then inspect the roof sheathing for areas of water damage and partially replace the sheathing as needed. Once the roof sheathing is repaired, the contractor can begin installation of the new underlayments, flashings and shingles. The following cross-sectional schematic illustrates an asphalt shingle roof system.



The two types of underlayment most often used in an asphalt shingle roof system are ice and water shield membrane, and organic felt paper of varying weights depending on local building codes. Both types of underlayment protect the roof sheathing from moisture damage and wind-driven ice and snow. They have a low vapor resistance that impedes the accumulation of moisture between the underlayment and the roof sheathing. Ice and water shield membrane is thicker than organic paper and is used in areas that are subject to ice dams and standing water. The contractor should install ice and water shield membranes (often a modified bitumen product) at the outer 36 inches of the gutter and rake edge roof eaves, and in the roof valleys. Standard

15-pound organic felt paper should provide sufficient protection over the remaining portions of the roof. Underlayments work in conjunction with flashings to form a watertight roof system.

The function of flashing is to provide a watertight junction between the roofing material and the other parts of the structure and between roof sections. Flashing material is usually galvanized metal, although some roofs use copper or synthetic rubber. The Association *should require the contractor* to augment existing flashings or replace deteriorated flashings at the time of roof replacement:

- Roof intersections with a wall, vertical structure, roof penetration, i.e., vent stacks
- Rakes (sloped edges of the roof) and soffits (lower roof edges)

Another critical type of flashing is drip edge flashing. This important flashing sheds water off the edges of the roofs. The roofs have lack this L-shaped component. The drip edge flashing allows storm water to run off the roof into the gutters without coming into contact with the underlayment and eave board. The special profile of a metal drip edge also prevents or minimizes the possibility of rain water blowing back under the shingles. The contractor should install this flashing at the gutter edge *before* the installation of underlayment and at the rake edge *after* the installation of underlayment.

Asphalt shingles include both fiberglass shingles and organic mat shingles. Both shingle types are made with asphalt. Fiberglass shingles use a fiberglass reinforcing mat while organic shingles use a wood based cellulose fiber mat. Fiberglass shingles are thinner, lighter and carry a better fire rating than organic shingles. Organic-mat shingles are more durable and stay more flexible in cold weather. The contractor should install the shingles atop the underlayment and in

conjunction with certain types of flashing, i.e., chimney flashing. Based on a better fire rating, we suggest Beacon Hill use a standard strip, fiberglass, Class A, minimum weight class of 210 pounds per square self-sealing shingle at the time of replacement. The self-sealing strip affixes the lower exposed edges of the shingles. Heat from ambient weather and sunlight activates the shingle adhesive material and seals the two adjacent courses of shingles together. Contractor proposals should specify the types of proposed materials and types of proposed fasteners. The Association should require the use of nail fasteners, not staples, at the time of replacement. Nail guns are acceptable. Staples are of lesser quality and might not withstand wind forces as well as nails.

As previously mentioned, the roofs over eight units were replaced in 2010 and the roofs over eight units will be replaced in 2011. Based on their age and condition, we recommend that Beacon Hill plan to replace the remaining roofs beginning in 2012 and concluding by 2014. A subsequent phased replacement is likely beginning by 2028 and concluding by 2032. We note this information on Line Items 1.280 and 1.281 of **Exhibit B Reserve Expenditures**. The Association should fund any repairs prior to the complete replacement of the roofs through the operating budget.

Shutters - The exteriors of the buildings contain approximately 220 pairs of decorative vinyl shutters. These shutters are in good to fair overall condition at an unknown age. As vinyl shutters age, their color fades and they become brittle, making them increasingly susceptible to damage from wind. Beacon Hill should anticipate a useful life of up to 20 years for these exterior building components. We recommend the Association budget for their phased replacement beginning by 2017 and concluding by 2018. A subsequent phased replacement is

likely beginning by 2035 and concluding by 2036. We depict this information on Line Item 1.560 of **Exhibit B Reserve Expenditures**.

Walls, Masonry - Brick comprises approximately 37,200 square feet of the exterior walls. The overall condition of the brick is good to fair. We note isolated areas of mortar cracks and deterioration on Pages 4 and 5 of **Exhibit A Photographs**. We elaborate on solutions and procedures necessary for the optimal maintenance of masonry walls in the following discussion.

Brick generally requires less maintenance than other types of exteriors. However, brick is not maintenance free. Brick exteriors should last the life of the building with proper maintenance. Beacon Hill should plan for the periodic inspection of the brick to identify and repair areas of deterioration. Common types of masonry deterioration include efflorescence, spalling and cracking.

The primary cause of *efflorescence* and *spalling* is water infiltration, therefore prevention of water infiltration is the principal concern for the maintenance of masonry applications. Masonry walls normally shed storm water and condensate from behind the wall through weep holes. However, trapped water within masonry walls can cause corrosion of metal masonry ties, studs, structural members and potentially damage building interiors. The first sign of water infiltration is usually a water stain. Eventually, water infiltration can lead to deterioration of the masonry. If left unrepaired, water infiltration can lead to both efflorescence and spalling as described below.

Trapped water can also migrate through areas of cracked mortar or other points within the cavity of a masonry wall. This moisture then typically migrates to the exterior face of the masonry where it evaporates. As the moisture evaporates, it deposits soluble white salts either on the surface as efflorescence or below the surface as subflorescence. Efflorescence mars the appearance of the masonry, is typically harmless but can also indicate a harmful condition known as subflorescence. Subflorescence within a masonry unit can create pressure that will eventually spall the masonry face. In addition, accumulated (trapped) storm water within or behind mortar joints in conjunction with inclement weather can also gradually spall masonry, create mold or damage adjacent components, i.e., windows or interior finishes. Spalling is a form of deterioration where small fragments of masonry break away from the wall system. Spalls can also occur as a result of a chemical reaction or from movement of a building structure. Spalled masonry may eventually dislodge individual masonry units.

Mortar is the bonding material of a masonry wall. Mortar, as recommended by the Brick Industry Association (<http://www.gobrick.com>) and other masonry experts, is made from Portland cement, specialized sand, water, in some cases pigment for color and additives to improve mortar workability, durability and curing (hardening). Accelerators are a class of additives to speed the hydration (hardening) of the mortar in cold weather so that preheating of the mortar materials is not necessary. Calcium chloride, one such accelerant, tends to corrode steel reinforcement within the mortar. This steel holds the brick to the building. Accelerators, even those that do not contain calcium chloride, tend to create efflorescence. We recommend against use of such additives. The mortar joint is tooled to create a relatively smooth, hardened surface that is less porous than the underlying mortar. Wind and weather will naturally abrade this tooled surface and reveal the softer, more porous mortar. Water has greater propensity for

absorption into the mortar joint as the surface abrades through time and exposure which creates the need for repointing.

Repointing is a process of raking and cutting out defective mortar to a depth of not less than $\frac{1}{2}$ inch nor more than $\frac{3}{4}$ inch and replacing it with new mortar. *Face grouting* is the process of placing mortar over top of the existing mortar. We advise against face grouting because the existing, often deteriorated mortar does not provide a solid base for the new mortar. New mortar spalls at face grouted areas will likely occur. One purpose of a mortar joint is to protect the brick by relieving stresses within the wall caused by expansion, contraction, moisture migration and settlement. Repointed mortar joints are more effective if the mortar is softer and more permeable than the masonry units, and no harder or less permeable than the existing mortar. The masonry contractor should address these issues within the proposed scope of work. The contract for repointing should also include attention to other related activities such as repair and partial replacement of window sills, lintel beams and sealants. Together, these aggregated capital repairs maximize the useful life of a masonry wall system. We advise a complete inspection of the exterior walls, and partial repointing with related masonry repairs every 8- to 12-years to forestall deterioration.

We also recommend inspection, repair and replacement of the steel lintels. Lintels are structural supports or beams above windows and doors. Fatigued lintels also allow the direct penetration of storm water into the wall assembly. These inspections should locate areas of rust on the lintels and cracks or other structural damage to the walls around lintels. The contractor should remove any areas of rust, prime and paint these lintels. Paint protects and maximizes the remaining useful life of the lintels and therefore the exterior wall systems. Structural damage can

eventually lead to costly replacements of lintels and surrounding wall systems. Painting and repairs to the metal lintels is included in our cost estimate.

With the onset of rust, a portion of the metal lintels will also require replacement during the next 30 years. Replacement of lintels includes the following activities:

- Removal of deteriorated lintels and surrounding brick
- Installation of new pre-primed and painted metal lintels
- Installation of asphaltic flashing above the lintels
- Reinstallation of the brick with new mortar and weeps

A complete inspection of the exterior walls can only identify the exact scope of masonry repairs and replacements. Based on the age and condition of the masonry, we recommend the Association budget for the following activities:

- Complete inspection of the brick
- Repointing of up to four percent (4%) of the brick
- Replacement of less than one percent (0.25%) of the brick
- Replacement of up to one percent (1%) of the metal lintels
- Paint applications to the metal lintels

We recommend the Association anticipate this work by 2016 and every ten years thereafter. The times and extent of the brick repointing and related work may vary. However, we judge at this time the estimated amounts noted on Line Item 1.820 of **Exhibit B Reserve Expenditures** appropriate to estimate sufficient reserves. Updates of this Reserve Study will again consider the need to modify the anticipated scope and estimated cost of future repointing.

Walls, Vinyl Siding - Vinyl siding comprises approximately 29,400 square feet of the exterior walls. This quantity includes the aluminum soffit and fascia. The siding is in good overall condition at an age of approximately ten years. We elaborate on solutions and procedures necessary for maintenance and replacement of vinyl siding in the following discussion.

Vinyl siding has a useful life of up to 40 years. Consideration of appearance largely governs the decision to replace, in whole or partially, prior to the end of its useful life. Maintenance and partial replacements of the siding may extend the useful life. Normal deterioration mainly relates to discoloration of the exterior finish from exposure to sunlight, weathering and air pollutants. Vinyl siding gets damaged from forces which cause it to warp and crack, such as lawn care equipment, wind-driven objects, etc.

The lack of water-vapor permeable building paper underneath the siding can result in premature loosening of the siding fasteners from water damage to the substrate sheathing. The siding at Beacon Hill does utilize a water-vapor permeable building paper. The lack of replacement pieces matching the color and profile of the existing siding may result in the need for a premature replacement. These variables may affect the need for partial and complete replacements.

The Association should install new vinyl siding as recommended by the *Vinyl Siding Institute*. We briefly summarize these recommendations in the following narrative:

Weather Resistant Barrier - Vinyl siding should be installed over a continuous weather resistant barrier. Vinyl siding is an exterior cladding that is not watertight. The weather resistant barrier should include water-vapor permeable building paper and properly integrated flashing around all penetrations.

Fasteners - Vinyl siding fasteners include nails, staples and screws. Only aluminum, galvanized steel or other corrosion-resistant fasteners should be used. The fasteners should penetrate a minimum of $\frac{3}{4}$ of an inch into the framing.

Fastening - The fasteners should allow $\frac{1}{32}$ of an inch clearance between the fastener head and the siding, and the fasteners should be installed in the center of the nailing slot in the nailing flange. This will allow for the thermal expansion and contraction of the siding. Overtight fasteners will cause the siding to buckle. Fasteners should be spaced a maximum of 16 inches apart for horizontal siding, 12 inches for vertical siding and 8- to 10-inches for vinyl siding accessories.

Installation - Siding panels should overlap by approximately one inch. Joints should be staggered so that no two courses are aligned vertically, unless separated by at least three courses. The siding should not be caulked where the siding meets trim accessories, such as J-channel, or at overlap joints. J-channel should be installed a minimum of $\frac{1}{2}$ inch off of roof lines.

With consideration of the age and existing condition of the siding, we recommend the Association anticipate a phased replacement of the siding beginning by 2037 and concluding by 2040. We note this information on Line Item 1.920 of **Exhibit B Reserve Expenditures**.

Vinyl siding is relatively maintenance free. However, the Association should periodically clean the vinyl siding with a water hose. A nonabrasive household cleaner or manufacturer specified vinyl siding cleaner will remove more intense stains. The Association should fund these ongoing expenses through the operating budget.

Property Site Elements

Asphalt Pavement, Crack Repair, Patch and Seal Coat - Asphalt pavement comprises 6,780 square yards of streets and parking areas throughout the community. The pavement is in good to fair overall condition at an age of eight- to ten-years. We note areas of cracks and deterioration on Pages 6 and 7 of **Exhibit A Photographs**. Parked vehicles leak motor oil and other fluids that can damage asphalt pavement. We recommend periodic *seal coat* applications

to maintain the pavement. Seal coat applications minimize the damaging effects of these vehicle fluids, maintain a uniform and positive appearance, and maximize the useful life of the pavement. The Association should plan future applications every three- to five-years. We elaborate on solutions and procedures necessary for the optimal maintenance of asphalt pavement in the following discussion.

There are four main types of seal coats available: fog coat, acrylic sealer, chip seals and asphaltic emulsion. A *fog coat* is a simple mixture of water and asphalt. *Acrylic sealers* include an acrylic additive to the water and asphalt mixture for greater resistance to abrasion. *Fog coats* and *acrylic sealers* are typically spray applied and are only for aesthetic purposes. *Chip seal* is the most substantial type of seal coat which involves placement of oil and aggregate on the driving surface. Either a roller or normal vehicular traffic works the gravel into the oil. *Asphaltic emulsions* combine a sharp sand mixture or mineral fibers and an emulsifying agent with the water and asphalt mixture. *Asphaltic emulsions* are typically hand applied with squeegees to ensure that the sealer fills surface abrasions and minor cracks. This prevents the infiltration of water through cracks into the underlying pavement base. Seal coats therefore minimize the damaging effects of water from expansion and contraction. We regard *asphaltic emulsions* as the most effective and economical type of seal coat.

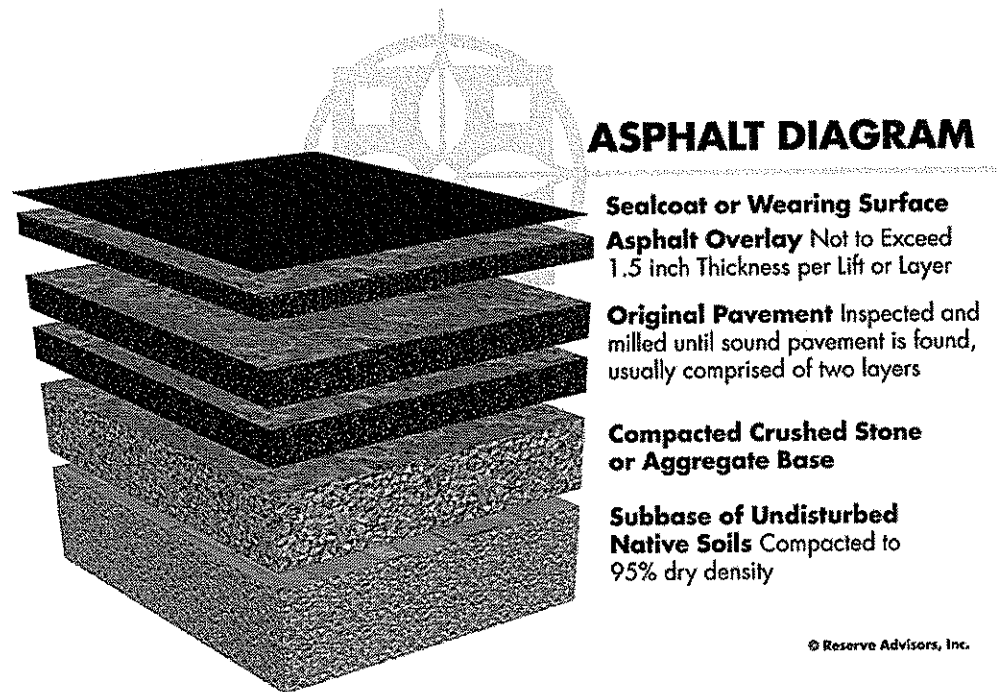
Beacon Hill should repair any isolated areas of deteriorated pavement prior to seal coat applications. Proposals for seal coat applications should include both crack repair and area patching. These activities reduce water infiltration and the effects of inclement weather. The contractor should only apply seal coat applications after remedial crack and surface repairs are completed. A seal coat does not bridge or close cracks, therefore, unrepaired cracks render the

seal coat applications useless. Our future estimates of cost include an allowance for both crack repair and area patching.

We recommend that Beacon Hill plan the next application of seal coat by 2013 and subsequent applications every four years thereafter except when repaving occurs. Line Item 4.020 of **Exhibit B Reserve Expenditures** notes our estimate of future costs and anticipated times of seal coat applications.

Asphalt Pavement, Repaving - The 6,780 square yards of asphalt streets and parking areas throughout the community are in good to fair overall condition at an age of eight- to ten-years. We note areas of cracks and deterioration on Pages 6 and 7 of **Exhibit A Photographs**. The useful life of pavement in Wilmington is from 15- to 20-years. We include the following solutions and procedures pertaining to *components* of the pavement, the *manner of repaving*, *time* of repaving and *coordination* of other possible replacements with the repaving for the benefit of the present and future board members.

Components of asphalt pavement include native soil, aggregate and asphalt. First the contractor creates a base course of aggregate or crushed stone and native soil. The base course is individually compacted to ninety-five percent (95%) dry density prior to the application of the asphalt. Compaction assures a stable base for the asphalt that reduces the possibility of settlement. The initial installation of asphalt uses at least two lifts, or two separate applications of asphalt, over the base course. The first lift is the binder course. The second lift is the wearing course. The wearing course comprises a finer aggregate for a smoother more watertight finish. The following diagram depicts these components.



The *manner of repaving* is either a *mill and overlay* or *total replacement*. A mill and overlay is a method of repaving where cracked, worn and failed pavement is mechanically removed or milled until sound pavement is found. A new layer of asphalt is overlaid atop the remaining base course of pavement. Total replacement includes the removal of all existing asphalt down to the base course of aggregate and native soil followed by the application of two or more new lifts of asphalt. We recommend mill and overlayment on asphalt pavement that exhibits normal deterioration and wear. We recommend total replacement of asphalt pavement that exhibits severe deterioration, inadequate drainage, pavement that has been overlaid multiple times in the past or where the configuration makes overlayment not possible. Based on the apparent visual condition of the asphalt pavement, we recommend the *total replacement* method for initial repaving and the *mill and overlay* method for subsequent repaving at Beacon Hill.

A variety of repairs are necessary to deteriorated pavement prior to the application of an overlay. The contractor should use a combination of area patching, crack repair and milling before the overlayment. The contractor should patch areas that exhibit potholes, alligator or spider web pattern cracks and areas of pavement that are severely deteriorated from oil and gasoline deposits from parking vehicles. Area patching requires total replacement of isolated areas of pavement. The contractor should mechanically rout and fill all cracks with hot emulsion. Crack repair minimizes the chance of the underlying cracks transmitting through the overlayment. In addition to area patching and crack repair, the contractor should mill the pavement prior to overlayment. Properly milled pavement removes part of the existing pavement and permits the overlay to match the elevation of adjacent curbs, catch basins and other areas not subject to repaving. Milling also allows the contractor to make adjustments to the slope of the pavement to ensure proper drainage. The contractor should clean the milled pavement to ensure proper bonding of the new overlayment. We recommend an overlayment thickness that averages 1½ inches (not less than one inch or more than two inches). Variable thicknesses are often necessary to create an adequate slope for proper drainage. The contractor should identify and quantify areas of pavement that require area patching, crack repair and milling to help the Association compare proposed services.

Total replacement requires the removal of all existing asphalt. For area patching, we recommend the contractor use a rectangular saw cut to remove the deteriorated pavement. For larger areas such as entire parking areas or driveways, we recommend the contractor grind, mill or pulverize the existing pavement to remove it. The contractor should then augment and compact the existing aggregate and native soil to create a stable base. Finally the contractor should install the new asphalt in at least two lifts.

The *time* of replacement is dependent on the useful life, age and condition of the pavement. The useful life of 15- to 20-years is dependent in part on the maintenance applied to the pavement, the amounts and concentration of auto solvents that penetrate the pavement, the exposure to sunlight and detrimental effects of inclement weather. Beacon Hill should repair any isolated areas of deteriorated pavement concurrent with periodic seal coat applications. Based on the existing age of eight- to ten-years and the good to fair overall condition of the pavement, we estimate a remaining useful life of nine years. We recommend the Association plan for a phased total replacement of the pavement beginning by 2020 and concluding by 2022. We recommend the Association plan for a subsequent phased mill and overlayment of the asphalt pavement with area patching of up to ten percent (10%) beginning by 2039 and concluding by 2041. We depict this information on Line Items 4.040 and 4.045 of **Exhibit B Reserve Expenditures**. The Association should *coordinate* asphalt repaving with related activities such as partial replacement of concrete curbs and capital repairs to catch basins.

Concrete, Flatwork - The Association maintains various applications of concrete flatwork such as *curbs* and *sidewalks*. These applications of concrete have useful lives of up to 65 years although isolated deterioration of limited areas of concrete is common. Inclement weather, inadequate subsurface preparation and improper concrete mixtures or finishing techniques can result in premature deterioration such as settlement, chips, cracks and spalls. Variable conditions like these result in the need to plan for periodic partial replacements of the concrete flatwork throughout the next 30 years. We comment on the respective quantities, conditions and times of partial replacements of *concrete flatwork* in the following sections of this narrative.

Concrete Curbs - Concrete curbs line the pavement of Beacon Hill. These curbs comprise 3,460 linear feet and are in good to fair condition overall with isolated areas of cracks and deterioration. Management informs us that approximately half of the curbs were replaced with previous repaving. We estimate that up to 175 linear feet of curbs, or five percent (5%) of the total, will require replacement in conjunction with each phase of repaving. We depict this information on Line Item 4.110 of **Exhibit B Reserve Expenditures**.

Concrete Sidewalks - Concrete sidewalks comprise 4,000 square feet throughout the community. The sidewalks are in good overall condition. We note isolated areas of cracks and deterioration on Pages 8 and 9 of **Exhibit A Photographs**. We estimate that up to 1,995 square feet of concrete sidewalks, or fifty percent (50%) of the total, will require replacement during the next 30 years. We recommend the Association budget for replacement of 285 square feet of concrete sidewalks every four years beginning by 2014.

Line Item 4.140 of **Exhibit B Reserve Expenditures** notes our estimate of future costs and anticipated times of replacements. We recommend an annual inspection of the sidewalks to identify potential trip hazards. We suggest that the Association grind down or mark these hazards with orange safety paint prior to replacement and fund this ongoing activity through the operating budget.

The Association should coordinate partial replacements of concrete curbs with asphalt pavement, due to the interrelated nature of these items. The times and costs of these replacements may vary. However, the estimated expenditures detailed in **Exhibit B Reserve Expenditures** are sufficient to budget appropriate reserves.

2011 Reserve Expenditures - Beacon Hill will expend approximately \$42,254 in reserve expenditures in 2011 to fund the replacement of the asphalt shingle roofs over eight units. We include this information on the second to last line item in **Exhibit B Reserve Expenditures**.

Reserve Study Update - An ongoing review by the Board and an Update of this Reserve Study in two- to three- years are necessary to ensure an equitable funding plan since a Reserve Study is a snapshot in time. Many variables change after the study is conducted that may result in significant overfunding or underfunding the reserve account. Variables that may affect the Reserve Funding Plan include, but are not limited to:

- Deferred or accelerated capital projects based on Board discretion
- Changes in the interest rates on reserve investments
- Changes in the *local* construction inflation rate
- Additions and deletions to the Reserve Component Inventory
- The presence or absence of maintenance programs
- Unusually mild or extreme weather conditions
- Technological advancements

Periodic updates incorporate these variable changes since the last Reserve Study or Update.

The Association can expense the fee for an Update with site visit from the reserve account. This fee is included in the Reserve Funding Plan. We base this budgetary amount on updating the same property components and quantities of this Reserve Study report. Budgeting for an Update demonstrates the Board's objective to continue fulfilling its fiduciary responsibility to maintain the commonly owned property and to fund reserves appropriately.

Explanation of the Exhibits

Exhibit A *Photographs* documents the conditions of various property components as of the date of our visual inspection, June 23, 2011. The previous section, Condition Assessment, contains several references to these photographs.

Exhibit B *Reserve Expenditures and Reserve Funding Plan* covers a 30-year period. Information about the Reserve Components and Expenditures for the most relevant next 20 years (2011 through 2031) is found on a convenient 11- by 17-inch foldout spreadsheet. The remaining ten years (2032 through 2041) follow in a concise 8½- by 11-inch table. Data for each Reserve Component is presented on a single row with columns of information as follows:

- Line Items are included for reference purposes
- Total Quantities are the total anticipated quantity for replacement during the next 30 years (*this is not necessarily the “total” quantity maintained by the Association as this quantity may represent more than one Useful Life cycle or a partial replacement*)
- Per Phase Quantities are the anticipated quantity for each replacement event
- Units clarify the unit of measure used to quantify the elements
- Reserve Component Inventory identifies each Reserve Component
- The Estimated First Year of Replacement is included to help the Association understand the priority of future Reserve Expenditures
- Results of the Life Analysis show both the total Useful Life and Remaining Useful Life for each Reserve Component
- Unit Cost is the cost per unit we used to calculate the per phase cost
- The 2011 Cost of Replacement Per Phase is the per phase cost in today’s dollars
- The Total Future Costs of Replacement is the total cost for all phases of replacement during the next 30 years and *includes* the effects of inflation at a 3.8% annual percentage rate
- The remaining columns in Reserve Expenditures 11- by 17-inch foldout spreadsheet present the estimated future inflated costs for each for the next 20 years

- The remaining ten years of future Reserve Expenditures from years 2032 to 2041 follow in a concise 8½- by 11-inch table

Exhibit B Reserve Funding Plan includes the Cash Flow Analysis and recommended Reserve Contributions for the next 30 years based on the Reserve Expenditures and a 1.8% annual percentage rate earned on the average annual fund balances. The specific information found on the last 11- by 17-inch foldout spreadsheet includes:

- Reserves at Beginning of Year
- Recommended Reserve Contribution (positive cash flow)
- Estimated Interest Earned
- Anticipated Expenditures (negative cash flow)
- Anticipated Reserves at Year End
- Predicted Reserves (based on current funding levels)

Exhibit C Reserve Funding Graphs contains two graphs and a pie chart based on the numerical data found in the Reserve Funding Plan. The graphs illustrate our recommendations and observations pertaining to reserve balances, recommended annual Reserve Contributions and Reserve Expenditures during the next 30 years.

The second Reserve Funding Graph titled Reserve Balances compares the recommended year-end amounts of reserves with the potential shortage of reserves if the Association were to continue contributing to reserves at its current budgeted amount for the next 30 years. The potential shortages are based on matching the estimated future Reserve Expenditures against existing reserves and current annual amounts of Reserve Contributions. This second graph answers the hypothetical question of when a shortfall in reserves could occur if there were no change in the annual budget of Reserve Contributions.

The pie chart Estimated Future Reserve Expenditures illustrates the relative importance of the Reserve Expenditures and relative funding during the next 30 years. Beacon Hill can regard reserve needs for these expenditures as requiring a similar allocation of existing reserves and future Reserve Contributions.

Exhibit D describes Assumptions of the Reserve Study of how we collect and analyze data. The statement of Professional Service Conditions identifies the general manner of professional services provided, as stated in the original authorized Confirmation of Services for this Reserve Study.

Exhibit E *Credentials* contains the Qualifications of the Firm, Responsible Advisor and Review Coordinator. Theodore J. Salgado and John P. Poehlmann are the Principals of Reserve Advisors, Inc., Danny W. Strayer conducted the visual inspection of Beacon Hill Townhome Condominium and Todd M. Walter served as Review Coordinator for this Reserve Study.

CONCLUSION

At the direction of the Board that recognizes the need for proper reserve planning, we have conducted a *Precision 20/20 Full Reserve Study* of Beacon Hill Townhome Condominium (Beacon Hill) located in Wilmington, Delaware and submit our findings in this report. The effective date of this study is the date of our visual, noninvasive inspection, June 23, 2011. This Reserve Study is a budget planning tool that identifies the current status of the reserve fund and a stable and equitable Reserve Funding Plan to offset the anticipated future major common area expenditures.

We identified the anticipated Reserve Expenditures for Reserve Components during the next 30 years as either near term or long term. *Near term* expenditures relate to capital needs from now through 2016, the next five years beyond this current fiscal year. These *near term* expenditures comprise \$306,117, or about thirteen percent (13.3%), of the next 30 years of **Exhibit B Reserve Expenditures**. Expenditures within the next five years are more important when compared with the future needs of Beacon Hill and tend to govern the amounts of recommended Reserve Contributions. The current Reserve Expenditures relate primarily to replacement of the remaining asphalt shingle roofs.

The Association budgeted \$48,240 for Reserve Contributions in 2011. The Association may adopt a reduced reserve budget of \$42,000 in 2012. Afterwards, the Association should budget gradual annual increases in reserve funding, that in part consider the effects of inflation. This recommended contribution of \$42,000 is equivalent to an average monthly contribution of \$48.61 per unit owner. These contributions will maintain a Reserve Fund for the major expenditures as identified in **Exhibit B. Exhibit B Reserve Funding Plan** enumerates the

details regarding recommended annual Reserve Contributions and projected year end reserve balances.

Based on the investigation and analysis as detailed in the accompanying narrative, we recommend the following Reserve Contributions to fund the expected expenditures of the subject Reserve Components during the next 30 years.

Recommended Reserve Contributions

Year	\$	Year	\$	Year	\$
2012	42,000	2022	60,700	2032	87,700
2013	43,600	2023	63,000	2033	91,000
2014	45,200	2024	65,400	2034	94,400
2015	46,900	2025	67,900	2035	97,900
2016	48,700	2026	70,400	2036	101,600
2017	50,500	2027	73,000	2037	105,400
2018	52,400	2028	75,700	2038	109,400
2019	54,400	2029	78,500	2039	113,500
2020	56,400	2030	81,400	2040	117,800
2021	58,500	2031	84,500	2041	122,200

The Reserve Funding Plan recommends 2041 year end accumulated reserves of approximately \$225,000. We judge this amount of accumulated reserves in 2041 desirable or necessary, in consideration of the age, size and complexity of the property. Future replacement costs beyond the next 30 years are likely to more than double the current cost of replacement. These future needs, although beyond the limit of the Cash Flow Analysis of this Reserve Study, are reflected in the amount of accumulated 2041 year end reserves.

An ongoing review by the Board and an Update of this Reserve Study in two- to three-years are necessary to ensure a continued equitable funding plan since a Reserve Study is a snapshot in time. Many variables change after the Reserve Study is conducted that may result in significant overfunding or underfunding. Examples include deferred or accelerated capital projects based on Board discretion, changes in the interest rates on reserve investments; and changes in the *local* construction inflation rate.

SUPPLEMENTARY INFORMATION FOR FINANCIAL STATEMENTS

The *Audit and Accounting Guide for Common Interest Realty Associations* presents recommendations on Supplementary Information on Future Major Repairs and Replacements in end of fiscal year Audits of Financial Statements for community associations⁶. Accountants use discretion and judgment on how to present the Supplementary Information on Future Major Repairs and Replacements. However, the Supplementary Information on Future Major Repairs and Replacements often references and includes excerpts from our Reserve Studies. The following table excerpts significant unaudited information from the Reserve Expenditures about Reserve Component categories and estimated current and future replacement costs based on inflation at an annual rate of 3.8%.

Unaudited Supplemental Information on Future Major Repairs and Replacements

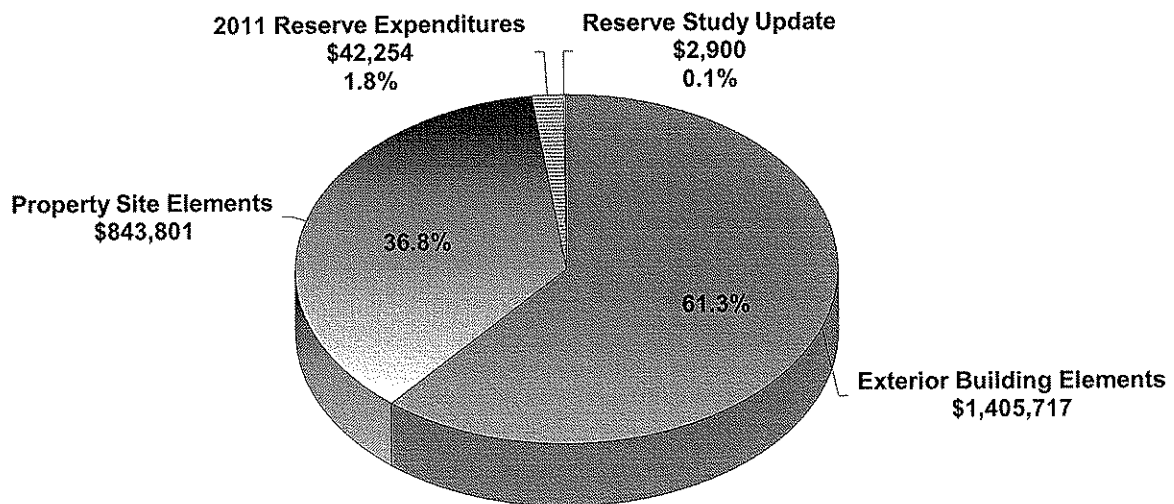
<i>Reserve Component Categories</i>	<i>Total Current Replacement Costs</i>	<i>Total Future or Inflated Replacement Costs</i>	<i>% of Total Future Replacements</i>	<i>Component of Projected 2011 YE Fund Balance</i>
Exterior Building Elements	\$755,385	\$1,405,717	61.3%	\$72,295
Property Site Elements	\$445,103	\$843,801	36.8%	\$43,396
2011 Reserve Expenditures	\$42,254	\$42,254	1.8%	\$2,173
Reserve Study Update	\$2,900	\$2,900	0.1%	\$149
Totals	\$1,245,642	\$2,294,672	100%	\$118,014

The information included in the table above may be included as part of the Supplementary Information on Future Major Repairs and Replacements. *However, Reserve Advisors, Inc. does not certify that the information in the table will fully satisfy the recommendations of the AICPA guideline.*

⁶ American Institute of Certified Public Accountants (AICPA) Audit and Accounting Guide - *Common Interest Realty Associations*; American Institute of Certified Public Accountants, Inc.; 2003

The most important category of Reserve Components noted in **Exhibit B** *Reserve Expenditures* is the Exterior Building Elements. The following chart illustrates the relative importance of the Reserve Expenditures and relative funding during the next 30 years.

Future Expenditures Relative Cost Illustration Beacon Hill Townhome Condominium



DEFINITIONS¹

Cash Flow Method - A method of calculating Reserve Contributions where contributions to the reserve fund are designed to offset the variable annual expenditures from the reserve fund. Different Reserve Funding Plans are tested against the anticipated schedule of reserve expenses until the desired funding goal is achieved.

Current Cost of Replacement - That amount required today derived from the quantity of a *Reserve Component* and its unit cost to replace or repair a Reserve Component using the most current technology and construction materials, duplicating the productive utility of the existing property at current local market prices for materials, labor and manufactured equipment, contractors' overhead, profit and fees, but without provisions for building permits, overtime, bonuses for labor or premiums for material and equipment. We include removal and disposal costs in the cost of replacement where applicable.

Funding Goal - The stated purpose of this Reserve Study to determine the adequate, not excessive, future annual, reasonable *Reserve Contributions* to fund future *Reserve Expenditures*.

Future Cost of Replacement - *Reserve Expenditure* derived from the inflated current cost of replacement or current cost of replacement as defined above, with consideration given to the effects of inflation on local market rates for materials, labor and equipment.

Long-Lived Property Component - Property component of Beacon Hill responsibility not likely to require capital repair or replacement during the next 30 years with an unpredictable remaining Useful Life beyond the next 30 years.

Remaining Useful Life - The estimated remaining functional or useful time in years of a *Reserve Component* based on its age, condition and maintenance.

Reserve Component - Property elements with: 1) Beacon Hill responsibility; 2) limited Useful Life expectancies; 3) predictable Remaining Useful Life expectancies; and 4) a replacement cost above a minimum threshold.

Reserve Component Inventory - Line Items in **Exhibit B Reserve Expenditures** that identify a *Reserve Component*.

Reserve Contribution - An amount of money set aside or *Reserve Assessment* contributed to a *Reserve Fund* for future *Reserve Expenditures* to repair or replace *Reserve Components*.

Reserve Expenditure - *Future Cost of Replacement* of a *Reserve Component*.

Reserve Fund Status - The accumulated amount of reserves in dollars at a given point in time, i.e., at year end.

Reserve Funding Plan - The portion of the Reserve Study identifying the *Cash Flow Analysis* and containing the recommended Reserve Contributions and projected annual expenditures, interest earned and reserve balances.

Reserve Study - A budget planning tool that identifies the current status of the reserve fund and a stable and equitable Funding Plan to offset the anticipated future major common area expenditures.

Useful Life - The anticipated total time in years that a *Reserve Component* is expected to serve its intended function in its present application or installation.

¹ Definitions are derived from the standards set forth by the Community Associations Institute (CAI) representing America's 286,000 condominium and homeowners associations and cooperatives, and the Association of Professional Reserve Analysts, setting the standards of care for reserve study practitioners.

RESERVE EXPENDITURES

for
Beacon Hill
Townhome Condominium
Wilmington, Delaware

Explanatory Notes:
1) 3.8% is the estimated future Inflation Rate for estimating Future Replacement Costs.
2) FY 2011 is Fiscal Year beginning January 1 and ending December 31.

Quantities:				Reserve Component Inventory	Estimated 1st Year of Replacement	Life Analysis, Years		Unit Cost, \$	2011 Cost of Replacement per Phase, \$	Total Future Costs of Replacement, \$	(See Notes 1 & 2)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Line Item	30-Year Total	Per Phase	Units			Useful	Remaining				RUL = 0 FY2011																					
Exterior Building Elements																																
1.240	4,700	1,175	Linear Feet	Gutters and Downspouts, Phased Replacements	2023	to 25	12	11.00	12,925	85,054													20,104	20,858	21,640	22,452						
1.260	30	30	Each	Light Fixtures	2020	to 25	9	150.00	4,500	6,268											6,268											
1.280	525	175	Squares	Roofs, Asphalt Shingles, Initial Phased Replacements	2012	15 to 20	1	385.00	67,375	217,667		69,902	72,523	75,242																		
1.281	650	130	Squares	Roofs, Asphalt Shingles, Phased Replacements	2028	15 to 20	17	385.00	50,050	504,354																		93,584	97,093	100,734	104,512	
1.560	440	110	Pairs	Shutters, Phased Replacements	2017	to 20	6	90.00	9,900	73,960							12,347	12,810														
1.820	111,600	37,200	Square Feet	Walls, Masonry, Inspections and Partial Repointing	2016	8 to 12	5	0.50	18,600	101,358							22,359										32,310					
1.920	29,400	7,350	Square Feet	Walls, Vinyl Siding, Phased Replacement	2037	to 40	26	5.15	37,853	417,056																						
Property Site Elements																																
4.020	40,680	6,780	Square Yards	Asphalt Pavement, Crack Repair, Patch and Seal Coat	2013	3 to 5	2	2.40	16,272	175,572			17,515				20,294								27,244				31,567			
4.040	6,780	2,260	Square Yards	Asphalt Pavement, Mill and Overlay, Phased	2039	15 to 20	28	13.75	31,075	271,259																						
4.045	6,780	2,260	Square Yards	Asphalt Pavement, Total Replacement, Phased	2020	15 to 20	9	30.00	67,800	294,055											94,433	97,974	101,648									
4.110	1,050	175	Linear Feet	Concrete Curbs, Partial Replacements	2020	to 65	9	28.00	4,900	64,025											6,825	7,081	7,346									
4.140	1,995	285	Square Feet	Concrete Sidewalks, Partial Replacements	2014	to 65	3	10.75	3,064	38,890				3,422				3,964					4,593				5,322			6,166		
		1 Allowance		2011 Reserve Expenditures	2011	n/a	0	42,254.00	42,254	42,254	42,254																					
		1 Allowance		Reserve Study Update with Site Visit	2013	2	2	2,900.00	2,900	2,900			2,900																			
Anticipated Expenditures, By Year										\$2,294,672	42,254	69,902	92,938	78,664	0	22,359	32,641	16,774	0	107,526	105,055	113,587	20,104	20,858	48,884	60,084	0	93,584	128,660	106,900	104,512	

RESERVE EXPENDITURES

for
Beacon Hill
Townhome Condominium
Wilmington, Delaware

Line Item	Reserve Component Inventory	21 2032	22 2033	23 2034	24 2035	25 2036	26 2037	27 2038	28 2039	29 2040	30 2041
<u>Exterior Building Elements</u>											
1.240	Gutters and Downspouts, Phased Replacements										
1.260	Light Fixtures										
1.280	Roofs, Asphalt Shingles, Initial Phased Replacements										
1.281	Roofs, Asphalt Shingles, Phased Replacements	108,431									
1.560	Shutters, Phased Replacements				23,952	24,851					
1.820	Walls, Masonry, Inspections and Partial Repointing				46,689						
1.920	Walls, Vinyl Siding, Phased Replacement						98,579	102,276	106,111	110,090	
<u>Property Site Elements</u>											
4.020	Asphalt Pavement, Crack Repair, Patch and Seal Coat		36,575			42,377					
4.040	Asphalt Pavement, Mill and Overlay, Phased							87,112	90,379	93,768	
4.045	Asphalt Pavement, Total Replacement, Phased										
4.110	Concrete Curbs, Partial Replacements							13,736	14,251	14,786	
4.140	Concrete Sidewalks, Partial Replacements			7,145			8,278				
2011 Reserve Expenditures											
Reserve Study Update with Site Visit											
Anticipated Expenditures, By Year		108,431	36,575	7,145	23,952	71,540	140,956	110,554	206,959	214,720	108,554

RESERVE FUNDING PLAN

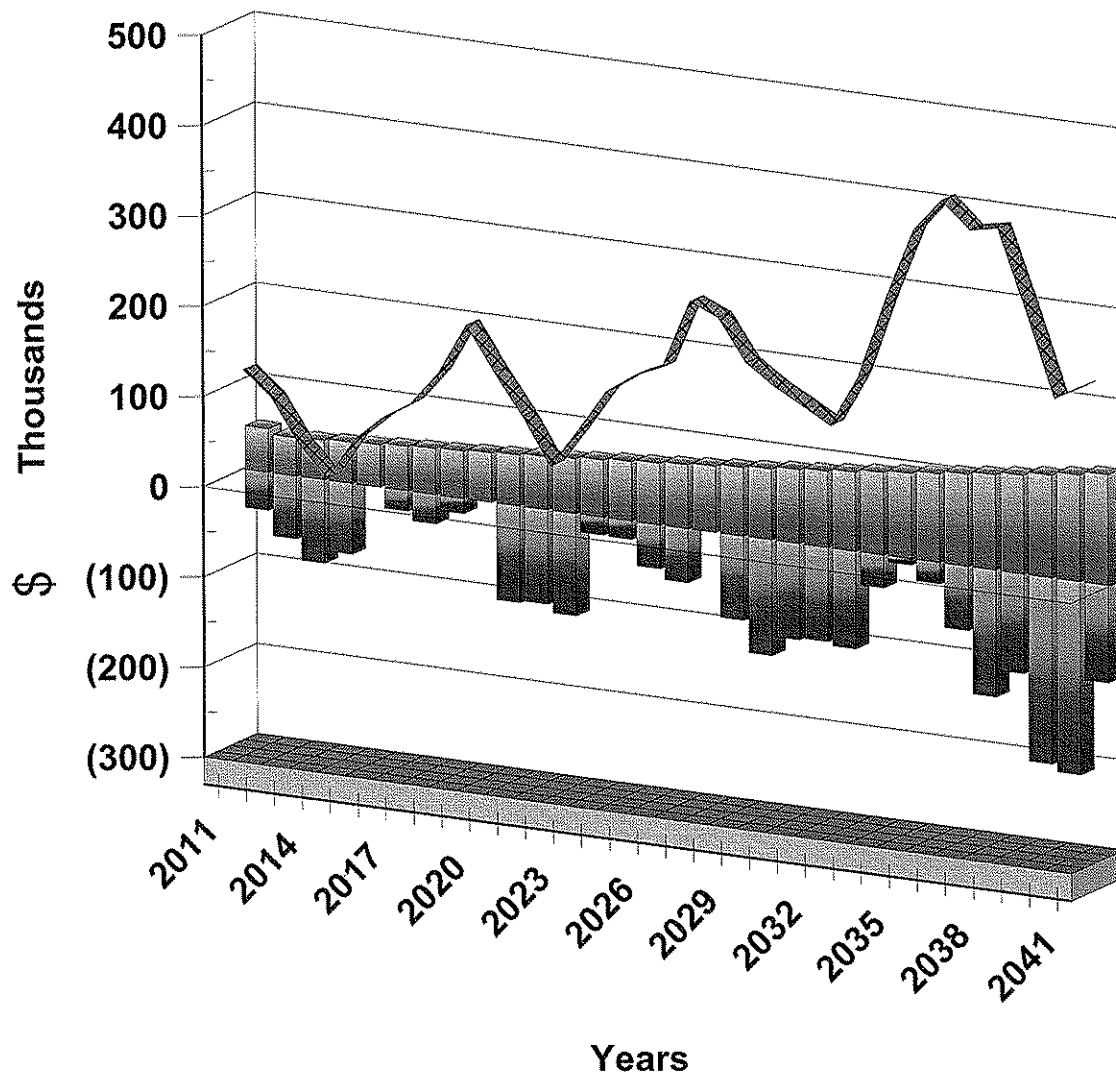
CASH FLOW ANALYSIS																
Beacon Hill																
Townhome Condominium																
Wilmington, Delaware																
Individual Reserve Budgets & Cash Flows for the Next 30 Years																
	FY2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Reserves at Beginning of Year (Note 1)	111,172	118,014	91,985	43,859	10,883	58,401	86,030	105,598	143,445	200,917	152,947	108,726	57,320	101,634	148,406	170,264
Total Recommended Reserve Contributions (Note 2)	48,240	42,000	43,600	45,200	46,900	48,700	50,500	52,400	54,400	56,400	58,500	60,700	63,000	65,400	67,900	70,400
Plus Estimated Interest Earned, During Year (Note 3)	856	1,873	1,212	488	618	1,288	1,709	2,221	3,072	3,156	2,334	1,481	1,418	2,230	2,842	3,158
Less Anticipated Expenditures, By Year	(42,254)	(69,902)	(92,938)	(78,664)	0	(22,359)	(32,641)	(16,774)	0	(107,526)	(105,055)	(113,587)	(20,104)	(20,858)	(48,884)	(60,084)
Anticipated Reserves at Year End	<u>\$118,014</u>	<u>91,985</u>	<u>43,859</u>	<u>10,883</u>	<u>58,401</u>	<u>86,030</u>	<u>105,598</u>	<u>143,445</u>	<u>200,917</u>	<u>152,947</u>	<u>108,726</u>	<u>57,320</u>	<u>101,634</u>	<u>148,406</u>	<u>170,264</u>	<u>183,738</u>
				(NOTE 5)												
Predicted Reserves based on 2011 funding level of:	\$48,240	118,014	98,000	55,000	25,000	74,000	101,000	119,000	153,000	204,000	148,000	93,000	29,000	58,000	87,000	78,000

(continued)																
Individual Reserve Budgets & Cash Flows for the Next 30 Years, Continued																
	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	
Reserves at Beginning of Year	183,738	260,702	247,350	201,191	179,083	162,114	144,114	201,623	293,293	373,186	410,234	381,742	387,449	300,123	207,733	
Total Recommended Reserve Contributions	73,000	75,700	78,500	81,400	84,500	87,700	91,000	94,400	97,900	101,600	105,400	109,400	113,500	117,800	122,200	
Plus Estimated Interest Earned, During Year	3,964	4,532	4,001	3,392	3,043	2,731	3,084	4,415	5,945	6,988	7,064	6,861	6,133	4,530	3,862	
Less Anticipated Expenditures, By Year	0	(93,584)	(128,660)	(106,900)	(104,512)	(108,431)	(36,575)	(7,145)	(23,952)	(71,540)	(140,956)	(110,554)	(206,959)	(214,720)	(108,554)	
Anticipated Reserves at Year End	<u>260,702</u>	<u>247,350</u>	<u>201,191</u>	<u>179,083</u>	<u>162,114</u>	<u>144,114</u>	<u>201,623</u>	<u>293,293</u>	<u>373,186</u>	<u>410,234</u>	<u>381,742</u>	<u>387,449</u>	<u>300,123</u>	<u>207,733</u>	<u>225,241</u>	(NOTE 4)
Predicted Reserves based on 2011 funding level of:	\$48,240	128,000	85,000	5,000	(54,000)	(112,000)	(175,000)									

Explanatory Notes:

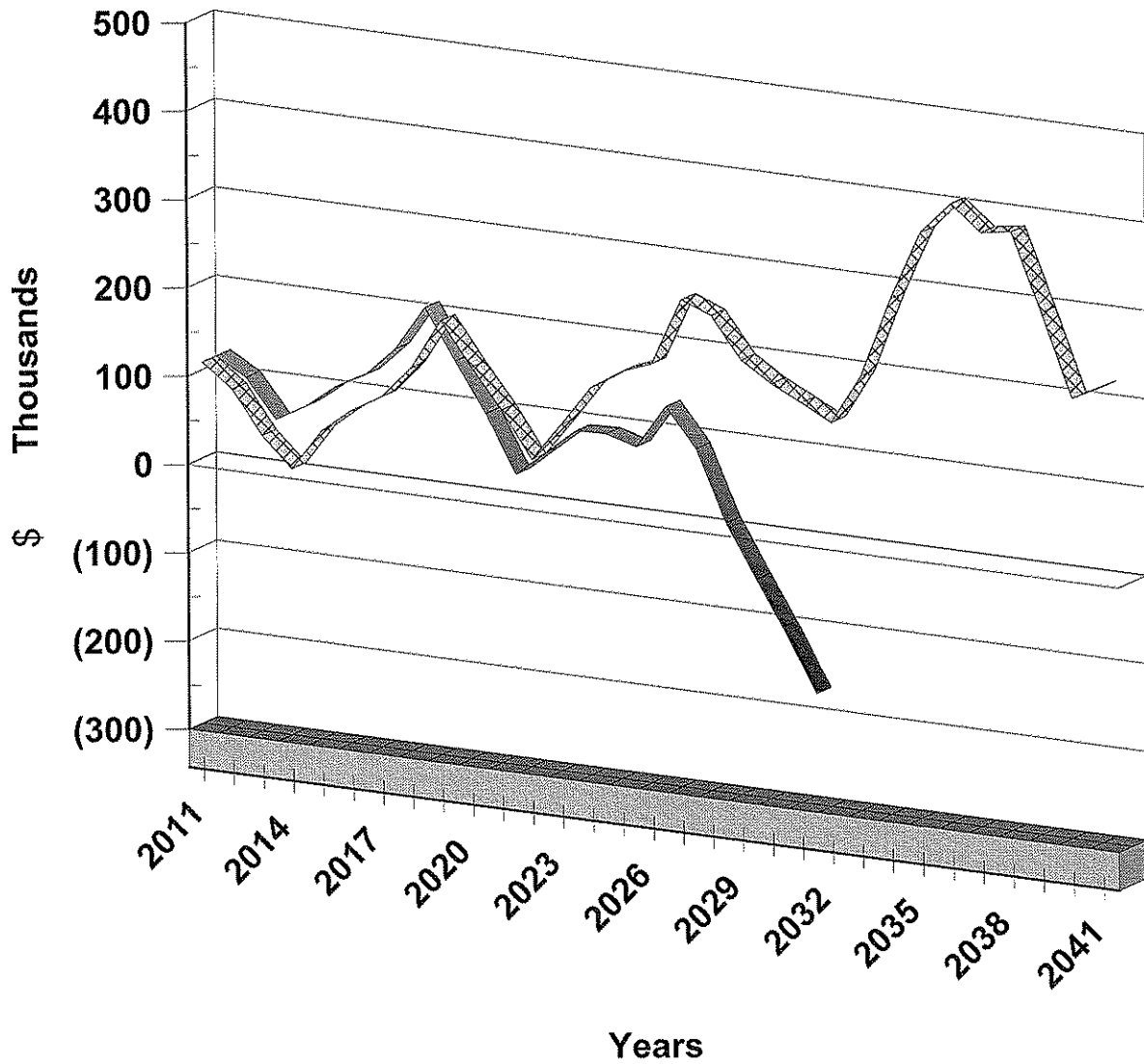
- 1) Year 2011 reserves are as of July 31, 2011; FY 2011 starts January 1 and ends December 31.
- 2) Reserve Contributions for 2011 are budgeted; 2012 is the first year of recommended contributions.
- 3) 1.8% is the estimated annual rate of return on invested reserves; 2011 is a partial year of interest earned.
- 4) Accumulated year 2041 ending reserves consider the age, size, overall condition and complexity of the property.
- 5) Threshold Funding Year (reserve balance at critical point).



Recommended Reserve Funding Plan Beacon Hill Townhome Condominium



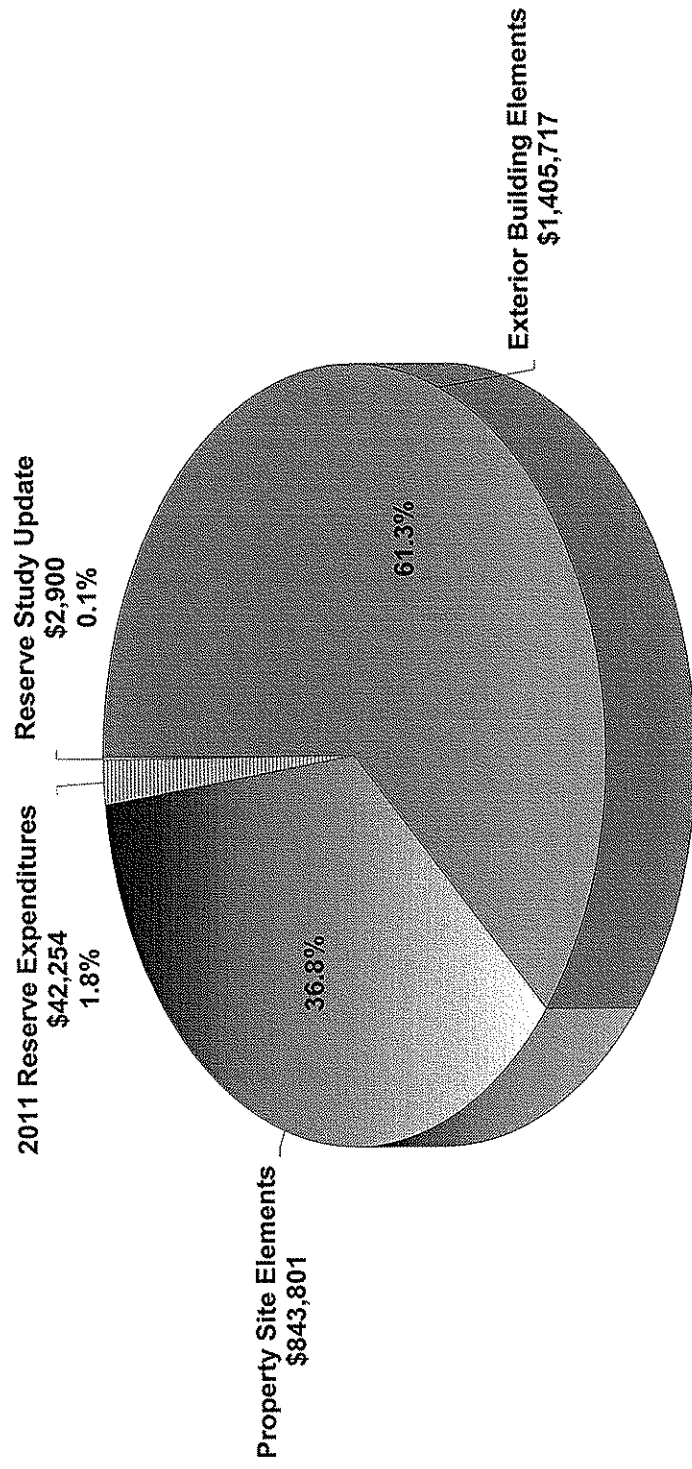
- Reserve Expenditures
- ▨ Recommended Reserve Contributions
- ▩ Year-End Reserve Balances

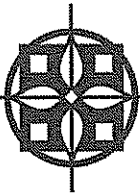
Reserve Balances Beacon Hill Townhome Condominium



 Year-End Reserve Balances Using Recommended Funding
  Potential Year-End Reserve Balances Using Historical Funding

Future Expenditures Relative Cost Illustration Beacon Hill Townhome Condominium





**RESERVE
ADVISORS**

Long-term thinking. Everyday commitment.

Corporate Office

Reserve Advisors, Inc.
735 N. Water Street, Suite 175
Milwaukee, WI 53202

Reserve Study Update

October 17, 2011

The Reserve Study for Beacon Hill Townhome Condominium
was submitted on July 15, 2011.

To maintain the most accurate and cost-effective replacement schedule and funding plan for your
property elements, this study should be updated on or about **Third Quarter, 2013**

...but no later than..... **Third Quarter, 2014**

As a valued client, we are pleased to offer a discounted rate of **\$2,900**
for a Reserve Study Update with Site visit as noted above.

To initiate your Reserve Study Update, please sign this authorization and fax or mail to the number
below. Upon receipt of this authorization we will contact you to schedule your site visit and invoice for
the Reserve Study Update Service.

Sign this contract below and fax to **414-272-3663**. Or mail to
Reserve Advisors, Inc.
735 N. Water St., Suite 175
Milwaukee, WI 53202

Delivery options for your Reserve Study Update Report, Please check one of the following:
☐ 1-Full color printed copy PLUS Electronic Report Copy in CD Format, FREE
☐ 2-Full color printed copies PLUS Electronic Report Copy in CD Format, \$100

for Reserve Advisors, Inc.

Monica Mack
Update Services Manager
ref. # 102672
1 (800) 221-9882
Date: October 17, 2011

for Beacon Hill Townhome Condominium

Name: _____

Title: _____

Date: _____

Phone: _____

Agent or Manager: Mr. Brad Carrillo

Management Firm: c/o Aspen Property Management